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Sandoval Zinc Company
ILD053980454
HRS/SI
Volume 2 of 2

SEP 30 1997
RESPONSE SECTION 2

CERCLA
Expanded Site Inspection Analytical Results

Illinois Environmental Protection Agency

2200 Churchill Road
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SEP 30 1997
SPONSE SECTION 3

EXPANDED SITE INVESTIGATION REPORT

for

SANDOVAL ZINC COMPANY
SANDOVAL, ILLINOIS
ILD053980454

PREPARED BY:
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
BUREAU OF LAND
REMEDIAL PROJECT MANAGEMENT SECTION
SITE ASSESSMENT UNIT

SEPTEMBER 1997

Appendix H

Expanded Site Inspection Analytical Results

TABLE 1 SANDOVAL ZINC SOIL SAMPLE SUMMARY

SAMPLING POINT	X101	X102	X103	X104 (Background)	X105	X106	X107	X108 (Background)	X109	X110
	5-22-96 Soil	5-22-96 Soil	5-22-96 Soil	5-22-96 Soil	5-22-96 Soil	5-22-96 Soil	5-22-96 Soil	5-22-96 Soil	5-22-96 Soil	5-22-96 Soil
VOLATILES						No Sample	No Sample	No Sample	No Sample	No Sample
Methylene Chloride	34 B	--	46 B	--	--	--	--		--	--
Acetone	--	10 J	4 J	--	52	--	--		--	--
Chloroform	--	--	3 J	--	--	--	--		--	--
Toluene	--	3 J	3 J	4 J	77	--	--		--	--
	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
SEMIVOLATILES						No Sample	No Sample	No Sample	No Sample	No Sample
Naphthalene	59 J	--	140 J	22 J	--	--	--	--	--	--
2-Methylnaphthalene	150 J	2300	270 J	38 J	--	--	--		--	--
Acenaphthene	--	1600	--	--	--	--	--	--	--	--
Dibenzofuran	30 J	--	--	--	--	--	--		--	--
Fluorene	--	780	--	--	--	--	--		--	--
Hexachlorobenzene	--	--	110 J	--	--	--	--		--	--
Phenanthrene	130 J	7300 E	260 J	46 J	47 J	--	--		--	--
Anthracene	--	720	--	--	--	--	--		--	--
Fluoranthene	78 J	730	130 J	--	38 J	--	--		--	--
Pyrene	260 J	4200	180 J	--	37 J	--	--		--	--
Benzo(a)anthracene	98 J	1400	61 J	--	--	--	--		--	--
Chrysene	230 J	2400	110 J	--	--	--	--		--	--
Dimethylphthalate	40 J	--	--	--	--	--	--	--	--	--
Benzo(b)fluoranthene	110 J	680	--	--	--	--	--		--	--
Benzo(k)fluoranthene	65 J	--	--	--	--	--	--		--	--
Benzo(a)pyrene	--	1000	--	--	--	--	--		--	--
Indeno(1,2,3-cd)pyrene	560	150 J	--	--	--	--	--		--	--
Dibenzo(a,h)anthracene	--	350 J	--	--	--	--	--		--	--
Benzo(g,h,i)perylene	--	180 J	--	--	--	--	--		--	--
	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
PESTICIDES						No Sample	No Sample	No Sample	No Sample	No Sample
alpha-BHC	0.54 JP	--	--	0.32 J	--	--	--		--	--
beta-BHC	--	--	--	2	0.18 JP	--	--		--	--
gamma-BHC (Lindane)	--	--	0.33 PJ	--	0.15 JP	--	--		--	--
Heptachlor epoxide	6.2 JP	--	--	--	0.33 JP	--	--		--	--
Dieldrin	--	--	2.4 JPB	--	--	--	--		--	--
4,4'-DDE	4.8 JP	--	0.59 JP	3.7 J	0.48 JP	--	--		--	--
Endrin	20 PB	74 B	11 B	--		--	--		--	--
Endosulfan II	--	18 P	--	--	0.51 JP	--	--		--	--
4,4-DDD	2.9 JP	--	0.85 JP	1.2 JP	0.23 JP	--	--		--	--
Endosulfan sulfate	1.2 JP	38 P	--	0.58 JP	--	--	--		--	--
4,4'-DDT	14 PB	--	15 PB	3.7 JPB	--	--	--		--	--
Methoxychlor	12 JPB	--	--	--	--	--	--		--	--
Endrin ketone	27 PB	130 PEB	--	--	--	--	--		--	--
Endrin aldehyde	--	120 PE	--	0.64 JP	--	--	--		--	--
alpha-chlordane	--	--	--	0.49 JP	0.31 JP	--	--		--	--
gamma-Chlordane	5.5	16 P	--	0.46 JP	--	--	--		--	--
	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
INORGANICS										
Aluminum	5480	14500	10000	5950	8850	5540	5980	5890	6940	10100
Antimony	57.9	2.7 B	164	79.5	15.7 B	--	20	--	2.6 B	3.2 B
Arsenic	44.1	18.9	58.3	32.3	8.2	9.4	11.4	8.4	22.3	11.8
Barium	155	55.3 B	225	157	160	106	135	133	131	304
Beryllium	0.48 B	1.5 B	0.73 B	0.59 B	0.68 B	0.43 B	0.56 B	0.75 B	0.69 B	0.65 B
Cadmium	61.5	48.9	18.5	4.1	4.2	0.46 B	2.9	0.32 B	0.5 B	0.68 B
Calcium	37300	279000	1320	3120	1830	2880	17000	3200	2380	14000
Chromium	22.1	39.6	52.1	23.7	11.7	9.9	9.6	10.8	10.5	13.7
Cobalt	5.8 B	11 B	20.4	11.1 B	9 B	5.3 B	5.5 B	3.6 B	4.2 B	6.7 B
Copper	1820	1170	4050	1270	764	20.7	503	14.7	155	133
Iron	12700	10200	36800	24100	13700	12900	12900	13100	21300	15200
Lead	22300	2460	3220	2700	603	69.3	1060	26.8	174	220
Magnesium	840 B	4760	709 B	496 B	1120 B	1010 B	3070	787 B	958 B	2420
Manganese	293	273	326	683	637	591	384	248	192	299
Mercury	3.9	--	0.4	0.15	--	--	--		--	--
Nickel	292	608	3750	530	83.7	9.9	67.4	7.4 B	23.6	54.7
Potassium	236 B	938 B	433 B	337 B	496 B	347 B	477 B	276 B	483 B	682 B
Selenium	4.2	2.8	1.9	1.1 B	--	--	0.9 B	0.97 B	--	--
Silver	4	1.6 B	2.7	1.3 B	--	--	--		--	--
Sodium	322 B	1010 B	1080 B	298 B	235 B	163 B	233 B	187 B	629 B	254 B
Vanadium	42.5	289	21.4	44	21.8	22.4	18.4	28.2	19.6	27.9
Zinc	339000	214000	97400	15300	3360	349	5200	112	791	1290
Cyanide	0.55 B	0.3 B	0.4 B	0.18 B	0.21 B	0.33 B	0.88	0.15 B	0.16 B	0.15 B
	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg

TABLE 1 SANDOVAL ZINC SOIL SAMPLE SUMMARY

(CONT.)

SAMPLING POINT	X111	X112	X113	X114	X115	X116	X117	X118	X119	X120
	5-23-96 Soil	5-23-96 Soil	5-23-96 Soil	5-23-96 Soil	5-23-96 Soil	5-23-96 Soil	5-23-96 Soil	5-23-96 Soil	5-23-96 Soil	5-23-96 Soil
VOLATILES	No Sample	No Sample	No Sample	No Sample	No Sample	No Sample	No sample	No Sample	No Sample	No sample
SEMIVOLATILES	No Sample	No Sample	No Sample	No Sample	No Sample	No Sample	No Sample	No Sample	No Sample	No Sample
PESTICIDES	No Sample	No Sample	No Sample	No Sample	No Sample	No Sample	No Sample	No Sample	No Sample	No Sample
INORGANICS										
Aluminum	4860	5850	3530	5170	8450	5160	8500	7740	6490	5290
Antimony	1.6 B	27.1	1.4 B	1.3 B	–	2.9 B	56.4	1.7 B	1.1 B	16.7
Arsenic	6	44.9	5.1	10.6	10.7	7.8	35	11.6	11.8	8.1
Barium	123	283	85.2	237	127	226	219	370	362	202
Beryllium	0.4 B	0.5 B	0.38 B	0.86 B	0.51 B	0.55 B	0.86 B	1.1 B	1 B	0.71 B
Cadmium	0.8 B	7.4	0.38 B	1 B	0.51 B	1.1 B	4.6	2	1.2	1.5
Calcium	8250	28700	1650	2190	22300	3000	21500	5550	4420	6800
Chromium	8.5	26.1	7.3	13.6	12.4	8	15.7	24.7	15.1	8.3
Cobalt	4 B	6.9 B	3.4 B	5 B	5.7 B	6.3 B	10.1 B	6.1 B	10.7 B	5.4 B
Copper	41.5	408	36	95.7	33.3	67.6	1630	107	51.1	197
Iron	8680	14500	7640	19900	13100	9900	18500	17900	20300	10400
Lead	131	1150	84.5	248	47.1	217	2840	266	385	418
Magnesium	1340 B	4020	436 B	515 B	2620	704 B	3040	1050 B	793 B	1140 B
Manganese	494	479	371	245	417	856	355	363	946	631
Mercury	–	–	–	–	–	–	–	0.31	0.33	–
Nickel	24.5	258	14.4	10.2 B	13.3	18.8	495	18.4	17.4	23.8
Potassium	1010 B	681 B	468 B	1090 B	433 B	450 B	581 B	900 B	1010 B	613 B
Selenium	–	1.2 B	–	1.6	–	1.2 B	1.6	0.91 B	1.4	1.4
Silver	–	1.1 B	–	–	–	–	1.4 B	–	–	–
Sodium	254 B	286 B	210 B	306 B	296 B	182 B	332 B	339 B	344 B	256 B
Thallium	1.3 B	–	–	–	–	–	–	–	1.2 B	–
Vanadium	16.3	19.6	18.5	21.3	23.5	22.5	24.5	30.3	37	22.7
Zinc	554	12500	442	464	272	773	21400	897	591	2090
Cyanide	0.69 B	0.87	–	0.82	0.16 B	0.42 B	0.49 B	0.83	0.6	0.52 B
	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg

TABLE 1 SANDOVAL ZINC SOIL SAMPLE SUMMARY

(CONT.)

SAMPLING POINT		X121 5-23-96 Soil	X122 5-23-96 Soil	X123 5-23-96 Soil	X124 5-23-96 Soil	X125 5-23-96 Soil	X126 5-23-96 Soil	X127 5-23-96 Soil	X128 5-23-96 Soil	X129 (Dup of X128) 5-23-96 Soil
VOLATILES		No Sample	No Sample	No Sample	No Sample	No Sample	No Sample	No sample	No Sample	No Sample
SEMIVOLATILES		No Sample	No Sample	No Sample	No Sample	No Sample	No Sample	No Sample	No Sample	No Sample
PESTICIDES		No Sample	No Sample	No Sample	No Sample	No Sample	No Sample	No Sample	No Sample	No Sample
INORGANICS										
Aluminum		14300	1920	7360	10700	9250	7760	8800	6380	7340
Antimony		4.3 B	0.7 B	0.54 B	1.3 B	3.7 B	–	5.2 B	1.8 B	1.4 B
Arsenic		16.4	1.3 B	10.1	6	9	6.1	9.3	6.3	6.1
Barium		478	51.2	85.6	198	213	127	132	96.5	87.9
Beryllium		1.8	–	0.49 B	0.81 B	0.76 B	0.59 B	0.64 B	0.39 B	0.36 B
Cadmium		5.3	0.6 B	0.31 B	0.69 B	3.7	0.26 B	0.72 B	0.66 B	0.54 B
Calcium		23200	325000	1700	4770	4360	3800	4170	2860	2500
Chromium		24.3	7.2	12	15.6	16.8	9.7	12.5	8.4	8.9
Cobalt		11.4 B	1.4 B	5.9 B	7.2 B	6.4 B	3.8 B	7.9 B	3.7 B	3.1 B
Copper		204	13	19.7	45.1	83.7	16.5	152	45	42.6
Iron		37700	3590	15000	15400	31000	11100	15500	8610	8150
Lead		747	32.9	48.9	135	170	39.4	274	189	159
Magnesium		2090	9090	939 B	2170	1090 B	1130 B	1460	768 B	781 B
Manganese		1020	179	508	562	584	512	615	444	382
Mercury		0.35	–	–	0.28	–	–	–	–	–
Nickel		27.8	11.9	6.2 B	18.9	16.5	8.8 B	60.7	12.8	10.8
Potassium		2110 B	560 B	790 B	1490	929 B	930 B	1170 B	434 B	487
Selenium		1.3 B	–	–	–	0.86 B	–	–	–	–
Silver		–	–	–	–	–	–	–	–	–
Sodium		517 B	259 B	181 B	182 B	307 B	143 B	186 B	244 B	234 B
Thallium		–	–	–	–	–	–	–	–	–
Vanadium		50.1	7.6 B	31	25.8	29	21.6	28.4	19.3	19
Zinc		1650	226	108	431	1420	150	1200	1270	1090
Cyanide		0.93	0.25 B	0.75	0.51 B	0.53 B	0.32 B	0.51 B	0.28 B	0.43 B
		mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg

TABLE 2 SANDOVAL ZINC SEDIMENT SAMPLE SUMMARY

SAMPLING POINT	X201	X202 (Dup of X201)	X203	X204 (Background)	X205	X206	X207
	5-22-96 SEDIMENT	5-22-96 SEDIMENT	5-22-96 SEDIMENT	5-22-96 SEDIMENT	5-22-96 SEDIMENT	5-22-96 SEDIMENT	5-22-96 SEDIMENT
VOLATILES							
Acetone	--	--	--	10 J	17	--	
Toluene	--	--	--	--	--	--	3 J
	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
SEMIVOLATILES							
4-Methylphenol	--	--	--	--	180 J	--	430 J
Naphthalene	--	--	--	--	--	170 J	150 J
2-Methylnaphthalene	32 J	37 J	--	--	23 J	420 J	280 J
Dibenzofuran	--	--	--	--	--	98 J	130 J
Phenanthrene	56 J	62 J	28 J	--	35 J	360 J	290 J
Anthracene	--	--	--	--	--	28 J	
Di-n-butylphthalate	22 J	30 J	25 J	--	--	--	
Fluoranthene	36 J	40 J	24 J	--	--	290 J	98 J
Pyrene	31 J	35 J	27 J	--	--	360 J	160 J
Benzo(a)anthracene	--	--	--	--	--	210 J	77 J
Chrysene	25 J	30 J	32 J	--	--	360 J	74 J
Di-n-octylphthalate	--	--	--	24 J	--	25 J	--
Benzo(b)fluoranthene	--	--	--	--	--	180 J	53 J
Benzo(k)fluoranthene	--	--	--	--	--	200 J	44 J
Benzo(a)pyrene	--	--	--	--	--	170 J	
Indeno(1,2,3-cd)pyrene	--	--	--	--	--	120 J	
Dibenzo(a,h)anthracene	--	--	--	--	--	100 J	
Benzo(g,h,i)perylene	--	--	--	--	--	120 J	
	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
PESTICIDES							
alpha-BHC	--	--	--	--	--	0.22 JP	0.35 JP
beta-BHC	--	--	0.5 J	--	--	--	
delta-BHC	--	--	--	--	--	0.3 JP	
Aldrin	--	--	0.21 J	--	--	2.3 JP	
Heptachlor epoxide	0.18 JP	0.36 J	0.36 JP	--	0.48 JP	2.6	2.2 JP
Endosulfan I	0.13 JP	0.3 JP	--	--	--	--	2.1 JP
Dieldrin	--	--	4.6 B	--	--	--	0.22 JP
4,4-DDE	0.55 J	0.6 J	2.2 J	--	1.3 J	32	1.4 JP
Endrin	--	--	--	--	--	9.6 B	3.7 JPB
Endosulfan II	--	--	--	--	0.42 JP	--	
4,4-DDD	0.21 JP	0.29 JP	0.54 JP	--	0.35 JP	19	
4,4-DDT	--	2.5 JPB	4.2 PB	--	4.4 PB	48 B	9.3 PB
Methoxychlor	--	--	3.5 JPB	--	--	--	5.6 JPB
Endrin ketone	1.8 JB	--	--	--	--	11 PB	4.1 JPB
alpha-chlordane	0.28 JP	--	0.54 JP	--	0.96 J	--	0.45 JP
gamma-Chlordane	0.22 JP	0.18 JP	0.6 J	--	0.71 JP	2 J	
	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
INORGANICS							
Aluminum	8950	6700	7820	5840	7590	7420	9790
Antimony	33.2	32.8	21.7	1.1 B	2.5 B	38.9	3.3 B
Arsenic	36.5	20.9	20.2	3.8 B	14.5	27.2	18
Barium	186	165	158	113	231	209	114
Beryllium	1 B	0.81 B	0.61 B	0.52 B	0.83 B	0.71 B	0.85 B
Cadmium	5.5	5.8	11.4	1.6 B	2.6	14.8	16.1
Calcium	1930	1750	1750	3300	3770	4650	3150
Chromium	12.8	11.7	15.1	7.8	11.7	19.8	8.8
Cobalt	6.8 B	6.6 B	10.7 B	5 B	9.5 B	8 B	9.7 B
Copper	725	651	537	28.3	56.5	1090	146
Iron	17600	15200	15600	7520	19600	17500	19800
Lead	3300	2510	833	49.6	156	3370	339
Magnesium	1170 B	973 B	950 B	942 B	1300 B	1330 B	659 B
Manganese	860	826	1010	502	1820	545	613
Mercury	0.15	0.14	--	--	--	1.6	
Nickel	83	86.2	242	9.8 B	23.2	259	17.2
Potassium	456 B	365 B	321 B	724 B	431 B	498 B	318 B
Selenium	--	--	--	--	--	1.8	
Silver	0.63 B	--	0.53 B	--	--	1.3 B	
Sodium	324 B	289 B	233 B	380 B	455 B	335 B	177 B
Thallium	--	--	--	--	2.2 B	--	
Vanadium	30.4	24.5	30.5	16.7 B	37.1	22.3	29.5
Zinc	6520	5700	6300	261	2040	39000	2710
Cyanide	0.3 B	0.49 B	0.23 B	--	0.22 B	0.9	
	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg

TABLE 3 SANDOVAL ZINC KEY SOIL SAMPLE SUMMARY

SAMPLING POINT	TACO Soil Cleanup Objectives	X101 5-22-96 Soil	X102 5-22-96 Soil	X103 5-22-96 Soil	X104 (Background) 5-22-96 Soil	X105 5-22-96 Soil	X106 5-22-96 Soil	X107 5-22-96 Soil	X108 (Background) 5-22-96 Soil	X109 5-22-96 Soil	X110 5-22-96 Soil
VOLATILES							No Sample	No Sample	No Sample	No Sample	No Sample
Methylene Chloride	13000	34 B	--	46 B	--	--	--	--		--	--
Acetone	7800000	--	10 J	4 J	--	52	--	--		--	--
Chloroform	300	--	--	3 J	--	--	--	--		--	--
Toluene	650000	--	--	--	4 J	77	--	--		--	--
		ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
SEMIVOLATILES							No Sample	No Sample	No Sample	No Sample	No Sample
Naphthalene	3100000	--	--	140 J	22 J	--	--	--		--	--
2-Methylnaphthalene		150 J	2300	270 J	38 J	--	--	--		--	--
Acenaphthene	4700000	--	1600	--	--	--	--	--		--	--
Dibenzofuran		30 J	--	--	--	--	--	--		--	--
Fluorene	3100000	--	780	--	--	--	--	--		--	--
Hexachlorobenzene	400	--	--	110 J	--	--	--	--		--	--
Phenanthrene	1000000	--	7300 E	260 J	46 J	--	--	--		--	--
Anthracene	23000000	--	720	--	--	--	--	--		--	--
Fluoranthene	3100000	76 J	730	130 J	--	38 J	--	--		--	--
Pyrene	2300000	260 J	4200	180 J	--	37 J	--	--		--	--
Benzo(a)anthracene	900	98 J	1400	61 J	--	--	--	--		--	--
Chrysene	88000	230 J	2400	110 J	--	--	--	--		--	--
Di-n-octylphthalate	1600000	40 J	--	--		--	--	--		--	--
Benzo(b)fluoranthene	900	110 J	680	--	--	--	--	--		--	--
Benzo(k)fluoranthene	9000	65 J	--	--	--	--	--	--		--	--
Benzo(a)pyrene	90	--	1000	--	--	--	--	--		--	--
Indeno(1,2,3-cd)pyrene	900	560	150 J	--	--	--	--	--		--	--
Dibenzo(a,h)anthracene	90	--	350 J	--	--	--	--	--		--	--
Benzo(g,h,i)perylene	1000000	--	180 J	--	--	--	--	--		--	--
		ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
PESTICIDES							No Sample	No Sample	No Sample	No Sample	No Sample
alpha-BHC	100	--	--	--	0.32 J	--	--	--		--	--
beta-BHC		--	--	--	2	--	--	--		--	--
gamma-BHC (Lindane)	500	--	--	0.33 PJ	--	0.15 JP	--	--		--	--
Heptachlor epoxide	70	6.2 JP	--	--	--	0.33 JP	--	--		--	--
Dieldrin	40	--	--	2.4 JPB	--	--	--	--		--	--
4,4'-DDE	200	--	--	--	3.7 J	--	--	--		--	--
Endrin	23000	20 PB	74 B	11 B	--		--	--		--	--
Endosulfan I	470000	--	18 P	--	--	0.51 JP	--	--		--	--
4,4'-DDD	300	--	--	--	1.2 JP	--	--	--		--	--
Endosulfan sulfate		--	38 P	--	0.56 JP	--	--	--		--	--
4,4'-DDT	200	14 PB	--	15 PB	3.7 JPB	--	--	--		--	--
Methoxychlor	390000	12 JPB	--	--	--	--	--	--		--	--
Endrin ketone		27 PB	130 PEB	--	--		--	--		--	--
Endrin aldehyde		--	120 PE	--	0.64 JP	--	--	--		--	--
alpha-Chlordane	500	--	--	--	0.49 JP	--	--	--		--	--
gamma-Chlordane		5.5	16 P	--	0.46 JP	--	--	--		--	--
		ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
INORGANICS											
Antimony	31	[illegible]	2.7 B	164	78.5	15.7 B	--	20		2.6 B	3.2 B
Arsenic	22	44.1	--	68.3	32.3	--	--	--	8.4	--	--
Cadmium	78	61.5	48.9	18.5	4.1	4.2	--	2.9	0.32 B	--	--
Calcium	184000	37300	27000	--	--	--	--	17000	3200	--	14000
Chromium	390	--	39.6	52.1	--	--	--	--	10.8	--	--
Cobalt	4700	--	11 B	20.4	11.1 B	--	--	--	3.6 B	--	--
Copper	2900	1820	1170	3050	1270	764	--	503	14.7	155	133
Lead	400	22400	2460	3200	2700	603	--	1060	26.8	174	220
Magnesium	24100	--	4760	--	--	--	--	3070	787 B	--	2420
Mercury	10	3.9	--	0.4	0.15	--	--	--		--	--
Nickel	1600	292	608	3750	530	83.7	--	67.4	7.4 B	23.6	54.7
Potassium	5600	--	938 B	--	--	--	--	--	276 B	--	--
Selenium	390	4.2	--	--	--	--	--	--	0.97 B	--	-
Silver	390	4	1.6 B	2.7	1.3 B	--	--	--		--	-
Sodium	7600	--	1010 B	1080 B	--	--	--	--	187 B	629 B	--
Vanadium	550	--	289	--	--	--	--	--	28.2	--	--
Zinc	23000	[illegible]	[illegible]	[illegible]	15300	3360	349	5200	112	791	1290
Cyanide	1600	0.55 B	--	--	--	--	--	0.88	0.15 B	--	--
		mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg

All constituents and levels listed are at least 3 times above background levels.

Sample X104 is the background location for the volatile, semi-volatile and pesticide fractions of samples X101 - X105

Sample X108 is the background location for the inorganic fraction of samples X101 - X129

Constituent levels highlighted in red are above TACO soil remediation objectives for residential properties

TABLE 3 SANDOVAL ZINC KEY SOIL SAMPLE SUMMARY

(CONT.)

SAMPLING POINT	TACO Soil Cleanup Objectives	X111 5-23-96 Soil	X112 5-23-96 Soil	X113 5-23-96 Soil	X114 5-23-96 Soil	X115 5-23-96 Soil	X116 5-23-96 Soil	X117 5-23-96 Soil	X118 5-23-96 Soil	X119 5-23-96 Soil	X120 5-23-96 Soil
VOLATILES		No Sample	No Sample	No Sample	No Sample	No Sample	No Sample	No sample	No Sample	No Sample	No sample
SEMIVOLATILES		No Sample	No Sample	No Sample	No Sample	No Sample	No Sample	No Sample	No Sample	No Sample	No Sample
PESTICIDES		No Sample	No Sample	No Sample	No Sample	No Sample	No Sample	No Sample	No Sample	No Sample	No Sample
INORGANICS											
Antimony	31	1.6 B	27.1	1.4 B	1.3 B	--	2.9 B	56.4	1.7 B	1.1 B	16.7
Arsenic	22	--	44.9	--	--	--	--	35	--	--	--
Cadmium	78	--	7.4	--	1 B	--	1.1 B	4.6	2	1.2	1.5
Calcium	164000	--	28700	--	--	22300	--	21500	--	--	--
Copper	2900	--	408	--	95.7	--	67.6	1630	107	51.1	197
Lead	400	131	1150	84.5	248	--	217	2840	266	385	418
Magnesium	24100	--	4020	--	--	2620	--	3040	--	--	--
Manganese	3900	--	--	--	--	--	856	--	--	946	--
Mercury	10	--	--	--	--	--	--	--	0.31	0.33	--
Nickel	1600	24.5	258	--	--	--	--	495	--	--	23.8
Potassium	5600	1010 B	--	--	1090 B	--	--	--	900 B	1010 B	--
Silver	390	--	1.1 B	--	--	--	--	1.4 B	--	--	--
Thallium	2.8	1.3 B	--	--	--	--	--	--	--	1.2 B	--
Zinc	23000	554	12500	442	464	--	773	21400	897	591	2090
Cyanide	1600	0.69 B	0.57	--	0.82	--	--	0.49 B	0.83	0.6	0.52 B
	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg

All constituents and levels listed are at least 3 times above background levels.

Sample X108 is the background location for the inorganic fraction of samples X101 - X129.

Constituent levels highlighted in red are above the TACO soil remediation objectives for residential properties.

TABLE 3 SANDOVAL ZINC KEY SOIL SAMPLE SUMMARY

(CONT.)

SAMPLING POINT	TACO Soil Cleanup Objectives	X121 5-23-96 Soil	X122 5-23-96 Soil	X123 5-23-96 Soil	X124 5-23-96 Soil	X125 5-23-96 Soil	X126 5-23-96 Soil	X127 5-23-96 Soil	X128 5-23-96 Soil	X129 (Dup of X128) 5-23-96 Soil
VOLATILES		No Sample	No Sample	No Sample	No Sample	No Sample	No Sample	No sample	No Sample	No Sample
SEMIVOLATILES		No Sample	No Sample	No Sample	No Sample	No Sample	No Sample	No Sample	No Sample	No Sample
PESTICIDES		No Sample	No Sample	No Sample	No Sample	No Sample	No Sample	No Sample	No Sample	No Sample
INORGANICS										
Antimony	31	4.3 B	0.7 B	0.54 B	1.3 B	3.7 B	--	5.2 B	1.8 B	1.4 B
Barium	5500	478	--	--	--	--	--	--	--	--
Cadmium	78	5.3	--	--	--	3.7	--	--	--	--
Calcium	184000	23200	325000	--	--	--	--	--	--	--
Cobalt	4700	11.4 B	--	--	--	--	--	--	--	--
Copper	2900	204	--	--	45.1	83.7	--	152	45	--
Lead	400	747	--	--	135	170	--	274	189	159
Magnesium	24100	--	9090	--	--	--	--	--	--	--
Manganese	3900	1020	--	--	--	--	--	--	--	--
Mercury	10	0.35	--	--	0.28	--	--	--	-	--
Nickel	1600	27.8	--	--	--	--	--	60.7	--	--
Potassium	5600	2110 B	--	--	1490	929 B	930 B	1170 B	--	--
Zinc	23000	1650	--	--	431	1420	--	1200	1270	1090
Cyanide	1600	0.93	--	0.75	0.51 B	0.53 B	--	0.51 B	--	--
	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg

All constituents and levels listed are at least 3 times background levels.

Sample X108 is the background location for the inorganic fraction of samples X101 - X129.

Constituent levels highlighted in red are above the TACO soil remediation objectives for residential properties.

TABLE 4 SANDOVAL ZINC KEY SEDIMENT SAMPLE SUMMARY

SAMPLING POINT	TACO Soil Cleanup Objectives	X201 5-22-96 SEDIMENT	X202 (Dup of X201) 5-22-96 SEDIMENT	X203 5-22-96 SEDIMENT	X204 (Background) 5-22-96 SEDIMENT	X205 5-22-96 SEDIMENT	X206 5-22-96 SEDIMENT	X207 5-22-96 SEDIMENT
VOLATILES								
Acetone	7800000	--	--	--	10 J	--		--
Toluene	650000	--	--	--	--	--	--	3 J
	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
SEMIVOLATILES								
4-Methylphenol		--	--	--	--	180 J		430 J
Naphthalene	3100000	--	--	--	--	--	170 J	150 J
2-Methylnaphthalene		32 J	37 J	--	--	23 J	420 J	280 J
Dibenzofuran		--	--	--	--	--	98 J	130 J
Phenanthrene	1000000	56 J	62 J	28 J	--	35 J	360 J	290 J
Anthracene	23000000	--	--	--	--	--	28 J	--
Di-n-butylphthalate	2300000	22 J	30 J	25 J	--	--		--
Fluoranthene	3100000	36 J	40 J	24 J	--	--	290 J	98 J
Pyrene	2300000	31 J	35 J	27 J	--	--	360 J	160 J
Benzo(a)anthracene	900	--	--	--	--	--	210 J	77 J
Chrysene	88000	25 J	30 J	32 J	--	--	360 J	74 J
Di-n-octylphthalate	1600000	--	--	--	24 J	--		--
Benzo(b)fluoranthene	900	--	--	--	--	--	180 J	53 J
Benzo(k)fluoranthene	9000	--	--	--	--	--	200 J	44 J
Benzo(a)pyrene	90	--	--	--	--	--	170 J	--
Indeno(1,2,3-cd)pyrene	900	--	--	--	--	--	120 J	--
Dibenzo(a,h)anthracene	90	--	--	--	--	--	100 J	--
Benzo(g,h,i)perylene	1000000	--	--	--	--	--	120 J	--
	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
PESTICIDES								
alpha-BHC	100	--	--	--	--	--	0.22 JP	0.35 JP
beta-BHC		--	--	0.5 J	--	--		--
delta-BHC		--	--	--	--	--	0.3 JP	--
Aldrin	40	--	--	0.21 J	--	--	2.3 JP	--
Heptachlor epoxide	70	0.18 JP	0.36 J	0.36 JP	--	0.48 JP	2.6	2.2 JP
Endosulfan I	470000	0.13 JP	0.3 JP	--	--	--		2.1 JP
Dieldrin	40	--	--	4.6 B	--	--		0.22 JP
4,4'-DDE	200	0.55 J	0.6 J	2.2 J	--	1.3 J	32	1.4 JP
Endrin	23000	--	--	--	--	--	9.6 B	3.7 JPB
Endosulfan II	470000	--	--	--	--	0.42 JP		--
4,4'-DDD	300	0.21 JP	0.29 JP	0.54 JP	--	0.35 JP	19	--
4,4'-DDT	200	--	2.5 JPB	4.2 PB	--	4.4 PB	48 B	9.3 PB
Methoxychlor	390000	--	--	3.5 JPB	--	--		5.6 JPB
Endrin ketone		1.8 JB	--	--	--	--	11 PB	4.1 JPB
alpha chlordane	500	0.28 JP	--	0.54 JP	--	0.96 J		0.45 JP
gamma-Chlordane		0.22 JP	0.18 JP	0.8 J	--	0.71 JP	2 J	--
	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
INORGANICS								
Antimony	31	33.2	32.8	21.7	1.1 B	--	38.9	3.3 B
Arsenic	22	36.5	20.9	20.2	3.8 B	14.5	27.2	18
Cadmium	78	5.5	5.8	11.4	1.6 B	--	14.8	16.1
Copper	2900	725	651	537	28.3	--	1090	146
Lead	400	3300	2510	833	49.6	156	3170	339
Manganese	3900	--	--	--	502	1820		--
Mercury	10	0.15	0.14	--	--	--	1.6	--
Nickel	1600	83	86.2	242	9.8 B	--	259	--
Selenium	390	--	--	--	--	--	1.8	--
Silver	390	0.63 B	--	0.53 B	--	--	1.3 B	--
Thallium	2.8	--	--	--	--	2.2 B		--
Zinc	23000	6520	5700	6300	261	2040	10,000	2710
Cyanide	1600	0.3 B	0.49 B	0.23 B	--	0.22 B	0.9	--
	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg

All constituents and levels listed are at least 3 times above background levels.

Sample X204 is the background location for all fractions of samples X201 - X207.

Constituent levels highlighted in red are above the TACO soil remediation objectives for residential properties.

Table 5 SOIL SAMPLE DESCRIPTIONS

SAMPLE	DEPTH	APPEARANCE	TVA READINGS Depth	PID	FID	LOCATION
X101	0"- 6"	Dry, Lt. grey, med. grain sandy waste material.	0"- 6"	0.1	0.88	102 feet SW of SE corner of concrete pad west of concrete shute and 89 feet E-NE of telephone pole w/ transformer.
X102	0"- 6"	Fine, powdery waste material. Beige from 0" - 5", mottled med.-dk. brown from 5" - 6". Keeps shape like clay.	0"- 6"	~121	1.8	46 feet west of SW corner of eastern most bldg. and 48 feet south of concrete retaining wall east of above ground tank.
X103	0"- 6"	Dk. brown - black, fine - course cinder and slag material.	0"- 6"	102	1.85	31 feet W of and 16 feet N of SW corner of old retort furnace.
X104	0"- 6"	Med. grey, fine - med. grain cinder and slag material.	0"- 6"	16	2.5	31 feet N of southern fence line and 39 feet W of E fence line.
X105	0"- 6"	Lt. - med. brown silt w/ fine med. tan sand. Location had much organic material (roots etc.) odors of fecal material and general organic decay.	0"- 6"	1.8	2.8	Approximately at the middle of the western bank of the pond, along the waters edge. Pond is located east of the eastern drainage way east of the facility.
X106	0"- 6"	Med. - dk. tan silty loam	--	--	--	In city park at SW corner of Rt. 51 and Wyoming Ave. 42 feet E of 2nd lightpole from home plate of ball diamond and 16 feet N of restroom structure along right field line of ball diamond.
X107	0"- 6"	Med. - dk. brown silty, loam.	--	--	--	SW corner of N. Cedar St. & Perry Ave. Elementary school playground, 24 feet S. of Perry St., 71 feet W. of Cedar Ave.
X108	0"- 6"	Med. - dk. brown silty loam.	--	--	--	19 Orchard St. 12 feet S. of Orchard St. 18 feet E of driveway.
X109	0"- 6"	Mottled, brown, gray, black cindery soil.	--	--	--	Sandoval High School. 55 feet N of and 41 feet W of east edge of parking lot concrete at rear of school.
X110	0"- 6"	Lt. gray - med. brown clayey loam.	--	--	--	300 feet N of Illinois Ave. and 3 feet W of roadside ditch west of Orange St.

Soil samples X101 - X110 collected May 22, 1996

Table 5 SOIL SAMPLE DESCRIPTIONS (cont.)

SAMPLE	DEPTH	APPEARANCE	TVA READINGS Depth	PID	FID	LOCATION
X111	0"- 6"	Dry, dk. brown - black loam.	--	--	--	22 feet E of driveway and 48 feet S of Route 50.
X112	0"- 6"	Dry, dk. brown - black loam.	--	--	--	28 feet N. of and 57 feet E. of NE corner of house.
X113	0"- 3"	Dry, dk. brown - black loam.	--	--	--	120 feet N. of and 5.5 feet W. of NE corner of house.
X114	0"- 3"	Dark brown - black loam.	--	--	--	4162 Highway 51. . 58 feet E. of and 8 feet S. of SE corner of house.
X115	0"- 4"	Med. brown - dk. brown silty loam w/ some very fine med. brown sand.	--	--	--	Evergreen Pool & Spa Center. 8 feet S. of fenceline and 202 feet W. of Highway 51.
X116	0"- 4"	Med. - dk. brown. silty loam	--	--	--	503 E. Scott Ave. front yard. 13 feet E. of and 57 feet S. of SE corner of house and 28 feet N. of Scott Ave.
X117	0"- 4"	Med. - dk. brown silty, loam.	--	--	--	111 E. Scott Ave., just W. of W. driveway. 43 feet W. of W. driveway, 39 feet N. of Scott Ave. and 52 feet SW. of SW. corner of house.
X118	0"- 4"	Med. brown silty loam.	--	--	--	Williams residence. 24 feet E. of Main St. and 12 feet N. of driveway.
X119	0"- 4"	Med. - dk. brown silty loam.	--	--	--	School Yard. 48 feet W. of Pine St. and 96 feet N. of Rt. 50 (Missouri Ave.).
X120	0"- 4"	Dark brown - black loam.	--	--	--	Approx. 50 feet N. of former G & S auto sales, now vacant lot. 26 feet S. of Virginia Ave. and 54 feet W. of Clay St.

Soil samples X111 - X120 collected May 23, 1996

Table 5 SOIL SAMPLE DESCRIPTIONS (CONT.)

SAMPLE	DEPTH	APPEARANCE	TVA READINGS Depth	PID	FID	LOCATION
X121	0"- 4"	Med. - dk. brown loam.	--	--	--	114 S. Main. 51 feet E. and 56 feet N. of NE. corner of house (not the porch).
X122	0"- 4"	Med. - dk. brown loam.	--	--	--	20 feet NW of Pearl St., which is an alley, 42 feet W. of telephone pole #13204.
X123	0"- 4"	Lt. - med. brown silty loam.	--	--	--	SE. corner of Arizona Ave. & Maple St. 41 feet S. of Arizona Ave. & 32 feet E. of Maple St.
X124	0"- 4"	Lt. - med. brown silty loam.	--	--	--	E. of Rt. 51 N. of Wyoming Ave. 107 feet E. of and 11 feet N. of the SE. corner of the house.
X125	0"- 4"	Med. - dk. brown silty loam.	--	--	--	Second house N. of the NE. corner of Texas Ave. and Maple St. 40 feet E. and 1 foot S. of the NE. corner of the house.
X126	0"- 4"	Med. - dk. brown silty loam.	--	--	--	S. of corner of Nevada Ave. & Main St. 21 feet N. of the NW. corner of house and 20 feet S. of Nevada Ave.
X127	0"- 4"	Med. - dk. brown silty loam.	--	--	--	S. of Nevada Ave. at W. corporate limit of town. 65 feet S. of Nevada Ave. & 126 feet W. of NW. corner of house.
X128 X129 - Dup. of X128	0"- 4"	Med. - dk. brown loam.	--	--	--	877 Cemetery Rd. 31 feet N. of Cemetery Rd. & 40 feet W of driveway of home.

Soil samples X121- X129 were collected May 23, 1996

TABLE 6 SEDIMENT SAMPLE DESCRIPTIONS

SAMPLE	DEPTH	APPEARANCE	TVA READINGS Depth	PID	FID	LOCATION
X201 X202 (Dup. of X201)	0"- 6"	Med. brown silt w/ fine - course well rounded sand.	0"- 6"	5.45	0.4	In drainage channel 25 feet N. of culvert & 8 feet W. of channel. Located in eastern drainage channel N. of R.R. tracks N. of Sandoval Zinc facility.
X203	0"- 6"	Med. brown silt, moss growing throughout area.	0"- 6"	5.5	2.4	Approx. 350 feet SE. of facility adjacent to eastern drainage channel. 33 feet E. of & 23 feet S. of fence post of old fenceline adjacent to dirt road. Sample taken 8 feet W. of water surface in a small wetland area.
X204	0"- 6"	Lt. - dk. brown silt w/ fine sand and clay.	0"- 6"	1.2	0.4	50 feet W. of confluence of sites' eastern drainage channel and Prairie Creek S. of site. Sample taken from S. bank of Prairie Creek, 6 inches S. of water surface.
X205	0"- 6"	Med. tan - med. brown silt.	0"- 6"	1.75	35	28 feet N. of culvert running under R.R. tracks, between tracks & road N. of tracks, N. of Sandoval Zinc facility. 1 foot east of water surface.
X206	0"- 6"	Med. - dk. brown silt, some fine sand. Organic material present.	0"- 6"	2.41	2.58	20 feet W. of confluence of drainage way W. of site & small drainage way immediately N. of site access road. Sample taken 3.5 feet N. of road, on S. bank of drainage way, 6 inches S. of water surface.
X207	0"- 6"	Lt. - med. brown silt w/med. brown med. grain sand & fine gravel.	0"- 6"	0.4	<100	4 feet W of confluence of Prairie Creek & drainage way W. of site. Sample taken from N. bank of Prairie Creek 6 inches N. of water surface.

Sediment samples X201- X207 were collected May 22, 1996

EPA United States Environmental Protection Agency
Contract Laboratory Program

Organic Traffic Report & Chain of Custody Record
(For Organic CLP Analysis)

Case No.: 24701

1. Matrix (Enter in Column A)
1. Surface Water
2. Ground Water
3. Leachate
4. Field QC
5. Soil/Sediment
6. Oil (High only)
7. Waste (High only)
8. Other (Specify in Column A)

2. Preservative (Enter in Column D)
1. HCl
2. HNO3
3. NaHSO4
4. H2SO4
5. Ice only
6. Other (Specify in Column D)
N. Not preserved

2. Region No.: 5
Sampling Co.: JEPA
4. Date Shipped: 5/23/96
Carrier: FED EX
6. Date Received -- Received by: 5-24-96 J. Moneyday
Sampler (Name): MARK WEBER
Airbill Number: 866 859 2693
Laboratory Contract Number: 68-D5-0018
Unit Price: $616.95
Sampler Signature: Mark Weber
5. Ship To: AMERICAN TECHNICAL AND ANALYTICAL SERVICES, 875 FEE FEE ROAD, MARYLAND HTS. MO. 63043-3214, ATTN: RICH MANKE
7. Transfer to:
Date Received
Received by
Contract Number
Price

3. Purpose
Lead: SF, PRP, ST, FED
Early Action: CLEM, PA, REM, RI, SI, ESI
Long-Term Action: FS, RD, RA, O&M, NPLD

CLP Sample Numbers (from labels)	A Matrix (from Box 1)	B Conc. Low Med High	C Sample Type: Comp./Grab	D Preservative (from Box 2)	E RAS Analysis: VOA	BNA	Pest/PCB	High only ARO/TOX	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/Year/Time Sample Collection	I Corresponding CLP Inorganic Sample No.	J Sampler Initials	K High Phases: Solids	Water-Miscible Liq.	Water-Immis. Liq.
EBEB1	5	L	G	5	X				5-162030-1	X101	5/22/96/10:00	MEAMR0	MW			
EBEB2	5	L	G	5	X				5-162034-5	X102	5/22/96/10:15	MEAMR1	MW			
EBEB3	5	L	G	5	X				5-162038-9	X103	5/22/96/10:45	MEAMR2	MW			
EBDY1	5	L	G	5	X				5-162043-4	X104	5/22/96/11:00	MEAMR3	MW			
EBDY2	5	L	G	5	X				5-162047-8	X105	5/22/96/13:30	MEAMR4	MW			
EBDY3	5	L	G	5	X				5-162051-2	X106		MEAMR5	MW			
EBDY4	5	L	G	5	X				5-162055-6	X107		MEAMR6	MW			
EBDY5	5	L	G	5	X				5-162059-0	X108		MEAMR7	MW			
EBDY6	5	L	G	5	X				5-162556-7	X109		MEAMR8	MW			
EBDY7	5	L	G	5	X				5-162560-1	X110		MEAMR9	MW			

5/22/96
5/22/96
5/22/96
5/22/96
5/22/96

Shipment for Case Complete? (Y/N): Y
Page 1 of 2
Sample(s) to be Used for Laboratory QC: EBEB1
Additional Sampler Signatures:
Chain of Custody Seal Number(s): 41696 / 41697

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Mark J. Weber	5/23/96 17:00				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	Is custody seal intact? Y/N/none
		J. Moneyday	5-24-96 0900	We	

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SEE REVERSE FOR ADDITIONAL STANDARD INSTRUCTIONS
SEE REVERSE FOR PURPOSE CODE DEFINITIONS

A21-012-16 REV.

EBDY1

365978

EPA United States Environmental Protection Agency Contract Laboratory Program

Organic Traffic Report & Chain of Custody Record
(For Organic CLP Analysis)

Case No.: 24701

1. Matrix (Enter in Column A): 1. Surface Water 2. Ground Water 3. Leachate 4. Field QC 5. Soil/Sediment 6. Oil (High only) 7. Waste (High only) 8. Other (Specify in Column A)

2. Preservative (Enter in Column D): 1. HCl 2. HNO3 3. NaHSO4 4. H2SO4 5. Ice only 6. Other (Specify in Column D) N. Not preserved

2. Region No.: 5
Sampling Co.: IEPA
Sampler (Name): Mark Weber
Sampler Signature: Mark Weber
3. Purpose*: Lead [ ] SF [ ] PRP [ ] ST [ ] FED; Early Action [ ] CLEM [ ] PA [ ] REM [ ] RI [ ] SI [X] ESI; Long-Term Action [ ] FS [ ] RD [ ] RA [ ] O&M [ ] NPLD

4. Date Shipped: 5/23/96
Carrier: FED EX
Airbill Number: 866 859 2693
5. Ship To: AMERICAN TECHNICAL AND ANALYTICAL SERVICES, 875 FEE FEE ROAD, MARYLAND HTS. MO 63043-3211, ATTN: RICH MANKE

6. Date Received -- Received by: 5-24-96 F. Marsalez
Laboratory Contract Number: 68-D5-0018
Unit Price: $616.95
7. Transfer to:
Date Received:
Received by:
Contract Number:
Price:

CLP Sample Numbers (from labels)	A Matrix (from Box 1) / Other:	B Conc.: Low Med High	C Sample Type: Comp. / Grab	D Preservative (from Box 2) / Other:	E RAS Analysis: VOA	BNA	Pest/PCB	High only ARO/TOX	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/Year/Time Sample Collection	I Corresponding CLP Inorganic Sample No.	J Sampler Initials	K High Phases: Solids	Water-Miscible Liq.	Water-Immis. Liq.
EBEB1	5	L	G	5		X	X		5-162032	X101	5/22/96/10:00	MEAMR0	MW			
EBEB2	5	L	G	5		X	X		5-162036	X102	5/22/96/10:15	MEAMR1	MW			
EBLB3	5	L	G	5		X	X		5-162041	X103	5/22/96/10:45	MEAMR2	MW			
EBDY1	5	L	G	5		X	X		5-162045	X104	5/22/96/11:00	MEAMR3	MW			
EBDY2	5	L	G	5		X	X		5-162049	X105	5/22/96/13:30	MEAMR4	MW			
~~EBDY3~~	~~5~~	~~L~~	~~G~~	~~5~~		~~X~~	~~X~~		~~5-162053~~	~~X106~~		~~MEAMR5~~	~~MW~~			
~~EBDY4~~	~~5~~	~~L~~	~~G~~	~~5~~		~~X~~	~~X~~		~~5-162057~~	~~X107~~		~~MEAMR6~~	~~MW~~			
~~EBDY5~~	~~5~~	~~L~~	~~G~~	~~5~~		~~X~~	~~X~~		~~5-162554~~	~~X108~~		~~MEAMR7~~	~~MW~~			
~~EBDY6~~	~~5~~	~~L~~	~~G~~	~~5~~		~~X~~	~~X~~		~~5-162558~~	~~X109~~		~~MEAMR8~~	~~MW~~			
~~EBDY7~~	~~5~~	~~L~~	~~G~~	~~5~~		~~X~~	~~X~~		~~5-162562~~	~~X110~~		~~MEAMR9~~	~~MW~~			

5/22/96
5/22/96
5/22/96
5/22/96
5/22/96

Shipment for Case Complete? (Y/N): Y
Page: 1 of 2
Sample(s) to be Used for Laboratory QC: EBEB1
Additional Sampler Signatures:
Chain of Custody Seal Number(s): 41698 / 41699

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Mark J. Weber	5/23/96 17:00				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks: Is custody seal intact? (Y)/N/none	
		F. Marsalez	5-24-96 0900	112	

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A21-012-16 REV

EBDY1

365975

000020

EPA United States Environmental Protection Agency
Contract Laboratory Program

Organic Traffic Report & Chain of Custody Record
(For Organic CLP Analysis)

Case No. 24701

1. Matrix (Enter in Column A)
1. Surface Water
2. Ground Water
3. Leachate
4. Field QC
5. Soil/Sediment
6. Oil (High only)
7. Waste (High only)
8. Other (Specify in Column A)

2. Preservative (Enter in Column D)
1. HCl
2. HNO3
3. NaHSO4
4. H2SO4
5. Ice only
6. Other (Specify in Column D)
N. Not preserved

2. Region No.: 5
Sampling Co.: IEPA
4. Date Shipped: 5/22/96
Carrier: FED EX
6. Date Received -- Received by: 5-24-96 F. Manuelery
Laboratory Contract Number: 68-D5-0018
Unit Price: $616.95

Sampler (Name): MARK WEBER
Airbill Number: 866 859 2693
Sampler Signature: Mark Weber
5. Ship To: AMERICAN TECHNICAL AND ANALYTICAL SERVICES, 825 FEE FEE ROAD, MARYLAND HTS. MO. 63043 -32
ATTN: RICH MANUZ
7. Transfer to:
Date Received
Received by
Contract Number
Price

3. Purpose*
Lead: SF, PRP, ST, FED
Early Action: CLEM, PA, REM, RI, SI, ESI
Long-Term Action: FS, RD, RA, O&M, NPLD

CLP Sample Numbers (from labels)	A Matrix (from Box 1) Other:	B Conc.: Low Med High	C Sample Type: Comp./ Grab	D Preservative (from Box 2) Other:	E RAS Analysis VOA	BNA	Pest/PCB	High only ARO/TOX	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/ Year/Time Sample Collection	I Corresponding CLP Inorganic Sample No.	J Sampler Initials	K High Phases Solids	Water-Miscible Liq.	Water-Immis. Liq.
EBEC1	5	L	G	5	X				5-025506-7	X201	5/22/96/11:53	MEAMW1	MW			
EBEC2	5	L	G	5	X				5-025510-1	X202	5/22/96/11:55	MEAMW2	MW			
EBEC3	5	L	G	5	X				5-025514-5	X203	5/22/96/11:30	MEAMW3	MW			
EBEC4	5	L	G	5	X				5-025518-9	X204	5/22/96/14:45	MEAMW4	MW			
EBEC5	5	L	G	5	X				5-025522-3	X205	5/22/96/12:15	MEAMW5	MW			
EBEC6	5	L	G	5	X				5-025526-7	X206	5/22/96/12:45	MEAMW6	MW			
* EBEC7	5	L	G	5	X				5-025530-1	X207	5/22/96/14:15	MEAMW7	MW			

Shipment for Case Complete? (Y/N): Y
Page 1 of 2
Sample(s) to be Used for Laboratory QC: EBEB1
Additional Sampler Signatures:
Chain of Custody Seal Number(s): 41696/41697

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Mark J. Weber	5/22/96 17:00				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	Is custody seal intact? Y/N/none
		F. Manuelery	5-24-96 0900	11c	

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*SEE REVERSE FOR PURPOSE CODE DEFINITIONS

A21-012-16 REV.

*SDG-- FINAL SAMPLE

EBDY1

366000

EPA United States Environmental Protection Agency
Contract Laboratory Program

Organic Traffic Report & Chain of Custody Record
(For Organic CLP Analysis)

Case No. 24701

00022

1. Matrix (Enter in Column A)
1. Surface Water
2. Ground Water
3. Leachate
4. Field QC
5. Soil/Sediment
6. Oil (High only)
7. Waste (High only)
8. Other (Specify in Column A)

2. Preservative (Enter in Column D)
1. HCl
2. HNO3
3. NaHSO4
4. H2SO4
5. Ice only
6. Other (Specify in Column D)
N. Not preserved

2. Region No.: 5
Sampling Co.: IEPA
Sampler (Name): MARK WEBER
Sampler Signature: Mark Weber
3. Purpose*: Lead: SF, PRP, ST, FED; Early Action: CLEM, PA, REM, RI, SI, ESI; Long-Term Action: FS, RD, RA, O&M, NPLD

4. Date Shipped: 5/23/96
Carrier: FED EX
Airbill Number: 866 859 2693
5. Ship To: AMERICAN TECHNICAL AND ANALYTICAL SERVICES
875 FEE FEE ROAD
MARYLAND HTS. MO. 63043-3211
ATTN: RICH MANNE

6. Date Received -- Received by: 5-24-96 J. Manley
Laboratory Contract Number: 68-D5-0018
Unit Price: $616.95
7. Transfer to:
Date Received
Received by
Contract Number
Price

CLP Sample Numbers (from labels)	A Matrix (from Box 1) / Other:	B Conc.: Low Med High	C Sample Type: Comp./Grab	D Preservative (from Box 2) / Other:	E RAS Analysis: VOA	BNA	Pest/PCB	High only ARO/TOX	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/Year/Time Sample Collection	I Corresponding CLP Inorganic Sample No.	J Sampler Initials	K High Phases: Solids	Water-Miscible Liq.	Water-Immis. Liq.
EBEC1	5	L	G	5		X	X		5-025508	X201	5/22/96/11:55	MEAMW1	MW			
EBEC2	5	L	G	5		X	X		5-025512	X202	5/22/96/11:55	MEAMW2	MW			
EBEC3	5	L	G	5		X	X		5-025516	X203	5/22/96/11:20	MEAMW3	MW			
EBEC4	5	L	G	5		X	X		5-025520	X204	5/22/96/14:45	MEAMW4	MW			
EBEC5	5	L	G	5		X	X		5-025524	X205	5/22/96/13:15	MEAMW5	MW			
EBEC6	5	L	G	5		X	X		5-025528	X206	5/22/96/12:45	MEAMW6	MW			
* EBEC7	5	L	G	5		X	X		5-025532	X207	5/22/96/14:15	MEAMW7	MW			

Shipment for Case Complete? (Y/N): Y
Page: 1 of 2
Sample(s) to be Used for Laboratory QC: EBEB1
Additional Sampler Signatures:
Chain of Custody Seal Number(s): 41678/41699

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Mark J. Weber	5/23/96 17:00				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature) J. Manley	Date / Time: 5-24-96 0900	Remarks: IPC	Is custody seal intact? Y/N/none

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*SEE REVERSE FOR PURPOSE CODE DEFINITIONS

A21-012-16 REV

*SDG--FINAL SAMPLE

EBDY1

365999

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE:

SUBJECT: Review of Region V CLP Data
Received for Review on July 12, 1996

FROM: Stephen L. Ostrodka, Chief (HSRL-5J) Per Steve Ostrodka
Superfund Technical Support Section Richard L Bynik
6/7/96

TO: Data User: IEPA

We have reviewed the data for the following case:

SITE NAME: Sandoval Zinc (12)

CASE NUMBER: 24701 SDG NUMBER: EBDY1

Number and Type of Samples: 12 (soil)

Sample Numbers: EBDY1-2 EBEB1-3 EBEC1-7

Laboratory: ATAS Hrs. for Review: 12.5+
1.5
14.0

Following are our findings:

The data are acceptable and usable with the qualifications described in the attached narrative.

Richard L Bynik
6/7/96

RECEIVED
AUG 16 1996
IEPA/DLPC

cc: Regional TPO
Brian Freeman
HSMC-5J

Laboratory: **ATAS** **Case: 24701**
Site: **SANDOVAL ZINC (IL)** **SDG: EBDY1**

1. HOLDING TIME

Twelve (12) soil samples numbered EBEB1 through EBEB3, EBEC1 through EBEC7, EBDY1 and EBDY2 were collected on 05-22-96. American Technical & Analytical Services, Inc. of Maryland Heights, MO received the samples on 05-24-96 intact and in good condition. All samples were analyzed for all three fractions. All samples were analyzed according to CLP SOW OLMO3.2.

All VOA analyses of soil samples were performed within the technical holding time of 14 days after sample collection for the soil samples; therefore the results are acceptable. All semivolatile and pesticide extractions of the soil samples were performed within fourteen (14) days from sample collection and all analyses were performed within forty (40) days after extraction; therefore, the results are acceptable.

2. GC/MS TUNING AND GC INSTRUMENT PROCEDURE

VOA: All GC/MS tuning complied with the mass list and ion abundance criteria for BFB, and all samples were analyzed within the twelve (12) hour periods for instrument performance checks.

SV: All GC/MS tuning complied with the mass list and ion abundance criteria for DFTPP, and all samples were analyzed within the twelve (12) hour periods for instrument performance checks.

Pest/PCB: All GC Resolution Check Mixtures met the 60% resolution criteria. Endrin and DDT degradation checks using PEM Mix on the CP-SIL19CB and DB-17 columns were <20%; therefore the results are acceptable.

The Florisil Cartridge Check and GPC Calibration Check met the QC criteria; therefore, the results are acceptable.

3. CALIBRATION:

Initial and continuing calibrations of the volatile, semivolatile, and pesticide/PCB standards were evaluated for the target compounds list and outliers were recorded on the outlier forms included as a part of this narrative.

Reviewed by: Allison C. Harvey ____ Lockheed-Martin/ESAT
Date: July 30, 1996

Laboratory: **ATAS** **Case:** **24701**
Site: **SANDOVAL ZINC (IL)** **SDG:** **EBDY1**

SV: S2 (FBP), 2-Fluorobiphenyl, of the base/neutral fraction reported recovery above the upper limit for soil sample EBEB2. No qualification of soil sample EBEB2 is required as less than 2 surrogates within the same fraction were outside the QC limits.

Pest/PCB: DCB, Decachlorobiphenyl, reported percent recoveries above the upper QC limit on GC column DB-17 for soil samples EBEB1, EBEB1MS, EBEB1MSD and EBEB2. DCB reported recovery as diluted out and above the upper QC limit for soil sample EBEB2DL. DCB reported recoveries below the QC limit on both GC columns for soil sample EBDY1. The high recoveries of DCB observed in soil samples EBEB1, EBEB1MS, EBEB1MSD, EBEB2 and EBEB2DL may be an indication of a high bias due to co-eluting interferences; therefore, detected analytes are qualified as estimated, "J". Due to the low recoveries observed in soil sample EBDY1, detected analytes are qualified as estimated, "J" and non-detects "UJ".

6. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Soil sample EBEB1 was used as the low level MS/MSD samples for all three fractions.

VOA: All spike recoveries and RPDs were within the QC limits for the low level soil sample EBEB1; therefore, the results are acceptable.

SV: The %RPDs between soil samples EBEB1MS and EBEB1MSD were reported above the QC limits for 1,2,4-Trichlorobenzene, Acenaphthene and Pyrene. The presence of 1,2,4-Trichlorobenzene, Acenaphthene and Pyrene in the unspiked sample should be qualified as estimated, "J" and non-detects as "UJ".

Pest/PCB: The %recoveries of Heptachlor and Aldrin were reported above the upper QC limit for soil sample EBEB1MSD. The %RPD between soil samples EBEB1MS and EBEB1MSD were reported above the QC limits for all compounds; gamma-BHC (Lindane), Heptachlor, Aldrin, Dieldrin, Endrin and 4,4'-DDT. The presence of gamma-BHC (Lindane), Heptachlor, Aldrin, Dieldrin, Endrin and 4,4'-DDT in the unspiked sample should be qualified as estimated "J" and non-detects as "UJ".

7. FIELD BLANK AND FIELD DUPLICATE

No samples were identified as either field blanks or field duplicates.

Reviewed by: Allison C. Harvey ____ Lockheed-Martin/ESAT
Date: July 30, 1996

Laboratory: **ATAS** **Case: 24701**
Site: **SANDOVAL ZINC (IL)** **SDG: EBDY1**

12. ADDITIONAL INFORMATION

VOA: Soil samples EBEB3 and EBDY1 reported internal standard area counts outside the QC limits. Both samples were reanalyzed as per SOW OLM03.2. The area counts for the reanalyzed samples were also outside the QC limits; therefore, the data was qualified using the results of the original analyses.

SV: Soil sample EBEB2 reported internal standard area counts outside the QC limits. Sample EBEB2 was reanalyzed as per SOW OLM03.2. The area counts for the reanalyzed sample were acceptable; therefore, the data was qualified using the results of the re-analysis. The concentration of Phenanthrene exceeded the calibration range for soil sample EBEB2. Sample EBEB2 was analyzed at a dilution factor of 2.0. For the analyte that exceeded the calibration range in the original analysis; the results of the diluted analysis, EBEB2DL should be considered the sample's analyte concentration.

Pest/PCB: The concentrations of Endrin ketone and Endrin aldehyde exceeded the calibration range for soil sample EBEB2. Sample EBEB2 was analyzed at a dilution factor of 3.0. For the analyte that exceeded the calibration range in the original analysis; the results of the diluted analysis, EBEB2DL should be considered the sample's analyte concentration.

Reviewed by: Allison C. Harvey ____ Lockheed-Martin/ESAT
Date: July 30, 1996

CALIBRATION OUTLIER
Semivolatile TCL
(Page 1 of 2)

C AS #: 24701
COLUMN:

LABORATORY: ATAS
SITE NAME: Sandoval Zinc (IL)

trument ID: E		Initial Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.		
e:		05/31/96			05/31/96			06/03/96								
e:		1400			1624			1406								
	#	RF	%RSD	*	RF	%D	*	RF	%D	*	RF	%D	*	RF	%D	*
henol	0.800															
is(2-Chloroethyl)ether	0.700															
-Chlorophenol	0.800															
,3-Dichlorobenzene	0.600															
,4-Dichlorobenzene	0.500															
,2-Dichlorobenzene	0.400															
-Methylphenol	0.700															
,2-oxybis(1-Chloropropane)	0.010															
-Methylphenol	0.600															
-Nitroso-di-n-propylamine	0.500															
exachloroethane	0.300															
itrobenzene	0.200															
sophorone	0.400															
-Nitrophenol	0.100															
,4-Dimethylphenol	0.200															
is(2-Chloroethoxy)methane	0.300															
,/ hlorophenol	0.200															
,2, richlorobenzene	0.200															
aphthalene	0.700															
-Chloroaniline	0.010															
exachlorobutadiene	0.010															
-Chloro-3-methylphenol	0.200															
-Methylnaphthalene	0.400															
exachlorocyclopentadiene	0.010															
,4,6-Trichlorophenol	0.200															
2,4,5-Trichlorophenol	0.200															
2-Chloronaphthalene	0.800															
2-Nitroaniline	0.010															
imethylphthalate	0.010															
cenaphthylene	0.900															
2,6-Dinitrotoluene	0.200															
3-Nitroaniline	0.010															
cenaphthene	0.900															
2,4-Dinitrophenol	0.010															

ected Samples:

	SBLKEA	EBEC7		
	EBEC1-6	EBEB1-3		
		EBEB1MS/MSD		
		EBDY1		

Minimum Relative Response Factor.
* These flags should be applied to the analytes on the sample data sheets.
J/R = All positive results are estimated "J" and non-detected results are unusable "R".

ewer's Initials: [illegible] 9-29-96

CALIBRATION OUTLIER
Semivolatile TCL
(Page 1 of 2)

C SAS #: 24701
COLUMN:

LABORATORY: ATAS
SITE NAME: Sandoval Zinc (IL)

strument ID: E		Initial Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.		
te:		06/10/96			06/10/96			06/12/96								
me:		1714			2004			1425								
	#	RF	%RSD	*	RF	%D	*	RF	%D	*	RF	%D	*	RF	%D	*
Phenol	0.800															
bis(2-Chloroethyl)ether	0.700															
2-Chlorophenol	0.800															
1,3-Dichlorobenzene	0.600															
1,4-Dichlorobenzene	0.500															
1,2-Dichlorobenzene	0.400															
2-Methylphenol	0.700															
2,2-oxybis(1-Chloropropane)	0.010	2.576			2.657			3.639	41.3	J						
4-Methylphenol	0.600															
N-Nitroso-di-n-propylamine	0.500															
Hexachloroethane	0.300															
Nitrobenzene	0.200															
Isophorone	0.400															
2-Nitrophenol	0.100															
2,4-Dimethylphenol	0.200															
bis(2-Chloroethoxy)methane	0.300															
2, -hlorophenol	0.200															
1,4, Trichlorobenzene	0.200															
Naphthalene	0.700															
4-Chloroaniline	0.010															
Hexachlorobutadiene	0.010															
4-Chloro-3-methylphenol	0.200															
2-Methylnaphthalene	0.400															
Hexachlorocyclopentadiene	0.010															
2,4,6-Trichlorophenol	0.200															
2,4,5-Trichlorophenol	0.200															
2-Chloronaphthalene	0.800															
2-Nitroaniline	0.010															
Dimethylphthalate	0.010															
Acenaphthylene	0.900															
2,6-Dinitrotoluene	0.200															
3-Nitroaniline	0.010															
Acenaphthene	0.900															
2,4-Dinitrophenol	0.010															

fected Samples:

	EBDY2	EBEB2DL		

Minimum Relative Response Factor.
* These flags should be applied to the analytes on the sample data sheets.
J/R = All positive results are estimated "J" and non-detected results are unusable "R".

Reviewer Init/Date: ACH / 7-29-96

CALIBRATION OUTLIER
Pesticide/PCB TCL
(Page 1 of 1)

SE/SAS #: 24701
LI: CP-S1L19CB

LABORATORY: ATAS
SITE NAME: Sandoval Zinc (IL)

Instrument Number HP-01A	Initial Cal.		Cont. Cal.		Cont. Cal.		Cont. Cal.		Cont. Cal.	
Date	05/14/96		06/04/96		06/04/96		06/07/96		06/07/96	
Time			1129		2244		0809		1728	
	%RSD	*	%D	*	%D	*	%D	*	%D	*
alpha-BHC										
beta-BHC										
delta-BHC										
gamma-BHC										
Heptachlor										
Aldrin										
Heptachlor Epoxide										
Endosulfan I										
Dieldrin										
4,4'-DDE										
Endrin										
Endosulfan II										
4,4'-DDD										
Endosulfan Sulfate										
4,4'-DDT	24.3				5.8				-0.2	
Methoxychlor										
Endrin Ketone										
Endrin Aldehyde										
alpha-Chlordane										
gamma-Chlordane										
Aroicor 1016										
Aroclor 1221										
Aroclor 1232										
Aroicor 1242										
Aroclor 1248										
Aroclor 1254										
Aroclor 1260										

Affected Samples:

	PBLK14	EBDY1-2	EBEB2DL	
	EBEC1-7			
	EBEB1-3			
	EBEB1MS/MSD			

* These flags should be applied to the analytes on the sample data sheets.
J/R = All positive results are estimated "J" and non-detected results are unusable "R".

Reviewer's Init/Date: ACH / 7-29-96

ORGANIC DATA QUALIFIER DEFINITIONS

For the purpose of defining the flagging nomenclature utinized in this document, the following code letters and associated definitions are provide:

VALUE-if the results is a value greater than or equal to the Contract Required Quantitation Limit (CRQL).

U — Indicates that the compound was analyzed for, but not detected. The sample quantitation limit corrected for dilution and percent moisture is reported.

J — Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of a compound but the result is less than the sample quantitation limit, but greater than zero. The flag is also used to indicate a reported result having an associated QC problem.

R — Indicates the data are unusable. (Note: The analyte may or may not be present.)

N — Indicates presumptive evidence of a compound. This flag is only used for a tentatively identified compound, where the identification is based on a mass spectral library search.

P — Indicates a pesticide/Aroclor target analyte when there is greater than 25% difference for the detected concentrations between the two GC columns. The lower of the two results is reported.

C — Indicates pesticide results that have been confirmed by GC/MS.

B — Indicates the analyte is detected in the associated blank as well as the sample.

E — Indicates compounds whose concentrations exceed the calibration range of the instrument.

D — Indicates an identified compound in an analysis has been diluted. This flag alerts the data user to any differences between the concentrations reported in the two analysis.

A — Indicates tentatively identified compounds that are suspected to be aldol condensation products.

G — Indicates the TCLP Matrix Spike Recovery was greater than the upper limit of the analytical method.

L — Indicates the TCLP Matrix Spike Recovery was less than the lower limit of the analytical method.

T — Indicates the analyte is found in the associated TCLP extraction blank as well as in the sample.

X, Y, Z are reserved for laboratory defined flags.

AMERICAN TECHNICAL & ANALYTICAL SERVICES, INC.
875 FEE FEE ROAD
MARYLAND HEIGHTS, MISSOURI 63043
(314) 434-4570

SDG NARRATIVE

CONTRACT: 68-D5-0018

CASE: 24701

SDG #: EBDY1

REGION: V

The samples listed below were received in good condition on May 24, 1996.

ATAS ID	EPA SAMPLE ID	MATRIX
15809.01	EBEC1	SOIL
15809.02	EBEC2	SOIL
15809.03	EBEC3	SOIL
15809.04	EBEC4	SOIL
15809.05	EBEC5	SOIL
15809.06	EBEC6	SOIL
15809.07	EBEC7	SOIL
15809.08	EBEB1	SOIL
15809.09	EBEB1MS	SOIL
15809.10	EBEB1MSD	SOIL
15809.11	EBEB2	SOIL
15809.12	EBEB3	SOIL
15809.13	EBDY1	SOIL
15809.14	EBDY2	SOIL

VOLATILE SAMPLE ANALYSIS:

The samples were analyzed following CLP SOW (OLM03.2).

The trap used for Volatile analysis is: Tekmar OV-1/Tenax/Silica, with 1 cm of OV-1, 15 cm of Tenax and 8 cm of Silica.

The column used for Volatile analysis is: J & W DB-624, 75 meter, 0.53 mm ID, 3 micron film thickness.

MISCELLANEOUS:

The CAS numbers on some of the TIC compounds may be 0-00-0. The NBS 75K library database does not have the correct CAS number for these compounds and it assigns "0-00-0" as the CAS number.

All manual integrations in this data package for Volatile, Semivolatile and Pesticide/PCB analysis have been performed for one of the following reasons.

a. Data system missed peak during acquisition.
b. Data system improperly integrated peak.

The manual integrations in this data package are placed behind their associated standards or samples.

ADDITIONAL BILLABLES:

VOLATILE ANALYSIS	SEMIVOLATILE ANALYSIS	PESTICIDE/PCB ANALYSIS
EBEB3RE(Reinject)	EBEB2DL(Dilution)	EBEB2DL(Dilution)
EBDY1RE(Reinject)		

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the laboratory manager or his designee, as verified by the following signature.

T. Will Solomon

T. Will Solomon **June 24, 1996**
Laboratory Director

Alkane Report for Sample : EBEC1 Page: 1

Data file : EE6776.d Matrix : SOIL

CAS #	Compound	R.T.	Estimated Conc.
2216-30-0	Heptane, 2,5-dimethyl-	3.466	410
3074-71-3	Heptane, 2,3-dimethyl-	3.684	990
3221-61-2	Octane, 2-methyl-	3.755	2000
2216-33-3	Octane, 3-methyl-	3.831	1900
7094-26-0	Cyclohexane, 1,1,2-trimethyl-	3.957	99
61141-72-8	Dodecane, 4,6-dimethyl-	10.83	210
630-06-8	Hexatriacontane	15.21	420

Concentration Units: Water: UG/L Soil: UG/KG

Alkane Report for Sample : EBEC3 Page: 1

Data file : EE6778.d Matrix : SOIL

CAS #	Compound	R.T.	Estimated Conc.
2216-30-0	Heptane, 2,5-dimethyl-	3.466	510
3074-71-3	Heptane, 2,3-dimethyl-	3.684	970
3221-61-2	Octane, 2-methyl-	3.750	2000
2216-33-3	Octane, 3-methyl-	3.826	2100
2234-75-5	Cyclohexane, 1,2,4-trimethyl-	3.951	150
646-31-1	Tetracosane	16.95	970

Concentration Units: Water: UG/L Soil: UG/KG

6-17-96

Alkane Report for Sample : EBEC5 Page: 1

Data file : EE6780.d Matrix : SOIL

CAS #	Compound	R.T.	Estimated Conc.
2216-30-0	Heptane, 2,5-dimethyl-	3.463	660
3074-71-3	Heptane, 2,3-dimethyl-	3.684	1100
3221-61-2	Octane, 2-methyl-	3.750	2100
2216-33-3	Octane, 3-methyl-	3.828	2000
629-62-9	Pentadecane	9.399	410
629-78-7	Heptadecane	10.79	510
112-95-8	Eicosane	16.95	940
630-07-9	Pentatriacontane	17.82	1100

Concentration Units: Water: UG/L Soil: UG/KG

6-17-96
RC

Alkane Report for Sample : EBEC7 Page: 1

Data file : EE6789.d Matrix : SOIL

CAS #	Compound	R.T.	Estimated Conc.
2216-30-0	Heptane, 2,5-dimethyl-	3.455	470
3074-71-3	Heptane, 2,3-dimethyl-	3.673	1100
3221-61-2	Octane, 2-methyl-	3.738	2300
2216-33-3	Octane, 3-methyl-	3.814	2300
544-76-3	Hexadecane	9.113	590
1921-70-6	Pentadecane, 2,6,10,14-tetramethyl-	10.83	940
629-99-2	Pentacosane	15.21	1500
13475-76-8	Docosane, 11-butyl-	16.10	1900
54833-23-7	Eicosane, 10-methyl-	16.94	6500
646-31-1	Tetracosane	17.82	2400

Concentration Units: Water: UG/L Soil: UG/KG

G-17-96
KB

Alkane Report for Sample : EBEB2

Data file : EE6793.d

Matrix : SOIL

CAS #	Compound	R.T.	Estimated Conc.
3221-61-2	Octane, 2-methyl-	3.741	2600
2216-33-3	Octane, 3-methyl-	3.817	2400
112-40-3	Dodecane	6.986	5800
6044-71-9	Dodecane, 6-methyl-	7.102	2100
	Unknown Alkane	7.536	2000
62016-34-6	Octane, 2,3,7-trimethyl-	7.613	3800
629-50-5	Tridecane	7.861	6700
3891-98-3	Dodecane, 2,6,10-trimethyl-	8.484	2300
629-59-4	Tetradecane	8.627	2600
1120-21-4	Undecane	10.18	3100
1560-96-9	Tridecane, 2-methyl-	12.08	2600
112-95-8	Eicosane	12.66	4600
629-94-7	Heneicosane	13.21	3000
629-62-9	Pentadecane	13.74	2900

Concentration Units: Water: UG/L Soil: UG/KG

6-17-96

Alkane Report for Sample : EBDY1 Page: 1

Data file : EE6795.d Matrix : SOIL

CAS #	Compound	R.T.	Estimated Conc.
2216-30-0	Heptane, 2,5-dimethyl-	3.447	340
3074-71-3	Heptane, 2,3-dimethyl-	3.671	800
3221-61-2	Octane, 2-methyl-	3.736	1800
2216-33-3	Octane, 3-methyl-	3.818	1800

Concentration Units: Water: UG/L Soil: UG/KG

6/17/96

Alkane Report for Sample : EBEB2DL

Data file : EE6813.d Matrix : SOIL

CAS #	Compound	R.T.	Estimated Conc.
112-40-3	Dodecane	9.388	6500
5911-04-6	Nonane, 3-methyl-	10.03	6500
629-50-5	Tridecane	10.27	18000
	Unknown Alkane	10.68	4500
1560-96-9	Tridecane, 2-methyl-	10.80	6900
6418-41-3	Tridecane, 3-methyl-	10.87	4300
3891-98-3	Dodecane, 2,6,10-trimethyl-	10.92	7500
629-59-4	Tetradecane	11.10	18000
17312-55-9	Decane, 3,8-dimethyl-	11.48	7400
54833-48-6	Heptadecane, 2,6,10,15-tetramethyl-	11.59	13000
18435-22-8	Tetradecane, 3-methyl-	11.66	4500
629-62-9	Pentadecane	11.88	18000
544-76-3	Hexadecane	12.62	13000
629-78-7	Heptadecane	13.31	11000
7225-66-3	Tridecane, 7-hexyl-	13.58	5600
1560-96-9	Tridecane, 2-methyl-	13.95	11000
112-95-8	Eicosane	14.02	6300
629-92-5	Nonadecane	14.56	14000
630-06-8	Hexatriacontane	15.15	9500
629-94-7	Heneicosane	15.71	8700
629-97-0	Docosane	16.25	4400

Concentration Units: Water: UG/L Soil: UG/KG

6-17-96

000016A

3B
SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

b Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 24701 SAS No.: SDG No.: EBDY1

Matrix Spike - EPA Sample No.: EBEB1 Level(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC. LIMITS REC.
1,1-Dichloroethene	82	0	82	100	59-172
Trichloroethene	82	0	65	79	62-137
Benzene	82	0	82	100	66-142
Toluene	82	0	88	107	59-139
Chlorobenzene	82	0	76	93	60-133

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	82	84	102	2	22	59-172
Trichloroethene	82	66	80	1	24	62-137
Benzene	82	83	101	1	21	66-142
Toluene	82	91	111	4	21	59-139
Chlorobenzene	82	79	96	3	21	60-133

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 5 outside limits
Spike Recovery: 0 out of 10 outside limits

COMMENTS: _____

4A
VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLKDU

Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 24701 SAS No.: SDG No.: EBDY1

Lab File ID: D5106.D Lab Sample ID: 052996-01

Date Analyzed: 05/29/96 Time Analyzed: 1023

GC Column: DB-624 ID: 0.53 (mm) Heated Purge: (Y/N) Y

Instrument ID: D

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	EBEC6	15809.06	D5107.D	1111
02	EBEC7	15809.07	D5108.D	1143
03	EBEB2	15809.11	D5109.D	1212
04	EBEB3RE	15809.12	D5110.D	1241
05	EBDY1	15809.13	D5111.D	1309
06	EBDY2	15809.14	D5112.D	1513
07	EBDY1RE	15809.13	D5113.D	1543
08	VHBLKDU	15809.15	D5114.D	1616
09				
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COMMENTS:

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EBEB1
X101

Lab Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 24701 SAS No.: SDG No.: EBDY1

Matrix: (soil/water) SOIL Lab Sample ID: 15809.08

Sample wt/vol: 5.0 (g/mL) G Lab File ID: D5092.D

Level: (low/med) LOW Date Received: 05/24/96

% Moisture: not dec. 39 Date Analyzed: 05/25/96

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	16	U
74-83-9	Bromomethane	16	U
75-01-4	Vinyl Chloride	16	U
75-00-3	Chloroethane	16	U
75-09-2	Methylene Chloride	34	B
67-64-1	Acetone	16	U
75-15-0	Carbon Disulfide	16	U
75-35-4	1,1-Dichloroethene	16	U
75-34-3	1,1-Dichloroethane	16	U
540-59-0	1,2-Dichloroethene (total)	16	U
67-66-3	Chloroform	16	U
107-06-2	1,2-Dichloroethane	16	U
78-93-3	2-Butanone	16	U
71-55-6	1,1,1-Trichloroethane	16	U
56-23-5	Carbon Tetrachloride	16	U
75-27-4	Bromodichloromethane	16	U
78-87-5	1,2-Dichloropropane	16	U
10061-01-5	cis-1,3-Dichloropropene	16	U
79-01-6	Trichloroethene	16	U
124-48-1	Dibromochloromethane	16	U
79-00-5	1,1,2-Trichloroethane	16	U
71-43-2	Benzene	16	U
10061-02-6	trans-1,3-Dichloropropene	16	U
75-25-2	Bromoform	16	U
108-10-1	4-Methyl-2-Pentanone	16	U
591-78-6	2-Hexanone	16	U
127-18-4	Tetrachloroethene	16	U
79-34-5	1,1,2,2-Tetrachloroethane	16	U
108-88-3	Toluene	16	U
108-90-7	Chlorobenzene	16	U
100-41-4	Ethylbenzene	16	U
100-42-5	Styrene	16	U
1330-20-7	Xylene (Total)	16	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EBEB1
X101

Lab Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 24701 SAS No.: SDG No.: EBDY1

Matrix: (soil/water) SOIL Lab Sample ID: 15809.08

Sample wt/vol: 5.0 (g/mL) G Lab File ID: D5092.D

Level: (low/med) LOW Date Received: 05/24/96

% Moisture: not dec. 39 Date Analyzed: 05/25/96

GC Column:DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EBEB2
X102

Lab Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 24701 SAS No.: SDG No.: EBDY1

Matrix: (soil/water) SOIL Lab Sample ID: 15809.11

Sample wt/vol: 5.0 (g/mL) G Lab File ID: D5109.D

Level: (low/med) LOW Date Received: 05/24/96

% Moisture: not dec. 46 Date Analyzed: 05/29/96

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	18	U
74-83-9	Bromomethane	18	U
75-01-4	Vinyl Chloride	18	U
75-00-3	Chloroethane	18	U
75-09-2	Methylene Chloride	27	u B
67-64-1	Acetone	10	J
75-15-0	Carbon Disulfide	18	U
75-35-4	1,1-Dichloroethene	18	U
75-34-3	1,1-Dichloroethane	18	U
540-59-0	1,2-Dichloroethene (total)	18	U
67-66-3	Chloroform	18	U
107-06-2	1,2-Dichloroethane	18	U
78-93-3	2-Butanone	18	U
71-55-6	1,1,1-Trichloroethane	18	U
56-23-5	Carbon Tetrachloride	18	U
75-27-4	Bromodichloromethane	18	U
78-87-5	1,2-Dichloropropane	18	U
10061-01-5	cis-1,3-Dichloropropene	18	U
79-01-6	Trichloroethene	18	U
124-48-1	Dibromochloromethane	18	U
79-00-5	1,1,2-Trichloroethane	18	U
71-43-2	Benzene	18	U
10061-02-6	trans-1,3-Dichloropropene	18	U
75-25-2	Bromoform	18	U
108-10-1	4-Methyl-2-Pentanone	18	U
591-78-6	2-Hexanone	18	U
127-18-4	Tetrachloroethene	18	U
79-34-5	1,1,2,2-Tetrachloroethane	18	U
108-88-3	Toluene	3	J
108-90-7	Chlorobenzene	18	U
100-41-4	Ethylbenzene	18	U
100-42-5	Styrene	18	U
1330-20-7	Xylene (Total)	18	U

ACH 9-29-96

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EBEB2
X102

Lab Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 24701 SAS No.: SDG No.: EBDY1

Matrix: (soil/water) SOIL Lab Sample ID: 15809.11

Sample wt/vol: 5.0 (g/mL) G Lab File ID: D5109.D

Level: (low/med) LOW Date Received: 05/24/96

% Moisture: not dec. 46 Date Analyzed: 05/29/96

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EBEB3
X103

Lab Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 24701 SAS No.: SDG No.: EBDY1

Matrix: (soil/water) SOIL Lab Sample ID: 15809.12

Sample wt/vol: 5.0 (g/mL) G Lab File ID: D5096.D

Level: (low/med) LOW Date Received: 05/24/96

% Moisture: not dec. 18 Date Analyzed: 05/25/96

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	46	B
67-64-1	Acetone	12	U
75-15-0	Carbon Disulfide	12	U
75-35-4	1,1-Dichloroethene	12	U
75-34-3	1,1-Dichloroethane	12	U
540-59-0	1,2-Dichloroethene (total)	12	U
67-66-3	Chloroform	3	J
107-06-2	1,2-Dichloroethane	12	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	12	U
56-23-5	Carbon Tetrachloride	12	U
75-27-4	Bromodichloromethane	12	U
78-87-5	1,2-Dichloropropane	12	U
10061-01-5	cis-1,3-Dichloropropene	12	U
79-01-6	Trichloroethene	12	U
124-48-1	Dibromochloromethane	12	U
79-00-5	1,1,2-Trichloroethane	12	U
71-43-2	Benzene	12	U
10061-02-6	trans-1,3-Dichloropropene	12	U
75-25-2	Bromoform	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
591-78-6	2-Hexanone	12	U
127-18-4	Tetrachloroethene	12	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	12	U
108-90-7	Chlorobenzene	12	U
100-41-4	Ethylbenzene	12	U
100-42-5	Styrene	12	U
1330-20-7	Xylene (Total)	12	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EBEB3
X03

Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 24701 SAS No.: SDG No.: EBDY1

Matrix: (soil/water) SOIL Lab Sample ID: 15809.12

Sample wt/vol: 5.0 (g/mL) G Lab File ID: D5096.D

Level: (low/med) LOW Date Received: 05/24/96

% Moisture: not dec. 18 Date Analyzed: 05/25/96

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 6

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 1075-22-5	1H-Indene, 2,3-dihydro-5,6-d	17.029	18	NJ
2. 90-12-0	Naphthalene, 1-methyl-	18.018	380	NJ
3.	Unknown	18.938	110	J
4. 1127-76-0	Naphthalene, 1-ethyl-	19.305	51	NJ
5. 571-61-9	Naphthalene, 1,5-dimethyl-	19.516	220	NJ
6. 581-42-0	Naphthalene, 2,6-dimethyl-	19.866	190	NJ
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EBEB3RE
X103 RE

Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 24701 SAS No.: SDG No.: EBDY1

Matrix: (soil/water) SOIL Lab Sample ID: 15809.12

Sample wt/vol: 5.0 (g/mL) G Lab File ID: D5110.D

Level: (low/med) LOW Date Received: 05/24/96

% Moisture: not dec. 18 Date Analyzed: 05/29/96

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	25	~~U~~ B
67-64-1	Acetone	4	J
75-15-0	Carbon Disulfide	12	U
75-35-4	1,1-Dichloroethene	12	U
75-34-3	1,1-Dichloroethane	12	U
540-59-0	1,2-Dichloroethene (total)	12	U
67-66-3	Chloroform	12	U
107-06-2	1,2-Dichloroethane	12	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	12	U
56-23-5	Carbon Tetrachloride	12	U
75-27-4	Bromodichloromethane	12	U
78-87-5	1,2-Dichloropropane	12	U
10061-01-5	cis-1,3-Dichloropropene	12	U
79-01-6	Trichloroethene	12	U
124-48-1	Dibromochloromethane	12	U
79-00-5	1,1,2-Trichloroethane	12	U
71-43-2	Benzene	12	U
10061-02-6	trans-1,3-Dichloropropene	12	U
75-25-2	Bromoform	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
591-78-6	2-Hexanone	12	U
127-18-4	Tetrachloroethene	12	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	3	J
108-90-7	Chlorobenzene	12	U
100-41-4	Ethylbenzene	12	U
100-42-5	Styrene	12	U
1330-20-7	Xylene (Total)	12	U

ack 7-29-96

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EBEB3RE
X103 RE

Lab Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 24701 SAS No.: SDG No.: EBDY1

Matrix: (soil/water) SOIL Lab Sample ID: 15809.12

Sample wt/vol: 5.0 (g/mL) G Lab File ID: D5110.D

Level: (low/med) LOW Date Received: 05/24/96

% Moisture: not dec. 18 Date Analyzed: 05/29/96

GC Column:DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 5

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 90-12-0	Naphthalene, 1-methyl-	18.010	260	NJ
2.	Unknown	18.917	73	J
3. 1127-76-0	Naphthalene, 1-ethyl-	19.290	34	NJ
4. 575-43-9	Naphthalene, 1,6-dimethyl-	19.489	130	NJ
5. 571-61-9	Naphthalene, 1,5-dimethyl-	19.832	120	NJ
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EBDY1
X104

Lab Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 24701 SAS No.: SDG No.: EBDY1

Matrix (soil/water) SOIL Lab Sample ID: 15809.13

Sample wt/vol: 5.0 (g/mL) G Lab File ID: D5111.D

Level: (low/med) LOW Date Received: 05/24/96

% Moisture: not dec. 14 Date Analyzed: 05/29/96

GC Column:DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	18	B
67-64-1	Acetone	12	U
75-15-0	Carbon Disulfide	12	U
75-35-4	1,1-Dichloroethene	12	U
75-34-3	1,1-Dichloroethane	12	U
540-59-0	1,2-Dichloroethene (total)	12	U
67-66-3	Chloroform	12	U
107-06-2	1,2-Dichloroethane	12	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	12	U
56-23-5	Carbon Tetrachloride	12	U
75-27-4	Bromodichloromethane	12	U
78-87-5	1,2-Dichloropropane	12	U
10061-01-5	cis-1,3-Dichloropropene	12	U
79-01-6	Trichloroethene	12	U
124-48-1	Dibromochloromethane	12	U
79-00-5	1,1,2-Trichloroethane	12	U
71-43-2	Benzene	12	U
10061-02-6	trans-1,3-Dichloropropene	12	U
75-25-2	Bromoform	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
591-78-6	2-Hexanone	12	U
127-18-4	Tetrachloroethene	12	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	12	U
108-90-7	Chlorobenzene	12	U
100-41-4	Ethylbenzene	12	U
100-42-5	Styrene	12	U
1330-20-7	Xylene (Total)	12	U

acit 5-29-96

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EBDY1
X/04

Lab Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 24701 SAS No.: SDG No.: EBDY1

Matrix: (soil/water) SOIL Lab Sample ID: 15809.13

Sample wt/vol: 5.0 (g/mL) G Lab File ID: D5111.D

Level: (low/med) LOW Date Received: 05/24/96

% Moisture: not dec. 14 Date Analyzed: 05/29/96

GC Column:DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 110-54-3	Hexane	8.393	11	NJ
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EBDY1RE
X104 RE

Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 24701 SAS No.: SDG No.: EBDY1

Matrix: (soil/water) SOIL Lab Sample ID: 15809.13

Sample wt/vol: 5.0 (g/mL) G Lab File ID: D5113.D

Level: (low/med) LOW Date Received: 05/24/96

% Moisture: not dec. 14 Date Analyzed: 05/29/96

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	14	uB
67-64-1	Acetone	12	U
75-15-0	Carbon Disulfide	12	U
75-35-4	1,1-Dichloroethene	12	U
75-34-3	1,1-Dichloroethane	12	U
540-59-0	1,2-Dichloroethene (total)	12	U
67-66-3	Chloroform	12	U
107-06-2	1,2-Dichloroethane	12	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	12	U
56-23-5	Carbon Tetrachloride	12	U
75-27-4	Bromodichloromethane	12	U
78-87-5	1,2-Dichloropropane	12	U
10061-01-5	cis-1,3-Dichloropropene	12	U
79-01-6	Trichloroethene	12	U
124-48-1	Dibromochloromethane	12	U
79-00-5	1,1,2-Trichloroethane	12	U
71-43-2	Benzene	12	U
10061-02-6	trans-1,3-Dichloropropene	12	U
75-25-2	Bromoform	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
591-78-6	2-Hexanone	12	U
127-18-4	Tetrachloroethene	12	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	4	J
108-90-7	Chlorobenzene	12	U
100-41-4	Ethylbenzene	12	U
100-42-5	Styrene	12	U
1330-20-7	Xylene (Total)	12	U

ACH 7-29-96

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EBDY1RE
X104 RE

Lab Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 24701 SAS No.: SDG No.: EBDY1

Matrix: (soil/water) SOIL Lab Sample ID: 15809.13

Sample wt/vol: 5.0 (g/mL) G Lab File ID: D5113.D

Level: (low/med) LOW Date Received: 05/24/96

% Moisture: not dec. 14 Date Analyzed: 05/29/96

GC Column:DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EBDY2
X05

Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 24701 SAS No.: SDG No.: EBDY1

Matrix: (soil/water) SOIL Lab Sample ID: 15809.14

Sample wt/vol: 5.0 (g/mL) G Lab File ID: D5112.D

Level: (low/med) LOW Date Received: 05/24/96

% Moisture: not dec. 30 Date Analyzed: 05/29/96

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	14	U
74-83-9	Bromomethane	14	U
75-01-4	Vinyl Chloride	14	U
75-00-3	Chloroethane	14	U
75-09-2	Methylene Chloride	14 ~~12~~	UJB
67-64-1	Acetone	52	
75-15-0	Carbon Disulfide	14	U
75-35-4	1,1-Dichloroethene	14	U
75-34-3	1,1-Dichloroethane	14	U
540-59-0	1,2-Dichloroethene (total)	14	U
67-66-3	Chloroform	14	U
107-06-2	1,2-Dichloroethane	14	U
78-93-3	2-Butanone	14	U
71-55-6	1,1,1-Trichloroethane	14	U
56-23-5	Carbon Tetrachloride	14	U
75-27-4	Bromodichloromethane	14	U
78-87-5	1,2-Dichloropropane	14	U
10061-01-5	cis-1,3-Dichloropropene	14	U
79-01-6	Trichloroethene	14	U
124-48-1	Dibromochloromethane	14	U
79-00-5	1,1,2-Trichloroethane	14	U
71-43-2	Benzene	14	U
10061-02-6	trans-1,3-Dichloropropene	14	U
75-25-2	Bromoform	14	U
108-10-1	4-Methyl-2-Pentanone	14	U
591-78-6	2-Hexanone	14	U
127-18-4	Tetrachloroethene	14	U
79-34-5	1,1,2,2-Tetrachloroethane	14	U
108-88-3	Toluene	77	
108-90-7	Chlorobenzene	14	U
100-41-4	Ethylbenzene	14	U
100-42-5	Styrene	14	U
1330-20-7	Xylene (Total)	14	U

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1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EBDY2
X105

b Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 24701 SAS No.: SDG No.: EBDY1

Matrix: (soil/water) SOIL Lab Sample ID: 15809.14

Sample wt/vol: 5.0 (g/mL) G Lab File ID: D5112.D

Level: (low/med) LOW Date Received: 05/24/96

% Moisture: not dec. 30 Date Analyzed: 05/29/96

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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6-20-96

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EBEC1
X201

Lab Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 24701 SAS No.: SDG No.: EBDY1

Matrix: (soil/water) SOIL Lab Sample ID: 15809.01

Sample wt/vol: 5.0 (g/mL) G Lab File ID: D5087.D

Level: (low/med) LOW Date Received: 05/24/96

% Moisture: not dec. 18 Date Analyzed: 05/24/96

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	12 8	UJB
67-64-1	Acetone	12	U
75-15-0	Carbon Disulfide	12	U
75-35-4	1,1-Dichloroethene	12	U
75-34-3	1,1-Dichloroethane	12	U
540-59-0	1,2-Dichloroethene (total)	12	U
67-66-3	Chloroform	12	U
107-06-2	1,2-Dichloroethane	12	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	12	U
56-23-5	Carbon Tetrachloride	12	U
75-27-4	Bromodichloromethane	12	U
78-87-5	1,2-Dichloropropane	12	U
10061-01-5	cis-1,3-Dichloropropene	12	U
79-01-6	Trichloroethene	12	U
124-48-1	Dibromochloromethane	12	U
79-00-5	1,1,2-Trichloroethane	12	U
71-43-2	Benzene	12	U
10061-02-6	trans-1,3-Dichloropropene	12	U
75-25-2	Bromoform	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
591-78-6	2-Hexanone	12	U
127-18-4	Tetrachloroethene	12	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	12	U
108-90-7	Chlorobenzene	12	U
100-41-4	Ethylbenzene	12	U
100-42-5	Styrene	12	U
1330-20-7	Xylene (Total)	12	U

ACH 7-29-96

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1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EBEC1
X201

Lab Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 24701 SAS No.: SDG No.: EBDY1

Matrix: (soil/water) SOIL Lab Sample ID: 15809.01

Sample wt/vol: 5.0 (g/mL) G Lab File ID: D5087.D

Level: (low/med) LOW Date Received: 05/24/96

% Moisture: not dec. 18 Date Analyzed: 05/24/96

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EBEC2
X202

Lab Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 24701 SAS No.: SDG No.: EBDY1

Matrix: (soil/water) SOIL Lab Sample ID: 15809.02

Sample wt/vol: 5.0 (g/mL) G Lab File ID: D5085.D

Level: (low/med) LOW Date Received: 05/24/96

% Moisture: not dec. 16 Date Analyzed: 05/24/96

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	12 A	U JB
67-64-1	Acetone	12	U
75-15-0	Carbon Disulfide	12	U
75-35-4	1,1-Dichloroethene	12	U
75-34-3	1,1-Dichloroethane	12	U
540-59-0	1,2-Dichloroethene (total)	12	U
67-66-3	Chloroform	12	U
107-06-2	1,2-Dichloroethane	12	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	12	U
56-23-5	Carbon Tetrachloride	12	U
75-27-4	Bromodichloromethane	12	U
78-87-5	1,2-Dichloropropane	12	U
10061-01-5	cis-1,3-Dichloropropene	12	U
79-01-6	Trichloroethene	12	U
124-48-1	Dibromochloromethane	12	U
79-00-5	1,1,2-Trichloroethane	12	U
71-43-2	Benzene	12	U
10061-02-6	trans-1,3-Dichloropropene	12	U
75-25-2	Bromoform	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
591-78-6	2-Hexanone	12	U
127-18-4	Tetrachloroethene	12	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	12	U
108-90-7	Chlorobenzene	12	U
100-41-4	Ethylbenzene	12	U
100-42-5	Styrene	12	U
1330-20-7	Xylene (Total)	12	U

ACA 7-29-96

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EBEC2
X202

Lab Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 24701 SAS No.: SDG No.: EBDY1

Matrix: (soil/water) SOIL Lab Sample ID: 15809.02

Sample wt/vol: 5.0 (g/mL) G Lab File ID: D5085.D

Level: (low/med) LOW Date Received: 05/24/96

% Moisture: not dec. 16 Date Analyzed: 05/24/96

GC Column:DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EBEC3
X203

Lab Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 24701 SAS No.: SDG No.: EBDY1

Matrix: (soil/water) SOIL Lab Sample ID: 15809.03

Sample wt/vol: 5.0 (g/mL) G Lab File ID: D5086.D

Level: (low/med) LOW Date Received: 05/24/96

% Moisture: not dec. 22 Date Analyzed: 05/24/96

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	13	U
74-83-9	Bromomethane	13	U
75-01-4	Vinyl Chloride	13	U
75-00-3	Chloroethane	13	U
75-09-2	Methylene Chloride	13 ~~8~~	UJB
67-64-1	Acetone	13	U
75-15-0	Carbon Disulfide	13	U
75-35-4	1,1-Dichloroethene	13	U
75-34-3	1,1-Dichloroethane	13	U
540-59-0	1,2-Dichloroethene (total)	13	U
67-66-3	Chloroform	13	U
107-06-2	1,2-Dichloroethane	13	U
78-93-3	2-Butanone	13	U
71-55-6	1,1,1-Trichloroethane	13	U
56-23-5	Carbon Tetrachloride	13	U
75-27-4	Bromodichloromethane	13	U
78-87-5	1,2-Dichloropropane	13	U
10061-01-5	cis-1,3-Dichloropropene	13	U
79-01-6	Trichloroethene	13	U
124-48-1	Dibromochloromethane	13	U
79-00-5	1,1,2-Trichloroethane	13	U
71-43-2	Benzene	13	U
10061-02-6	trans-1,3-Dichloropropene	13	U
75-25-2	Bromoform	13	U
108-10-1	4-Methyl-2-Pentanone	13	U
591-78-6	2-Hexanone	13	U
127-18-4	Tetrachloroethene	13	U
79-34-5	1,1,2,2-Tetrachloroethane	13	U
108-88-3	Toluene	13	U
108-90-7	Chlorobenzene	13	U
100-41-4	Ethylbenzene	13	U
100-42-5	Styrene	13	U
1330-20-7	Xylene (Total)	13	U

ACH 7-29-96

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EBEC3
X203

Lab Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 24701 SAS No.: SDG No.: EBDY1

Matrix: (soil/water) SOIL Lab Sample ID: 15809.03

Sample wt/vol: 5.0 (g/mL) G Lab File ID: D5086.D

Level: (low/med) LOW Date Received: 05/24/96

% Moisture: not dec. 22 Date Analyzed: 05/24/96

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EBEC4
X204

Lab Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 24701 SAS No.: SDG No.: EBDY1

Matrix: (soil/water) SOIL Lab Sample ID: 15809.04

Sample wt/vol: 5.0 (g/mL) G Lab File ID: D5088.D

Level: (low/med) LOW Date Received: 05/24/96

% Moisture: not dec. 23 Date Analyzed: 05/24/96

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	13	U
74-83-9	Bromomethane	13	U
75-01-4	Vinyl Chloride	13	U
75-00-3	Chloroethane	13	U
75-09-2	Methylene Chloride	13 ~~3~~	uJB
67-64-1	Acetone	10	J
75-15-0	Carbon Disulfide	13	U
75-35-4	1,1-Dichloroethene	13	U
75-34-3	1,1-Dichloroethane	13	U
540-59-0	1,2-Dichloroethene (total)	13	U
67-66-3	Chloroform	13	U
107-06-2	1,2-Dichloroethane	13	U
78-93-3	2-Butanone	13	U
71-55-6	1,1,1-Trichloroethane	13	U
56-23-5	Carbon Tetrachloride	13	U
75-27-4	Bromodichloromethane	13	U
78-87-5	1,2-Dichloropropane	13	U
10061-01-5	cis-1,3-Dichloropropene	13	U
79-01-6	Trichloroethene	13	U
124-48-1	Dibromochloromethane	13	U
79-00-5	1,1,2-Trichloroethane	13	U
71-43-2	Benzene	13	U
10061-02-6	trans-1,3-Dichloropropene	13	U
75-25-2	Bromoform	13	U
108-10-1	4-Methyl-2-Pentanone	13	U
591-78-6	2-Hexanone	13	U
127-18-4	Tetrachloroethene	13	U
79-34-5	1,1,2,2-Tetrachloroethane	13	U
108-88-3	Toluene	13	U
108-90-7	Chlorobenzene	13	U
100-41-4	Ethylbenzene	13	U
100-42-5	Styrene	13	U
1330-20-7	Xylene (Total)	13	U

ACH 7-29-96

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EBEC4
X204

Lab Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 24701 SAS No.: SDG No.: EBDY1

Matrix: (soil/water) SOIL Lab Sample ID: 15809.04

Sample wt/vol: 5.0 (g/mL) G Lab File ID: D5088.D

Level: (low/med) LOW Date Received: 05/24/96

% Moisture: not dec. 23 Date Analyzed: 05/24/96

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EBEC5
X205

Lab Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 24701 SAS No.: SDG No.: EBDY1

Matrix: (soil/water) SOIL Lab Sample ID: 15809.05

Sample wt/vol: 5.0 (g/mL) G Lab File ID: D5089.D

Level: (low/med) LOW Date Received: 05/24/96

% Moisture: not dec. 25 Date Analyzed: 05/25/96

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	13	U
74-83-9	Bromomethane	13	U
75-01-4	Vinyl Chloride	13	U
75-00-3	Chloroethane	13	U
75-09-2	Methylene Chloride	13 ~~6~~	UJB
67-64-1	Acetone	17	
75-15-0	Carbon Disulfide	13	U
75-35-4	1,1-Dichloroethene	13	U
75-34-3	1,1-Dichloroethane	13	U
540-59-0	1,2-Dichloroethene (total)	13	U
67-66-3	Chloroform	13	U
107-06-2	1,2-Dichloroethane	13	U
78-93-3	2-Butanone	13	U
71-55-6	1,1,1-Trichloroethane	13	U
56-23-5	Carbon Tetrachloride	13	U
75-27-4	Bromodichloromethane	13	U
78-87-5	1,2-Dichloropropane	13	U
10061-01-5	cis-1,3-Dichloropropene	13	U
79-01-6	Trichloroethene	13	U
124-48-1	Dibromochloromethane	13	U
79-00-5	1,1,2-Trichloroethane	13	U
71-43-2	Benzene	13	U
10061-02-6	trans-1,3-Dichloropropene	13	U
75-25-2	Bromoform	13	U
108-10-1	4-Methyl-2-Pentanone	13	U
591-78-6	2-Hexanone	13	U
127-18-4	Tetrachloroethene	13	U
79-34-5	1,1,2,2-Tetrachloroethane	13	U
108-88-3	Toluene	13	U
108-90-7	Chlorobenzene	13	U
100-41-4	Ethylbenzene	13	U
100-42-5	Styrene	13	U
1330-20-7	Xylene (Total)	13	U

ACH 7-29-96

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EBEC5
X205

) Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 24701 SAS No.: SDG No.: EBDY1

Matrix: (soil/water) SOIL Lab Sample ID: 15809.05

Sample wt/vol: 5.0 (g/mL) G Lab File ID: D5089.D

Level: (low/med) LOW Date Received: 05/24/96

% Moisture: not dec. 25 Date Analyzed: 05/25/96

GC Column:DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
2.					
3.					
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EBEC6
X206

b Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 24701 SAS No.: SDG No.: EBDY1

Matrix: (soil/water) SOIL Lab Sample ID: 15809.06

Sample wt/vol: 5.0 (g/mL) G Lab File ID: D5107.D

Level: (low/med) LOW Date Received: 05/24/96

% Moisture: not dec. 31 Date Analyzed: 05/29/96

GC Column:DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	14	U
74-83-9	Bromomethane	14	U
75-01-4	Vinyl Chloride	14	U
75-00-3	Chloroethane	14	U
75-09-2	Methylene Chloride	14 ~~12~~	UJB
67-64-1	Acetone	14	U
75-15-0	Carbon Disulfide	14	U
75-35-4	1,1-Dichloroethene	14	U
75-34-3	1,1-Dichloroethane	14	U
540-59-0	1,2-Dichloroethene (total)	14	U
67-66-3	Chloroform	14	U
107-06-2	1,2-Dichloroethane	14	U
78-93-3	2-Butanone	14	U
71-55-6	1,1,1-Trichloroethane	14	U
56-23-5	Carbon Tetrachloride	14	U
75-27-4	Bromodichloromethane	14	U
78-87-5	1,2-Dichloropropane	14	U
10061-01-5	cis-1,3-Dichloropropene	14	U
79-01-6	Trichloroethene	14	U
124-48-1	Dibromochloromethane	14	U
79-00-5	1,1,2-Trichloroethane	14	U
71-43-2	Benzene	14	U
10061-02-6	trans-1,3-Dichloropropene	14	U
75-25-2	Bromoform	14	U
108-10-1	4-Methyl-2-Pentanone	14	U
591-78-6	2-Hexanone	14	U
127-18-4	Tetrachloroethene	14	U
79-34-5	1,1,2,2-Tetrachloroethane	14	U
108-88-3	Toluene	14	U
108-90-7	Chlorobenzene	14	U
100-41-4	Ethylbenzene	14	U
100-42-5	Styrene	14	U
1330-20-7	Xylene (Total)	14	U

ACA 7-29-96

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EBEC6
X206

b Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 24701 SAS No.: SDG No.: EBDY1

Matrix: (soil/water) SOIL Lab Sample ID: 15809.06

Sample wt/vol: 5.0 (g/mL) G Lab File ID: D5107.D

Level: (low/med) LOW Date Received: 05/24/96

% Moisture: not dec. 31 Date Analyzed: 05/29/96

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	110-54-3	Hexane	8.397	15	NJ
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EBEC7
X207

) Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 24701 SAS No.: SDG No.: EBDY1

Matrix: (soil/water) SOIL Lab Sample ID: 15809.07

Sample wt/vol: 5.0 (g/mL) G Lab File ID: D5108.D

Level: (low/med) LOW Date Received: 05/24/96

% Moisture: not dec. 33 Date Analyzed: 05/29/96

GC Column:DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	15	U
74-83-9	Bromomethane	15	U
75-01-4	Vinyl Chloride	15	U
75-00-3	Chloroethane	15	U
75-09-2	Methylene Chloride	15	u B
67-64-1	Acetone	15	U
75-15-0	Carbon Disulfide	15	U
75-35-4	1,1-Dichloroethene	15	U
75-34-3	1,1-Dichloroethane	15	U
540-59-0	1,2-Dichloroethene (total)	15	U
67-66-3	Chloroform	15	U
107-06-2	1,2-Dichloroethane	15	U
78-93-3	2-Butanone	15	U
71-55-6	1,1,1-Trichloroethane	15	U
56-23-5	Carbon Tetrachloride	15	U
75-27-4	Bromodichloromethane	15	U
78-87-5	1,2-Dichloropropane	15	U
10061-01-5	cis-1,3-Dichloropropene	15	U
79-01-6	Trichloroethene	15	U
124-48-1	Dibromochloromethane	15	U
79-00-5	1,1,2-Trichloroethane	15	U
71-43-2	Benzene	15	U
10061-02-6	trans-1,3-Dichloropropene	15	U
75-25-2	Bromoform	15	U
108-10-1	4-Methyl-2-Pentanone	15	U
591-78-6	2-Hexanone	15	U
127-18-4	Tetrachloroethene	15	U
79-34-5	1,1,2,2-Tetrachloroethane	15	U
108-88-3	Toluene	3	J
108-90-7	Chlorobenzene	15	U
100-41-4	Ethylbenzene	15	U
100-42-5	Styrene	15	U
1330-20-7	Xylene (Total)	15	U

ach 7-29-96

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EBEC7
X207

Lab Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 24701 SAS No.: SDG No.: EBDY1

Matrix: (soil/water) SOIL Lab Sample ID: 15809.07

Sample wt/vol: 5.0 (g/mL) G Lab File ID: D5108.D

Level: (low/med) LOW Date Received: 05/24/96

% Moisture: not dec. 33 Date Analyzed: 05/29/96

GC Column:DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLKDT

Lab Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 24701 SAS No.: SDG No.: EBDY1

Matrix: (soil/water) SOIL Lab Sample ID: 052496-01

Sample wt/vol: 5.0 (g/mL) G Lab File ID: D5083.D

Level: (low/med) LOW Date Received: / /

% Moisture: not dec. 0 Date Analyzed: 05/24/96

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLKDU

Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 24701 SAS No.: SDG No.: EBDY1

Matrix: (soil/water) SOIL Lab Sample ID: 052996-01

Sample wt/vol: 5.0 (g/mL) G Lab File ID: D5106.D

Level: (low/med) LOW Date Received: / /

% Moisture: not dec. 0 Date Analyzed: 05/29/96

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	3	J
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (Total)	10	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLKDU

Lab Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 24701 SAS No.: SDG No.: EBDY1

Matrix: (soil/water) SOIL Lab Sample ID: 052996-01

Sample wt/vol: 5.0 (g/mL) G Lab File ID: D5106.D

Level: (low/med) LOW Date Received: / /

% Moisture: not dec. 0 Date Analyzed: 05/29/96

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VHBLKDU

Lab Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 24701 SAS No.: SDG No.: EBDY1

Matrix: (soil/water) SOIL Lab Sample ID: 15809.15

Sample wt/vol: 5.0 (g/mL) G Lab File ID: D5114.D

Level: (low/med) LOW Date Received: / /

% Moisture: not dec. 0 Date Analyzed: 05/29/96

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	JB
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (Total)	10	U

10 → JB

000193

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VHBLKDU

Lab Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 24701 SAS No.: SDG No.: EBDY1

Matrix: (soil/water) SOIL Lab Sample ID: 15809.15

Sample wt/vol: 5.0 (g/mL) G Lab File ID: D5114.D

Level: (low/med) LOW Date Received: / /

% Moisture: not dec. 0 Date Analyzed: 05/29/96

GC Column:DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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2D
SOIL SEMIVOLATILE SURROGATE RECOVERY

Lab Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 24701 SAS No.: SDG No.: EBDY1

Level: (low/med) LOW

	EPA SAMPLE NO.	S1 (NBZ) #	S2 (FBP) #	S3 (TPH) #	S4 (PHL) #	S5 (2FP) #	S6 (TBP) #	S7 (2CP) #	S8 (DCB) #	TOT OUT
01	SBLKEA	70	64	101	61	52	65	59	69	0
02	EBEC1	74	70	92	72	53	76	60	67	0
03	EBEC2	75	69	99	71	53	74	62	69	0
04	EBEC3	77	75	105	72	56	92	64	66	0
05	EBEC4	79	75	110	66	54	92	62	70	0
06	EBEC5	74	69	88	68	50	78	60	64	0
07	EBEC6	57	59	74	50	45	57	48	51	0
08	EBEC7	55	59	68	54	48	57	52	48	0
09	EBEB1	58	61	61	55	50	53	53	53	0
10	EBEB1MS	66	72	74	58	58	71	58	62	0
11	EBEB1MSD	58	60	75	51	52	57	51	48	0
12	EBEB2	64	140*	87	60	42	40	44	51	1
13	EBEB3	77	81	90	75	62	80	70	71	0
14	EBDY1	84	81	95	74	68	96	74	73	0
15	EBDY2	69	74	103	60	44	27	55	66	0
16	EBEB2DL	54	90	67	55	40	45	42	51	0
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		QC LIMITS	
S1 (NBZ)	= Nitrobenzene-d5	(23-120)	
S2 (FBP)	= 2-Fluorobiphenyl	(30-115)	
S3 (TPH)	= Terphenyl-d14	(18-137)	
S4 (PHL)	= Phenol-d5	(24-113)	
S5 (2FP)	= 2-Fluorophenol	(25-121)	
S6 (TBP)	= 2,4,6-Tribromophenol	(19-122)	
S7 (2CP)	= 2-Chlorophenol-d4	(20-130)	(advisory)
S8 (DCB)	= 1,2-Dichlorobenzene-d4	(20-130)	(advisory)

Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogate diluted out

4B
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

SBLKEA

Lab Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 24701 SAS No.: SDG No.: EBDY1

Lab File ID: EE6769.D Lab Sample ID: 052896-01

Instrument ID: E Date Extracted: 05/28/96

Matrix: (soil/water) SOIL Date Analyzed: 05/31/96

Level: (low/med) LOW Time Analyzed: 1659

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	EBEC1	15809.01	EE6776.D	05/31/96
02	EBEC2	15809.02	EE6777.D	05/31/96
03	EBEC3	15809.03	EE6778.D	05/31/96
04	EBEC4	15809.04	EE6779.D	05/31/96
05	EBEC5	15809.05	EE6780.D	05/31/96
06	EBEC6	15809.06	EE6781.D	06/01/96
07	EBEC7	15809.07	EE6789.D	06/03/96
08	EBEB1	15809.08	EE6790.D	06/03/96
09	EBEB1MS	15809.09	EE6791.D	06/03/96
10	EBEB1MSD	15809.10	EE6792.D	06/03/96
11	EBEB2	15809.11	EE6793.D	06/03/96
12	EBEB3	15809.12	EE6794.D	06/03/96
13	EBDY1	15809.13	EE6795.D	06/03/96
14	EBDY2	15809.14	EE6804.D	06/11/96
15	EBEB2DL	15809.11	EE6813.D	06/12/96
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COMMENTS:

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLKEA

Lab Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 24701 SAS No.: SDG No.: EBDY1

Matrix: (soil/water) SOIL Lab Sample ID: 052896-01

Sample wt/vol: 30.0 (g/mL) G Lab File ID: EE6769.D

Level: (low/med) LOW Date Received: / /

% Moisture: 0 decanted: (Y/N) N Date Extracted: 05/28/96

Concentrated Extract Volume: 500(UL) Date Analyzed: 05/31/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	830	U
100-02-7	4-Nitrophenol	830	U
132-64-9	Dibenzofuran	330	U
121-14-2	2,4-Dinitrotoluene	330	U
84-66-2	Diethylphthalate	330	U
7005-72-3	4-Chlorophenyl-phenylether	330	U
86-73-7	Fluorene	330	U
100-01-6	4-Nitroaniline	830	U
534-52-1	4,6-Dinitro-2-methylphenol	830	U
86-30-6	N-nitrosodiphenylamine (1)	330	U
101-55-3	4-Bromophenyl-phenylether	330	U
118-74-1	Hexachlorobenzene	330	U
87-86-5	Pentachlorophenol	830	U
85-01-8	Phenanthrene	330	U
120-12-7	Anthracene	330	U
86-74-8	Carbazole	330	U
84-74-2	Di-n-butylphthalate	330	U
206-44-0	Fluoranthene	330	U
129-00-0	Pyrene	330	U
85-68-7	Butylbenzylphthalate	330	U
91-94-1	3,3'-Dichlorobenzidine	330	U
56-55-3	Benzo(a)anthracene	330	U
218-01-9	Chrysene	330	U
117-81-7	bis(2-Ethylhexyl)phthalate	43	J
117-84-0	Di-n-octylphthalate	330	U
205-99-2	Benzo(b)fluoranthene	330	U
207-08-9	Benzo(k)fluoranthene	330	U
50-32-8	Benzo(a)pyrene	330	U
193-39-5	Indeno(1,2,3-cd)pyrene	330	U
53-70-3	Dibenzo(a,h)anthracene	330	U
191-24-2	Benzo(g,h,i)perylene	330	U

(1) - Cannot be separated from Diphenylamine

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EBEB1
X101

Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 24701 SAS No.: SDG No.: EBDY1

Matrix: (soil/water) SOIL Lab Sample ID: 15809.08

Sample wt/vol: 30.0 (g/mL) G Lab File ID: EE6790.D

Level: (low/med) LOW Date Received: 05/24/96

% Moisture: 39 decanted: (Y/N) N Date Extracted: 05/28/96

Concentrated Extract Volume: 500(UL) Date Analyzed: 06/03/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.9

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	540	U
111-44-4	bis(-2-Chloroethyl)Ether	540	U
95-57-8	2-Chlorophenol	540	U
541-73-1	1,3-Dichlorobenzene	540	U
106-46-7	1,4-Dichlorobenzene	540	U
95-50-1	1,2-Dichlorobenzene	540	U
95-48-7	2-Methylphenol	540	U
108-60-1	2,2'-oxybis(1-Chloropropane)	540	U
106-44-5	4-Methylphenol	540	U
621-64-7	N-Nitroso-di-n-propylamine	540	U
67-72-1	Hexachloroethane	540	U
98-95-3	Nitrobenzene	540	U
78-59-1	Isophorone	540	U
88-75-5	2-Nitrophenol	540	U
105-67-9	2,4-Dimethylphenol	540	U
120-83-2	2,4-Dichlorophenol	540	U
120-82-1	1,2,4-Trichlorobenzene	540	U
91-20-3	Naphthalene	59	J
106-47-8	4-Chloroaniline	540	U
87-68-3	Hexachlorobutadiene	540	U
111-91-1	bis(-2-Chloroethoxy)methane	540	U
59-50-7	4-Chloro-3-Methylphenol	540	U
91-57-6	2-Methylnaphthalene	150	J
77-47-4	Hexachlorocyclopentadiene	540	U
88-06-2	2,4,6-Trichlorophenol	540	U
95-95-4	2,4,5-Trichlorophenol	1400	U
91-58-7	2-Chloronaphthalene	540	U
88-74-4	2-Nitroaniline	1400	U
131-11-3	Dimethylphthalate	540	U
208-96-8	Acenaphthylene	540	U
606-20-2	2,6-Dinitrotoluene	540	U
99-09-2	3-Nitroaniline	1400	U
83-32-9	Acenaphthene	540	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EBEB1
X101

Lab Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 24701 SAS No.: SDG No.: EBDY1

Matrix: (soil/water) SOIL Lab Sample ID: 15809.08

Sample wt/vol: 30.0 (g/mL) G Lab File ID: EE6790.D

Level: (low/med) LOW Date Received: 05/24/96

% Moisture: 39 decanted: (Y/N) N Date Extracted: 05/28/96

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/03/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.9

Number TICs found: 10

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 123-42-2	2-Pentanone, 4-hydroxy-4-met	3.531	1800	A NJB
2.	Unknown	4.244	550	J
3. 110-13-4	2,5-Hexanedione	4.402	350	NJ
4.	Unknown	4.446	1000	J
5. 4436-75-3	3-Hexene-2,5-dione	4.604	1300	NJB
6.	Unknown	5.034	2100	J
7.	Unknown	5.263	440	J
8.	Unknown	5.666	1300	J
9. 143-07-7	Dodecanoic acid	9.831	450	NJB
10. 3674-73-5	Phenanthrene, 2,3,5-trimethy	13.923	820	NJ
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7-29-96

000288

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EBEB2
X102

b Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 24701 SAS No.: SDG No.: EBDY1

Matrix: (soil/water) SOIL Lab Sample ID: 15809.11

Sample wt/vol: 30.0 (g/mL) G Lab File ID: EE6793.D

Level: (low/med) LOW Date Received: 05/24/96

% Moisture: 46 decanted: (Y/N) N Date Extracted: 05/28/96

Concentrated Extract Volume: 500(UL) Date Analyzed: 06/03/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 11.8

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	1500	U
100-02-7	4-Nitrophenol	1500	U
132-64-9	Dibenzofuran	610	U
121-14-2	2,4-Dinitrotoluene	610	U
84-66-2	Diethylphthalate	610	U
7005-72-3	4-Chlorophenyl-phenylether	610	U
86-73-7	Fluorene	780	
100-01-6	4-Nitroaniline	1500	U
534-52-1	4,6-Dinitro-2-methylphenol	1500	U
86-30-6	N-nitrosodiphenylamine (1)	610	U
101-55-3	4-Bromophenyl-phenylether	610	U
118-74-1	Hexachlorobenzene	610	U
87-86-5	Pentachlorophenol	1500	U
85-01-8	Phenanthrene	7300	E
120-12-7	Anthracene	720	
86-74-8	Carbazole	610	U
84-74-2	Di-n-butylphthalate	610	U
206-44-0	Fluoranthene	730	
129-00-0	Pyrene	4200	
85-68-7	Butylbenzylphthalate	610	U
91-94-1	3,3'-Dichlorobenzidine	610	U
56-55-3	Benzo(a)anthracene	1400	
218-01-9	Chrysene	2400	
117-81-7	bis(2-Ethylhexyl)phthalate	610	U
117-84-0	Di-n-octylphthalate	610	U
205-99-2	Benzo(b)fluoranthene	680	
207-08-9	Benzo(k)fluoranthene	610	U
50-32-8	Benzo(a)pyrene	1000	
193-39-5	Indeno(1,2,3-cd)pyrene	150	J
53-70-3	Dibenzo(a,h)anthracene	350	J
191-24-2	Benzo(g,h,i)perylene	180	J

(1) - Cannot be separated from Diphenylamine

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EBEB2DL
X102 DL

Lab Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 24701 SAS No.: SDG No.: EBDY1

Matrix: (soil/water) SOIL Lab Sample ID: 15809.11

Sample wt/vol: 30.0 (g/mL) G Lab File ID: EE6813.D

Level: (low/med) LOW Date Received: 05/24/96

% Moisture: 46 decanted: (Y/N) N Date Extracted: 05/28/96

Concentrated Extract Volume: 500(UL) Date Analyzed: 06/12/96

Injection Volume: 2.0(uL) Dilution Factor: 2.0

GPC Cleanup: (Y/N) Y pH: 11.8

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	1200	U
111-44-4	bis(-2-Chloroethyl)Ether	1200	U
95-57-8	2-Chlorophenol	1200	U
541-73-1	1,3-Dichlorobenzene	1200	U
106-46-7	1,4-Dichlorobenzene	1200	U
95-50-1	1,2-Dichlorobenzene	1200	U
95-48-7	2-Methylphenol	1200	U
108-60-1	2,2'-oxybis(1-Chloropropane)	1200	U
106-44-5	4-Methylphenol	1200	U
621-64-7	N-Nitroso-di-n-propylamine	1200	U
67-72-1	Hexachloroethane	1200	U
98-95-3	Nitrobenzene	1200	U
78-59-1	Isophorone	1200	U
88-75-5	2-Nitrophenol	1200	U
105-67-9	2,4-Dimethylphenol	1200	U
120-83-2	2,4-Dichlorophenol	1200	U
120-82-1	1,2,4-Trichlorobenzene	1200	U
91-20-3	Naphthalene	1200	U
106-47-8	4-Chloroaniline	1200	U
87-68-3	Hexachlorobutadiene	1200	U
111-91-1	bis(-2-Chloroethoxy)methane	1200	U
59-50-7	4-Chloro-3-Methylphenol	1200	U
91-57-6	2-Methylnaphthalene	2900	D
77-47-4	Hexachlorocyclopentadiene	1200	U
88-06-2	2,4,6-Trichlorophenol	1200	U
95-95-4	2,4,5-Trichlorophenol	3100	U
91-58-7	2-Chloronaphthalene	1200	U
88-74-4	2-Nitroaniline	3100	U
131-11-3	Dimethylphthalate	1200	U
208-96-8	Acenaphthylene	1200	U
606-20-2	2,6-Dinitrotoluene	1200	U
99-09-2	3-Nitroaniline	3100	U
83-32-9	Acenaphthene	1200	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EBEB2DL
X102 DL

Lab Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 24701 SAS No.: SDG No.: EBDY1

Matrix: (soil/water) SOIL Lab Sample ID: 15809.11

Sample wt/vol: 30.0 (g/mL) G Lab File ID: EE6813.D

Level: (low/med) LOW Date Received: 05/24/96

% Moisture: 46 decanted: (Y/N) N Date Extracted: 05/28/96

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/12/96

Injection Volume: 2.0(uL) Dilution Factor: 2.0

GPC Cleanup: (Y/N) Y pH: 11.8

Number TICs found: 6

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	123-42-2	2-Pentanone, 4-hydroxy-4-met	5.798	39000	A NJD
2.		Unknown	8.065	4800	JD
3.	581-40-8	Naphthalene, 2,3-dimethyl-	11.722	7000	NJD
4.		Unknown	12.225	7300	JD
5.	832-64-4	Phenanthrene, 4-methyl-	15.276	4000	NJD
6.		Unknown	17.509	4200	JD
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EBEB3
X103

Lab Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 24701 SAS No.: SDG No.: EBDY1

Matrix: (soil/water) SOIL Lab Sample ID: 15809.12

Sample wt/vol: 30.0 (g/mL) G Lab File ID: EE6794.D

Level: (low/med) LOW Date Received: 05/24/96

% Moisture: 18 decanted: (Y/N) N Date Extracted: 05/28/96

Concentrated Extract Volume: 500(UL) Date Analyzed: 06/03/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.4

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	1000	U
100-02-7	4-Nitrophenol	1000	U
132-64-9	Dibenzofuran	400	U
121-14-2	2,4-Dinitrotoluene	400	U
84-66-2	Diethylphthalate	400	U
7005-72-3	4-Chlorophenyl-phenylether	400	U
86-73-7	Fluorene	400	U
100-01-6	4-Nitroaniline	1000	U
534-52-1	4,6-Dinitro-2-methylphenol	1000	U
86-30-6	N-nitrosodiphenylamine (1)	400	U
101-55-3	4-Bromophenyl-phenylether	400	U
118-74-1	Hexachlorobenzene	110	J
87-86-5	Pentachlorophenol	1000	U
85-01-8	Phenanthrene	260	J
120-12-7	Anthracene	400	U
86-74-8	Carbazole	400	U
84-74-2	Di-n-butylphthalate	400	U
206-44-0	Fluoranthene	130	J
129-00-0	Pyrene	180	J
85-68-7	Butylbenzylphthalate	400	U
91-94-1	3,3'-Dichlorobenzidine	400	U
56-55-3	Benzo(a)anthracene	61	J
218-01-9	Chrysene	110	J
117-81-7	bis(2-Ethylhexyl)phthalate	400 ~~93~~	μ JB
117-84-0	Di-n-octylphthalate	400	U
205-99-2	Benzo(b)fluoranthene	400	U
207-08-9	Benzo(k)fluoranthene	400	U
50-32-8	Benzo(a)pyrene	400	U
193-39-5	Indeno(1,2,3-cd)pyrene	400	U
53-70-3	Dibenzo(a,h)anthracene	400	U
191-24-2	Benzo(g,h,i)perylene	400	U

ACH 7-29-

(1) - Cannot be separated from Diphenylamine

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EBDY1
X104

Lab Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 24701 SAS No.: SDG No.: EBDY1

Matrix: (soil/water) SOIL Lab Sample ID: 15809.13

Sample wt/vol: 30.0 (g/mL) G Lab File ID: EE6795.D

Level: (low/med) LOW Date Received: 05/24/96

% Moisture: 14 decanted: (Y/N) N Date Extracted: 05/28/96

Concentrated Extract Volume: 500(UL) Date Analyzed: 06/03/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.2

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	380	U
111-44-4	bis(-2-Chloroethyl)Ether	380	U
95-57-8	2-Chlorophenol	380	U
541-73-1	1,3-Dichlorobenzene	380	U
106-46-7	1,4-Dichlorobenzene	380	U
95-50-1	1,2-Dichlorobenzene	380	U
95-48-7	2-Methylphenol	380	U
108-60-1	2,2'-oxybis(1-Chloropropane)	380	U
106-44-5	4-Methylphenol	380	U
621-64-7	N-Nitroso-di-n-propylamine	380	U
67-72-1	Hexachloroethane	380	U
98-95-3	Nitrobenzene	380	U
78-59-1	Isophorone	380	U
88-75-5	2-Nitrophenol	380	U
105-67-9	2,4-Dimethylphenol	380	U
120-83-2	2,4-Dichlorophenol	380	U
120-82-1	1,2,4-Trichlorobenzene	380	U
91-20-3	Naphthalene	22	J
106-47-8	4-Chloroaniline	380	U
87-68-3	Hexachlorobutadiene	380	U
111-91-1	bis(-2-Chloroethoxy)methane	380	U
59-50-7	4-Chloro-3-Methylphenol	380	U
91-57-6	2-Methylnaphthalene	38	J
77-47-4	Hexachlorocyclopentadiene	380	U
88-06-2	2,4,6-Trichlorophenol	380	U
95-95-4	2,4,5-Trichlorophenol	960	U
91-58-7	2-Chloronaphthalene	380	U
88-74-4	2-Nitroaniline	960	U
131-11-3	Dimethylphthalate	380	U
208-96-8	Acenaphthylene	380	U
606-20-2	2,6-Dinitrotoluene	380	U
99-09-2	3-Nitroaniline	960	U
83-32-9	Acenaphthene	380	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EBDY1
X104

Lab Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 24701 SAS No.: SDG No.: EBDY1

Matrix: (soil/water) SOIL Lab Sample ID: 15809.13

Sample wt/vol: 30.0 (g/mL) G Lab File ID: EE6795.D

Level: (low/med) LOW Date Received: 05/24/96

% Moisture: 14 decanted: (Y/N) N Date Extracted: 05/28/96

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/03/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.2

Number TICs found: 19

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 123-42-2	2-Pentanone, 4-hydroxy-4-met	3.535	1600	A NJB
2.	Unknown	3.704	690	J
3.	Unknown	4.444	370	J
4. 4436-75-3	3-Hexene-2,5-dione	4.608	1200	NJB
5.	Unknown	5.038	1300	J
6. 111-14-8	Heptanoic acid	5.839	510	NJ
7.	Unknown	6.678	380	J
8. 124-07-2	Octanoic Acid	6.760	1200	NJ
9. 112-05-0	Nonanoic acid	7.605	1900	NJ
10. 334-48-5	Decanoic acid	8.374	450	NJ
11. 104-61-0	2(3H)-Furanone, dihydro-5-pe	8.483	230	NJ
12. 112-37-8	Undecanoic acid	9.127	340	NJ
13. 143-07-7	Dodecanoic acid	9.865	620	NJB
14. 544-63-8	Tetradecanoic acid	11.216	1400	NJ
15. 1002-84-2	Pentadecanoic acid	11.842	860	NJ
16. 57-10-3	Hexadecanoic acid	12.519	24000	NJ
17. 506-12-7	Heptadecanoic acid	13.071	1100	NJ
18. 112-80-1	Oleic Acid	13.559	9600	NJ
19. 506-30-9	Eicosanoic acid	14.663	1600	NJ
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000228

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EBDY2
X105

Lab Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 24701 SAS No.: SDG No.: EBDY1

Matrix: (soil/water) SOIL Lab Sample ID: 15809.14

Sample wt/vol: 30.0 (g/mL) G Lab File ID: EE6804.D

Level: (low/med) LOW Date Received: 05/24/96

% Moisture: 30 decanted: (Y/N) N Date Extracted: 05/28/96

Concentrated Extract Volume: 500(UL) Date Analyzed: 06/11/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	1200	U
100-02-7	4-Nitrophenol	1200	U
132-64-9	Dibenzofuran	470	U
121-14-2	2,4-Dinitrotoluene	470	U
84-66-2	Diethylphthalate	470	U
7005-72-3	4-Chlorophenyl-phenylether	470	U
86-73-7	Fluorene	470	U
100-01-6	4-Nitroaniline	1200	U
534-52-1	4,6-Dinitro-2-methylphenol	1200	U
86-30-6	N-nitrosodiphenylamine (1)	470	U
101-55-3	4-Bromophenyl-phenylether	470	U
118-74-1	Hexachlorobenzene	470	U
87-86-5	Pentachlorophenol	1200	U
85-01-8	Phenanthrene	47	J
120-12-7	Anthracene	470	U
86-74-8	Carbazole	470	U
84-74-2	Di-n-butylphthalate	470	U
206-44-0	Fluoranthene	38	J
129-00-0	Pyrene	37	J
85-68-7	Butylbenzylphthalate	470	U
91-94-1	3,3'-Dichlorobenzidine	470	U
56-55-3	Benzo(a)anthracene	470	U
218-01-9	Chrysene	470	U
117-81-7	bis(2-Ethylhexyl)phthalate	470	U
117-84-0	Di-n-octylphthalate	470	U
205-99-2	Benzo(b)fluoranthene	470	U
207-08-9	Benzo(k)fluoranthene	470	U
50-32-8	Benzo(a)pyrene	470	U
193-39-5	Indeno(1,2,3-cd)pyrene	470	U
53-70-3	Dibenzo(a,h)anthracene	470	U
191-24-2	Benzo(g,h,i)perylene	470	U

(1) - Cannot be separated from Diphenylamine

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EBEC1
X201

Lab Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 24701 SAS No.: SDG No.: EBDY1

Matrix: (soil/water) SOIL Lab Sample ID: 15809.01

Sample wt/vol: 30.0 (g/mL) G Lab File ID: EE6776.D

Level: (low/med) LOW Date Received: 05/24/96

% Moisture: 18 decanted: (Y/N) N Date Extracted: 05/28/96

Concentrated Extract Volume: 500(UL) Date Analyzed: 05/31/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	400	U
111-44-4	bis(-2-Chloroethyl)Ether	400	U
95-57-8	2-Chlorophenol	400	U
541-73-1	1,3-Dichlorobenzene	400	U
106-46-7	1,4-Dichlorobenzene	400	U
95-50-1	1,2-Dichlorobenzene	400	U
95-48-7	2-Methylphenol	400	U
108-60-1	2,2'-oxybis(1-Chloropropane)	400	U
106-44-5	4-Methylphenol	400	U
621-64-7	N-Nitroso-di-n-propylamine	400	U
67-72-1	Hexachloroethane	400	U
98-95-3	Nitrobenzene	400	U
78-59-1	Isophorone	400	U
88-75-5	2-Nitrophenol	400	U
105-67-9	2,4-Dimethylphenol	400	U
120-83-2	2,4-Dichlorophenol	400	U
120-82-1	1,2,4-Trichlorobenzene	400	U
91-20-3	Naphthalene	400	U
106-47-8	4-Chloroaniline	400	U
87-68-3	Hexachlorobutadiene	400	U
111-91-1	bis(-2-Chloroethoxy)methane	400	U
59-50-7	4-Chloro-3-Methylphenol	400	U
91-57-6	2-Methylnaphthalene	32	J
77-47-4	Hexachlorocyclopentadiene	400	U
88-06-2	2,4,6-Trichlorophenol	400	U
95-95-4	2,4,5-Trichlorophenol	1000	U
91-58-7	2-Chloronaphthalene	400	U
88-74-4	2-Nitroaniline	1000	U
131-11-3	Dimethylphthalate	400	U
208-96-8	Acenaphthylene	400	U
606-20-2	2,6-Dinitrotoluene	400	U
99-09-2	3-Nitroaniline	1000	U
83-32-9	Acenaphthene	400	U

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EBEC1
X201

Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 24701 SAS No.: SDG No.: EBDY1

Matrix: (soil/water) SOIL Lab Sample ID: 15809.01

Sample wt/vol: 30.0 (g/mL) G Lab File ID: EE6776.D

Level: (low/med) LOW Date Received: 05/24/96

% Moisture: 18 decanted: (Y/N) N Date Extracted: 05/28/96

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/31/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.0

Number TICs found: 15

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 123-42-2	2-Pentanone, 4-hydroxy-4-met	3.548	1500	A NJB
2.	Unknown	4.257	290	J
3. 110-13-4	2,5-Hexanedione	4.409	110	NJ
4.	Unknown	4.474	100	J
5.	Unknown	4.621	1400	J
6. 100-52-7	Benzaldehyde	4.834	120	NJ
7.	Unknown	5.063	2300	J
8.	Unknown	5.275	190	J
9.	Unknown	5.554	880	J
10.	Unknown	5.674	470	J
11.	Unknown	5.941	100	J
12. 65-85-0	Benzoic Acid	6.774	1400	NJB
13. 120-40-1	Dodecanamide, N,N-bis(2-hydr	9.943	8800	NJ
14.	Unknown	19.488	1500	J
15.	Unknown	19.680	1400	J
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OM 7-29-96

000478

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EBEC2
X202

Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 24701 SAS No.: SDG No.: EBDY1

Matrix: (soil/water) SOIL Lab Sample ID: 15809.02

Sample wt/vol: 30.0 (g/mL) G Lab File ID: EE6777.D

Level: (low/med) LOW Date Received: 05/24/96

% Moisture: 16 decanted: (Y/N) N Date Extracted: 05/28/96

Concentrated Extract Volume: 500(UL) Date Analyzed: 05/31/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.9

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	390	U
111-44-4	bis(-2-Chloroethyl)Ether	390	U
95-57-8	2-Chlorophenol	390	U
541-73-1	1,3-Dichlorobenzene	390	U
106-46-7	1,4-Dichlorobenzene	390	U
95-50-1	1,2-Dichlorobenzene	390	U
95-48-7	2-Methylphenol	390	U
108-60-1	2,2'-oxybis(1-Chloropropane)	390	U
106-44-5	4-Methylphenol	390	U
621-64-7	N-Nitroso-di-n-propylamine	390	U
67-72-1	Hexachloroethane	390	U
98-95-3	Nitrobenzene	390	U
78-59-1	Isophorone	390	U
88-75-5	2-Nitrophenol	390	U
105-67-9	2,4-Dimethylphenol	390	U
120-83-2	2,4-Dichlorophenol	390	U
120-82-1	1,2,4-Trichlorobenzene	390	U
91-20-3	Naphthalene	390	U
106-47-8	4-Chloroaniline	390	U
87-68-3	Hexachlorobutadiene	390	U
111-91-1	bis(-2-Chloroethoxy)methane	390	U
59-50-7	4-Chloro-3-Methylphenol	390	U
91-57-6	2-Methylnaphthalene	37	J
77-47-4	Hexachlorocyclopentadiene	390	U
88-06-2	2,4,6-Trichlorophenol	390	U
95-95-4	2,4,5-Trichlorophenol	990	U
91-58-7	2-Chloronaphthalene	390	U
88-74-4	2-Nitroaniline	990	U
131-11-3	Dimethylphthalate	390	U
208-96-8	Acenaphthylene	390	U
606-20-2	2,6-Dinitrotoluene	390	U
99-09-2	3-Nitroaniline	990	U
83-32-9	Acenaphthene	390	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EBEC2
X202

Lab Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 24701 SAS No.: SDG No.: EBDY1

Matrix: (soil/water) SOIL Lab Sample ID: 15809.02

Sample wt/vol: 30.0 (g/mL) G Lab File ID: EE6777.D

Level: (low/med) LOW Date Received: 05/24/96

% Moisture: 16 decanted: (Y/N) N Date Extracted: 05/28/96

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/31/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.9

Number TICs found: 15

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	123-42-2	2-Pentanone, 4-hydroxy-4-met	3.548	1500	NJB
2.		Unknown	4.256	270	J
3.	110-13-4	2,5-Hexanedione	4.408	120	NJ
4.	4436-75-3	3-Hexene-2,5-dione	4.621	1300	NJB
5.	100-52-7	Benzaldehyde	4.833	150	NJ
6.		Unknown	5.057	1900	J
7.		Unknown	5.275	260	J
8.		Unknown	5.554	750	J
9.		Unknown	5.674	470	J
10.		Unknown	5.941	160	J
11.	65-85-0	Benzoic Acid	6.715	460	NJB
12.	124-11-8	1-Nonene	8.455	130	NJ
13.	143-07-7	Dodecanoic acid	9.902	4000	NJB
14.		Unknown	19.491	1200	J
15.		Unknown	19.683	950	J
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acq 9.29.96

000518

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EBEC3
X203

b Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 24701 SAS No.: SDG No.: EBDY1

Matrix: (soil/water) SOIL Lab Sample ID: 15809.03

Sample wt/vol: 30.0 (g/mL) G Lab File ID: EE6778.D

Level: (low/med) LOW Date Received: 05/24/96

% Moisture: 22 decanted: (Y/N) N Date Extracted: 05/28/96

Concentrated Extract Volume: 500(UL) Date Analyzed: 05/31/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.3

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	1100	U
100-02-7	4-Nitrophenol	1100	U
132-64-9	Dibenzofuran	420	U
121-14-2	2,4-Dinitrotoluene	420	U
84-66-2	Diethylphthalate	420	U
7005-72-3	4-Chlorophenyl-phenylether	420	U
86-73-7	Fluorene	420	U
100-01-6	4-Nitroaniline	1100	U
534-52-1	4,6-Dinitro-2-methylphenol	1100	U
86-30-6	N-nitrosodiphenylamine (1)	420	U
101-55-3	4-Bromophenyl-phenylether	420	U
118-74-1	Hexachlorobenzene	420	U
87-86-5	Pentachlorophenol	1100	U
85-01-8	Phenanthrene	28	J
120-12-7	Anthracene	420	U
86-74-8	Carbazole	420	U
84-74-2	Di-n-butylphthalate	25	J
206-44-0	Fluoranthene	24	J
129-00-0	Pyrene	27	J
85-68-7	Butylbenzylphthalate	420	U
91-94-1	3,3'-Dichlorobenzidine	420	U
56-55-3	Benzo(a)anthracene	420	U
218-01-9	Chrysene	32	J
117-81-7	bis(2-Ethylhexyl)phthalate	420 ~~84~~	JB
117-84-0	Di-n-octylphthalate	420	U
205-99-2	Benzo(b)fluoranthene	420	U
207-08-9	Benzo(k)fluoranthene	420	U
50-32-8	Benzo(a)pyrene	420	U
193-39-5	Indeno(1,2,3-cd)pyrene	420	U
53-70-3	Dibenzo(a,h)anthracene	420	U
191-24-2	Benzo(g,h,i)perylene	420	U

(1) - Cannot be separated from Diphenylamine

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EBEC4
X204

Lab Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 24701 SAS No.: SDG No.: EBDY1

Matrix: (soil/water) SOIL Lab Sample ID: 15809.04

Sample wt/vol: 30.0 (g/mL) G Lab File ID: EE6779.D

Level: (low/med) LOW Date Received: 05/24/96

% Moisture: 23 decanted: (Y/N) N Date Extracted: 05/28/96

Concentrated Extract Volume: 500(UL) Date Analyzed: 05/31/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.9

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	430	U
111-44-4	bis(-2-Chloroethyl)Ether	430	U
95-57-8	2-Chlorophenol	430	U
541-73-1	1,3-Dichlorobenzene	430	U
106-46-7	1,4-Dichlorobenzene	430	U
95-50-1	1,2-Dichlorobenzene	430	U
95-48-7	2-Methylphenol	430	U
108-60-1	2,2'-oxybis(1-Chloropropane)	430	U
106-44-5	4-Methylphenol	430	U
621-64-7	N-Nitroso-di-n-propylamine	430	U
67-72-1	Hexachloroethane	430	U
98-95-3	Nitrobenzene	430	U
78-59-1	Isophorone	430	U
88-75-5	2-Nitrophenol	430	U
105-67-9	2,4-Dimethylphenol	430	U
120-83-2	2,4-Dichlorophenol	430	U
120-82-1	1,2,4-Trichlorobenzene	430	U
91-20-3	Naphthalene	430	U
106-47-8	4-Chloroaniline	430	U
87-68-3	Hexachlorobutadiene	430	U
111-91-1	bis(-2-Chloroethoxy)methane	430	U
59-50-7	4-Chloro-3-Methylphenol	430	U
91-57-6	2-Methylnaphthalene	430	U
77-47-4	Hexachlorocyclopentadiene	430	U
88-06-2	2,4,6-Trichlorophenol	430	U
95-95-4	2,4,5-Trichlorophenol	1100	U
91-58-7	2-Chloronaphthalene	430	U
88-74-4	2-Nitroaniline	1100	U
131-11-3	Dimethylphthalate	430	U
208-96-8	Acenaphthylene	430	U
606-20-2	2,6-Dinitrotoluene	430	U
99-09-2	3-Nitroaniline	1100	U
83-32-9	Acenaphthene	430	U

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EBEC4
X204

Lab Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 24701 SAS No.: SDG No.: EBDY1

Matrix: (soil/water) SOIL Lab Sample ID: 15809.04

Sample wt/vol: 30.0 (g/mL) G Lab File ID: EE6779.D

Level: (low/med) LOW Date Received: 05/24/96

% Moisture: 23 decanted: (Y/N) N Date Extracted: 05/28/96

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/31/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.9

Number TICs found: 16

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	123-42-2	2-Pentanone, 4-hydroxy-4-met	3.548	1700	A NJB
2.		Unknown	4.257	270	J
3.	110-13-4	2,5-Hexanedione	4.410	170	NJ
4.		Unknown	4.459	620	J
5.	4436-75-3	3-Hexene-2,5-dione	4.617	960	NJB
6.		Unknown	4.720	94	J
7.	142-62-1	Hexanoic acid	4.829	98	NJ
8.		Unknown	4.965	110	J
9.		Unknown	5.053	1300	J
10.		Unknown	5.276	570	J
11.		Unknown	5.560	500	J
12.		Unknown	5.691	1800	J
13.		Unknown	5.942	130	J
14.	65-85-0	Benzoic Acid	6.677	180	NJB
15.	143-07-7	Dodecanoic acid	9.877	2900	NJB
16.		Unknown	19.489	1500	J
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000603

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EBEC5
X205

Lab Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 24701 SAS No.: SDG No.: EBDY1

Matrix: (soil/water) SOIL Lab Sample ID: 15809.05

Sample wt/vol: 30.0 (g/mL) G Lab File ID: EE6780.D

Level: (low/med) LOW Date Received: 05/24/96

% Moisture: 25 decanted: (Y/N) N Date Extracted: 05/28/96

Concentrated Extract Volume: 500(UL) Date Analyzed: 05/31/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.2

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	1100	U
100-02-7	4-Nitrophenol	1100	U
132-64-9	Dibenzofuran	440	U
121-14-2	2,4-Dinitrotoluene	440	U
84-66-2	Diethylphthalate	440	U
7005-72-3	4-Chlorophenyl-phenylether	440	U
86-73-7	Fluorene	440	U
100-01-6	4-Nitroaniline	1100	U
534-52-1	4,6-Dinitro-2-methylphenol	1100	U
86-30-6	N-nitrosodiphenylamine (1)	440	U
101-55-3	4-Bromophenyl-phenylether	440	U
118-74-1	Hexachlorobenzene	440	U
87-86-5	Pentachlorophenol	1100	U
85-01-8	Phenanthrene	35	J
120-12-7	Anthracene	440	U
86-74-8	Carbazole	440	U
84-74-2	Di-n-butylphthalate	440	U
206-44-0	Fluoranthene	440	U
129-00-0	Pyrene	440	U
85-68-7	Butylbenzylphthalate	440	U
91-94-1	3,3'-Dichlorobenzidine	440	U
56-55-3	Benzo(a)anthracene	440	U
218-01-9	Chrysene	440	U
117-81-7	bis(2-Ethylhexyl)phthalate	440 ~~98~~	u JB
117-84-0	Di-n-octylphthalate	440	U
205-99-2	Benzo(b)fluoranthene	440	U
207-08-9	Benzo(k)fluoranthene	440	U
50-32-8	Benzo(a)pyrene	440	U
193-39-5	Indeno(1,2,3-cd)pyrene	440	U
53-70-3	Dibenzo(a,h)anthracene	440	U
191-24-2	Benzo(g,h,i)perylene	440	U

ACH 7-29-96

(1) - Cannot be separated from Diphenylamine

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EBEC6
X206

Lab Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 24701 SAS No.: SDG No.: EBDY1

Matrix: (soil/water) SOIL Lab Sample ID: 15809.06

Sample wt/vol: 30.0 (g/mL) G Lab File ID: EE6781.D

Level: (low/med) LOW Date Received: 05/24/96

% Moisture: 31 decanted: (Y/N) N Date Extracted: 05/28/96

Concentrated Extract Volume: 500(UL) Date Analyzed: 06/01/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.2

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	480	U
111-44-4	bis(-2-Chloroethyl)Ether	480	U
95-57-8	2-Chlorophenol	480	U
541-73-1	1,3-Dichlorobenzene	480	U
106-46-7	1,4-Dichlorobenzene	480	U
95-50-1	1,2-Dichlorobenzene	480	U
95-48-7	2-Methylphenol	480	U
108-60-1	2,2'-oxybis(1-Chloropropane)	480	U
106-44-5	4-Methylphenol	480	U
621-64-7	N-Nitroso-di-n-propylamine	480	U
67-72-1	Hexachloroethane	480	U
98-95-3	Nitrobenzene	480	U
78-59-1	Isophorone	480	U
88-75-5	2-Nitrophenol	480	U
105-67-9	2,4-Dimethylphenol	480	U
120-83-2	2,4-Dichlorophenol	480	U
120-82-1	1,2,4-Trichlorobenzene	480	U
91-20-3	Naphthalene	170	J
106-47-8	4-Chloroaniline	480	U
87-68-3	Hexachlorobutadiene	480	U
111-91-1	bis(-2-Chloroethoxy)methane	480	U
59-50-7	4-Chloro-3-Methylphenol	480	U
91-57-6	2-Methylnaphthalene	420	J
77-47-4	Hexachlorocyclopentadiene	480	U
88-06-2	2,4,6-Trichlorophenol	480	U
95-95-4	2,4,5-Trichlorophenol	1200	U
91-58-7	2-Chloronaphthalene	480	U
88-74-4	2-Nitroaniline	1200	U
131-11-3	Dimethylphthalate	480	U
208-96-8	Acenaphthylene	480	U
606-20-2	2,6-Dinitrotoluene	480	U
99-09-2	3-Nitroaniline	1200	U
83-32-9	Acenaphthene	480	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EBEC6
X206

Lab Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 24701 SAS No.: SDG No.: EBDY1

Matrix: (soil/water) SOIL Lab Sample ID: 15809.06

Sample wt/vol: 30.0 (g/mL) G Lab File ID: EE6781.D

Level: (low/med) LOW Date Received: 05/24/96

% Moisture: 31 decanted: (Y/N) N Date Extracted: 05/28/96

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/01/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.2

Number TICs found: 13

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown	3.391	3700	J
2. 123-42-2	2-Pentanone, 4-hydroxy-4-met	3.549	1500	NJB
3.	Unknown	3.614	320	J
4.	Unknown	4.257	540	J
5. 110-13-4	2,5-Hexanedione	4.410	240	NJ
6.	Unknown	4.454	1100	J
7. 4436-75-3	3-Hexene-2,5-dione	4.623	2100	NJB
8.	Unknown	4.721	330	J
9.	Unknown	4.819	320	J
10.	Unknown	5.048	2000	J
11.	Unknown	5.677	1400	J
12. 143-07-7	Dodecanoic acid	9.834	410	NJB
13. 2131-42-2	Naphthalene, 1,4,6-trimethyl	9.906	170	NJ
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9-29-96

000672

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EBEC7
X207

Lab Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 24701 SAS No.: SDG No.: EBDY1

Matrix: (soil/water) SOIL Lab Sample ID: 15809.07

Sample wt/vol: 30.0 (g/mL) G Lab File ID: EE6789.D

Level: (low/med) LOW Date Received: 05/24/96

% Moisture: 33 decanted: (Y/N) N Date Extracted: 05/28/96

Concentrated Extract Volume: 500(UL) Date Analyzed: 06/03/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.7

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	1200	U
100-02-7	4-Nitrophenol	1200	U
132-64-9	Dibenzofuran	130	J
121-14-2	2,4-Dinitrotoluene	490	U
84-66-2	Diethylphthalate	490	U
7005-72-3	4-Chlorophenyl-phenylether	490	U
86-73-7	Fluorene	490	U
100-01-6	4-Nitroaniline	1200	U
534-52-1	4,6-Dinitro-2-methylphenol	1200	U
86-30-6	N-nitrosodiphenylamine (1)	490	U
101-55-3	4-Bromophenyl-phenylether	490	U
118-74-1	Hexachlorobenzene	490	U
87-86-5	Pentachlorophenol	1200	U
85-01-8	Phenanthrene	290	J
120-12-7	Anthracene	490	U
86-74-8	Carbazole	490	U
84-74-2	Di-n-butylphthalate	490	U
206-44-0	Fluoranthene	98	J
129-00-0	Pyrene	160	J
85-68-7	Butylbenzylphthalate	490	U
91-94-1	3,3'-Dichlorobenzidine	490	U
56-55-3	Benzo(a)anthracene	77	J
218-01-9	Chrysene	74	J
117-81-7	bis(2-Ethylhexyl)phthalate	490	U
117-84-0	Di-n-octylphthalate	490	U
205-99-2	Benzo(b)fluoranthene	53	J
207-08-9	Benzo(k)fluoranthene	44	J
50-32-8	Benzo(a)pyrene	490	U
193-39-5	Indeno(1,2,3-cd)pyrene	490	U
53-70-3	Dibenzo(a,h)anthracene	490	U
191-24-2	Benzo(g,h,i)perylene	490	U

(1) - Cannot be separated from Diphenylamine

2F
SOIL PESTICIDE SURROGATE RECOVERY

Lab Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 24701 SAS No.: SDG No.: EBDY1

GC Column(1): CP-SIL19CB ID: 0.32(mm) GC Column(2): DB-17 ID: 0.32(mm)

	EPA SAMPLE NO.	TCX 1 %REC #	TCX 2 %REC #	DCB 1 %REC #	DCB 2 %REC #	OTHER (1)	OTHER (2)	TOT OUT
01	PBLK1U	96	80	56	61			0
02	EBEC1	103	85	58	64			0
03	EBEC2	108	89	73	72			0
04	EBEC3	97	78	60	65			0
05	EBEC4	118	98	63	53			0
06	EBEC5	102	81	53	51			0
07	EBEC6	69	58	66	110			0
08	EBEC7	81	59	54	67			0
09	EBEB1	102	82	80	279*			1
10	EBEB1MS	84	65	63	201*			1
11	EBEB1MSD	119	104	86	246*			1
12	EBEB2	92	71	86	606*			1
13	EBEB3	91	76	93	92			0
14	EBDY1	59	53	29*	27*			2
15	EBDY2	77	64	45	50			0
16	EBEB2DL	87	69	84	* 620D			1~~0~~
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ACA 7-29-96

QC LIMITS

TCX = Tetrachloro-m-xylene (30-150)
DCB = Decachlorobiphenyl (30-150)

Column to be used to flag recovery values
* Values outside of QC limits
D Surrogate diluted out

001002

FORM II PEST-2 OLM03.0

4C

PESTICIDE METHOD BLANK SUMMARY

EPA SAMPLE NO.

PBLK1U

Lab Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 24701 SAS No.: SDG No.: EBDY1

Lab Sample ID: 052996-01 Lab File ID: 1_2747

Matrix: (soil/water) SOIL Extraction: (SepF/Cont/Sonc) SONC

Sulfur Cleanup: (Y/N) N Date Extracted: 05/29/96

Date Analyzed (1): 06/04/96 Date Analyzed (2): 06/04/96

Time Analyzed (1): 1617 Time Analyzed (2): 1617

Instrument ID (1): HP_01A Instrument ID (2): HP_01B

GC Column (1): CP-SIL19CB ID: 0.32(mm) GC Column (2): DB-17 ID: 0.32(mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
01	EBEC1	15809.01	06/04/96	06/04/96
02	EBEC2	15809.02	06/04/96	06/04/96
03	EBEC3	15809.03	06/04/96	06/04/96
04	EBEC4	15809.04	06/04/96	06/04/96
05	EBEC5	15809.05	06/04/96	06/04/96
06	EBEC6	15809.06	06/04/96	06/04/96
07	EBEC7	15809.07	06/04/96	06/04/96
08	EBEB1	15809.08	06/04/96	06/04/96
09	EBEB1MS	15809.09	06/04/96	06/04/96
10	EBEB1MSD	15809.10	06/04/96	06/04/96
11	EBEB2	15809.11	06/04/96	06/04/96
12	EBEB3	15809.12	06/04/96	06/04/96
13	EBDY1	15809.13	06/05/96	06/05/96
14	EBDY2	15809.14	06/05/96	06/05/96
15	EBEB2DL	15809.11	06/07/96	06/07/96
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Comments:

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EBEB1
X/C/

Lab Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 24701 SAS No.: SDG No.: EBDY1

Matrix: (soil/water) SOIL Lab Sample ID: 15809.08

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 39 decanted: (Y/N) N Date Received: 05/24/96

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 05/29/96

Concentrated Extract Volume: 5000(uL) Date Analyzed: 06/04/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.9 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
319-84-6	alpha-BHC	0.54	PJ	•
319-85-7	beta-BHC	2.8	U	
319-86-8	delta-BHC	2.8	U	
58-89-9	gamma-BHC (Lindane)	2.8	U	
76-44-8	Heptachlor	2.8	U	
309-00-2	Aldrin	2.8	U	
1024-57-3	Heptachlor epoxide	6.2	P	•
959-98-8	Endosulfan I	2.8	U	
60-57-1	Dieldrin	5.4 ~~1.7~~	u PJB	acH 7-29-96
72-55-9	4,4'-DDE	4.8	PJ	•
72-20-8	Endrin	20	PB	•
33213-65-9	Endosulfan II	5.4	U	
72-54-8	4,4'-DDD	2.9	PJ	•
1031-07-8	Endosulfan sulfate	1.2	PJ	•
50-29-3	4,4'-DDT	14	PB	•
72-43-5	Methoxychlor	12	PJB	•
53494-70-5	Endrin ketone	27	PB	•
7421-93-4	Endrin aldehyde	5.4	U	
5103-71-9	alpha-Chlordane	2.8	U	
5103-74-2	gamma-Chlordane	5.5		•
8001-35-2	Toxaphene	280	U	
12674-11-2	Aroclor-1016	54	U	
11104-28-2	Aroclor-1221	110	U	
11141-16-5	Aroclor-1232	54	U	
53469-21-9	Aroclor-1242	54	U	
12672-29-6	Aroclor-1248	54	U	
11097-69-1	Aroclor-1254	54	U	
11096-82-5	Aroclor-1260	54	U	

001079

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EBEB2DL
X102 DL

Lab Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 24701 SAS No.: SDG No.: EBDY1

Matrix: (soil/water) SOIL Lab Sample ID: 15809.11

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 46 decanted: (Y/N) N Date Received: 05/24/96

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 05/29/96

Concentrated Extract Volume: 5000(uL) Date Analyzed: 06/07/96

Injection Volume: 1.0(uL) Dilution Factor: 3.0

GPC Cleanup: (Y/N) Y pH:11.8 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
319-84-6	alpha-BHC	9.4	U	
319-85-7	beta-BHC	9.4	U	
319-86-8	delta-BHC	9.4	U	
58-89-9	gamma-BHC (Lindane)	9.4	U	
76-44-8	Heptachlor	9.4	U	
309-00-2	Aldrin	9.4	U	
1024-57-3	Heptachlor epoxide	9.4	U	
959-98-8	Endosulfan I	9.4	U	
60-57-1	Dieldrin	18	U	
72-55-9	4,4'-DDE	12	DPJ	•
72-20-8	Endrin	80	DB	•
33213-65-9	Endosulfan II	13	DPJ	•
72-54-8	4,4'-DDD	18	U	
1031-07-8	Endosulfan sulfate	39	DP	•
50-29-3	4,4'-DDT	18	U	
72-43-5	Methoxychlor	94	U	
53494-70-5	Endrin ketone	75	DPB	•
7421-93-4	Endrin aldehyde	120	DP	•
5103-71-9	alpha-Chlordane	9.4	U	
5103-74-2	gamma-Chlordane	16	DP	•
8001-35-2	Toxaphene	940	U	
12674-11-2	Aroclor-1016	180	U	
11104-28-2	Aroclor-1221	370	U	
11141-16-5	Aroclor-1232	180	U	
53469-21-9	Aroclor-1242	180	U	
12672-29-6	Aroclor-1248	180	U	
11097-69-1	Aroclor-1254	180	U	
11096-82-5	Aroclor-1260	180	U	

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EBDY1 X104

Lab Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 24701 SAS No.: SDG No.: EBDY1

Matrix: (soil/water) SOIL Lab Sample ID: 15809.13

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 14 decanted: (Y/N) N Date Received: 05/24/96

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 05/29/96

Concentrated Extract Volume: 5000(uL) Date Analyzed: 06/05/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.2 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
319-84-6	alpha-BHC	0.32	J	.
319-85-7	beta-BHC	2.0		.
319-86-8	delta-BHC	2.0	U	
58-89-9	gamma-BHC (Lindane)	2.0	U	
76-44-8	Heptachlor	2.0	U	
309-00-2	Aldrin	2.0	U	
1024-57-3	Heptachlor epoxide	2.0	U	
959-98-8	Endosulfan I	2.0	U	
60-57-1	Dieldrin	3.8 ~~2.0~~ ~~1.2~~	µPJB	
72-55-9	4,4'-DDE	3.7	J	.
72-20-8	Endrin	3.8 ~~0.25~~	µ PJB	
33213-65-9	Endosulfan II	3.8	U	
72-54-8	4,4'-DDD	1.2	PJ	.
1031-07-8	Endosulfan sulfate	0.56	PJ	.
50-29-3	4,4'-DDT	3.7	PJB	.
72-43-5	Methoxychlor	20 2.0	µJB	
53494-70-5	Endrin ketone	3.8 ~~0.32~~	µPJB	
7421-93-4	Endrin aldehyde	0.64	PJ	.
5103-71-9	alpha-Chlordane	0.49	PJ	.
5103-74-2	gamma-Chlordane	0.46	PJ	.
8001-35-2	Toxaphene	200	U	
12674-11-2	Aroclor-1016	38	U	
11104-28-2	Aroclor-1221	78	U	
11141-16-5	Aroclor-1232	38	U	
53469-21-9	Aroclor-1242	38	U	
12672-29-6	Aroclor-1248	38	U	
11097-69-1	Aroclor-1254	38	U	
11096-82-5	Aroclor-1260	38	U	

7-24-96

001006

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EBEC1
X201

Lab Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 24701 SAS No.: SDG No.: EBDY1

Matrix: (soil/water) SOIL Lab Sample ID: 15809.01

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 18 decanted: (Y/N) N Date Received: 05/24/96

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 05/29/96

Concentrated Extract Volume: 5000(uL) Date Analyzed: 06/04/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.0 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	2.1	U
319-85-7	beta-BHC	2.1	U
319-86-8	delta-BHC	2.1	U
58-89-9	gamma-BHC (Lindane)	2.1	U
76-44-8	Heptachlor	2.1	U
309-00-2	Aldrin	2.1	U
1024-57-3	Heptachlor epoxide	0.18	PJ
959-98-8	Endosulfan I	0.13	PJ
60-57-1	Dieldrin	4.0 ~~0.68~~	μ PJB
72-55-9	4,4'-DDE	0.55	J
72-20-8	Endrin	4.0 ~~1.2~~	μ PJB
33213-65-9	Endosulfan II	4.0	U
72-54-8	4,4'-DDD	0.21	PJ
1031-07-8	Endosulfan sulfate	4.0	U
50-29-3	4,4'-DDT	4.0 ~~2.2~~	μ PJB
72-43-5	Methoxychlor	21 ~~2.0~~	μ PJB
53494-70-5	Endrin ketone	1.8	JB
7421-93-4	Endrin aldehyde	4.0	U
5103-71-9	alpha-Chlordane	0.28	PJ
5103-74-2	gamma-Chlordane	0.22	PJ
8001-35-2	Toxaphene	210	U
12674-11-2	Aroclor-1016	40	U
11104-28-2	Aroclor-1221	82	U
11141-16-5	Aroclor-1232	40	U
53469-21-9	Aroclor-1242	40	U
12672-29-6	Aroclor-1248	40	U
11097-69-1	Aroclor-1254	40	U
11096-82-5	Aroclor-1260	40	U

7-29-96

001201

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EBEC3
X203

Lab Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 24701 SAS No.: SDG No.: EBDY1

Matrix: (soil/water) SOIL Lab Sample ID: 15809.03

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 22 decanted: (Y/N) N Date Received: 05/24/96

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 05/29/96

Concentrated Extract Volume: 5000(uL) Date Analyzed: 06/04/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.3 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	2.2	U
319-85-7	beta-BHC	0.50	J
319-86-8	delta-BHC	2.2	U
58-89-9	gamma-BHC (Lindane)	2.2	U
76-44-8	Heptachlor	2.2	U
309-00-2	Aldrin	0.21	J
1024-57-3	Heptachlor epoxide	0.36	PJ
959-98-8	Endosulfan I	2.2	U
60-57-1	Dieldrin	4.6	B
72-55-9	4,4'-DDE	2.2	J
72-20-8	Endrin	4.2 ~~1.0~~	μPJB
33213-65-9	Endosulfan II	4.2	U
72-54-8	4,4'-DDD	0.54	PJ
1031-07-8	Endosulfan sulfate	4.2	U
50-29-3	4,4'-DDT	4.2	PB
72-43-5	Methoxychlor	3.5	PJB
53494-70-5	Endrin ketone	4.2 ~~0.63~~	μPJB
7421-93-4	Endrin aldehyde	4.2	U
5103-71-9	alpha-Chlordane	0.54	PJ
5103-74-2	gamma-Chlordane	0.60	J
8001-35-2	Toxaphene	220	U
12674-11-2	Aroclor-1016	42	U
11104-28-2	Aroclor-1221	86	U
11141-16-5	Aroclor-1232	42	U
53469-21-9	Aroclor-1242	42	U
12672-29-6	Aroclor-1248	42	U
11097-69-1	Aroclor-1254	42	U
11096-82-5	Aroclor-1260	42	U

ACH 7-29-96

001269

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EBEC5
X205

Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 24701 SAS No.: SDG No.: EBDY1

Matrix: (soil/water) SOIL Lab Sample ID: 15809.05

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 25 decanted: (Y/N) N Date Received: 05/24/96

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 05/29/96

Concentrated Extract Volume: 5000(uL) Date Analyzed: 06/04/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.2 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG		Q	
319-84-6	alpha-BHC		2.3	U	
319-85-7	beta-BHC		2.3	U	
319-86-8	delta-BHC		2.3	U	
58-89-9	gamma-BHC (Lindane)		2.3	U	
76-44-8	Heptachlor		2.3	U	
309-00-2	Aldrin		2.3	U	
1024-57-3	Heptachlor epoxide		0.48	PJ	•
959-98-8	Endosulfan I		2.3	U	
60-57-1	Dieldrin	4.4	~~0.81~~	u PJB	
72-55-9	4,4'-DDE		1.3	J	•
72-20-8	Endrin		4.4	U	
33213-65-9	Endosulfan II		0.42	PJ	•
72-54-8	4,4'-DDD		0.35	PJ	•
1031-07-8	Endosulfan sulfate		4.4	U	
50-29-3	4,4'-DDT		4.4	PB	•
72-43-5	Methoxychlor	23	~~2.3~~	u PJB	
53494-70-5	Endrin ketone	4.4	~~0.74~~	u JB	
7421-93-4	Endrin aldehyde		4.4	U	
5103-71-9	alpha-Chlordane		0.96	J	•
5103-74-2	gamma-Chlordane		0.71	PJ	•
8001-35-2	Toxaphene		230	U	
12674-11-2	Aroclor-1016		44	U	
11104-28-2	Aroclor-1221		89	U	
11141-16-5	Aroclor-1232		44	U	
53469-21-9	Aroclor-1242		44	U	
12672-29-6	Aroclor-1248		44	U	
11097-69-1	Aroclor-1254		44	U	
11096-82-5	Aroclor-1260		44	U	

ACH 7-29-96

001321

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EBEC7
X207

Name: ATAS, INC. Contract: 68-D5-0018

Lab Code: ATAS Case No.: 24701 SAS No.: SDG No.: EBDY1

Matrix: (soil/water) SOIL Lab Sample ID: 15809.07

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 33 decanted: (Y/N) N Date Received: 05/24/96

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 05/29/96

Concentrated Extract Volume: 5000(uL) Date Analyzed: 06/04/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.7 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
319-84-6	alpha-BHC	0.35	PJ	•
319-85-7	beta-BHC	2.5	U	
319-86-8	delta-BHC	2.5	U	
58-89-9	gamma-BHC (Lindane)	2.5	U	
76-44-8	Heptachlor	2.5	U	
309-00-2	Aldrin	2.5	U	
1024-57-3	Heptachlor epoxide	2.2	PJ	•
959-98-8	Endosulfan I	2.1	PJ	•
60-57-1	Dieldrin	4.9 ~~1.2~~	u PJB	• alt 9-29-96
72-55-9	4,4'-DDE	1.4	PJ	•
72-20-8	Endrin	3.7	PJB	•
33213-65-9	Endosulfan II	4.9	U	
72-54-8	4,4'-DDD	4.9	U	
1031-07-8	Endosulfan sulfate	4.9	U	
50-29-3	4,4'-DDT	9.3	PB	•
72-43-5	Methoxychlor	5.6	PJB	•
53494-70-5	Endrin ketone	4.1	PJB	•
7421-93-4	Endrin aldehyde	4.9	U	
5103-71-9	alpha-Chlordane	0.45	PJ	•
5103-74-2	gamma-Chlordane	2.5	U	
8001-35-2	Toxaphene	250	U	
12674-11-2	Aroclor-1016	49	U	
11104-28-2	Aroclor-1221	100	U	
11141-16-5	Aroclor-1232	49	U	
53469-21-9	Aroclor-1242	49	U	
12672-29-6	Aroclor-1248	49	U	
11097-69-1	Aroclor-1254	49	U	
11096-82-5	Aroclor-1260	49	U	

001389

EPA United States Environmental Protection Agency
Contract Laboratory Program

Inorganic Traffic Report & Chain of Custody Record
(For Inorganic CLP Analysis)

Case No.: 24701

1. Matrix (Enter in Column A)
1. Surface Water
2. Ground Water
3. Leachate
4. Field QC
5. Soil/Sediment
6. Oil (High only)
7. Waste (High only)
8. Other (specify in Column A)

2. Preservative (Enter in Column D)
1. HCl
2. HNO3
3. NaOH
4. H_2SO_4
5. $K_2CR_2O_7$
6. Ice only
7. Other (specify in Column D)
N. Not preserved

2. Region No.: 5
Sampling Co.: IEPA
Sampler (Name): MARK WEBER
Sampler Signature: Mark Weber
3. Purpose*
Lead: SF, PRP, ST, FED
Early Action: CLEM, PA, REM, RI, SI, ESI (X)
Long-Term Action: FS, RD, RA, O&M, NPLD

4. Date Shipped: 5/23/96
Carrier: FED EX
Airbill Number: 8668592715
5. Ship To: SOUTHWEST LABS OF OKLAHOMA, INC
1700 WEST ALBANY, SUITE C
BROKEN ARROW, OK 74012
ATTN: JASON RUCKMAN

6. Date Received -- Received by: 5/24/96 D. Ullison
Laboratory Contract Number: 68-D5-0136
Unit Price: $18.90
7. Transfer to:
Date Received
Received by
Contract Number
Price

CLP Sample Numbers (from labels)	A Matrix (from Box 1) / Other	B Conc. Low Med High	C Sample Type: Comp./Grab	D Preservative (from Box 2) / Other	E – RAS Analysis: Diss. Metals	Total Metals	Cyanide	Low only: NO_2/NO_3	Fluoride	High only: pH	Conduct.	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/Year/Time Sample Collection	I Corresponding CLP Organic Sample No.	J Sampler Initials	K High Phases: Solids	Water-Miscible Liq.	Water-Immis. Liq.
MEAMR0	5	L	G	6		X	X					5-162033	X101	5/22/96/10:00	EBEB1	MW			
MEAMR1	5	L	G	6		X	X					5-162037	X102	5/22/96/10:15	EBEB2	MW			
MEAMR2	5	L	G	6		X	X					5-162042	X103	5/22/96/10:45	EBEB3	MW			
MEAMR3	5	L	G	6		X	X					5-162046	X104	5/22/96/11:00	EBDY1	MW			
MEAMR4	5	L	G	6		X	X					5-162050	X105	5/22/96/13:30	EBDY2	MW			
~~MEAMR5~~	~~5~~	~~L~~	~~G~~	~~6~~		~~X~~	~~X~~					~~5-162060~~	~~X106~~		~~EBDY3~~	~~MW~~			
~~MEAMR6~~	~~5~~	~~L~~	~~G~~	~~6~~		~~X~~	~~X~~					~~5-162058~~	~~X107~~		~~EBDY4~~	~~MW~~			
~~MEAMR7~~	~~5~~	~~L~~	~~G~~	~~6~~		~~X~~	~~X~~					~~5-162055~~	~~X108~~		~~EBDY5~~	~~MW~~			
~~MEAMR8~~	~~5~~	~~L~~	~~G~~	~~6~~		~~X~~	~~X~~					~~5-162059~~	~~X109~~		~~EBDY6~~	~~MW~~			
~~MEAMR9~~	~~5~~	~~L~~	~~G~~	~~6~~		~~X~~	~~X~~					~~5-162063~~	~~X110~~		~~EBDY7~~	~~MW~~			

Shipment for Case Complete? (Y/N): Y
Page: 2 of 2
Sample(s) to be Used for Laboratory QC: MEAMR0
Additional Sampler Signatures:
Chain of Custody Seal Number(s): 41675 / 41700

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Mark J. Weber	5/23/96 17:00				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact? Y/N/none	
		D. Ullison	5/24/96 0845	intact	

DISTRIBUTION: Green - Region Copy; White - Lab Copy for Return to Region; Pink - CLASS Copy; Yellow - Lab Copy for Return to SMO

EPA Form 9110-1

SEE REVERSE FOR ADDITIONAL STANDARD INSTRUCTIONS
*SEE REVERSE FOR PURPOSE CODE DEFINITIONS

MEAMR0

A21-012-14 REV

373

365612

EPA United States Environmental Protection Agency Contract Laboratory Program

Inorganic Traffic Report & Chain of Custody Record

(For Inorganic CLP Analyis)

SAS No. (if applicable):

Case No.: 24701

1. Matrix (Enter in Column A)
   1. Surface Water
   2. Ground Water
   3. Leachate
   4. Field QC
   5. Soil/Sediment
   6. Oil (High only)
   7. Waste (High only)
   8. Other (specify in Column A)

2. Preservative (Enter in Column D)
   1. HCl
   2. HNO3
   3. NaOH
   4. H_2SO_4
   5. $K_2CR_2O_7$
   6. ice only
   7. Other (specify in Column D)
   N. Not preserved

2. Region No.: 5

Sampling Co.: TEPA

Sampler (Name): MARK WEBER

Sampler Signature: Mark Weber

3. Purpose*

Lead: SF, PRP, ST, FED

Early Action: CLEM, PA, REM, RI, SI, ESI (X)

Long-Term Action: FS, RD, RA, O&M, NPLD

4. Date Shipped: 5/23/96

Carrier: FED EX

Airbill Number: 8668592715

5. Ship To: SOUTHWEST LAB OF OKLAHOMA, INC
1700 WEST ALBANY, SUITE C
BROKEN ARROW, OK 74012
ATTN: JASON RUCKMAN

6. Date Received – Received by: D. Williams 5-24-96

Laboratory Contract Number: 68-D5-0136

Unit Price: 48.90

7. Transfer to:

Date Received:

Received by:

Contract Number:

Price:

CLP Sample Numbers (from labels)	A Matrix (from Box 1) Other:	B Conc.: Low Med High	C Sample Type: Comp./ Grab	D Preservative (from Box 2) Other:	E – RAS Analysis: Diss. Metals	Total Metals	Cyanide	Low only: NO_2/NO_3	Fluoride	High only: pH	Conduct.	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/ Year/Time Sample Collection	I Corresponding CLP Organic Sample No.	J Sampler Initials	K High Phases: Solids	Water-Miscible Liq.	Water-Immis. Liq.
MEAMR5	5	L	G	6		X	X					5-162600	X106	5/22/96/16:00	—	MW			
MEAMR6	5	L	G	6		X	X					5-162056	X107	5/22/96/16:10	—	MW			
MEAMR7	5	L	G	6		X	X					5-162555	X108	5/22/96/16:20	—	MW			
MEAMR8	5	L	G	6		X	X					5-162559	X109	5/22/96/16:45	—	MW			
MEAMR9	5	L	G	6		X	X					5-162563	X110	5/22/96/17:10	—	MW			

Shipment for Case Complete? (Y/N): Y

Page: 1 of 2

Sample(s) to be Used for Laboratory QC: MEAMR0

Additional Sampler Signatures:

Chain of Custody Seal Number(s): 157998/157997

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Mark J. Weber	5/22/96 17:00				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks: Is custody seal intact? Y/N/none	
		D. Williams	5/24/96 0845	INTACT	

DISTRIBUTION: Green - Region Copy; White - Lab Copy for Return to Region; Pink - SMO Copy; Yellow - Lab Copy for Return to SMO

EPA Form 9110-1

SEE REVERSE FOR ADDITIONAL STANDARD INSTRUCTIONS

*SEE REVERSE FOR PURPOSE CODE DEFINITIONS

REV. 3/93

MEAMR0

362257

EPA United States Environmental Protection Agency
Contract Laboratory Program

Inorganic Traffic Report & Chain of Custody Record
(For Inorganic CLP Analysis)

Case No. 24701

1. Matrix (Enter in Column A)
1. Surface Water
2. Ground Water
3. Leachate
4. Field QC
5. Soil/Sediment
6. Oil (High only)
7. Waste (High only)
8. Other (specify in Column A)

2. Preservative (Enter in Column D)
1. HCl
2. HNO3
3. NaOH
4. H_2SO_4
5. $K_2CR_2O_7$
6. Ice only
7. Other (specify in Column D)
N. Not preserved

2. Region No.: 5
Sampling Co.: TEPA
Sampler (Name): MARK WEBER
Sampler Signature: Mark Weber
3. Purpose*: Lead: SF, PRP, ST, FED; Early Action: CLEM, PA, REM, RI, SI, ESI; Long-Term Action: FS, RD, RA, O&M, NPLD

4. Date Shipped: 5/23/96
Carrier: FED EX
Airbill Number: 866 859 2715
5. Ship To: SOUTHWEST LABS OF OKLAHOMA, INC
1700 WEST ALBANY, SUITE C
BROKEN ARROW, OK 74012
ATTN: JASON BUCKMAN

6. Date Received -- Received by: D. Wilson 5-24-96
Laboratory Contract Number: 68-D5-0136
Unit Price: $78.90
7. Transfer to:
Date Received:
Received by:
Contract Number:
Price:

CLP Sample Numbers (from labels)	A Matrix (from Box 1) Other:	B Conc. Low Med High	C Sample Type: Comp./Grab	D Preservative (from Box 2) Other:	E RAS Analysis: Diss. Metals	Total Metals	Cyanide	Low only: NO_2/NO_3	Fluoride	High only: pH	Conduct.	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/Year/Time Sample Collection	I Corresponding CLP Organic Sample No.	J Sampler Initials	K High Phases: Solids	Water-Miscible Liq.	Water-Immis. Liq.
MEAMS0	5	L	G	6		X	X					5-162567	X111	5/23/96/8:45	~~EBDZ8~~	MW			
MEAMS1	5	L	G	6		X	X					5-162574	X112	5/23/96/9:00	EBDV9	MW			
MEAMS2	5	L	G	6		X	X					5-162578	X113	5/23/96/9:20	EBDZ0	MW			
MEAMS3	5	L	G	6		X	X					5-162582	X114	5/23/96/9:50	EBDZ1	MW			
MEAMS4	5	L	G	6		X	X					5-162587	X115	5/23/96/10:15	EBDZ2	MW			
MEAMS5	5	L	G	6		X	X					5-162591	X116	5/23/96/10:40	EBDZ3	MW			
MEAMS6	5	L	G	6		X	X					5-162596	X117	5/23/96/10:50	EBDZ4	MW			
MEAMS7	5	L	G	6		X	X					5-162601	X118	5/23/96/11:00	EBDZ5	MW			
MEAMS8	5	L	G	6		X	X					5-162150	X119	5/23/96/11:15	EBDZ6	MW			
MEAMS9	5	L	G	6		X	X					5-025798	X120	5/23/96/11:25	~~EBDZ7~~	MW	* final sample		

DC 5/23/96

Shipment for Case Complete? (Y/N): Y
Page: 2 of 2
Sample(s) to be Used for Laboratory QC: MEAMR0
Additional Sampler Signatures:
Chain of Custody Seal Number(s): 157998/157999 need in SDG MW 06/31/96

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Mark J. Weber	5/23/96 17:00				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact? Y/N/none	
		D. Wilson	5/24/96 0845	INTACT	

DISTRIBUTION: Green - Region Copy; White - Lab Copy for Return to Region; Pink - CLASS Copy; Yellow - Lab Copy for Return to SMO

EPA Form 9110-1

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*SEE REVERSE FOR PURPOSE CODE DEFINITIONS

MEAMR0

A21-012-14 REV

275

365610

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: 08-08-96

SUBJECT: Review of Region V CLP Data
Received for Review on July 8, 1996

FROM: Stephen L. Ostrodka, Chief (HSRL-5J)
Superfund Technical Support Section L. Finkelberg

TO: Data User: IEPA

We have reviewed the data for the following case:

SITE NAME: Sandoval Zinc (IL)

CASE NUMBER: 24701 SDG NUMBER: MEAMR0

Number and Type of Samples: 20 (soil)

Sample Numbers: MEAMR0-9 MEAMS0-9

Laboratory: SWOK Hrs. for Review: 12.7+1.5=14.2

Following are our findings:

All data are usable with the qualifications described in the attached narrative.

L. Finkelberg

RECEIVED
AUG 16 1996
IEPA/DLPC

cc: Regional TPO
Brian Freeman
HSMC-5J

NARRATIVE

SITE: SANDOVAL ZINC
LABORATORY: SWOK

CASE: 24701
SDG: MEAMR0

The laboratory's portion of case 24701 contains twenty (20) low level soil samples assayed for total metals and cyanide. The following narrative lists the out of control audits and their possible effects on the results.

EVIDENTIAL AUDIT: All sample report forms and the raw data sheets are originals. Sample tags, Airbills, Chain-of-Custody/Traffic Reports and DC-1 Forms are original and present with the case. All forms are present and in the order indicated on the Form DC-2 [inventory sheet].

ICP ANALYSIS: The Initial Cal. Blank contained Sb (3.9µg/L). The Sb results on samples MEAMR1, R8, R9, S0, S2, S3, S5, S7 and S8 are estimated (J) due to contamination. The Sb results for the remaining samples are acceptable.

The matrix spike recovery for As (241.9% R) was out of control. The CCB contained (4.2µg/L). The laboratory duplicate audit for As (21.7% RPD) was flagged by the laboratory, however, the RPD value did not exceed the control level of (+/-2XCRDL) for soil samples. Therefore, all As results are estimated (J) due to high bias and samples MEAMS0 and MEAMS2 are also estimated (J) due to contamination.

The Matrix Spike recovery for Ba (134.3% R) was out of control. All Ba results are estimated (J) due to high bias.

The Matrix Spike recoveries for Cd (-89.3% R), Cu (1025.9% R), Pb (-8140.1% R), and Zn (-6676.6% R) were not flagged by the laboratory because the sample concentration exceeded the spike concentration by a factor of four (4). Therefore, all Cd, Cu, Pb and Zn data are acceptable.

The laboratory duplicate audit for Ca (178.0% RPD) was flagged by the laboratory and is out of control. All Ca data are estimated (J) due to poor precision.

The laboratory duplicate audit for Fe (28.1% RPD) was flagged by the laboratory, however, the RPD values did not exceed the control level of (35%) for soil samples. All Fe data are acceptable.

The duplicate audit for Tl (200.0% RPD) was not flagged by the laboratory because the technical criterion for soil samples (+/-

Reviewed by: W. Ira Wilson
W. Ira Wilson
Lockheed ESAT

Date: August 2, 1996

NARRATIVE

SITE: SANDOVAL ZINC
LABORATORY: SWOK

CASE: 24701
SDG: MEAMR0

2XCRDL) was not exceeded. Therefore, all Tl sample results are acceptable.

CN ANALYSIS: All CN results are acceptable.

HG ANALYSIS: The matrix spike recovery for Hg (9.9% R) was not flagged by the laboratory because the sample concentration exceeded the spike concentration by a factor of four (4). The laboratory duplicate audit for Hg (26.0% RPD) was flagged by the laboratory, however, the RPD value did not exceed the control level of (35%) for soils. Therefore, all Hg data are acceptable.

Reviewed by: W. Ira Wilson
W. Ira Wilson
Lockheed ESAT

Date: August 2, 1996

QC EXCEPTION SUMMARY REPORT

CASE\SAS#: 24201
DATA SET: MEAMRO
LAB QC #
DATE: 8-1-96

SITE: Sandoval Zinc
LAB: SWOK
REVIEWED BY: W Hallett

MATRIX: Soil
CONC: Low

WATER SAMPLE SPK:
WATER SAMPLE DUP:
SOIL SAMPLE SPK:
SOIL SAMPLE DUP:

FORM 6		FORM 2	FORM 2	FORM 3	FORM 3	FORM 3	FORM 4	FORM 5	FORM 6	FORM 7	FORM 7	FORM 9	FORM 9	FORM 6	FORM 5	FIELD	FIELD	FIELD	FIELD	COMMENTS
ELEMENT	HOLD TIME	INITIAL CALIB	CONTIN CALIB	CALIB BLANK	PREP WATER BLANK	PREP SOIL BLANK	ICS SR	SOIL SPIKE SR	SOIL DUP RPD	ICS AQ	ICS SOIL	SERIAL DILUTION AQUEOUS	SERIAL DILUTION SOIL	AQ DUP SR	AQ SPIKE SR	BLANK	DUP RPD	BLANK	DUP RPD	
ALUMINUM																				
ANTIMONY		3.9																		
ARSENIC				4.2				241.9	21.7											
BARIUM								134.3												
BERYLLIUM																				
CADMIUM								-89.3												
CALCIUM									178.0											
CHROMIUM																				
COBALT																				
COPPER								1025.8												
IRON									28.1											
LEAD								-8140.8												
MAGNESIUM																				
MANGANESE																				
MERCURY								9.9	26.0											
NICKEL																				
POTASSIUM																				
SELENIUM																				
SILVER																				
SODIUM																				
THALLIUM									200.0											
TIN																				
VANADIUM																				
ZINC								-667.6												
CYANIDE																				

DATA QUALIFIER DEFINITIONS

For the purpose of defining the flagging nomenclature utinized in this document, the following code letters and associated definitions are provide:

U Indicates the material was analyzed, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.

J Indicates the associated value is an estimated quantity.

R Indicates the data are unusable. (Note: The analyte may or may not be present.)

UJ Indicates the material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.

E Indicates the reported value is estimated because of the presence of interferences. An explanatory note shall be included under Comments on the Cover Page (if the problem applies to all samples) or on the specific FORM I-IN (if it is an isolated problem).

M Indicates duplicate injection precision is not met.

N Indictaes the spike sample recovery is not within control limits.

S Indicates the reported value was determined by the Method of Standard Addition (MSA).

W Indicates the post-digestion spike for furnace AA analysis is out of control limits (85%-115%), while sample absorbance is less than 50% of the spike absorbance.

+ Indicates the correlation coefficient for the MSA is less than 0.995.

* Indicates the duplicate analysis is not within control limits.

Note: Entering "S", "W" or "+" is mutually exclusive. No combination of these qualifiers can appear in the same field for an analyte.

SOUTHWEST LABORATORY OF OKLAHOMA, INC.
1700 West Albany / Broken Arrow, Oklahoma 74012 / Office (918) 251-2858 / Fax (918) 251-2599

SDG NARRATIVE

CONTRACT: 68-D5-0136 **DATE: 06/27/96**
CASE: 24701 **SOW NO.: ILM04.0**
SDG: MEAMR0 **EPISODE NO.: 25743**

INORGANIC METAL FRACTION:

20 soil samples plus one LCSS, one MS, and one DUP were submitted for ICP, CN and Hg analysis. The samples analyses was/were completed according to SOW ILM04.0. No major problems occurred during the digestion or analyses of these samples.

Initial and Continuing Calibration Checks: No problems.

Initial and Continuing Calibration Blanks: The following elements showed low level concentrations below the Contract Required Detection Limit in the Calibration Blanks: Sb, Ca, Pb, Zn, Mg, and As. No action required.

Linearity near the CRDL (CRA & CRI): No problems.

Preparation Blanks: The following elements showed low level concentrations below the Contract Required Detection Limit in the Preparation Blank: Ca, Cr, Pb, Mn, Na, and Zn. No action required.

Lab Control Spikes: No problems.

Matrix Spike: The following elements were outside the control limits of 75-125% recovery: As and Ba. All associated samples were flagged with a "N" on Form I's. No action required.

Duplicate: The following elements were outside the control limits of 0-20% RPD: As, Ca, Fe, and Zn. All associated samples were flagged with a "*" on Form I's. No action required

Serial Dilution (ICP): No problems.

wrong.

RECEIVED
JUL 8 1996
US EPA CENTRAL REGIONAL LAB.
536 S. CLARK ST.
CHICAGO, ILLINOIS 60605

Sincerely,

Jason D. Ruckman
Inorganic Program Manager

U.S. EPA - CLP

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

002

Name SOUTHWEST_LAB_OF_OK_____ Contract: 68-D5-0136

Lab Code SWOK__ Case No.: 24701 SAS No.: _____ SDG No.:MEAMRO

SOW No.: ILM04.0

EPA Sample No.	Lab Sample ID
MEAMR0	2574301
MEAMR0D	2574301D
MEAMR0S	2574301S
MEAMR1	2574302
MEAMR2	2574303
MEAMR3	2574304
MEAMR4	2574305
MEAMR5	2574306
MEAMR6	2574307
MEAMR7	2574308
MEAMR8	2574309
MEAMR9	2574310
MEAMS0	2574311
MEAMS1	2574312
MEAMS2	2574313
MEAMS3	2574314
MEAMS4	2574315
MEAMS5	2574316
MEAMS6	2574317
MEAMS7	2574318

RECEIVED
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US EPA CENTRAL REGIONAL LAB.
536 S. CLARK ST.
CHICAGO, ILLINOIS 60605

Were ICP interelement corrections applied ? Yes/No YES

Were ICP background corrections applied ? Yes/No YES
If yes - were raw data generated before application of background corrections ? Yes/No NO_

Comments:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: _____ Name: Jason D. Ruckman

Date: June 27, 1996 Title: Inorganic Program MAnager

U.S. EPA - CLP

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

003

Name: SOUTHWEST_LAB_OF_OK_____ Contract: 68-D5-0136

Lab Code: SWOK__ Case No.: 24701 SAS No.: _____ SDG No.:MEAMRO

SOW No.: ILM04.0

EPA Sample No.	Lab Sample ID
_MEAMS8_____	_2574319_____
_MEAMS9_____	_2574320_____

RECEIVED
JUL 8 1996
US EPA CENTRAL REGIONAL LAB.
536 S CLARK ST.
CHICAGO, ILLINOIS 60605

Were ICP interelement corrections applied ? Yes/No YES

Were ICP background corrections applied ? Yes/No YES
If yes - were raw data generated before application of background corrections ? Yes/No NO_

Comments:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: _____ Name: J.D.R.

Date: June 27, 1996 Title: Inorganic Program MAnager

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MEAMR0
X101

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: 68-D5-0136

Lab Code SWOK__ Case No.: 24701_ SAS No.: _____ SDG No.: MEAMRO

Matrix (soil/water): SOIL_ Lab Sample ID: 2574301

Level (low/med): LOW__ Date Received: 05/24/96

% Solids: _65.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	5460			P
7440-36-0	Antimony_	57.9			P
7440-38-2	Arsenic__	44.1		N*	P
7440-39-3	Barium___	155		N	P
7440-41-7	Beryllium	0.48	B		P
7440-43-9	Cadmium__	61.5			P
7440-70-2	Calcium__	37300		*	P
7440-47-3	Chromium_	22.1			P
7440-48-4	Cobalt___	5.8	B		P
7440-50-8	Copper___	1820			P
7439-89-6	Iron____	12700		*	P
7439-92-1	Lead____	22300			P
7439-95-4	Magnesium	840	B		P
7439-96-5	Manganese	293			P
7439-97-6	Mercury__	3.9		*	CV
7440-02-0	Nickel___	292			P
7440-09-7	Potassium	236	B		P
7782-49-2	Selenium_	4.2			P
7440-22-4	Silver___	4.0			P
7440-23-5	Sodium___	322	B		P
7440-28-0	Thallium_	1.2	U		P
7440-62-2	Vanadium_	42.5			P
7440-66-6	Zinc____	339000			P
	Cyanide__	0.55	B		CA

Color Before: GREY_____ Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW___ Clarity After: CLEAR_ Artifacts: _____

Comments:

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MEAMR1
X102

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: 68-D5-0136

Lab Code: SWOK__ Case No.: 24701_ SAS No.: _____ SDG No.: MEAMRO

Matrix (soil/water): SOIL_ Lab Sample ID: 2574302

Level (low/med): LOW__ Date Received: 05/24/96

% Solids: _52.1

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	14500			P
7440-36-0	Antimony_	2.7	B		P
7440-38-2	Arsenic__	18.9		N*	P
7440-39-3	Barium___	55.3	B	N	P
7440-41-7	Beryllium	1.5	B		P
7440-43-9	Cadmium__	48.9			P
7440-70-2	Calcium__	279000		*	P
7440-47-3	Chromium_	39.6			P
7440-48-4	Cobalt___	11.0	B		P
7440-50-8	Copper___	1170			P
7439-89-6	Iron____	10200		*	P
7439-92-1	Lead____	2460			P
7439-95-4	Magnesium	4760			P
7439-96-5	Manganese	273			P
7439-97-6	Mercury__	0.19	U	*	CV
7440-02-0	Nickel___	608			P
7440-09-7	Potassium	938	B		P
7782-49-2	Selenium_	2.8			P
7440-22-4	Silver___	1.6	B		P
7440-23-5	Sodium___	1010	B		P
7440-28-0	Thallium_	1.5	U		P
7440-62-2	Vanadium_	289			P
7440-66-6	Zinc____	214000			P
	Cyanide__	0.30	B		CA

Color Before: GREY_____ Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW___ Clarity After: CLEAR_ Artifacts: _____

Comments:

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1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MEAMR2
X103

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: 68-D5-0136

Lab Code: SWOK__ Case No.: 24701_ SAS No.: _____ SDG No.: MEAMRO

Matrix (soil/water): SOIL_ Lab Sample ID: 2574303

Level (low/med): LOW__ Date Received: 05/24/96

% Solids: _81.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	10000	_		P
7440-36-0	Antimony_	164	_		P
7440-38-2	Arsenic__	58.3	_	N*	P
7440-39-3	Barium__	225	_	N	P
7440-41-7	Beryllium	0.73	B		P
7440-43-9	Cadmium__	18.5	_		P
7440-70-2	Calcium__	1320	_	*	P
7440-47-3	Chromium_	52.1	_		P
7440-48-4	Cobalt___	20.4	_		P
7440-50-8	Copper___	4050	_		P
7439-89-6	Iron____	36800	_	*	P
7439-92-1	Lead____	3220	_		P
7439-95-4	Magnesium	709	B		P
7439-96-5	Manganese	326	_		P
7439-97-6	Mercury__	0.40	_	*	CV
7440-02-0	Nickel___	3750	_		P
7440-09-7	Potassium	433	B		P
7782-49-2	Selenium_	1.9	_		P
7440-22-4	Silver___	2.7	_		P
7440-23-5	Sodium___	1080	B		P
7440-28-0	Thallium_	0.98	U		P
7440-62-2	Vanadium_	21.4	_		P
7440-66-6	Zinc____	97400	_		P
	Cyanide__	0.40	B		CA

Color Before: GREY_____ Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW___ Clarity After: CLEAR_ Artifacts: _____

Comments:

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1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MEAMR3
X104

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: 68-D5-0136

Lab Code: SWOK__ Case No.: 24701_ SAS No.: _____ SDG No.: MEAMRO

Matrix (soil/water): SOIL_ Lab Sample ID: 2574304

Level (low/med): LOW__ Date Received: 05/24/96

% Solids: _86.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	5950			P
7440-36-0	Antimony	79.5			P
7440-38-2	Arsenic	32.3		N*	P
7440-39-3	Barium	157		N	P
7440-41-7	Beryllium	0.59	B		P
7440-43-9	Cadmium	4.1			P
7440-70-2	Calcium	3120		*	P
7440-47-3	Chromium	23.7			P
7440-48-4	Cobalt	11.1	B		P
7440-50-8	Copper	1270			P
7439-89-6	Iron	24100		*	P
7439-92-1	Lead	2700			P
7439-95-4	Magnesium	496	B		P
7439-96-5	Manganese	683			P
7439-97-6	Mercury	0.15		*	CV
7440-02-0	Nickel	530			P
7440-09-7	Potassium	337	B		P
7782-49-2	Selenium	1.1	B		P
7440-22-4	Silver	1.3	B		P
7440-23-5	Sodium	298	B		P
7440-28-0	Thallium	0.93	U		P
7440-62-2	Vanadium	44.0			P
7440-66-6	Zinc	15300			P
	Cyanide	0.18	B		CA

Color Before: GREY_____ Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW___ Clarity After: CLEAR_ Artifacts: _____

Comments:

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MEAMR4
X105

Lab Name: SOUTHWEST_LAB_OF_OK Contract: 68-D5-0136

Lab Code: SWOK Case No.: 24701 SAS No.: SDG No.: MEAMRO

Matrix (soil/water): SOIL Lab Sample ID: 2574305

Level (low/med): LOW Date Received: 05/24/96

% Solids: 67.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	8650			P
7440-36-0	Antimony	15.7	B		P
7440-38-2	Arsenic	8.2		N*	P
7440-39-3	Barium	160		N	P
7440-41-7	Beryllium	0.68	B		P
7440-43-9	Cadmium	4.2			P
7440-70-2	Calcium	1830		*	P
7440-47-3	Chromium	11.7			P
7440-48-4	Cobalt	9.0	B		P
7440-50-8	Copper	764			P
7439-89-6	Iron	13700		*	P
7439-92-1	Lead	603			P
7439-95-4	Magnesium	1120	B		P
7439-96-5	Manganese	637			P
7439-97-6	Mercury	0.15	U	*	CV
7440-02-0	Nickel	83.7			P
7440-09-7	Potassium	496	B		P
7782-49-2	Selenium	0.89	U		P
7440-22-4	Silver	0.60	U		P
7440-23-5	Sodium	235	B		P
7440-28-0	Thallium	1.2	U		P
7440-62-2	Vanadium	21.8			P
7440-66-6	Zinc	3360			P
	Cyanide	0.21	B		CA

Color Before: GREY Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts:

Comments:

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1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MEAMR5
X106

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: 68-D5-0136

Lab Code: SWOK__ Case No.: 24701_ SAS No.: _____ SDG No.: MEAMRO

Matrix (soil/water): SOIL_ Lab Sample ID: 2574306

Level (low/med): LOW__ Date Received: 05/24/96

% Solids: _83.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	5540			P
7440-36-0	Antimony_	0.48	U		P
7440-38-2	Arsenic__	9.4		N*	P
7440-39-3	Barium___	106		N	P
7440-41-7	Beryllium	0.43	B		P
7440-43-9	Cadmium__	0.46	B		P
7440-70-2	Calcium__	2880		*	P
7440-47-3	Chromium_	9.9			P
7440-48-4	Cobalt___	5.3	B		P
7440-50-8	Copper___	20.7			P
7439-89-6	Iron____	12900		*	P
7439-92-1	Lead____	69.3			P
7439-95-4	Magnesium	1010	B		P
7439-96-5	Manganese	591			P
7439-97-6	Mercury__	0.12	U	*	CV
7440-02-0	Nickel___	9.9			P
7440-09-7	Potassium	347	B		P
7782-49-2	Selenium_	0.72	U		P
7440-22-4	Silver___	0.48	U		P
7440-23-5	Sodium___	163	B		P
7440-28-0	Thallium_	0.96	U		P
7440-62-2	Vanadium_	22.4			P
7440-66-6	Zinc____	349			P
	Cyanide__	0.33	B		CA

Color Before: GREY_____ Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW___ Clarity After: CLEAR_ Artifacts: _____

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MEAMR6
X107

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: 68-D5-0136

Lab Code: SWOK__ Case No.: 24701_ SAS No.: _____ SDG No.: MEAMRO

Matrix (soil/water): SOIL_ Lab Sample ID: 2574307

Level (low/med): LOW__ Date Received: 05/24/96

% Solids: _71.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	5980			P
7440-36-0	Antimony_	20.0			P
7440-38-2	Arsenic__	11.4		N*	P
7440-39-3	Barium___	135		N	P
7440-41-7	Beryllium	0.56	B		P
7440-43-9	Cadmium__	2.9			P
7440-70-2	Calcium__	17000		*	P
7440-47-3	Chromium_	9.6			P
7440-48-4	Cobalt___	5.5	B		P
7440-50-8	Copper___	503			P
7439-89-6	Iron____	12900		*	P
7439-92-1	Lead____	1060			P
7439-95-4	Magnesium	3070			P
7439-96-5	Manganese	384			P
7439-97-6	Mercury__	0.14	U	*	CV
7440-02-0	Nickel___	67.4			P
7440-09-7	Potassium	477	B		P
7782-49-2	Selenium_	0.90	B		P
7440-22-4	Silver___	0.56	U		P
7440-23-5	Sodium___	233	B		P
7440-28-0	Thallium_	1.1	U		P
7440-62-2	Vanadium_	18.4			P
7440-66-6	Zinc____	5200			P
_____	Cyanide__	0.88			CA
_____	_____	_____			

Color Before: GREY_____ Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW___ Clarity After: CLEAR_ Artifacts: _____

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MEAMR7
X108

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: 68-D5-0136

Lab Code: SWOK__ Case No.: 24701_ SAS No.: _____ SDG No.: MEAMRO

Matrix (soil/water): SOIL_ Lab Sample ID: 2574308

Level (low/med): LOW__ Date Received: 05/24/96

% Solids: _74.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	5990	_		P
7440-36-0	Antimony_	0.54	U		P
7440-38-2	Arsenic__	8.4	_	N*	P
7440-39-3	Barium___	133	_	N	P
7440-41-7	Beryllium	0.75	B		P
7440-43-9	Cadmium__	0.32	B		P
7440-70-2	Calcium__	3200	_	*	P
7440-47-3	Chromium_	10.8	_		P
7440-48-4	Cobalt___	3.6	B		P
7440-50-8	Copper___	14.7	_		P
7439-89-6	Iron____	13100	_	*	P
7439-92-1	Lead____	26.8	_		P
7439-95-4	Magnesium	787	B		P
7439-96-5	Manganese	248	_		P
7439-97-6	Mercury__	0.14	U	*	CV
7440-02-0	Nickel___	7.4	B		P
7440-09-7	Potassium	276	B		P
7782-49-2	Selenium_	0.97	B		P
7440-22-4	Silver___	0.54	U		P
7440-23-5	Sodium___	187	B		P
7440-28-0	Thallium_	1.1	U		P
7440-62-2	Vanadium_	28.2	_		P
7440-66-6	Zinc____	112	_		P
	Cyanide__	0.15	B		CA

Color Before: GREY_____ Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW___ Clarity After: CLEAR_ Artifacts: _____

Comments:

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MEAMR8
X109

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: 68-D5-0136

Lab Code: SWOK__ Case No.: 24701_ SAS No.: _____ SDG No.: MEAMRO

Matrix (soil/water): SOIL_ Lab Sample ID: 2574309

Level (low/med): LOW__ Date Received: 05/24/96

% Solids: _84.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	6940			P
7440-36-0	Antimony_	2.6	B		P
7440-38-2	Arsenic__	22.3		N*	P
7440-39-3	Barium___	131		N	P
7440-41-7	Beryllium	0.69	B		P
7440-43-9	Cadmium__	0.50	B		P
7440-70-2	Calcium__	2380		*	P
7440-47-3	Chromium_	10.5			P
7440-48-4	Cobalt___	4.2	B		P
7440-50-8	Copper___	155			P
7439-89-6	Iron____	21300		*	P
7439-92-1	Lead____	174			P
7439-95-4	Magnesium	958	B		P
7439-96-5	Manganese	192			P
7439-97-6	Mercury__	0.12	U	*	CV
7440-02-0	Nickel___	23.6			P
7440-09-7	Potassium	463	B		P
7782-49-2	Selenium_	0.71	U		P
7440-22-4	Silver___	0.47	U		P
7440-23-5	Sodium___	629	B		P
7440-28-0	Thallium_	0.94	U		P
7440-62-2	Vanadium_	19.6			P
7440-66-6	Zinc____	791			P
	Cyanide__	0.15	B		CA

Color Before: GREY_____ Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW___ Clarity After: CLEAR_ Artifacts: _____

Comments:

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MEAMR9
X110

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: 68-D5-0136

Lab Code: SWOK__ Case No.: 24701_ SAS No.: _____ SDG No.: MEAMRO

Matrix (soil/water): SOIL_ Lab Sample ID: 2574310

Level (low/med): LOW__ Date Received: 05/24/96

% Solids: _80.8

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	10100			P
7440-36-0	Antimony	3.2	B		P
7440-38-2	Arsenic	11.8		N*	P
7440-39-3	Barium	304		N	P
7440-41-7	Beryllium	0.65	B		P
7440-43-9	Cadmium	0.68	B		P
7440-70-2	Calcium	14000		*	P
7440-47-3	Chromium	13.7			P
7440-48-4	Cobalt	6.7	B		P
7440-50-8	Copper	133			P
7439-89-6	Iron	15200		*	P
7439-92-1	Lead	220			P
7439-95-4	Magnesium	2420			P
7439-96-5	Manganese	299			P
7439-97-6	Mercury	0.12	U	*	CV
7440-02-0	Nickel	54.7			P
7440-09-7	Potassium	682	B		P
7782-49-2	Selenium	0.74	U		P
7440-22-4	Silver	0.50	U		P
7440-23-5	Sodium	254	B		P
7440-28-0	Thallium	0.99	U		P
7440-62-2	Vanadium	27.9			P
7440-66-6	Zinc	1290			P
	Cyanide	0.15	B		CA

Color Before: GREY_____ Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW___ Clarity After: CLEAR_ Artifacts: _____

Comments:

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MEAMS0
X111

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: 68-D5-0136

Lab Code: SWOK__ Case No.: 24701_ SAS No.: _____ SDG No.: MEAMRO

Matrix (soil/water): SOIL_ Lab Sample ID: 2574311

Level (low/med): LOW__ Date Received: 05/24/96

% Solids: _63.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	4860			P
7440-36-0	Antimony_	1.6	B		P
7440-38-2	Arsenic__	6.0		N*	P
7440-39-3	Barium___	123		N	P
7440-41-7	Beryllium	0.40	B		P
7440-43-9	Cadmium__	0.80	B		P
7440-70-2	Calcium__	8250		*	P
7440-47-3	Chromium_	8.5			P
7440-48-4	Cobalt___	4.0	B		P
7440-50-8	Copper___	41.5			P
7439-89-6	Iron_____	8680		*	P
7439-92-1	Lead_____	131			P
7439-95-4	Magnesium	1340	B		P
7439-96-5	Manganese	494			P
7439-97-6	Mercury__	0.16	U	*	CV
7440-02-0	Nickel___	24.5			P
7440-09-7	Potassium	1010	B		P
7782-49-2	Selenium_	0.95	U		P
7440-22-4	Silver___	0.63	U		P
7440-23-5	Sodium___	254	B		P
7440-28-0	Thallium_	1.3	B		P
7440-62-2	Vanadium_	16.3			P
7440-66-6	Zinc_____	554			P
_____	Cyanide__	0.69	B		CA

Color Before: GREY_____ Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW___ Clarity After: CLEAR_ Artifacts: _____

Comments:

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MEAMS1
X112

Lab Name: SOUTHWEST_LAB_OF_OK Contract: 68-D5-0136

Lab Code: SWOK Case No.: 24701 SAS No.: _____ SDG No.: MEAMRO

Matrix (soil/water): SOIL Lab Sample ID: 2574312

Level (low/med): LOW Date Received: 05/24/96

% Solids: 62.4

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	5850			P
7440-36-0	Antimony	27.1			P
7440-38-2	Arsenic	44.9		N*	P
7440-39-3	Barium	283		N	P
7440-41-7	Beryllium	0.50	B		P
7440-43-9	Cadmium	7.4			P
7440-70-2	Calcium	28700		*	P
7440-47-3	Chromium	26.1			P
7440-48-4	Cobalt	6.9	B		P
7440-50-8	Copper	408			P
7439-89-6	Iron	14500		*	P
7439-92-1	Lead	1150			P
7439-95-4	Magnesium	4020			P
7439-96-5	Manganese	479			P
7439-97-6	Mercury	0.16	U	*	CV
7440-02-0	Nickel	258			P
7440-09-7	Potassium	681	B		P
7782-49-2	Selenium	1.2	B		P
7440-22-4	Silver	1.1	B		P
7440-23-5	Sodium	286	B		P
7440-28-0	Thallium	1.3	U		P
7440-62-2	Vanadium	19.6			P
7440-66-6	Zinc	12500			P
	Cyanide	0.87			CA

Color Before: GREY Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MEAMS2
X113

Lab Name SOUTHWEST_LAB_OF_OK_____ Contract: 68-D5-0136

Lab Code: SWOK__ Case No.: 24701_ SAS No.: _____ SDG No.: MEAMRO

Matrix (soil/water): SOIL_ Lab Sample ID: 2574313

Level (low/med): LOW__ Date Received: 05/24/96

% Solids: _79.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	3530			P
7440-36-0	Antimony	1.4	B		P
7440-38-2	Arsenic	5.1		N*	P
7440-39-3	Barium	85.2		N	P
7440-41-7	Beryllium	0.38	B		P
7440-43-9	Cadmium	0.38	B		P
7440-70-2	Calcium	1650		*	P
7440-47-3	Chromium	7.3			P
7440-48-4	Cobalt	3.4	B		P
7440-50-8	Copper	36.0			P
7439-89-6	Iron	7640		*	P
7439-92-1	Lead	84.5			P
7439-95-4	Magnesium	436	B		P
7439-96-5	Manganese	371			P
7439-97-6	Mercury	0.13	U	*	CV
7440-02-0	Nickel	14.4			P
7440-09-7	Potassium	468	B		P
7782-49-2	Selenium	0.75	U		P
7440-22-4	Silver	0.50	U		P
7440-23-5	Sodium	210	B		P
7440-28-0	Thallium	1.0	U		P
7440-62-2	Vanadium	18.5			P
7440-66-6	Zinc	442			P
	Cyanide	0.13	U		CA

Color Before: GREY_____ Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW___ Clarity After: CLEAR_ Artifacts: _____

Comments:

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MEAMS3
X114

ab Name: SOUTHWEST_LAB_OF_OK_____ Contract: 68-D5-0136

ab Code: SWOK__ Case No.: 24701_ SAS No.: _____ SDG No.: MEAMRO

atrix (soil/water): SOIL_ Lab Sample ID: 2574314

evel (low/med): LOW__ Date Received: 05/24/96

Solids: _68.1

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	5170			P
7440-36-0	Antimony_	1.3	B		P
7440-38-2	Arsenic__	10.6		N*	P
7440-39-3	Barium___	237		N	P
7440-41-7	Beryllium	0.86	B		P
7440-43-9	Cadmium__	1.0	B		P
7440-70-2	Calcium__	2190		*	P
7440-47-3	Chromium_	13.6			P
7440-48-4	Cobalt___	5.0	B		P
7440-50-8	Copper___	95.7			P
7439-89-6	Iron_____	19900		*	P
7439-92-1	Lead_____	248			P
7439-95-4	Magnesium	515	B		P
7439-96-5	Manganese	245			P
7439-97-6	Mercury__	0.15	U	*	CV
7440-02-0	Nickel___	10.2	B		P
7440-09-7	Potassium	1090	B		P
7782-49-2	Selenium_	1.6			P
7440-22-4	Silver___	0.59	U		P
7440-23-5	Sodium___	306	B		P
7440-28-0	Thallium_	1.2	U		P
7440-62-2	Vanadium_	21.3			P
7440-66-6	Zinc_____	464			P
_____	Cyanide__	0.82			CA

olor Before: GREY_____ Clarity Before: _____ Texture: MEDIUM

olor After: YELLOW___ Clarity After: CLEAR_ Artifacts: _____

omments:

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MEAMS4
X115

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: 68-D5-0136

Lab Code: SWOK__ Case No.: 24701_ SAS No.: _____ SDG No.: MEAMRO

Matrix (soil/water): SOIL_ Lab Sample ID: 2574315

Level (low/med): LOW__ Date Received: 05/24/96

% Solids: _72.5

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	8450			P
7440-36-0	Antimony_	0.55	U		P
7440-38-2	Arsenic__	10.7		N*	P
7440-39-3	Barium___	127		N	P
7440-41-7	Beryllium	0.51	B		P
7440-43-9	Cadmium__	0.51	B		P
7440-70-2	Calcium__	22300		*	P
7440-47-3	Chromium_	12.4			P
7440-48-4	Cobalt___	5.7	B		P
7440-50-8	Copper___	33.3			P
7439-89-6	Iron____	13100		*	P
7439-92-1	Lead____	47.1			P
7439-95-4	Magnesium	2620			P
7439-96-5	Manganese	417			P
7439-97-6	Mercury__	0.14	U	*	CV
7440-02-0	Nickel___	13.3			P
7440-09-7	Potassium	433	B		P
7782-49-2	Selenium_	0.83	U		P
7440-22-4	Silver___	0.55	U		P
7440-23-5	Sodium___	296	B		P
7440-28-0	Thallium_	1.1	U		P
7440-62-2	Vanadium_	23.5			P
7440-66-6	Zinc____	272			P
	Cyanide__	0.16	B		CA

Color Before: GREY_____ Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW___ Clarity After: CLEAR_ Artifacts: _____

Comments:

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MEAMS5
X116

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: 68-D5-0136

Lab Code: SWOK__ Case No.: 24701_ SAS No.: _____ SDG No.: MEAMRO

Matrix (soil/water): SOIL_ Lab Sample ID: 2574316

Level (low/med): LOW__ Date Received: 05/24/96

% Solids: _76.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	5160			P
7440-36-0	Antimony_	2.9	B		P
7440-38-2	Arsenic__	7.8		N*	P
7440-39-3	Barium__	226		N	P
7440-41-7	Beryllium	0.55	B		P
7440-43-9	Cadmium__	1.1	B		P
7440-70-2	Calcium__	3000		*	P
7440-47-3	Chromium_	8.0			P
7440-48-4	Cobalt___	6.3	B		P
7440-50-8	Copper___	67.6			P
7439-89-6	Iron____	9900		*	P
7439-92-1	Lead____	217			P
7439-95-4	Magnesium	704	B		P
7439-96-5	Manganese	856			P
7439-97-6	Mercury__	0.13	U	*	CV
7440-02-0	Nickel___	18.8			P
7440-09-7	Potassium	450	B		P
7782-49-2	Selenium_	1.2	B		P
7440-22-4	Silver___	0.52	U		P
7440-23-5	Sodium___	182	B		P
7440-28-0	Thallium_	1.0	U		P
7440-62-2	Vanadium_	22.5			P
7440-66-6	Zinc____	773			P
	Cyanide__	0.42	B		CA

Color Before: GREY_____ Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW___ Clarity After: CLEAR_ Artifacts: _____

Comments:

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MEAMS6
X117

Lab Name: SOUTHWEST_LAB_OF_OK Contract: 68-D5-0136

Lab Code: SWOK Case No.: 24701 SAS No.: SDG No.: MEAMRO

Matrix (soil/water): SOIL Lab Sample ID: 2574317

Level (low/med): LOW Date Received: 05/24/96

% Solids: 68.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	8500			P
7440-36-0	Antimony	56.4			P
7440-38-2	Arsenic	35.0		N*	P
7440-39-3	Barium	219		N	P
7440-41-7	Beryllium	0.86	B		P
7440-43-9	Cadmium	4.6			P
7440-70-2	Calcium	21500		*	P
7440-47-3	Chromium	15.7			P
7440-48-4	Cobalt	10.1	B		P
7440-50-8	Copper	1630			P
7439-89-6	Iron	18500		*	P
7439-92-1	Lead	2840			P
7439-95-4	Magnesium	3040			P
7439-96-5	Manganese	355			P
7439-97-6	Mercury	0.15	U	*	CV
7440-02-0	Nickel	495			P
7440-09-7	Potassium	581	B		P
7782-49-2	Selenium	1.6			P
7440-22-4	Silver	1.4	B		P
7440-23-5	Sodium	332	B		P
7440-28-0	Thallium	1.2	U		P
7440-62-2	Vanadium	24.5			P
7440-66-6	Zinc	21400			P
	Cyanide	0.49	B		CA

Color Before: GREY Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts:

Comments

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MEAMS7
X118

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: 68-D5-0136

Lab Code: SWOK__ Case No.: 24701_ SAS No.: _____ SDG No.: MEAMRO

Matrix (soil/water): SOIL_ Lab Sample ID: 2574318

Level (low/med): LOW__ Date Received: 05/24/96

% Solids: _73.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	7740			P
7440-36-0	Antimony	1.7	B		P
7440-38-2	Arsenic	11.6		N*	P
7440-39-3	Barium	370		N	P
7440-41-7	Beryllium	1.1	B		P
7440-43-9	Cadmium	2.0			P
7440-70-2	Calcium	5550		*	P
7440-47-3	Chromium	24.7			P
7440-48-4	Cobalt	6.1	B		P
7440-50-8	Copper	107			P
7439-89-6	Iron	17900		*	P
7439-92-1	Lead	266			P
7439-95-4	Magnesium	1050	B		P
7439-96-5	Manganese	363			P
7439-97-6	Mercury	0.31		*	CV
7440-02-0	Nickel	18.4			P
7440-09-7	Potassium	900	B		P
7782-49-2	Selenium	0.91	B		P
7440-22-4	Silver	0.55	U		P
7440-23-5	Sodium	339	B		P
7440-28-0	Thallium	1.1	U		P
7440-62-2	Vanadium	70.3			P
7440-66-6	Zinc	897			P
	Cyanide	0.83			CA

Color Before: GREY_____ Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW___ Clarity After: CLEAR_ Artifacts: _____

Comments:

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MEAMS8
X119

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: 68-D5-0136

Lab Code: SWOK__ Case No.: 24701_ SAS No.: _____ SDG No.: MEAMRO

Matrix (soil/water): SOIL_ Lab Sample ID: 2574319

Level (low/med): LOW__ Date Received: 05/24/96

% Solids: _84.8

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	6490			P
7440-36-0	Antimony_	1.1	B		P
7440-38-2	Arsenic__	11.8		N*	P
7440-39-3	Barium___	362		N	P
7440-41-7	Beryllium	1.0	B		P
7440-43-9	Cadmium__	1.2			P
7440-70-2	Calcium__	4420		*	P
7440-47-3	Chromium_	15.1			P
7440-48-4	Cobalt___	10.7	B		P
7440-50-8	Copper___	51.1			P
7439-89-6	Iron____	20300		*	P
7439-92-1	Lead____	385			P
7439-95-4	Magnesium	793	B		P
7439-96-5	Manganese	946			P
7439-97-6	Mercury__	0.33		*	CV
7440-02-0	Nickel___	17.4			P
7440-09-7	Potassium	1010	B		P
7782-49-2	Selenium_	1.4			P
7440-22-4	Silver___	0.47	U		P
7440-23-5	Sodium___	344	B		P
7440-28-0	Thallium_	1.2	B		P
7440-62-2	Vanadium_	37.0			P
7440-66-6	Zinc____	591			P
	Cyanide__	0.60			CA

Color Before: GREY_____ Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW___ Clarity After: CLEAR_ Artifacts: _____

Comments:

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MEAMS9
X120

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: 68-D5-0136

Lab Code: SWOK__ Case No.: 24701_ SAS No.: _____ SDG No.: MEAMRO

Matrix (soil/water): SOIL_ Lab Sample ID: 2574320

Level (low/med): LOW__ Date Received: 05/24/95

% Solids: _74.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	5290			P
7440-36-0	Antimony_	16.7			P
7440-38-2	Arsenic__	8.1		N*	P
7440-39-3	Barium___	202		N	P
7440-41-7	Beryllium	0.71	B		P
7440-43-9	Cadmium__	1.5			P
7440-70-2	Calcium__	6800		*	P
7440-47-3	Chromium_	8.3			P
7440-48-4	Cobalt___	5.4	B		P
7440-50-8	Copper___	197			P
7439-89-6	Iron____	10400		*	P
7439-92-1	Lead____	418			P
7439-95-4	Magnesium	1140	B		P
7439-96-5	Manganese	631			P
7439-97-6	Mercury__	0.14	U	*	CV
7440-02-0	Nickel___	23.8			P
7440-09-7	Potassium	613	B		P
7782-49-2	Selenium_	1.4			P
7440-22-4	Silver___	0.54	U		P
7440-23-5	Sodium___	256	B		P
7440-28-0	Thallium_	1.1	U		P
7440-62-2	Vanadium_	20.7			P
7440-66-6	Zinc____	2090			P
	Cyanide__	0.52	B		CA

Color Before: GREY_____ Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW___ Clarity After: CLEAR_ Artifacts: _____

Comments:

U.S. EPA - CLP

3
BLANKS

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: 68-D5-0136

Lab Code: SWOK__ Case No.: 24701_ SAS No.: _____ SDG No.: MEAMRO

Preparation Blank Matrix (soil/water): SOIL_

Preparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum	10.0	U	10.0	U	10.0	U	10.0	U	2.000	U	P
Antimony	3.9	B	2.0	U	2.0	U	2.1	B	0.400	U	P
Arsenic	3.0	U	3.0	U	3.0	U	3.0	U	0.600	U	P
Barium	1.0	U	1.0	U	1.0	U	1.0	U	0.200	U	P
Beryllium	1.0	U	1.0	U	1.0	U	1.0	U	0.200	U	P
Cadmium	1.0	U	1.0	U	1.0	U	1.0	U	0.200	U	P
Calcium	-10.8	B	-8.1	B	-13.3	B	-11.9	B	2.376	B	P
Chromium	1.0	U	1.0	U	1.0	U	1.0	U	0.412	B	P
Cobalt	2.0	U	2.0	U	2.0	U	2.0	U	0.400	U	P
Copper	2.0	U	2.0	U	2.0	U	2.0	U	0.400	U	P
Iron	16.0	U	16.0	U	16.0	U	16.0	U	3.200	U	P
Lead	-1.5	B	-2.1	B	-1.0	B	-2.0	B	0.485	B	P
Magnesium	7.0	U	7.0	U	-7.5	B	7.0	U	1.400	U	P
Manganese	1.0	U	1.0	U	1.0	U	1.0	U	0.557	B	P
Mercury	0.2	U	0.2	U	0.2	U	0.2	U	0.100	U	CV
Nickel	1.0	U	1.0	U	1.0	U	1.0	U	0.200	U	P
Potassium	62.0	U	62.0	U	62.0	U	62.0	U	12.400	U	P
Selenium	3.0	U	3.0	U	3.0	U	3.0	U	0.600	U	P
Silver	2.0	U	2.0	U	2.0	U	2.0	U	0.400	U	P
Sodium	8.0	U	8.0	U	8.0	U	8.0	U	2.552	B	P
Thallium	4.0	U	4.0	U	4.0	U	4.0	U	0.800	U	P
Vanadium	1.0	U	1.0	U	1.0	U	1.0	U	0.200	U	P
Zinc	2.0	U	2.0	U	18.1	B	12.1	B	0.869	B	P
Cyanide	2.0	U	2.0	U	2.0	U	2.0	U	0.100	U	CA

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: 68-D5-0136

Lab Code: SWOK__ Case No.: 24701_ , SAS No.: _____ SDG No.: MEAMRO

Preparation Blank Matrix (soil/water): _____

Preparation Blank Concentration Units (ug/L or mg/kg): _____

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum			10.0	U	10.0	U					P
Antimony			2.0	U	2.0	U					P
Arsenic			3.0	U	3.0	U					P
Barium			1.0	U	1.0	U					P
Beryllium			1.0	U	1.0	U					P
Cadmium			1.0	U	1.0	U					P
Calcium			-15.2	B	-12.7	B					P
Chromium			1.0	U	1.0	U					P
Cobalt			2.0	U	2.0	U					P
Copper			2.0	U	2.0	U					P
Iron			16.0	U	16.0	U					P
Lead			-1.8	B	-2.3	B					P
Magnesium			-8.2	B	-7.5	B					P
Manganese			1.0	U	1.0	U					P
Mercury			0.2	U							CV
Nickel			1.0	U	1.0	U					P
Potassium			62.0	U	62.0	U					P
Selenium			3.0	U	3.0	U					P
Silver			2.0	U	2.0	U					P
Sodium			8.0	U	8.0	U					P
Thallium			4.0	U	4.0	U					P
Vanadium			1.0	U	1.0	U					P
Zinc			5.1	B	5.1	B					P
Cyanide			2.0	U							CA

3
BLANKS

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: 68-D5-0136

Lab Code: SWOK__ Case No.: 24701_ SAS No.: _____ SDG No.: MEAMRO

Preparation Blank Matrix (soil/water): _____

Preparation Blank Concentration Units (ug/L or mg/kg): _____

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum											NR
Antimony											NR
Arsenic	4.2	B	3.0	U	3.0	U	3.8	B			P
Barium	1.0	U	1.0	U	1.0	U	1.0	U			P
Beryllium											NR
Cadmium	1.0	U	1.0	U	1.0	U	1.0	U			P
Calcium	4.0	U	4.0	U	4.0	U	4.0	U			P
Chromium											NR
Cobalt											NR
Copper											NR
Iron											NR
Lead	1.1	B	1.0	U	1.0	U	1.0	U			P
Magnesium											NR
Manganese											NR
Mercury											NR
Nickel											NR
Potassium											NR
Selenium											NR
Silver											NR
Sodium											NR
Thallium											NR
Vanadium											NR
Zinc	2.0	U	2.0	U	3.6	B	2.0	U			P
Cyanide											NR

3
BLANKS

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: 68-D5-0136

Lab Code: SWOK__ Case No.: 24701_ SAS No.: _____ SDG No.: MEAMRO

Preparation Blank Matrix (soil/water): _____

Preparation Blank Concentration Units (ug/L or mg/kg): _____

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum											NR
Antimony											NR
Arsenic											NR
Barium											NR
Beryllium											NR
Cadmium											NR
Calcium			4.0	U	4.0	U					P
Chromium											NR
Cobalt											NR
Copper											NR
Iron											NR
Lead			1.0	U	1.0	U					P
Magnesium											NR
Manganese											NR
Mercury											NR
Nickel											NR
Potassium											NR
Selenium											NR
Silver											NR
Sodium											NR
Thallium											NR
Vanadium											NR
Zinc			2.0	U	2.0	U					P
Cyanide											NR

3
BLANKS

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: 68-D5-0136

Lab Code: SWOK__ Case No.: 24701_ SAS No.: _____ SDG No.: MEAMRO

Preparation Blank Matrix (soil/water): _____

Preparation Blank Concentration Units (ug/L or mg/kg): _____

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum											NR
Antimony											NR
Arsenic											NR
Barium											NR
Beryllium											NR
Cadmium											NR
Calcium											NR
Chromium											NR
Cobalt											NR
Copper											NR
Iron											NR
Lead	1.8	B	1.0	U	1.6	B	1.3	B			P
Magnesium											NR
Manganese											NR
Mercury											NR
Nickel											NR
Potassium											NR
Selenium											NR
Silver											NR
Sodium											NR
Thallium											NR
Vanadium											NR
Zinc	2.0	U	2.0	U	4.1	B	2.0	U			P
Cyanide											NR

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5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

MEAMR0S

Lab Name: SOUTHWEST_LAB_OF_OK Contract: 68-D5-0136

Lab Code: SWOK Case No.: 24701 SAS No.: SDG No.: MEAMRO

Matrix (soil/water): SOIL Level (low/med): LOW

% Solids for Sample: 65.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									NR
Antimony	75-125	205.8557		57.8527		153.14	96.6		P
Arsenic	75-125	73.7678		44.1394		12.25	241.9	N	P
Barium	75-125	977.1400		154.7556		612.56	134.3	N	P
Beryllium	75-125	15.9060		0.4821	B	15.31	100.7		P
Cadmium		47.8361		61.5152		15.31	-89.3		P
Calcium									NR
Chromium	75-125	94.0315		22.1060		61.26	117.4		P
Cobalt	75-125	162.1822		5.7522	B	153.14	102.1		P
Copper		2601.1250		1815.6031		76.57	1025.9		P
Iron									NR
Lead		21820.9495		22319.9387		6.13	-8140.1		P
Magnesium									NR
Manganese	75-125	430.3240		293.3201		153.14	89.5		P
Mercury		3.9357		3.8591		0.77	9.9		CV
Nickel	75-125	431.7632		292.1792		153.14	91.1		P
Potassium									NR
Selenium	75-125	7.0144		4.2083		3.06	91.7		P
Silver	75-125	20.3268		4.0312		15.31	106.4		P
Sodium									NR
Thallium	75-125	15.3476		1.2251	U	15.31	100.2		P
Vanadium	75-125	202.2974		42.4573		153.14	104.4		P
Zinc		328755.3446		338979.8469		153.14	-6676.6		P
Cyanide	75-125	7.6237		0.5459	B	7.66	92.4		CA

Comments:

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5B
POST DIGEST SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

MEAMR0A

Lab Name: SOUTHWEST_LAB_OF_OK Contract: 68-D5-0136

Lab Code: SWOK Case No.: 24701 SAS No.: SDG No.: MEAMRO

Matrix (soil/water) : SOIL Level (low/med): LOW

Concentration Units: ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Added (SA)	%R	Q	M
Aluminum									NR
Antimony									NR
Arsenic		462.90		144.11		300.0	106.3		P
Barium		1465.90		505.28		1000.0	96.1		P
Beryllium									NR
Cadmium									NR
Calcium									NR
Chromium									NR
Cobalt									NR
Copper									NR
Iron									NR
Lead									NR
Magnesium									NR
Manganese									NR
Mercury									NR
Nickel									NR
Potassium									NR
Selenium									NR
Silver									NR
Sodium									NR
Thallium									NR
Vanadium									NR
Zinc									NR
Cyanide									NR

Comments:

6
DUPLICATES

EPA SAMPLE NO.

MEAMR0D

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: 68-D5-0136

Lab Code: SWOK__ Case No.: 24701_ SAS No.: _____ SDG No.: MEAMRO

Matrix (soil/water): SOIL_ Level (low/med): _LOW__

% Solids for Sample: _65.3 % Solids for Duplicate: __62.5

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum		5455.2766		6174.7265		12.4		P
Antimony	18.3767	57.8527		57.2447		1.1		P
Arsenic		44.1394		54.8628		21.7	*	P
Barium	61.2557	154.7556		140.4380		9.7		P
Beryllium		0.4821	B	0.5482	B	12.8		P
Cadmium		61.5152		74.0083		18.4		P
Calcium	1531.394	37265.1966		2172.1369		178.0	*	P
Chromium		22.1060		22.5844		2.1		P
Cobalt		5.7522	B	7.1427	B	21.6		P
Copper		1815.6031		1866.3893		2.8		P
Iron		12707.8998		16865.5412		28.1	*	P
Lead		22319.9387		22815.2527		2.2		P
Magnesium		840.3933	B	1007.6040	B	18.1		P
Manganese		293.3201		315.6913		7.3		P
Mercury		3.8591		2.9709		26.0	*	CV
Nickel		292.1792		300.2101		2.7		P
Potassium		235.9877	B	245.1663	B	3.8		P
Selenium	1.5314	4.2083		4.7807		12.7		P
Silver	3.0628	4.0312		4.9103		19.7		P
Sodium		322.4882	B	264.5828	B	19.7		P
Thallium		1.2251	U	1.3743	B	200.0		P
Vanadium	15.3139	42.4573		49.1296		14.6		P
Zinc		338979.8469		352631.9142		3.9		P
Cyanide		0.5459	B	0.5283	B	3.3		CA

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7

LABORATORY CONTROL SAMPLE

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: 68-D5-0136

Lab Code: SWOK__ Case No.: 24701_ SAS No.: _____ SDG No.: MEAMRO

Solid LCS Source: EPA0287_____

Aqueous LCS Source: _____

Analyte	Aqueous (ug/L) True	Aqueous (ug/L) Found	Aqueous (ug/L) %R	Solid (mg/kg) True	Solid (mg/kg) Found	C	Limits		%R
Aluminum				325.0	273.1		225.0	424.0	84.0
Antimony				211.0	241.0		127.0	294.0	114.2
Arsenic				917.0	997.9		635.0	1199.0	108.8
Barium				4.8	4.7	B	0.0	40.0	97.9
Beryllium				19.4	17.9		16.5	22.3	92.3
Cadmium				45.4	38.3		35.7	55.1	84.4
Calcium				196200.0	181400.0		166800.0	225600.0	92.5
Chromium				99.6	94.7		79.2	120.0	95.1
Cobalt				144.0	139.3		125.0	162.0	96.7
Copper				6910.0	6511.2		6006.0	7820.0	94.2
Iron				22430.0	20288.0		17770.0	27080.0	90.5
Lead				236.0	197.3		188.0	285.0	83.6
Magnesium				118100.0	107832.2		100400.0	129900.0	91.3
Manganese				208.0	198.8		177.0	239.0	95.6
Mercury				12.7	12.3		8.5	17.0	96.9
Nickel				60.9	53.3		49.2	72.6	87.5
Potassium				50.0	56.4	B	0.0	1000.0	112.8
Selenium				39.2	38.2		19.1	59.4	97.4
Silver				22.2	20.5		15.5	29.0	92.3
Sodium				50.0	161.5	B	0.0	1000.0	323.0
Thallium				39.0	32.5		24.6	53.5	83.3
Vanadium				65.8	63.8		51.7	79.9	97.0
Zinc				187.0	170.2		138.0	236.0	91.0
Cyanide				5.6	6.2		4.3	6.9	110.7

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9

ICP SERIAL DILUTION

EPA SAMPLE NO.

MEAMR0L

Lab Name: SOUTHWEST_LAB_OF_OK Contract: 68-D5-0136

Lab Code: SWOK Case No.: 24701 SAS No.: SDG No.: MEAMRO

Matrix (soil/water): SOIL Level (low/med): LOW

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Aluminum	17811.48		18013.14		1.1		P
Antimony	188.89		191.57	B	1.4		P
Arsenic	144.11		148.46		3.0		P
Barium	505.28		455.38	B	9.9		P
Beryllium	1.57	B	5.00	U	100.0		P
Cadmium	200.85		210.66		4.9		P
Calcium	121670.87		125869.71		3.5		P
Chromium	72.18		75.60		4.7		P
Cobalt	18.78	B	21.86	B	16.4		P
Copper	5927.94		5972.29		0.7		P
Iron	41491.29		43594.45		5.1		P
Lead	364.37		359.71		1.3		P
Magnesium	2743.88	B	2822.94	B	2.9		P
Manganese	957.69		997.06		4.1		P
Mercury							NR
Nickel	953.96		993.85		4.2		P
Potassium	770.50	B	786.36	B	2.1		P
Selenium	13.74		15.55	B	13.2		P
Silver	13.16		13.91	B	5.7		P
Sodium	1052.92	B	1083.99	B	3.0		P
Thallium	4.00	U	20.00	U			P
Vanadium	138.62		142.95	B	3.1		P
Zinc	5533.85		5706.47		3.1		P

10
Instrument Detection Limits (Quarterly)

Lab Name: SOUTHWEST_LAB_OF_OK Contract: 68-D5-0136

Lab Code: SWOK Case No.: 24701 SAS No.: SDG No.: MEAMRO

ICP ID Number: TJA#2 Date: 04/08/96

Flame AA ID Number :

Furnace AA ID Number :

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum	308.22		200	10.0	P
Antimony	206.83		60	2.0	P
Arsenic	189.04		10	3.0	P
Barium	493.41		200	1.0	P
Beryllium	313.04		5	1.0	P
Cadmium	226.50		5	1.0	P
Calcium	317.93		5000	4.0	P
Chromium	267.72		10	1.0	P
Cobalt	228.61		50	2.0	P
Copper	324.75		25	2.0	P
Iron	271.44		100	16.0	P
Lead	220.35		3	1.0	P
Magnesium	279.08		5000	7.0	P
Manganese	257.61		15	1.0	P
Mercury			0.2		NR
Nickel	231.60		40	1.0	P
Potassium	766.49		5000	62.0	P
Selenium	196.02		5	3.0	P
Silver	328.07		10	2.0	P
Sodium	588.99		5000	8.0	P
Thallium	190.68		10	4.0	P
Vanadium	292.40		50	1.0	P
Zinc	213.86		20	2.0	P
Cyanide			10		NR

Comments:

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10
Instrument Detection Limits (Quarterly)

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: 68-D5-0136

Lab Code: SWOK__ Case No.: 24701_ SAS No.: _____ SDG No.: MEAMRO

ICP ID Number: _____ Date: 04/08/96

Flame AA ID Number : PS200A_____

Furnace AA ID Number : _____

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum			200		NR
Antimony			60		NR
Arsenic			10		NR
Barium			200		NR
Beryllium			5		NR
Cadmium			5		NR
Calcium			5000		NR
Chromium			10		NR
Cobalt			50		NR
Copper			25		NR
Iron			100		NR
Lead			3		NR
Magnesium			5000		NR
Manganese			15		NR
Mercury	253.30		0.2	0.2	CV
Nickel			40		NR
Potassium			5000		NR
Selenium			5		NR
Silver			10		NR
Sodium			5000		NR
Thallium			10		NR
Vanadium			50		NR
Zinc			20		NR
Cyanide			10		NR

Comments:

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10

Instrument Detection Limits (Quarterly)

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: 68-D5-0136

Lab Code: SWOK__ Case No.: 24701_ SAS No.: _____ SDG No.: MEAMRO

ICP ID Number: _____ Date: 04/20/96

Flame AA ID Number : LACHAT_____

Furnace AA ID Number : _____

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum			200		NR
Antimony			60		NR
Arsenic			10		NR
Barium			200		NR
Beryllium			5		NR
Cadmium			5		NR
Calcium			5000		NR
Chromium			10		NR
Cobalt			50		NR
Copper			25		NR
Iron			100		NR
Lead			3		NR
Magnesium			5000		NR
Manganese			15		NR
Mercury			0.2		NR
Nickel			40		NR
Potassium			5000		NR
Selenium			5		NR
Silver			10		NR
Sodium			5000		NR
Thallium			10		NR
Vanadium			50		NR
Zinc			20		NR
Cyanide	578.00		10	2.0	CA

Comments:

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13
PREPARATION LOG

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: 68-D5-0136

Lab Code: SWOK__ Case No.:_24701_ SAS No.: _____ SDG No.:MEAMR0

Method: P_

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
LCSS	06/04/96	1.00	200
MEAMR0	06/04/96	1.00	200
MEAMR0D	06/04/96	1.00	200
MEAMR0S	06/04/96	1.00	200
MEAMR1	06/04/96	1.00	200
MEAMR2	06/04/96	1.00	200
MEAMR3	06/04/96	1.00	200
MEAMR4	06/04/96	1.00	200
MEAMR5	06/04/96	1.00	200
MEAMR6	06/04/96	1.00	200
MEAMR7	06/04/96	1.00	200
MEAMR8	06/04/96	1.00	200
MEAMR9	06/04/96	1.00	200
MEAMS0	06/04/96	1.00	200
MEAMS1	06/04/96	1.00	200
MEAMS2	06/04/96	1.00	200
MEAMS3	06/04/96	1.00	200
MEAMS4	06/04/96	1.00	200
MEAMS5	06/04/96	1.00	200
MEAMS6	06/04/96	1.00	200
MEAMS7	06/04/96	1.00	200
MEAMS8	06/04/96	1.00	200
MEAMS9	06/04/96	1.00	200
PBS	06/04/96	1.00	200

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13
PREPARATION LOG

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: 68-D5-0136

Lab Code: SWOK__ Case No.:_24701_ SAS No.: _____ SDG No.:MEAMRO

Method: CV

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
LCSS	06/10/96	0.20	100
MEAMR0	06/10/96	0.20	100
MEAMR0D	06/10/96	0.20	100
MEAMR0S	06/10/96	0.20	100
MEAMR1	06/10/96	0.20	100
MEAMR2	06/10/96	0.20	100
MEAMR3	06/10/96	0.20	100
MEAMR4	06/10/96	0.20	100
MEAMR5	06/10/96	0.20	100
MEAMR6	06/10/96	0.20	100
MEAMR7	06/10/96	0.20	100
MEAMR8	06/10/96	0.20	100
MEAMR9	06/10/96	0.20	100
MEAMS0	06/10/96	0.20	100
MEAMS1	06/10/96	0.20	100
MEAMS2	06/10/96	0.20	100
MEAMS3	06/10/96	0.20	100
MEAMS4	06/10/96	0.20	100
MEAMS5	06/10/96	0.20	100
MEAMS6	06/10/96	0.20	100
MEAMS7	06/10/96	0.20	100
MEAMS8	06/10/96	0.20	100
MEAMS9	06/10/96	0.20	100
PBS	06/10/96	0.20	100

U.S. EPA - CLP

13
PREPARATION LOG

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: 68-D5-0136

Lab Code: SWOK__ Case No.:_24701_ SAS No.: _____ SDG No.:MEAMRO

Method: CA

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
LCSS	05/30/96	1.00	50
MEAMR0	05/30/96	1.00	50
MEAMR0D	05/30/96	1.00	50
MEAMR0S	05/30/96	1.00	50
MEAMR1	05/30/96	1.00	50
MEAMR2	05/30/96	1.00	50
MEAMR3	05/30/96	1.00	50
MEAMR4	05/30/96	1.00	50
MEAMR5	05/30/96	1.00	50
MEAMR6	05/30/96	1.00	50
MEAMR7	05/30/96	1.00	50
MEAMR8	05/30/96	1.00	50
MEAMR9	05/30/96	1.00	50
MEAMS0	05/30/96	1.00	50
MEAMS1	05/30/96	1.00	50
MEAMS2	05/30/96	1.00	50
MEAMS3	05/30/96	1.00	50
MEAMS4	05/30/96	1.00	50
MEAMS5	05/30/96	1.00	50
MEAMS6	05/30/96	1.00	50
MEAMS7	05/30/96	1.00	50
MEAMS8	05/30/96	1.00	50
MEAMS9	05/30/96	1.00	50
PBS	05/30/96	1.00	50

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

ESD Central Regional Laboratory
Data Tracking Form for Contract Samples

Data Set No: _____ CERCLIS No: IL

Case No: 34701 Site Name Location: Sandoval Zinc

Contractor or EPA Lab: SWOK Data User: IEPA

No. of Samples: 20 Date Sampled or Data Received: 7-8-96

Have Chain-of-Custody records been received? Yes ✓ No ___
Have traffic reports or packing lists been received? Yes ✓ No ___
If no, are traffic report or packing list numbers written on the chain-of-custody record? Yes ✓ No ___
If no, which traffic report or packing list numbers are missing?

_____ _____ _____ _____

_____ _____ _____ _____

Are basic data forms in? Yes ✓ No ___
No of samples claimed: 20 No. of samples received: 20

Received by: Lynette Burnett Date: 7-8-96

Received by LSSS: Lynette Burnett Date: 7-8-96

Review started: 8/30/96 Reviewer Signature: [illegible]

Total time spent on review: 12.7 Date review completed: 8-2-96

Copied by: Lynette Burnett Date: 8-12-96

Mailed to user by: Lynette Burnett Date: 8-12-96

DATA USER:
Please fill in the blanks below and return this form to:
Sylvia Griffen, Data mgmt. Coordinator, Region V, 5SCRL

Data received by: _____ Date: _____

Data review received by: _____ Date: _____

Inorganic Data Complete [ ] Suitable for Intended Purpose [ ] ✓ if OK
Organic Data Complete [ ] Suitable for Intended Purpose [ ] ✓ if OK
Dioxin Data Complete [ ] Suitable for Intended Purpose [ ] ✓ if OK
SAS Data Complete [ ] Suitable for Intended Purpose [ ] ✓ if OK

PROBLEMS: Please indicate reasons why data are not suitable for your uses.

_____

_____

Received by Data Mgmt. Coordinator for Files. Data: _____

OLPA United States Environmental Protection Agency
Contract Laboratory Program

Inorganic Traffic Report & Chain of Custody Record
(For Inorganic CLP Analysis)

Case No. 24701

Matrix (Enter in Column A)
1. Surface Water
2. Ground Water
3. Leachate
4. Field QC
5. Soil/Sediment
6. Oil (High only)
7. Waste (High only)
8. Other (specify in Column A)

Preservative (Enter in Column D)
1. HCl
2. HNO3
3. NaOH
4. H_2SO_4
5. $K_2CR_2O_7$
6. Ice only
7. Other (specify in Column D)
N. Not preserved

2. Region No. 5
Sampling Co. TEM
4. Date Shipped 5/23/96
Carrier FED EX
6. Date Received -- Received by: 5/24/96
Sampler (Name) MARK WEBER
Airbill Number 8668592715
Laboratory Contract Number 68-D5-0136
Unit Price $79.90
Sampler Signature
5. Ship To SOUTHWEST LABS OF OKLAHOMA 1700 WEST ALBANY, SUITE C BROKEN ARROW, OK 74012
ATTN: JASON RUCKMAN
7. Transfer to
Date Received
Received by
Contract Number
Price

3. Purpose*
Lead: SF, PRP, ST, FED
Early Action: CLEM, PA, REM, RI, SI, ESI
Long-Term Action: FS, RD, RA, O&M, NPLD

CLP Sample Numbers (from labels)	A Matrix (from Box 1)	B Conc. Low Med High	C Sample Type: Comp./ Grab	D Preservative (from Box 2)	E - RAS Analysis: Diss. Metals	Total Metals	Cyanide	Low only: (NO_2+NO_3)	Fluoride	High only: pH	Conduct.	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/ Year/Time Sample Collection	I Corresponding CLP Organic Sample No.	J Sampler Initials	K High Phases: Solids	Water-Aqueous Liq.	Water-Immis. Liq.
MEAMT0	5	L	G	6		X	X					5-159238	X121	5/23/96/12:20	—	MW			
MEAMT1	5	L	G	6		X	X					5-159242	X122	5/23/96/12:50	—	MW			
MEAMT2	5	L	G	6		X	X					5-159246	X123	5/23/96/13:00	—	MW			
MEAMT3	5	L	G	6		X	X					5-159211	X124	5/23/96/13:15	—	MW			
MEAMT4	5	L	G	6		X	X					5-159226	X125	5/23/96/13:30	—	MW			
MEAMT5	5	L	G	6		X	X					5-159206	X126	5/23/96/13:45	—	MW			
MEAMT6	5	L	G	6		X	X					5-159225	X127	5/23/96/14:00	—	MW			
MEAMT7	5	L	G	6		X	X					5-189584	X128	5/23/96/14:15	—	MW			
MEAMT8	5	L	G	6		X	X					5-159213	X129	5/23/96/14:15	—	MW			

Shipment for Case Complete? (Y/N) Y
Page 1 of 1
Sample(s) to be Used for Laboratory QC MEAMR0
Additional Sampler Signatures
Chain of Custody Seal Number(s) 45117/157995

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Mark J. Weber	5/23/96 17:00				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact? Y/N/none	
			5/24/96 0845	INTACT	

DISTRIBUTION: Green - Region Copy; White - Lab Copy for Return to Region; Pink - CLASS Copy; Yellow - Lab Copy for Return to SMO

EPA Form 9110-1

SEE REVERSE FOR ADDITIONAL STANDARD INSTRUCTIONS
*SEE REVERSE FOR PURPOSE CODE DEFINITIONS

MEAMT0

365609

United States Environmental Protection Agency
Contract Laboratory Program

'ganic Traffic Report & Chain of Custody Record

(For inorganic CLP Analyis)

SAS No. (If applicable):

Case N: 24701

1. Matrix (Enter in Column A): 1. Surface Water 2. Ground Water 3. Leachate 4. Field QC 5. Soil/Sediment 6. Oil (High only) 7. Waste (High only) 8. Other (specify in Column A)

2. Preservative (Enter in Column D): 1. HCl 2. HNO3 3. NaOH 4. H_2SO_4 5. $K_2CR_2O_7$ 6. Ice only 7. Other (specify in Column D) N. Not preserved

2. Region No.: 5

Sampling Co.: IEPA

4. Date Shipped: 5/23/96

Carrier: FED EX

6. Date Received -- Received by: [illegible] 5-24-96

Sampler (Name): MARK WEBER

Airbill Number: 9668592715 ~~8668592603~~ BC 5/22/96

Laboratory Contract Number: 68-D5-0136

Unit Price: $78.20

Sampler Signature: [signature]

5. Ship To: SOUTHWEST LABS OF OKLAHOMA, INC 1700 WEST ALBANY, SUITE C BROKEN ARROW, OK 74012 ATTN: JASON RUCKMAN

7. Transfer to:

Date Received:

Received by:

Contract Number:

Price:

3. Purpose*: Lead: SF, PRP, ST, FED. Early Action: CLEM, PA, REM, RI, SI, ESI. Long-Term Action: FS, RD, RA, O&M, NPLD

CLP Sample Numbers (from labels)	A Matrix (from Box 1)	B Conc.: Low Med High	C Sample Type: Comp./ Grab	D Preservative (from Box 2)	E – RAS Analysis: Diss. Metals	Total Metals	Cyanide	Low only: NO_2/NO_3	Fluoride	High only: pH	Conduct.	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/ Year/Time Sample Collection	I Corresponding CLP Organic Sample No.	J Sampler Initials	K High Phase: Solids	Water-Miscible Liq.	Water-Immisc. Liq.
MEAMW1	5	L	G			X	X					5-025509	X201	5/22/96/11:15	EBEC1	MW			
MEAMW2	5	L	G			X	X					5-025513	X202	5/22/96/11:35	EBEC2	MW			
MEAMW3	5	L	G			X	X					5-025517	X203	5/22/96/11:50	EBEC3	MW			
MEAMW4	5	L	G			X	X					5-025521	X204	5/22/96/14:45	EBEC4	MW			
MEAMW5	5	L	G			X	X					5-025525	X205	5/22/96/12:15	EBEC5	MW			
MEAMW6	5	L	G			X	X					5-025529	X206	5/22/96/12:35	EBEC6	MW			
MEAMW7	5	L	G			X	X					5-025533	X207	5/22/96/14:15	EBEC7	MW			

* field sample received in SDG [illegible] 05-31-96

Shipment for Case Complete? (Y/N): Y

Page 1 of 2

Sample(s) to be Used for Laboratory QC: MEAMRD

Additional Sampler Signatures:

Chain of Custody Seal Number(s): 41675/41700

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Mark J. Weber	5/22/96 17:00				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks: Is custody seal intact? Y/N/none	
		[illegible]	5/24/96 0845	INTACT	

DISTRIBUTION: Green - Region Copy; White - Lab Copy for Return to Region; Pink - SMO Copy; Yellow - Lab Copy for Return to SMO

EPA Form 9110-1

SEE REVERSE FOR ADDITIONAL STANDARD INSTRUCTIONS
*SEE REVERSE FOR PURPOSE CODE DEFINITIONS

MEAMTO

362277

REV. 3/93

851

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: 08-22-96

SUBJECT: Review of Region V CLP Data
Received for Review on July 8, 1996

FROM: Stephen L. Ostrodka, Chief (HSRL-5J)
Superfund Technical Support Section L Finkelberg

TO: Data User: IEPA

We have reviewed the data for the following case:

SITE NAME: Sandoval Zinc (IL)

CASE NUMBER: 24701 SDG NUMBER: MEAMT0

Number and Type of Samples: 16 (soil)

Sample Numbers: MEAMT0-8, MEAMW 1-7

Laboratory: SWOK Hrs. for Review: 10.2 + 11.2

Following are our findings:

All data are usable with the qualifications described in the attached narrative.

L Finkelberg
08-22-96

RECEIVED
AUG 30 1996
IEPA/DLPC

cc: Regional TPO
Brian Freeman
HSMC-5J

NARRATIVE

SITE: SANDOVAL ZINC **CASE: 24701**
LABORATORY: SWOK **SDG: MEAMT0**

The laboratory's portion of case 24701 contains sixteen (16) low level soil samples assayed for total metals and cyanide. The following narrative lists the out of control audits and their possible effects on the results.

EVIDENTIAL AUDIT: All sample report forms and the raw data sheets are originals. Sample tags, Airbills, Chain-of-Custody/Traffic Reports and DC-1 Forms are original and present with the case. All forms are present and in the order indicated on the Form DC-2 [inventory sheet]. The laboratory submitted two copies of FORM I - IN for sample MEAMW4 with this case. The pages were numbered, 015 and 016, and therefore, it appears that an additional page (016 being a copy of 015) was inadvertently included.

ICP ANALYSIS: The CCB contained Sb (4.4µg/L). The matrix spike recovery for Sb (62.1% R) was out of control. Therefore, the Sb results for samples MEAMT0 - T4, T6 - T8, MEAMW4,W5 and W7 are estimated (J) due to contamination and low bias. The Sb result for sample T5 is estimated (UJ) due to possible elevation of detection limit.

The matrix spike recovery for As (46.0% R) was out of control. The laboratory duplicate audit for As (56.1% RPD) was out of control. Therefore, all As results are estimated (J) due to high bias and poor precision.

The CCB contained Se (3.4µg/L). The matrix spike for Se (74.8% R) was not flagged by the laboratory and was out of control. The duplicate audit value for Se (200% RPD) was not flagged by the laboratory because the duplicate difference did not exceed the technical criterion of (+/-2XCRDL) for soil samples. The Se sample data for MEAMT0, T4 and MEAMW6 are estimated (J) due to contamination and low bias. All other Se data are estimated (UJ) due to possible elevation of detection limit.

The Matrix Spike recovery for Cu (-21.4% R) and the duplicate result (47.6% RPD) were out of control. All Cu results are estimated (J) due to low bias and poor precision.

The laboratory duplicate audit for Ba (32.5% RPD) was flagged by the laboratory, however, the RPD value did not exceed the technical criterion of 35% for soil samples. Therefore, all Ba results are acceptable.

Reviewed by: W. Ira Wilson
W. Ira Wilson
Lockheed ESAT

Date: August 9, 1996

NARRATIVE

SITE: SANDOVAL ZINC **CASE: 24701**
LABORATORY: SWOK **SDG: MEAMT0**

The Matrix Spike recoveries for Pb (-4396.1% R), Mn (-148.1% R) and Zn (-352.0% R) were not flagged by the laboratory because the sample concentration exceeded the spike concentration by a factor of four (4). The laboratory duplicate audits for Pb (39.3% RPD), Mn (40.3% RPD) and Zn (47.3% RPD) were out of control. All Pb, Mn and Zn data are estimated (J) due to poor precision.

The laboratory duplicate audits for Cd (38.0% RPD) and V (42.9% RPD) were flagged by the laboratory; however, the duplicate difference does not exceed the technical criterion of (+/-2XCRDL) for soil samples. Therefore, all Cd and V data are acceptable.

The laboratory duplicate audits for Al (45.8% RPD), Ca (100.4% RPD), Cr (39.8% RPD) and Fe (56.7% RPD) were out of control. Therefore, all Al, Ca, Cr and Fe data are estimated (J) due to poor precision.

The laboratory duplicate audits for Be (40.9% RPD), Mg (52.1% RPD), K (38.5% RPD) and Ni (35.7% RPD) were not flagged by the laboratory because the duplicate difference did not exceed the technical criterion (+/-2XCRDL) for soil samples. All results for the above listed analytes are acceptable.

CN ANALYSIS: The Prep. Blank contained CN (0.106μg/L). The CN results on samples MEAMT1, T3 - T8, MEAMW1 - W3 and W5 are estimated (J) due to contamination.

HG ANALYSIS: The matrix spike recovery for Hg (63.4% R) was out of control. The Hg results for samples T0, T3, W1, W2 and W6 are estimated (J) due to low bias and all other Hg results are estimated (UJ) due to possible elevation of detection limit.

Reviewed by: W Ira Wilson W. Ira Wilson
Lockheed ESAT

Date: August 9, 1996

QC EXCEPTION SUMMARY REPORT

CASE#: 24701
ANT: MEAMTO
QC #
8-9-96

SITE: SANDOVAL
LAB: SWOK
REVIEWED BY: Vicki Wilson

MATRIX: Soil
CONC:

WATER SAMPLE SPK:
WATER SAMPLE DUP:
SOIL SAMPLE SPK:
SOIL SAMPLE DUP:

		FORM 2	FORM 2	FORM 3	FORM 3	FORM 3	FORM 4	FORM 5	FORM 6	FORM 7	FORM 7	FORM 9	FORM 9	FORM 6	FORM 5	FIELD	FIELD	FIELD	FIELD	COMMENTS
NT	HOLD TIME	INITIAL CALIB	CONTIN CALIB	CALIB BLANK	PREP WATER BLANK	PREP SOIL BLANK	ICS SR	SOIL SPIKE SR	SOIL DUP RPD	ICS AQ	ICS SOIL	SERIAL DILUTION AQUEOUS	SERIAL DILUTION SOIL	AQ DUP SR	AQ SPIKE SR	BLANK	DUP RPD	BLANK	DUP RPD	
NUM									45.8											
ONY			4.4					62.1												
C							4.2	46.0	56.1											
A									32.5											
IUM									40.4											
UM																				
M									38.0											
IUM																				
								-21.4	42.6											
									56.7											
								-436.1	39.3											
IUM									52.1											
ESE								-148.1	40.3											
Y								63.4												
									35.7											
UM									38.5											
			3.4					74.8	20.0											
UM																				
UM									46.9											
								-352.0	47.3											
					0.106															

DATA QUALIFIER DEFINITIONS

For the purpose of defining the flagging nomenclature utinized in this document, the following code letters and associated definitions are provide:

U Indicates the material was analyzed, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.

J Indicates the associated value is an estimated quantity.

R Indicates the data are unusable. (Note: The analyte may or may not be present.)

UJ Indicates the material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.

E Indicates the reported value is estimated because of the presence of interferences. An explanatory note shall be included under Comments on the Cover Page (if the problem applies to all samples) or on the specific FORM I-IN (if it is an isolated problem).

M Indicates duplicate injection precision is not met.

N Indictaes the spike sample recovery is not within control limits.

S Indicates the reported value was determined by the Method of Standard Addition (MSA).

W Indicates the post-digestion spike for furnace AA analysis is out of control limits (85%-115%), while sample absorbance is less than 50% of the spike absorbance.

+ Indicates the correlation coefficient for the MSA is less than 0.995.

* Indicates the duplicate analysis is not within control limits.

Note: Entering "S", "W" or "+" is mutually exclusive. No combination of these qualifiers can appear in the same field for an analyte.

U.S. EPA - CLP

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Name: SOUTHWEST_LAB_OF_OK_____ Contract: 68-D5-0136

Lab Code: SWOK__ Case No.: 24701 SAS No.: _____ SDG No.:MEAMT0

SOW No.: ILM04.0

EPA Sample No.	Lab Sample ID
MEAMT0	2574321
MEAMT0D	2574321D
MEAMT0S	2574321S
MEAMT1	2574322
MEAMT2	2574323
MEAMT3	2574324
MEAMT4	2574325
MEAMT5	2574326
MEAMT6	2574327
MEAMT7	2574328
MEAMT8	2574329
MEAMW1	2574330
MEAMW2	2574331
MEAMW3	2574332
MEAMW4	2574333
MEAMW5	2574334
MEAMW6	2574335
MEAMW7	2574336

RECEIVED
JUL 8 1996
US EPA CENTRAL REGIONAL LAB.
536 S. CLARK ST.
CHICAGO, ILLINOIS 60605

Were ICP interelement corrections applied ? Yes/No YES

Were ICP background corrections applied ? Yes/No YES
If yes - were raw data generated before application of background corrections ? Yes/No NO_

Comments:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: _____ Name: Jason D. Ruckman

Date: June 27, 1996 Title: Inoganic Program MAnager

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MEAMT0 X/20

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: 68-D5-0136

Lab Code: SWOK__ Case No.: 24701_ SAS No.: _____ SDG No.: MEAMT0

Matrix (soil/water): SOIL_ Lab Sample ID: 2574321

Level (low/med): LOW__ Date Received: 05/24/96

% Solids: _60.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	14300		*	P
7440-36-0	Antimony_	4.3	B	N	P
7440-38-2	Arsenic__	16.4		N*	P
7440-39-3	Barium___	478		*	P
7440-41-7	Beryllium	1.8			P
7440-43-9	Cadmium__	5.3		*	P
7440-70-2	Calcium__	23200		*	P
7440-47-3	Chromium_	24.3		*	P
7440-48-4	Cobalt___	11.4	B		P
7440-50-8	Copper___	204		N*	P
7439-89-6	Iron_____	37700		*	P
7439-92-1	Lead_____	747		*	P
7439-95-4	Magnesium	2090			P
7439-96-5	Manganese	1020		*	P
7439-97-6	Mercury__	0.35		N	AV
7440-02-0	Nickel___	27.8			P
7440-09-7	Potassium	2110			P
7782-49-2	Selenium_	1.3	B		P
7440-22-4	Silver___	0.66	U		P
7440-23-5	Sodium___	517	B		P
7440-28-0	Thallium_	1.3	U		P
7440-62-2	Vanadium_	50.1		*	P
7440-66-6	Zinc_____	1650		*	P
_____	Cyanide__	0.93			CA
_____	_____	_____			

Color Before: GREY_____ Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW___ Clarity After: CLEAR_ Artifacts: _____

Comments

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MEAMT1
X122

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: 68-D5-0136

Lab Code: SWOK__ Case No.: 24701_ SAS No.: _____ SDG No.: MEAMT0

Matrix (soil/water): SOIL_ Lab Sample ID: 2574322

Level (low/med): LOW__ Date Received: 05/24/96

% Solids: _92.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	1920		*	P
7440-36-0	Antimony_	0.74	B	N	P
7440-38-2	Arsenic__	1.3	B	N*	P
7440-39-3	Barium___	51.2		*	P
7440-41-7	Beryllium	0.22	U		P
7440-43-9	Cadmium__	0.60	B	*	P
7440-70-2	Calcium__	325000		*	P
7440-47-3	Chromium_	7.2		*	P
7440-48-4	Cobalt___	1.4	B		P
7440-50-8	Copper___	13.0		N*	P
7439-89-6	Iron_____	3590		*	P
7439-92-1	Lead_____	32.9		*	P
7439-95-4	Magnesium	9090			P
7439-96-5	Manganese	179		*	P
7439-97-6	Mercury__	0.11	U	N	AV
7440-02-0	Nickel___	11.9			P
7440-09-7	Potassium	560	B		P
7782-49-2	Selenium_	0.65	U		P
7440-22-4	Silver___	0.43	U		P
7440-23-5	Sodium___	259	B		P
7440-28-0	Thallium_	0.87	U		P
7440-62-2	Vanadium_	7.6	B	*	P
7440-66-6	Zinc_____	226		*	P
_____	Cyanide__	0.25	B		CA

Color Before: GREY_____ Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW___ Clarity After: CLEAR_ Artifacts: _____

Comments:

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MEAMT2
X123

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: 68-D5-0136

Lab Code: SWOK__ Case No.: 24701_ SAS No.: _____ SDG No.: MEAMT0

Matrix (soil/water): SOIL_ Lab Sample ID: 2574323

Level (low/med): LOW__ Date Received: 05/24/96

% Solids: _86.1

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	7360		*	P
7440-36-0	Antimony	0.54	B	N	P
7440-38-2	Arsenic	10.1		N*	P
7440-39-3	Barium	85.6		*	P
7440-41-7	Beryllium	0.49	B		P
7440-43-9	Cadmium	0.31	B	*	P
7440-70-2	Calcium	1700		*	P
7440-47-3	Chromium	12.0		*	P
7440-48-4	Cobalt	5.9	B		P
7440-50-8	Copper	19.7		N*	P
7439-89-6	Iron	15000		*	P
7439-92-1	Lead	48.9		*	P
7439-95-4	Magnesium	939	B		P
7439-96-5	Manganese	508		*	P
7439-97-6	Mercury	0.12	U	N	AV
7440-02-0	Nickel	6.2	B		P
7440-09-7	Potassium	790	B		P
7782-49-2	Selenium	0.70	U		P
7440-22-4	Silver	0.46	U		P
7440-23-5	Sodium	181	B		P
7440-28-0	Thallium	0.93	U		P
7440-62-2	Vanadium	31.0		*	P
7440-66-6	Zinc	108		*	P
	Cyanide	0.75			CA

Color Before: GREY_____ Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW___ Clarity After: CLEAR_ Artifacts: _____

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MEAMT3 X124

Lab Name: SOUTHWEST_LAB_OF_OK Contract: 68-D5-0136

Lab Code: SWOK Case No.: 24701 SAS No.: SDG No.: MEAMT0

Matrix (soil/water): SOIL Lab Sample ID: 2574324

Level (low/med): LOW Date Received: 05/24/96

% Solids: 77.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	10700		*	P
7440-36-0	Antimony	1.3	B	N	P
7440-38-2	Arsenic	6.0		N*	P
7440-39-3	Barium	198		*	P
7440-41-7	Beryllium	0.81	B		P
7440-43-9	Cadmium	0.69	B	*	P
7440-70-2	Calcium	4770		*	P
7440-47-3	Chromium	15.6		*	P
7440-48-4	Cobalt	7.2	B		P
7440-50-8	Copper	45.1		N*	P
7439-89-6	Iron	15400		*	P
7439-92-1	Lead	135		*	P
7439-95-4	Magnesium	2170			P
7439-96-5	Manganese	562		*	P
7439-97-6	Mercury	0.28		N	AV
7440-02-0	Nickel	18.9			P
7440-09-7	Potassium	1480			P
7782-49-2	Selenium	0.78	U		P
7440-22-4	Silver	0.52	U		P
7440-23-5	Sodium	182	B		P
7440-28-0	Thallium	1.0	U		P
7440-62-2	Vanadium	25.8		*	P
7440-66-6	Zinc	431		*	P
	Cyanide	0.51	B		CA

Color Before: GREY Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts:

Comments:

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MEAMT4
X125

Lab Name: SOUTHWEST_LAB_OF_OK Contract: 68-D5-0136

Lab Code SWOK Case No.: 24701 SAS No.: SDG No.: MEAMT0

Matrix (soil/water): SOIL Lab Sample ID: 2574325

Level (low/med): LOW Date Received: 05/24/96

% Solids: 73.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	9250		*	P
7440-36-0	Antimony	3.7	B	N	P
7440-38-2	Arsenic	9.0		N*	P
7440-39-3	Barium	213		*	P
7440-41-7	Beryllium	0.76	B		P
7440-43-9	Cadmium	3.7		*	P
7440-70-2	Calcium	4360		*	P
7440-47-3	Chromium	16.8		*	P
7440-48-4	Cobalt	6.4	B		P
7440-50-8	Copper	83.7		N*	P
7439-89-6	Iron	31000		*	P
7439-92-1	Lead	170		*	P
7439-95-4	Magnesium	1090	B		P
7439-96-5	Manganese	584		*	P
7439-97-6	Mercury	0.14	U	N	AV
7440-02-0	Nickel	16.5			P
7440-09-7	Potassium	929	B		P
7782-49-2	Selenium	0.86	B		P
7440-22-4	Silver	0.54	U		P
7440-23-5	Sodium	307	B		P
7440-28-0	Thallium	1.1	U		P
7440-62-2	Vanadium	29.0		*	P
7440-66-6	Zinc	1420		*	P
	Cyanide	0.53	B		CA

Color Before: GREY Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts:

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MEAMT5
X126

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: 68-D5-0136

Lab Code: SWOK__ Case No.: 24701_ SAS No.: _____ SDG No.: MEAMT0

Matrix (soil/water): SOIL_ Lab Sample ID: 2574326

Level (low/med): LOW__ Date Received: 05/24/96

% Solids: _84.4

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	7760		*	P
7440-36-0	Antimony_	0.47	U	N	P
7440-38-2	Arsenic__	6.1		N*	P
7440-39-3	Barium___	127		*	P
7440-41-7	Beryllium	0.59	B		P
7440-43-9	Cadmium__	0.26	B	*	P
7440-70-2	Calcium__	3800		*	P
7440-47-3	Chromium_	9.7		*	P
7440-48-4	Cobalt___	3.8	B		P
7440-50-8	Copper___	16.5		N*	P
7439-89-6	Iron_____	11100		*	P
7439-92-1	Lead_____	39.4		*	P
7439-95-4	Magnesium	1130	B		P
7439-96-5	Manganese	512		*	P
7439-97-6	Mercury__	0.12	U	N	AV
7440-02-0	Nickel___	8.8	B		P
7440-09-7	Potassium	930	B		P
7782-49-2	Selenium_	0.71	U		P
7440-22-4	Silver___	0.47	U		P
7440-23-5	Sodium___	143	B		P
7440-28-0	Thallium_	0.95	U		P
7440-62-2	Vanadium_	21.6		*	P
7440-66-6	Zinc_____	150		*	P
_____	Cyanide__	0.32	B		CA

Color Before: GREY_____ Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW___ Clarity After: CLEAR_ Artifacts: _____

Comments:

U.S. EPA - CLP

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MEAMT6 X127

Lab Name: SOUTHWEST_LAB_OF_OK Contract: 68-D5-0136

Lab Code: SWOK Case No.: 24701 SAS No.: SDG No.: MEAMT0

Matrix (soil/water): SOIL Lab Sample ID: 2574327

Level (low/med): LOW Date Received: 05/24/96

% Solids: 82.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	8800		*	P
7440-36-0	Antimony	5.2	B	N	P
7440-38-2	Arsenic	9.3		N*	P
7440-39-3	Barium	132		*	P
7440-41-7	Beryllium	0.64	B		P
7440-43-9	Cadmium	0.72	B	*	P
7440-70-2	Calcium	4170		*	P
7440-47-3	Chromium	12.5		*	P
7440-48-4	Cobalt	7.9	B		P
7440-50-8	Copper	152		N*	P
7439-89-6	Iron	15500		*	P
7439-92-1	Lead	274		*	P
7439-95-4	Magnesium	1460			P
7439-96-5	Manganese	615		*	P
7439-97-6	Mercury	0.12	U	N	AV
7440-02-0	Nickel	60.7			P
7440-09-7	Potassium	1170	B		P
7782-49-2	Selenium	0.73	U		P
7440-22-4	Silver	0.49	U		P
7440-23-5	Sodium	186	B		P
7440-28-0	Thallium	0.97	U		P
7440-62-2	Vanadium	28.4		*	P
7440-66-6	Zinc	1200		*	P
	Cyanide	0.51	B		CA

Color Before: GREY Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts:

Comments:

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1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MEAMT7
X128

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: 68-D5-0136

Lab Code: SWOK__ Case No.: 24701_ SAS No.: _____ SDG No.: MEAMTC

Matrix (soil/water): SOIL_ Lab Sample ID: 2574328

Level (low/med): LOW__ Date Received: 05/24/96

% Solids: _78.5

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	6380		*	P
7440-36-0	Antimony_	1.8	B	N	P
7440-38-2	Arsenic__	6.3		N*	P
7440-39-3	Barium__	96.5		*	P
7440-41-7	Beryllium	0.39	B		P
7440-43-9	Cadmium__	0.66	B	*	P
7440-70-2	Calcium__	2860		*	P
7440-47-3	Chromium_	8.4		*	P
7440-48-4	Cobalt___	3.7	B		P
7440-50-8	Copper___	45.0		N*	P
7439-89-6	Iron____	8610		*	P
7439-92-1	Lead____	189		*	P
7439-95-4	Magnesium	768	B		P
7439-96-5	Manganese	444		*	P
7439-97-6	Mercury__	0.13	U	N	AV
7440-02-0	Nickel___	12.8			P
7440-09-7	Potassium	434	B		P
7782-49-2	Selenium_	0.76	U		P
7440-22-4	Silver___	0.51	U		P
7440-23-5	Sodium___	244	B		P
7440-28-0	Thallium_	1.0	U		P
7440-62-2	Vanadium_	19.3		*	P
7440-66-6	Zinc____	1270		*	P
	Cyanide__	0.28	B		CA

Color Before: GREY_____ Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW___ Clarity After: CLEAR_ Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MEAMT8 X129

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: 68-D5-0136

Lab Code: SWOK__ Case No.: 24701_ SAS No.: _____ SDG No.: MEAMT0

Matrix (soil/water): SOIL_ Lab Sample ID: 2574329

Level (low/med): LOW__ Date Received: 05/24/96

% Solids: _76.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	7340		*	P
7440-36-0	Antimony_	1.4	B	N	P
7440-38-2	Arsenic__	6.1		N*	P
7440-39-3	Barium___	87.9		*	P
7440-41-7	Beryllium	0.36	B		P
7440-43-9	Cadmium__	0.54	B	*	P
7440-70-2	Calcium__	2500		*	P
7440-47-3	Chromium_	8.9		*	P
7440-48-4	Cobalt___	3.1	B		P
7440-50-8	Copper___	42.6		N*	P
7439-89-6	Iron_____	8150		*	P
7439-92-1	Lead_____	159		*	P
7439-95-4	Magnesium	781	B		P
7439-96-5	Manganese	382		*	P
7439-97-6	Mercury__	0.13	U	N	AV
7440-02-0	Nickel___	10.8			P
7440-09-7	Potassium	487	B		P
7782-49-2	Selenium_	0.78	U		P
7440-22-4	Silver___	0.52	U		P
7440-23-5	Sodium___	234	B		P
7440-28-0	Thallium_	1.0	U		P
7440-62-2	Vanadium_	19.0		*	P
7440-66-6	Zinc_____	1090		*	P
	Cyanide__	0.43	B		CA

Color Before: GREY_____ Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW___ Clarity After: CLEAR_ Artifacts: _____

Comments:

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MEAMW1
X201

Lab Name: SOUTHWEST_LAB_OF_OK Contract: 68-D5-0136

Lab Code: SWOK Case No.: 24701 SAS No.: SDG No.: MEAMT0

Matrix (soil/water): SOIL Lab Sample ID: 2574330

Level (low/med): LOW Date Received: 05/24/96

% Solids: 82.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	8950		*	P
7440-36-0	Antimony	33.2		N	P
7440-38-2	Arsenic	36.5		N*	P
7440-39-3	Barium	186		*	P
7440-41-7	Beryllium	1.0	B		P
7440-43-9	Cadmium	5.5		*	P
7440-70-2	Calcium	1930		*	P
7440-47-3	Chromium	12.8		*	P
7440-48-4	Cobalt	6.8	B		P
7440-50-8	Copper	725		N*	P
7439-89-6	Iron	17600		*	P
7439-92-1	Lead	3300		*	P
7439-95-4	Magnesium	1170	B		P
7439-96-5	Manganese	860		*	P
7439-97-6	Mercury	0.15		N	AV
7440-02-0	Nickel	83.0			P
7440-09-7	Potassium	456	B		P
7782-49-2	Selenium	0.73	U		P
7440-22-4	Silver	0.63	B		P
7440-23-5	Sodium	324	B		P
7440-28-0	Thallium	0.97	U		P
7440-62-2	Vanadium	30.4		*	P
7440-66-6	Zinc	6520		*	P
	Cyanide	0.30	B		CA

Color Before: GREY Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts:

Comments

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MEAMW2
X202

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: 68-D5-0136

Lab Code: SWOK__ Case No.: 24701_ SAS No.: _____ SDG No.: MEAMT0

Matrix (soil/water): SOIL_ Lab Sample ID: 2574331

Level (low/med): LOW__ Date Received: 05/24/96

% Solids: _81.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	6700		*	P
7440-36-0	Antimony_	32.8		N	P
7440-38-2	Arsenic__	20.9		N*	P
7440-39-3	Barium___	165		*	P
7440-41-7	Beryllium	0.81	B		P
7440-43-9	Cadmium__	5.8		*	P
7440-70-2	Calcium__	1750		*	P
7440-47-3	Chromium_	11.7		*	P
7440-48-4	Cobalt___	6.6	B		P
7440-50-8	Copper___	651		N*	P
7439-89-6	Iron____	15200		*	P
7439-92-1	Lead____	2510		*	P
7439-95-4	Magnesium	973	B		P
7439-96-5	Manganese	826		*	P
7439-97-6	Mercury__	0.14		N	AV
7440-02-0	Nickel___	86.2			P
7440-09-7	Potassium	365	B		P
7782-49-2	Selenium_	0.74	U		P
7440-22-4	Silver___	0.49	U		P
7440-23-5	Sodium___	289	B		P
7440-28-0	Thallium_	0.99	U		P
7440-62-2	Vanadium_	24.5		*	P
7440-66-6	Zinc____	5700		*	P
_____	Cyanide__	0.49	B		CA

Color Before: GREY_____ Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW___ Clarity After: CLEAR_ Artifacts: _____

Comments:

U.S. EPA - CLP

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MEAMW3
X203

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: 68-D5-0136

Lab Code: SWOK__ Case No.: 24701_ SAS No.: _____ SDG No.: MEAMT0

Matrix (soil/water): SOIL_ Lab Sample ID: 2574332

Level (low/med): LOW__ Date Received: 05/24/96

% Solids: _77.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	7820		*	P
7440-36-0	Antimony_	21.7		N	P
7440-38-2	Arsenic__	20.2		N*	P
7440-39-3	Barium___	158		*	P
7440-41-7	Beryllium	0.61	B		P
7440-43-9	Cadmium__	11.4		*	P
7440-70-2	Calcium__	1750		*	P
7440-47-3	Chromium_	15.1		*	P
7440-48-4	Cobalt___	10.7	B		P
7440-50-8	Copper___	537		N*	P
7439-89-6	Iron_____	15600		*	P
7439-92-1	Lead_____	833		*	P
7439-95-4	Magnesium	950	B		P
7439-96-5	Manganese	1010		*	P
7439-97-6	Mercury__	0.13	U	N	AV
7440-02-0	Nickel___	242			P
7440-09-7	Potassium	321	B		P
7782-49-2	Selenium_	0.78	U		P
7440-22-4	Silver___	0.53	B		P
7440-23-5	Sodium___	233	B		P
7440-28-0	Thallium_	1.0	U		P
7440-62-2	Vanadium_	30.5		*	P
7440-66-6	Zinc_____	6300		*	P
	Cyanide__	0.23	B		CA

Color Before: GREY_____ Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW___ Clarity After: CLEAR_ Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MEAMW4 X204

Lab Name: SOUTHWEST_LAB_OF_OK Contract: 68-D5-0136

Lab Code: SWOK Case No.: 24701 SAS No.: SDG No.: MEAMT0

Matrix (soil/water): SOIL Lab Sample ID: 2574333

Level (low/med): LOW Date Received: 05/24/96

% Solids: 45.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	5840		*	P
7440-36-0	Antimony	1.1	B	N	P
7440-38-2	Arsenic	3.8	B	N*	P
7440-39-3	Barium	113		*	P
7440-41-7	Beryllium	0.52	B		P
7440-43-9	Cadmium	1.6	B	*	P
7440-70-2	Calcium	3300		*	P
7440-47-3	Chromium	7.8		*	P
7440-48-4	Cobalt	5.0	B		P
7440-50-8	Copper	28.3		N*	P
7439-89-6	Iron	7520		*	P
7439-92-1	Lead	49.6		*	P
7439-95-4	Magnesium	942	B		P
7439-96-5	Manganese	502		*	P
7439-97-6	Mercury	0.22	U	N	AV
7440-02-0	Nickel	9.8	B		P
7440-09-7	Potassium	724	B		P
7782-49-2	Selenium				NR
7440-22-4	Silver	0.88	U		P
7440-23-5	Sodium	380	B		P
7440-28-0	Thallium	1.8	U		P
7440-62-2	Vanadium	16.7	B	*	P
7440-66-6	Zinc	261		*	P
	Cyanide	0.22	U		CA

Color Before: GREY Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts:

Comments:

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1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MEAMW5
X205

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: 68-D5-0136

Lab Code: SWOK__ Case No.: 24701_ SAS No.: _____ SDG No.: MEAMT0

Matrix (soil/water): SOIL_ Lab Sample ID: 2574334

Level (low/med): LOW__ Date Received: 05/24/96

% Solids: _71.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	7530		*	P
7440-36-0	Antimony_	2.5	B	N	P
7440-38-2	Arsenic__	14.5		N*	P
7440-39-3	Barium___	231		*	P
7440-41-7	Beryllium	0.83	B		P
7440-43-9	Cadmium__	2.6		*	P
7440-70-2	Calcium__	3770		*	P
7440-47-3	Chromium_	11.7		*	P
7440-48-4	Cobalt___	9.5	B		P
7440-50-8	Copper___	56.5		N*	P
7439-89-6	Iron_____	19600		*	P
7439-92-1	Lead_____	156		*	P
7439-95-4	Magnesium	1300	B		P
7439-96-5	Manganese	1820		*	P
7439-97-6	Mercury__	0.14	U	N	AV
7440-02-0	Nickel___	23.2			P
7440-09-7	Potassium	431	B		P
7782-49-2	Selenium_	0.83	U		P
7440-22-4	Silver___	0.56	U		P
7440-23-5	Sodium___	455	B		P
7440-28-0	Thallium_	2.2	B		P
7440-62-2	Vanadium_	37.1		*	P
7440-66-6	Zinc_____	2040		*	P
_____	Cyanide__	0.22	B		CA

Color Before: GREY_____ Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW___ Clarity After: CLEAR_ Artifacts: _____

Comments:

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MEAMW6
X206

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: 68-D5-0136

Lab Code: SWOK__ Case No.: 24701_ SAS No.: _____ SDG No.: MEAMT0

Matrix (soil/water): SOIL_ Lab Sample ID: 2574335

Level (low/med): LOW__ Date Received: 05/24/96

% Solids: _65.8

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	7420		*	P
7440-36-0	Antimony_	38.9		N	P
7440-38-2	Arsenic__	27.2		N*	P
7440-39-3	Barium___	209		*	P
7440-41-7	Beryllium	0.71	B		P
7440-43-9	Cadmium__	14.8		*	P
7440-70-2	Calcium__	4650		*	P
7440-47-3	Chromium_	19.8		*	P
7440-48-4	Cobalt___	8.0	B		P
7440-50-8	Copper___	1090		N*	P
7439-89-6	Iron_____	17500		*	P
7439-92-1	Lead_____	3370		*	P
7439-95-4	Magnesium	1330	B		P
7439-96-5	Manganese	545		*	P
7439-97-6	Mercury__	1.6		N	AV
7440-02-0	Nickel___	259			P
7440-09-7	Potassium	498	B		P
7782-49-2	Selenium_	1.8			P
7440-22-4	Silver___	1.3	B		P
7440-23-5	Sodium___	335	B		P
7440-28-0	Thallium_	1.2	U		P
7440-62-2	Vanadium_	22.3		*	P
7440-66-6	Zinc_____	39000		*	P
_____	Cyanide__	0.90			CA

Color Before: GREY_____ Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW___ Clarity After: CLEAR_ Artifacts: _____

Comments:

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MEAMW7
X207

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: 68-D5-0136

Lab Code: SWOK__ Case No.: 24701_ SAS No.: _____ SDG No.: MEAMT0

Matrix (soil/water): SOIL_ Lab Sample ID: 2574336

Level (low/med): LOW__ Date Received: 05/24/96

% Solids: _46.7

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	2790		*	P
7440-36-0	Antimony_	3.3	B	N	P
7440-38-2	Arsenic__	18.0		N*	P
7440-39-3	Barium___	114		*	P
7440-41-7	Beryllium	0.85	B		P
7440-43-9	Cadmium__	16.1		*	P
7440-70-2	Calcium__	3150		*	P
7440-47-3	Chromium_	8.8		*	P
7440-48-4	Cobalt___	9.7	B		P
7440-50-8	Copper___	146		N*	P
7439-89-6	Iron_____	19800		*	P
7439-92-1	Lead_____	339		*	P
7439-95-4	Magnesium	559	B		P
7439-96-5	Manganese	613		*	P
7439-97-6	Mercury__	0.21	U	N	AV
7440-02-0	Nickel___	17.2			P
7440-09-7	Potassium	318	B		P
7782-49-2	Selenium_	1.3	U		P
7440-22-4	Silver___	0.86	U		P
7440-23-5	Sodium___	377	B		P
7440-28-0	Thallium_	1.7	U		P
7440-62-2	Vanadium_	29.5		*	P
7440-66-6	Zinc_____	2710		*	P
	Cyanide__	0.21	U		CA

Color Before: GREY_____ Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW___ Clarity After: CLEAR_ Artifacts: _____

Comments:

U.S. EPA - CLP

3
BLANKS

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: 68-D5-0136

Lab Code SWOK__ Case No.: 24701_ SAS No.: _____ SDG No.: MEAMT0

Preparation Blank Matrix (soil/water): SOIL_

Preparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum	10.0	U	10.0	U	10.0	U	10.0	U	2.000	U	P
Antimony	2.4	B	3.7	B	2.6	B	4.4	B	0.530	B	P
Arsenic	3.0	U	3.0	U	3.0	U	3.0	U	0.600	U	P
Barium	1.0	U	1.0	U	1.0	U	1.0	U	0.200	U	P
Beryllium	1.0	U	1.0	U	1.0	U	1.0	U	0.200	U	P
Cadmium	1.0	U	1.0	U	1.0	U	1.0	U	0.200	U	P
Calcium	4.0	U	-5.0	B	-4.8	B	-4.6	B	0.800	U	P
Chromium	1.0	U	1.0	U	1.0	U	1.0	U	0.200	U	P
Cobalt	2.0	U	2.0	U	2.0	U	2.0	U	0.400	U	P
Copper	2.0	U	2.0	U	2.0	U	2.0	U	0.400	U	P
Iron	16.0	U	16.0	U	16.0	U	16.0	U	3.200	U	P
Lead	1.0	U	1.0	U	1.0	U	1.0	U	0.730		P
Magnesium	7.0	U	7.0	U	7.0	U	7.0	U	1.400	U	P
Manganese	1.0	U	1.0	U	1.0	U	1.0	U	0.200	U	P
Mercury	0.2	U	0.2	U	0.2	U	0.2	U	0.100	U	AV
Nickel	1.0	U	1.0	U	1.0	U	1.0	U	0.200	U	P
Potassium	62.0	U	62.0	U	62.0	U	62.0	U	12.400	U	P
Selenium	3.0	U	3.0	U	3.0	U	3.0	U	0.600	U	P
Silver	2.0	U	2.0	U	2.0	U	2.0	U	0.400	U	P
Sodium	8.0	U	8.0	U	8.0	U	8.0	U	3.140	B	P
Thallium	4.0	U	4.0	U	4.0	U	4.0	U	0.800	U	P
Vanadium	1.0	U	1.0	U	1.0	U	1.0	U	0.200	U	P
Zinc	2.0	U	2.0	U	2.0	U	2.0	U	1.669	B	P
Cyanide	2.0	U	2.0	U	2.0	U	2.0	U	0.106	B	CA

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3
BLANKS

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: 68-D5-0136

Lab Code: SWOK__ Case No.: 24701_ SAS No.: _____ SDG No.: MEAMTC

Preparation Blank Matrix (soil/water): _____

Preparation Blank Concentration Units (ug/L or mg/kg): _____

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum			10.0	U							P
Antimony			2.0	U							P
Arsenic			3.0	U							P
Barium			1.0	U							P
Beryllium			1.0	U							P
Cadmium			1.0	U							P
Calcium			4.0	U							P
Chromium			1.0	U							P
Cobalt			2.0	U							P
Copper			2.0	U							P
Iron			16.0	U							P
Lead			1.0	U							P
Magnesium			7.0	U							P
Manganese			1.0	U							P
Mercury			0.2	U	0.2	U	0.2	U			AV
Nickel			1.0	U							P
Potassium			62.0	U							P
Selenium			3.4	B	3.0	U					P
Silver			2.0	U							P
Sodium			8.0	U							P
Thallium			4.0	U							P
Vanadium			1.0	U							P
Zinc			2.0	U							P
Cyanide			2.0	U							CA

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: 68-D5-0136

Lab Code: SWOK__ Case No.: 24701_ SAS No.: _____ SDG No.: MEAMT0

Preparation Blank Matrix (soil/water): _____

Preparation Blank Concentration Units (ug/L or mg/kg): _____

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum											NR
Antimony	2.0	U	2.0	U	2.0	U	2.0	U			P
Arsenic	4.2	B	3.0	U	3.0	U	3.8	B			P
Barium	1.0	U	1.0	U	1.0	U	1.0	U			P
Beryllium											NR
Cadmium	1.0	U	1.0	U	1.0	U	1.0	U			P
Calcium	7.2	B	8.0	B	12.5	B	7.6	B			P
Chromium											NR
Cobalt											NR
Copper	2.0	U	2.0	U	2.0	U	2.0	U			P
Iron											NR
Lead	1.8	B	1.0	U	1.6	B	1.3	B			P
Magnesium											NR
Manganese	1.0	U	1.0	U	1.0	U	1.0	U			P
Mercury											NR
Nickel											NR
Potassium											NR
Selenium	3.0	U	3.0	U	3.0	U	-3.6	B			P
Silver											NR
Sodium											NR
Thallium											NR
Vanadium											NR
Zinc	2.0	U	2.0	U	2.0	U	7.9	B			P
Cyanide											NR

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3
BLANKS

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: 68-D5-0136

Lab Code: SWOK__ Case No.: 24701_ SAS No.: _____ SDG No.: MEAMT0

Preparation Blank Matrix (soil/water): _____

Preparation Blank Concentration Units (ug/L or mg/kg): _____

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum											NR
Antimony			2.0	U							P
Arsenic			3.0	U							P
Barium											NR
Beryllium											NR
Cadmium											NR
Calcium			7.6	B							P
Chromium											NR
Cobalt											NR
Copper			2.0	U							P
Iron											NR
Lead											NR
Magnesium											NR
Manganese			1.0	U							P
Mercury											NR
Nickel											NR
Potassium											NR
Selenium			3.0	U							P
Silver											NR
Sodium											NR
Thallium											NR
Vanadium											NR
Zinc			2.0	U							P
Cyanide											NR

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3
BLANKS

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: 68-D5-0136

Lab Code: SWOK__ Case No.: 24701_ SAS No.: _____ SDG No.: MEAMT0

Preparation Blank Matrix (soil/water): _____

Preparation Blank Concentration Units (ug/L or mg/kg): _____

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum											NR
Antimony											NR
Arsenic											NR
Barium											NR
Beryllium											NR
Cadmium											NR
Calcium											NR
Chromium											NR
Cobalt											NR
Copper											NR
Iron											NR
Lead											NR
Magnesium											NR
Manganese											NR
Mercury											NR
Nickel											NR
Potassium											NR
Selenium											NR
Silver											NR
Sodium											NR
Thallium											NR
Vanadium											NR
Zinc	2.0	U	2.0	U	4.1	B	2.0	U			P
Cyanide											NR

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5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

MEAMT0S

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: 68-D5-0136

Lab Code: SWOK__ Case No.: 24701_ SAS No.: _____ SDG No.: MEAMT0

Matrix (soil/water): SOIL__ Level (low/med): LOW___

% Solids for Sample: _60.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									NR
Antimony	75-125	106.2263		4.3005	B	164.20	62.1	N	P
Arsenic	75-125	22.4936		16.4430		13.14	46.0	N	P
Barium	75-125	979.1245		478.0384		656.81	76.3		P
Beryllium	75-125	17.7938		1.7514		16.42	97.7		P
Cadmium	75-125	19.4854		5.3461		16.42	86.1		P
Calcium									NR
Chromium	75-125	83.3862		24.3090		65.68	89.9		P
Cobalt	75-125	169.3094		11.4184	B	164.20	96.2		P
Copper	75-125	186.8240		204.3921		82.10	-21.4	N	P
Iron									NR
Lead		458.0834		746.9054		6.57	-4396.1		P
Magnesium									NR
Manganese		776.3300		1019.4558		164.20	-148.1		P
Mercury	75-125	0.8703		0.3506		0.82	63.4	N	AV
Nickel	75-125	183.7429		27.8112		164.20	95.0		P
Potassium									NR
Selenium	75-125	3.7317		1.2791	B	3.28	74.8		P
Silver	75-125	15.9278		0.6568	U	16.42	97.0		P
Sodium									NR
Thallium	75-125	15.4424		1.3136	U	16.42	94.0		P
Vanadium	75-125	194.6745		50.0837		164.20	88.1		P
Zinc		1069.4722		1647.5294		164.20	-352.0		P
Cyanide	75-125	8.1924		0.9285		8.21	88.5		CA

Comments:

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5B
POST DIGEST SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

MEAMT0A

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: 68-D5-0136

Lab Code: SWOK__ Case No.: 24701_ SAS No.: _____ SDG No.: MEAMT0

Matrix (soil/water) : SOIL__ Level (low/med): LOW___

Concentration Units: ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Added (SA)	%R	Q	M
Aluminum									NR
Antimony		153.42		13.09	B	120.0	116.9		P
Arsenic		162.64		50.07		100.0	112.6		P
Barium									NR
Beryllium									NR
Cadmium									NR
Calcium									NR
Chromium									NR
Cobalt									NR
Copper		1888.78		622.37		1200.0	105.5		P
Iron									NR
Lead									NR
Magnesium									NR
Manganese									NR
Mercury									NR
Nickel									NR
Potassium									NR
Selenium									NR
Silver									NR
Sodium									NR
Thallium									NR
Vanadium									NR
Zinc									NR
Cyanide									NR

Comments:

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6
DUPLICATES

EPA SAMPLE NO.

MEAMT0D

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: 68-D5-0136

Lab Code: SWOK__ Case No.: 24701_ SAS No.: _____ SDG No.: MEAMT0

Matrix (soil/water): SOIL_ Level (low/med): _LOW__

% Solids for Sample: _60.9 % Solids for Duplicate: __63.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum		14341.9924		8996.7557		45.8	*	P
Antimony		4.3005	B	4.3028	B	0.1		P
Arsenic	3.2841	16.4430		9.2430		56.1	*	P
Barium		478.0384		344.2601		32.5	*	P
Beryllium	1.6420	1.7514		1.1563	B	40.9		P
Cadmium	1.6420	5.3461		3.6371		38.0	*	P
Calcium	1642.036	23169.0604		7681.1235		100.4	*	P
Chromium	3.2841	24.3090		16.2407		39.8	*	P
Cobalt		11.4184	B	8.3905	B	30.6		P
Copper		204.3921		125.7833		47.6	*	P
Iron		37663.9750		21018.4217		56.7	*	P
Lead		746.9054		501.3675		39.3	*	P
Magnesium	1642.036	2088.2348		1225.7084	B	52.1		P
Manganese		1019.4558		677.4059		40.3	*	P
Mercury	0.1642	0.3506		0.3539		0.9		AV
Nickel	13.1363	27.8112		19.3777		35.7		P
Potassium	1642.036	2109.9842		1428.5396	B	38.5		P
Selenium		1.2791	B	0.9852	U	200.0		P
Silver		0.6568	U	0.6568	U			P
Sodium		517.1419	B	448.5580	B	14.2		P
Thallium		1.3136	U	1.3136	U			P
Vanadium	16.4204	50.0837		32.3859		42.9	*	P
Zinc		1647.5294		1017.1143		47.3	*	P
Cyanide	0.8210	0.9285		0.9420		1.4		CA

7
LABORATORY CONTROL SAMPLE

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: 68-D5-0136

Lab Code: SWOK__ Case No.: 24701_ SAS No.: _____ SDG No.: MEAMT0

Solid LCS Source: EPA0287_____

Aqueous LCS Source: _____

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Aluminum				325.0	286.5		225.0	424.0	88.2
Antimony				211.0	250.2		127.0	294.0	118.6
Arsenic				917.0	1058.9		635.0	1199.0	115.5
Barium				4.8	5.1	B	0.0	40.0	106.2
Beryllium				19.4	18.6		16.5	22.3	95.9
Cadmium				45.4	40.2		35.7	55.1	88.5
Calcium				196200.0	195790.0		166800.0	225600.0	99.8
Chromium				99.6	97.1		79.2	120.0	97.5
Cobalt				144.0	137.2		125.0	162.0	95.3
Copper				6910.0	6756.7		6006.0	7820.0	97.8
Iron				22430.0	21169.8		17770.0	27080.0	94.4
Lead				236.0	210.2		188.0	285.0	89.1
Magnesium				118100.0	113821.1		100400.0	129900.0	96.4
Manganese				208.0	205.1		177.0	239.0	98.6
Mercury				12.7	1.1		8.5	17.0	8.7
Nickel				60.9	55.6		49.2	72.6	91.3
Potassium				50.0	57.8	B	0.0	1000.0	115.6
Selenium				39.2	43.2		19.1	59.4	110.2
Silver				22.2	22.9		15.5	29.0	103.2
Sodium				50.0	158.3	B	0.0	1000.0	316.6
Thallium				39.0	33.6		24.6	53.5	86.2
Vanadium				65.8	67.0		51.7	79.9	101.8
Zinc				187.0	178.1		138.0	236.0	95.2
Cyanide				5.6	6.3		4.3	6.9	112.5

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9

ICP SERIAL DILUTION

EPA SAMPLE NO.

MEAMT0L

Lab Name: SOUTHWEST_LAB_OF_OK Contract: 68-D5-0136

Lab Code: SWOK Case No.: 24701 SAS No.: SDG No.: MEAMT0

Matrix (soil/water): SOIL Level (low/med): LOW

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Aluminum	43671.37		43894.66		0.5		P
Antimony	13.09	B	17.74	B	35.5		P
Arsenic	50.07		41.40	B	17.3		P
Barium	1455.63		1465.86		0.7		P
Beryllium	5.33		5.83	B	9.4		P
Cadmium	16.28		16.51	B	1.4		P
Calcium	70549.79		71479.37		1.3		P
Chromium	74.02		74.60		0.8		P
Cobalt	34.77	B	36.47	B	4.9		P
Copper	622.37		626.41		0.6		P
Iron	114686.80		116659.15		1.7		P
Lead	2274.33		2348.21		3.2		P
Magnesium	6358.67		6454.18	B	1.5		P
Manganese	3104.24		3178.36		2.4		P
Mercury							NR
Nickel	84.68		85.34	B	0.8		P
Potassium	6424.90		6553.97	B	2.0		P
Selenium	3.89	B	15.00	U	100.0		P
Silver	2.00	U	10.00	U			P
Sodium	1574.70	B	1612.27	B	2.4		P
Thallium	4.00	U	20.00	U			P
Vanadium	152.50		154.60	B	1.4		P
Zinc	5016.73		5369.59		7.0		P

10
Instrument Detection Limits (Quarterly)

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: 68-D5-0136

Lab Code: SWOK__ Case No.: 24701_ SAS No.: _____ SDG No.: MEAMT0

ICP ID Number: TJA#2_____ Date: 04/08/96

Flame AA ID Number : _____

Furnace AA ID Number : _____

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum	308.22		200	10.0	P
Antimony	206.83		60	2.0	P
Arsenic	189.04		10	3.0	P
Barium	493.41		200	1.0	P
Beryllium	313.04		5	1.0	P
Cadmium	226.50		5	1.0	P
Calcium	317.93		5000	4.0	P
Chromium	267.72		10	1.0	P
Cobalt	228.61		50	2.0	P
Copper	324.75		25	2.0	P
Iron	271.44		100	16.0	P
Lead	220.35		3	1.0	P
Magnesium	279.08		5000	7.0	P
Manganese	257.61		15	1.0	P
Mercury			0.2		NR
Nickel	231.60		40	1.0	P
Potassium	766.49		5000	62.0	P
Selenium	196.02		5	3.0	P
Silver	328.07		10	2.0	P
Sodium	588.99		5000	8.0	P
Thallium	190.68		10	4.0	P
Vanadium	292.40		50	1.0	P
Zinc	213.86		20	2.0	P
Cyanide			10		NR

Comments:

U.S. EPA - CLP

10
Instrument Detection Limits (Quarterly)

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: 68-D5-0136

Lab Code: SWOK__ Case No.: 24701_ SAS No.: _____ SDG No.: MEAMT0

ICP ID Number: _____ Date: 04/08/96

Flame AA ID Number : PS200A_____

Furnace AA ID Number : _____

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum			200		NR
Antimony			60		NR
Arsenic			10		NR
Barium			200		NR
Beryllium			5		NR
Cadmium			5		NR
Calcium			5000		NR
Chromium			10		NR
Cobalt			50		NR
Copper			25		NR
Iron			100		NR
Lead			3		NR
Magnesium			5000		NR
Manganese			15		NR
Mercury	253.30		0.2	0.2	AV
Nickel			40		NR
Potassium			5000		NR
Selenium			5		NR
Silver			10		NR
Sodium			5000		NR
Thallium			10		NR
Vanadium			50		NR
Zinc			20		NR
Cyanide			10		NR

Comments:

10
Instrument Detection Limits (Quarterly)

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: 68-D5-0136

Lab Code: SWOK__ Case No.: 24701_ SAS No.: _____ SDG No.: MEAMT0

ICP ID Number: _____ Date: 04/20/96

Flame AA ID Number : LACHAT_____

Furnace AA ID Number : _____

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum			200		NR
Antimony			60		NR
Arsenic			10		NR
Barium			200		NR
Beryllium			5		NR
Cadmium			5		NR
Calcium			5000		NR
Chromium			10		NR
Cobalt			50		NR
Copper			25		NR
Iron			100		NR
Lead			3		NR
Magnesium			5000		NR
Manganese			15		NR
Mercury			0.2		NR
Nickel			40		NR
Potassium			5000		NR
Selenium			5		NR
Silver			10		NR
Sodium			5000		NR
Thallium			10		NR
Vanadium			50		NR
Zinc			20		NR
Cyanide	578.00		10	2.0	CA

Comments:

U.S. EPA - CLP

13
PREPARATION LOG

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: 68-D5-0136

Lab Code: SWOK__ Case No.:_24701_ SAS No.: _____ SDG No.:MEAMT0

Method: P_

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
LCSS	06/04/96	1.00	200
MEAMT0	06/04/96	1.00	200
MEAMT0D	06/04/96	1.00	200
MEAMT0S	06/04/96	1.00	200
MEAMT1	06/04/96	1.00	200
MEAMT2	06/04/96	1.00	200
MEAMT3	06/04/96	1.00	200
MEAMT4	06/04/96	1.00	200
MEAMT5	06/04/96	1.00	200
MEAMT6	06/04/96	1.00	200
MEAMT7	06/04/96	1.00	200
MEAMT8	06/04/96	1.00	200
MEAMW1	06/04/96	1.00	200
MEAMW2	06/04/96	1.00	200
MEAMW3	06/04/96	1.00	200
MEAMW4	06/04/96	1.00	200
MEAMW5	06/04/96	1.00	200
MEAMW6	06/04/96	1.00	200
MEAMW7	06/04/96	1.00	200
PBS	06/04/96	1.00	200

U.S. EPA - CLP

13
PREPARATION LOG

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: 68-D5-0136

Lab Code: SWOK__ Case No.:_24701_ SAS No.: _____ SDG No.:MEAMT0

Method: CA

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
LCSS	05/31/96	1.00	50
MEAMT0	05/31/96	1.00	50
MEAMT0D	05/31/96	1.00	50
MEAMT0S	05/31/96	1.00	50
MEAMT1	05/31/96	1.00	50
MEAMT2	05/31/96	1.00	50
MEAMT3	05/31/96	1.00	50
MEAMT4	05/31/96	1.00	50
MEAMT5	05/31/96	1.00	50
MEAMT6	05/31/96	1.00	50
MEAMT7	05/31/96	1.00	50
MEAMT8	05/31/96	1.00	50
MEAMW1	05/31/96	1.00	50
MEAMW2	05/31/96	1.00	50
MEAMW3	05/31/96	1.00	50
MEAMW4	05/31/96	1.00	50
MEAMW5	05/31/96	1.00	50
MEAMW6	05/31/96	1.00	50
MEAMW7	05/31/96	1.00	50
PBS	05/31/96	1.00	50

SOUTHWEST LABORATORY OF OKLAHOMA, INC.
1700 West Albany / Broken Arrow, Oklahoma 74012 / Office (918) 251-2858 / Fax (918) 251-2599

SDG NARRATIVE

CONTRACT: 68-D5-0136 **DATE: 06/27/96**
CASE: 24701 **SOW NO.: ILM04.0**
SDG: MEAMT0 **EPISODE NO.: 25743**

INORGANIC METAL FRACTION:

16 soil samples plus one LCSS, one MS, and one DUP were submitted for ICP, CN and Hg analysis. The samples analyses was/were completed according to SOW ILM04.0. No major problems occurred during the digestion or analyses of these samples.

Initial and Continuing Calibration Checks: No problems.

Initial and Continuing Calibration Blanks: The following elements showed low level concentrations below the Contract Required Detection Limit in the Calibration Blanks: Sb, Ca, Se, As, Pb, and Zn. No action required.

Linearity near the CRDL (CRA & CRI): The CRI standard was outside of our in-house warning limits of 70 - 130%R for the following elements: Se. No action required.

Preparation Blanks: The following elements showed low level concentrations below the Contract Required Detection Limit in the Preparation Blank: Sb, Na, Zn, and CN. No action required. Pb was detected above the CRDL at 0.73 mg/kg. All sample results for Pb were at least ten times this amount and are therefore considered valid.

Lab Control Spikes: No problems.

Matrix Spike: The following elements were outside the control limits of 75-125% recovery: Sb, As, Cu, and Hg. All associated samples were flagged with a "N" on Form I's. No action required.

Duplicate: The following elements were outside the control limits of 0-20% RPD: Al, As, Ba, Cd, Ca, Cr, Cu, Fe, Pb, Mn, V, and Zn. All associated samples were flagged with a "*" on Form I's. No action required

Serial Dilution (ICP): No problems.

Sincerely,

Jason D. Ruckman
Inorganic Program Manager

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

ESD Central Regional Laboratory
Data Tracking Form for Contract Samples

Data Set No: _____ CERCLIS No: IL

Case No: 24701 Site Name Location: Sandoval Zinc

Contractor or EPA Lab: SWOK Data User: IEPA

No. of Samples: 16 Date Sampled or Data Received: 7-8-96

Have Chain-of-Custody records been received? Yes ✓ No ___
Have traffic reports or packing lists been received? Yes ✓ No ___
If no, are traffic report or packing list numbers written on the chain-of-custody record? Yes ✓ No ___
If no, which traffic report or packing list numbers are missing?

_____ _____ _____ _____

_____ _____ _____ _____

Are basic data forms in? Yes ✓ No ___
No of samples claimed: 16 No. of samples received: 16

Received by: Lynette Burnett Date: 7-8-96

Received by LSSS: Lynette Burnett Date: 7-8-96

Review started: 8-5-96 Reviewer Signature: [illegible]

Total time spent on review: 10.2 Date review completed: 8-9-96

Copied by: Lynette Burnett Date: 8-28-96

Mailed to user by: Lynette Burnett Date: 8-28-96

DATA USER:
Please fill in the blanks below and return this form to:
Sylvia Griffen, Data mgmt. Coordinator, Region V, 5SCRL

Data received by: _____ Date: _____

Data review received by: _____ Date: _____

Inorganic Data Complete [ ] Suitable for Intended Purpose [ ] ✓ if OK
Organic Data Complete [ ] Suitable for Intended Purpose [ ] ✓ if OK
Dioxin Data Complete [ ] Suitable for Intended Purpose [ ] ✓ if OK
SAS Data Complete [ ] Suitable for Intended Purpose [ ] ✓ if OK

PROBLEMS: Please indicate reasons why data are not suitable for your uses.

_____

_____

Received by Data Mgmt. Coordinator for Files. Data: _____

Appendix I

Summary of Analytical Results From Previous Investigations

TABLE 4-1: SUMMARY OF ANALYTICAL RESULTS FROM TANK SAMPLES

Analysis	Sampling Locations		
	CRDL	TS01S	TS01D
Inorganic Compounds (mg/kg)			
Iron	100	41	34
Lead	5	28	28
Nickel	40	17	17
Vanadium	50	49	46
Zinc	20	20	19
Volatile Organics (µg/kg)			
Toluene	1.0	4400.J	6700.
Ethylbenzene	5.0	20,000.	23,000.
Xylenes (Total)	10.0	96,000.	92,000.
Heating Value (BTU/lb)		18,500	17,800

CRDL = Contract Required Detection Limits
S = Sample
D = Duplicate
J = Estimated Value

TABLE 4-2: SUMMARY OF ANALYTICAL RESULTS FROM WASTE PRODUCT AND ASH SAMPLES

	Sampling Locations							
Analysis	CRDL	WPA01S	WPA01D	WPA02S	WPA03S	WPA04S	WPA05S	WPA06S
Inorganic Compounds (mg/kg)								
Aluminum	200.0	74,000	79,000	37,000	27,000	10,000	15,000	1,800
Chromium	10	330	300	330	110	40	55	1.9U
Copper	25	210	160	71,000	1,000	3,800	590	210
Iron	100	87,000	94,000	22,000	24,000	2,300	62,000	3,200
Lead	5	1,100	1,000	63,000	3,200	8,300	4,300	10,000
Nickel	40	430	450	14,000	450	2,000	430	49
Zinc	20	260,000	260,000	220,000	290,000	680,000	240,000	27,000
EP Toxicity Values (µg/l)	MCL							
Barium	100.0	260	290	4,000	1,000	160	760	1,200
Cadmium	1.0	250	270	200	880	340	1,500	210
Chromium	5.0	10	8.6	8.7	6.9	12	7.2	6.2
Lead	5.0	12	43	4,000	8,400	22,000	46,000	7,100

CRDL = Contract Required Detection Limits
MCL = Maximum Concentration Levels
S = Sample
D = Duplicate
U = Compound Analyzed for But Not Detected

TABLE 4-3: SUMMARY OF INORGANIC ANALYSES (MG/KG) IN SURFACE SOIL SAMPLES

	Sampling Locations									
Analyte	CRDL	SS05S	SS05D	SS06S	SS07S	SS08S	SS09S	SS10S	SS10D	SS11S
Aluminum	200.0	11,300	11,000	7,520	6,000	6,770	8,990	7,160	7,400	11,500
Antimony	60	2.8U	2.2U	15U	15	28	16	23	17	61
Cadmium	5	1.4U	1.3U	1.2U	1.1U	3.7	21	67	35	1.5U
Calcium	5,000	10,900	3,500	96,800	14,300	1,830	3,430	4,570	2,440	1,640
Chromium	10	2.8U	5.1	2.4U	24	9.5	16	98	18	60
Copper	25	190	73	100	350	4,290	4,250	5,850	3,770	5,500
Iron	100	36,300	19,700	14,900	18,500	75,200	69,700	70,300	58,900	26,900
Lead	5	510	130	250	4,000	41,000	16,000	11,000	6,200	21,000
Manganese	15	240	190	260	220	94	170	380	350	180
Mercury	0.2	0.47	0.10U	0.11	1.0	0.22	0.45	0.21	0.19	2.1
Nickel	40	34	44	9.7U	240	11	1,710	2,010	2,710	600
Silver	10	81	47	150	24	110	97	94	83	38
Zinc	20	20,000	4,200	2,100	26,000	73,000	55,000	120,000	88,000	270,000

CRDL = Contract Required Detection Limits
S = Sample
D = Duplicate
R = Rinsate
J = Estimated Value
U = Compound Analyzed for But Not Detected

TABLE 4-3: SUMMARY OF INORGANIC ANALYSES (MG/KG) (Cont'd.)
IN SURFACE SOIL SAMPLES

Analyte	Sampling Locations										
	CRDL	SS12S	SS12R	SS13S	SS13D	SS14S	SS14R	SS15S	SS16S	SS16R	SS17S
Aluminum	200.0	11,800	200U	12,900	10,300	8,600	200U	11,100	10,400	200U	8,810
Antimony	60	19	60U	13U	2.4U	2.6U	60U	2.2U	150	60U	25
Cadmium	5	33	5U	1.1U	1.2U	1.0U	5U	1.2U	1.0U	5U	15
Calcium	5,000	1,800	1,000UJ	2,030	990	980	1,000UJ	630	5,210	1,000UJ	1,580
Chromium	10	27	15	2.2	2.3U	2.0U	10	2.4U	24	10U	17
Copper	25	1,350	53	490	520	100	35	6.0U	2,880	25	3,000
Iron	100	35,300	66J	36,500	42,100	15,900	50UJ	22,300	57,600	64J	37,400
Lead	5	13,000	52	2,200	2,200	330	5U	71	14,000	37	7,500
Manganese	15	550	15U	1,150	1,360	400	15U	2,320	410	15U	400
Mercury	0.2	49	0.20U	0.37	1.1	0.069U	0.20U	0.059U	0.37	0.20U	13
Nickel	40	750	40U	120	110	23	40U	9.5U	250	40U	740
Silver	10	54	10U	64	67	23	10U	43	91	10U	42
Zinc	20	240,000	3,200	25,000	21,000	1,900	440	2,200	24,000	100	210,000

CRDL = Contract Required Detection Limits
S = Sample
D = Duplicate
R = Rinsate
J = Estimated Value
U = Compound Analyzed for But Not Detected

TABLE 4-3: SUMMARY OF INORGANIC ANALYSES (MG/KG) (Cont'd.)
IN SURFACE SOIL SAMPLES

Analyte	Sampling Locations										
	CRDL	SS18S	SS19S	SS20S	SS21S	SS22S	SS23S	SS24S	SS25S	SS26S	SS27S
Aluminum	200.0	6,130	6,530	7,770	10,700	7,310	6,540	5,710	8,910	9,630	6,750
Antimony	60	65	240	12U	280	210	180	60	6.6	2.6U	2.4U
Cadmium	5	48	27	1.0U	27	10	3.7	1.3U	1.4U	1.4U	1.0U
Calcium	5,000	4,180	23,500	1,670	29,200	2,090	4,500	750	960	480	1,270
Chromium	10	13	73	4.4	8.3	14	16	2.6U	2.7U	2.7U	2.0U
Copper	25	1,060	1,310	1,490	2,140	4,270	4,450	1,830	460	67	150
Iron	100	5,380	126,000	32,100	56,600	44,600	54,100	43,200	16,300	21,000	18,400
Lead	5	3,200	6,300	1,300	7,600	4,300	14,000	28,000	830	170	15,000
Manganese	15	340	3.5U	4.2	320	120	290	13	390	1,790	910
Mercury	0.2	1.4	5.7	0.45	0.66	0.53	0.46	7.7	0.11	0.098U	0.081U
Nickel	40	490	450	780	1,410	2,500	3,460	600	240	25	66
Silver	10	15	210	50	94	71	72	41	23	40	33
Zinc	20	170,000	98,000	40,000	74,000	48,000	150,000	190,000	9,600	1,900	360,000

CRDL = Contract Required Detection Limits
S = Sample
D = Duplicate
R = Rinsate
J = Estimated Value
U = Compound Analyzed for But Not Detected

TABLE 4-4: SUMMARY OF SURFACE SOIL ANALYTICAL DATA
(All Concentrations in mg/kg)

LEAD				ZINC				COPPER			
Ebasco Study		ISGS Study		Ebasco Study		ISGS Study		Ebasco Study		ISGS Study	
Sample #	Concentration	Sample #	Concentration	Sample #	Concentration	Sample #	Concentration	Sample #	Concentration	Sample #	Concentration
Background:	71-15,000	Background:	10-40	Background:	1,900-360,000	Background:	20-50	Background:	6-460	Background:	10-30
SS14	330			SS14	1,900	C12	100-1,000	SS14	100		
SS15	71			SS15	2,200			SS15	6.0U		
SS25	830			SS25	9,600			SS25	460		
SS26	170			SS26	1,900			SS26	67		
SS27	15,000			SS27	360,000			SS27	150		
SS01	2,200	C37	<100	SS01	18,000	W2	1,000-10,000	SS01	820	C37	1,000
SS02*	490			SS02*	150,000	C1	10,000-100,000	SS02*	440		
SS03*	190J			SS03*	1,410J			SS03*	330J		
SS04*	2,200J			SS04*	1,080J			SS04*	1,010J		
SS05	510	W3	100-1,000	SS05	20,000	C6	10,000	SS05	190	W3	<100
SS06	250			SS06	2,100			SS06	100		
SS07	4,000			SS07	26,000	C15	10,000-100,000	SS07	350		
SS08	41,000			SS08	73,000			SS08	4,290		
SS09	16,000			SS09	55,000			SS09	4,250		
SS10	11,000			SS10	120,000			SS10	5,850		
SS11	21,000	C9	>10,000	SS11	270,000	C19	>100,000	SS11	5,500	C9	>1,000
SS12	13,000			SS12	240,000			SS12	1,350		

* Composite of 3 Grab Samples

TABLE 4-4: SUMMARY OF SURF, . E SOIL ANALYTICAL DATA (Cont'd.)
(All Concentrations in mg/kg)

LEAD				ZINC				COPPER			
Ebasco Study		ISGS Study		Ebasco Study		ISGS Study		Ebasco Study		ISGS Study	
Sample #	Concentration	Sample #	Concentration	Sample #	Concentration	Sample #	Concentration	Sample #	Concentration	Sample #	Concentration
SS13	2,200	C13	100-5,000	SS13	25,000	W13	>10,000	SS13	490	C13	<100
SS16	14,000			SS16	24,000	C8	>100,000	SS16	2,880		
SS17	7,500	C7	1,000-10,000	SS17	210,000	C4	10,000-100,000	SS17	3,000	C7	100-1,000
SS18	3,200			SS18	170,000	C7	>10,000	SS18	1,060		
SS19	6,300	W18	100-1,000	SS19	98,000	W18	10,000-100,000	SS19	1,310	W18	100-1,000
SS20	1,300			SS20	40,000	C6	10,000-100,000	SS20	1,490		
SS21	7,600			SS21	74,000	C10, C1	10,000-100,000	SS21	2,140		
SS22	4,300			SS22	48,000	C12	10,000-100,000	SS22	4,270		
SS23	14,000	C5	1,000-10,000	SS23	150,000	C5	10,000-100,000	SS23	4,450	C5	>1,000
SS24	28,000			SS24	190,000	C2	1,000-10,000	SS24	1,830		

TABLE 4-5: SUMMARY OF SURFACE SOIL ANALYTICAL DATA
(All Concentrations in mg/kg)

CADMIUM				NICKEL		SILVER	
Ebasco Study		ISGS Study		Ebasco Study		Ebasco Study	
Sample #	Concentration	Sample #	Concentration	Sample #	Concentration	Sample #	Concentration
Background:	1.0-1.5U		0.04-1.5	Background:	0.070-240	Background:	23-40
SS14	1.0U			SS14	23	SS14	23
SS15	1.2U			SS15	9.5U	SS15	43
SS25	1.4U			SS25	240	SS25	23
SS26	1.4U			SS26	25	SS26	40
SS27	1.0U			SS27	66	SS27	33
SS01	21			SS01	440	SS01	3.2U
SS02	5.0			SS02	180	SS02	3.6U
SS03	1.5U			SS03	190	SS03	31
SS04	8.2			SS04	490	SS04	46
SS05	1.4U	W3	1-10	SS05	34	SS05	81
SS06	1.2U			SS06	9.7U	SS06	150
SS07	1.1U			SS07	240	SS07	24
SS08	3.7			SS08	11	SS08	110
SS09	21			SS09	1,710	SS09	97
SS10	35-67*	C9	>10	SS10	2,010	SS10	94
SS11	1.5U			SS11	600	SS11	38
SS12	33			SS12	750	SS12	54
SS13	1.1U			SS13	120	SS13	64
SS16	1.0U			SS16	250	SS16	91

* Two samples were collected including one duplicate sample. The concentrations were 35 and 67 mg/kg.

TABLE 4-5: SUMMARY OF SURFACE SOIL ANALYTICAL DATA (Cont'd.)
(All Concentrations in mg/kg)

CADMIUM				NICKEL		SILVER	
Ebasco Study		ISGS Study		Ebasco Study		Ebasco Study	
Sample #	Concentration	Sample #	Concentration	Sample #	Concentration	Sample #	Concentration
SS17	15	C7	>10	SS17	740	SS17	42
SS18	48			SS18	490	SS18	15
SS19	27	W18	>10	SS19	450	SS19	210
SS20	1.0U			SS20	780	SS20	50
SS21	27			SS21	1,410	SS21	94
SS22	10			SS22	2,500	SS22	71
SS23	3.7	C5	1-10	SS23	3,460	SS23	72
SS24	1.3U			SS24	600	SS24	41

U – Compound analyzed for but not detected. Value reported is Contract Required Detection Limit (CRDL).

TABLE 4-6: SUMMARY ANALYTICAL DATA FOR SURFACE WATER SAMPLES

Analysis	Sampling Locations							
	CRDL	SW01S	SW01D	SW02S	SW03S	SW04S	SW04R	Federal Drinking Water Standards MCL
Inorganic Compounds (mg/l)								
Aluminum	200.0	780	1,000	5,200	5,600	660	200U	--
Cadmium	5	360	370	5.0U	5.0U	5.0U	5.0U	0.005 (Proposed)
Calcium	5,000	100,000	110,000	17,000	5,300	18,000	1,000U	--
Copper	25	90	80	85	90	79	25U	1.3 (Proposed)
Iron	100	1,400	1,400	3,200	3,300	3,200	50U	--
Magnesium	5,000	16,000	16,000	2,400	2,500	4,400	1,000U	--
Manganese	15	1,500	1,600	84	120	930	15U	--
Nickel	40	100	100	40U	40U	40U	40U	0.10 (Tentative)
Silver	10	120	120	17	10U	13	10U	--
Thallium	10	53	47	10U	10U	10U	10U	--
Zinc	20	4,200J	4,100J	500J	1,000J	1,000J	110J	--
Volatile Compounds (µg/l)								
Toluene	1.0	5U	5U	5U	25B	5B	27B	--

CRDL = Contract Required Detection Limits
S = Sample
D = Duplicate
R = Rinsate Sample
J = Estimated Value
U = Compound Analyzed for But Not Detected

TABLE 4-7: SUMMARY OF ANALYTICAL DATA FOR GROUNDWATER SAMPLES

Analysis	Sampling Locations									
	CRDL	MW101S	MW101D	MW101R	MW102S	MW103S	MW01S Total	MW02s Total	RW01S	RW01D
Inorganic Compounds (~~mg/l~~ µg/l)										
Aluminum	200.0	200U	200U	200U	200U	200U	14,000J	13,000J	200U	200U
Cadmium	5	5.0U	5.0U	5.0U	5.0U	5.0U	45	6.0	5U	5U
Calcium	5,000	24,000	24,000	1,000U	240,000J	290,000J	1,100,000	130,000	66,900J	68,800J
Chromium	10	10U	10U	10U	10U	10U	150	69	10U	10U
Copper	25	25U	25U	25U	25U	25U	64	47	35	25U
Iron	100	50U	50U	50U	50U	50U	34,000J	34,000J	2,700J	2,660J
Magnesium	5,000	13,000	13,000	1,000U	170,000	150,000	360,000J	46,000J	8,370	8,400
Manganese	15	15U	15U	15U	15U	380	1,500J	1,400J	160	160
Potassium	5,000	670	670	500U	1,400	3,000	6,500	5,900	1,240	1,230
Silver	10	43	40	10U	420	450	140	11	66	61
Sodium	5,000	240,000	241,000	500U	280,000	95,000	420,000	230,000	12,300	12,400
Thallium	10	10U	10U	10U	180	190	5.0U	5.0U	10U	110
Zinc	20	20U	20U	20U	20U	20U	280	200	88	96
Volatile Compounds (µg/l)										
Toluene	1.0	5U	5U	5U	5U	2J	4J	5U	NR	NR

CRDL = Contract Required Detection Limits
S = Sample
D = Duplicate
R = Rinsate
J = Estimated Value
U = Compound Analyzed for But Not Detected
NR = Analysis Not Run
RW = Residential Well

TABLE 4-8: SUMMARY OF GROUNDWATER QUALITY DATA FOR THE SANDOVAL ZINC SITE

Analyte	Range of Values for Monitoring and Residential Well Water Samples µg/l	Federal Drinking Water Standards As of April, 1990		
		NIPDWR (1) µg/l	MCL (2)/MCLG (3) µg/l	MCLS (4) mg/l
Aluminum	ND (5) - 14,000	--	--	0.05 to 0.2
Cadmium	6-45	10	5 (P)/5 (P)	
Chromium	69-150	50	100 (P)/100 (P)	
Copper	35-64	--	1,300 (P)/1,300 (P)	1
Iron	ND (5) - 34,000	--	--	0.3
Manganese	ND (5) - 1,500	--	--	0.05
Lead	29-34	--	5 (P)/Zero (P)	
Nickel	41	--	100 (T)/100 (T)	
Silver	11-450	50	--	0.09
Toluene	ND (5) - 4	--	2,000 (P)/2,000 (P)	0.04
Zinc	88-280	--	--	5
Calcium	24,000-1,100,000	--	--	
Magnesium	8,370-360,000	--	--	

(1) National Primary Drinking Water Standard
(2) Maximum Contaminant Level
(3) Maximum Contaminant Level Goal
(4) Secondary Maximum Contaminant Levels
(5) None Detected
(P) Proposed Regulatory Value
(T) Tentative Regulatory Value

TABLE 4-9. SUMMARY OF ANALYTICAL RESULTS FROM SEDIMENT SAMPLES

Analysis	Sampling Locations						
	CRDL	SS01S	SS01D	SS02S	SS03S	SS04S	SS04R
Inorganic Compounds (mg/kg)							
Aluminum	200.0	18,000	12,000	9,600	8,560	13,600	200U
Cadmium	5	21	19	5.0	1.5U	8.2	5.0U
Copper	25	820	850	440	330J	1,010J	87
Iron	100	15,000	12,000	13,000	17,100J	66,400J	24,100J
Lead	5	2,200	2,000	490	190J	2,200J	120
Manganese	15	260	1,300	290	270	2,770	170
Nickel	40	440	470	180	190	490	198
Silver	10	3.2U	2.9U	3.6U	31	46	10U
Zinc	20	18,000	15,000	150,000	1,410J	1,080J	16,200

CRDL = Contract Required Detection Limits
S = Sample
D = Duplicate
R = Rinsate
J = Estimated Value
U = Compound Analyzed for But Not Detected

Table 3-1
Monitoring Well Data
Sandoval Zinc
Sandoval, Illinois

WELL[1]	MW101	MW102	MW103	MW01	MW02
Elevation of Ground Surface (ft)	509.5	506.3	505.3	505.8	507
Elevation of Top of Casing (ft)	512.67	509.23	508.15	509.33	509.33
Depth to Top of Formation (ft)	11.2	12.2	12.3	12.5	14.4
Depth to Water (6/28/90) (ft)	7.34	4.74	4.74	4.44	4.42
Depth to Top of Screen (ft)	11.7	12	12	10.76	13.35
Elevation of Piezometric Surface (ft) (6/28/90)	505.33	504.49	504.42	504.89	504.96
Elevation of Top of Screen (ft)	497.8	494.3	493.3	495.04	493.65
Elevation of Top of Formation (ft) (Hagerstown)	498.3	494.1	493.3	495.04	492.6
Well Completion Data	4/06/87	4/08/87	4/06/87	6/14/90	6/15/90

1 - 5 foot screen

Note: IEPA monitoring wells G101, G102, and G103 were renamed for use in this report to MW101, MW102, and Mw103, respectively.

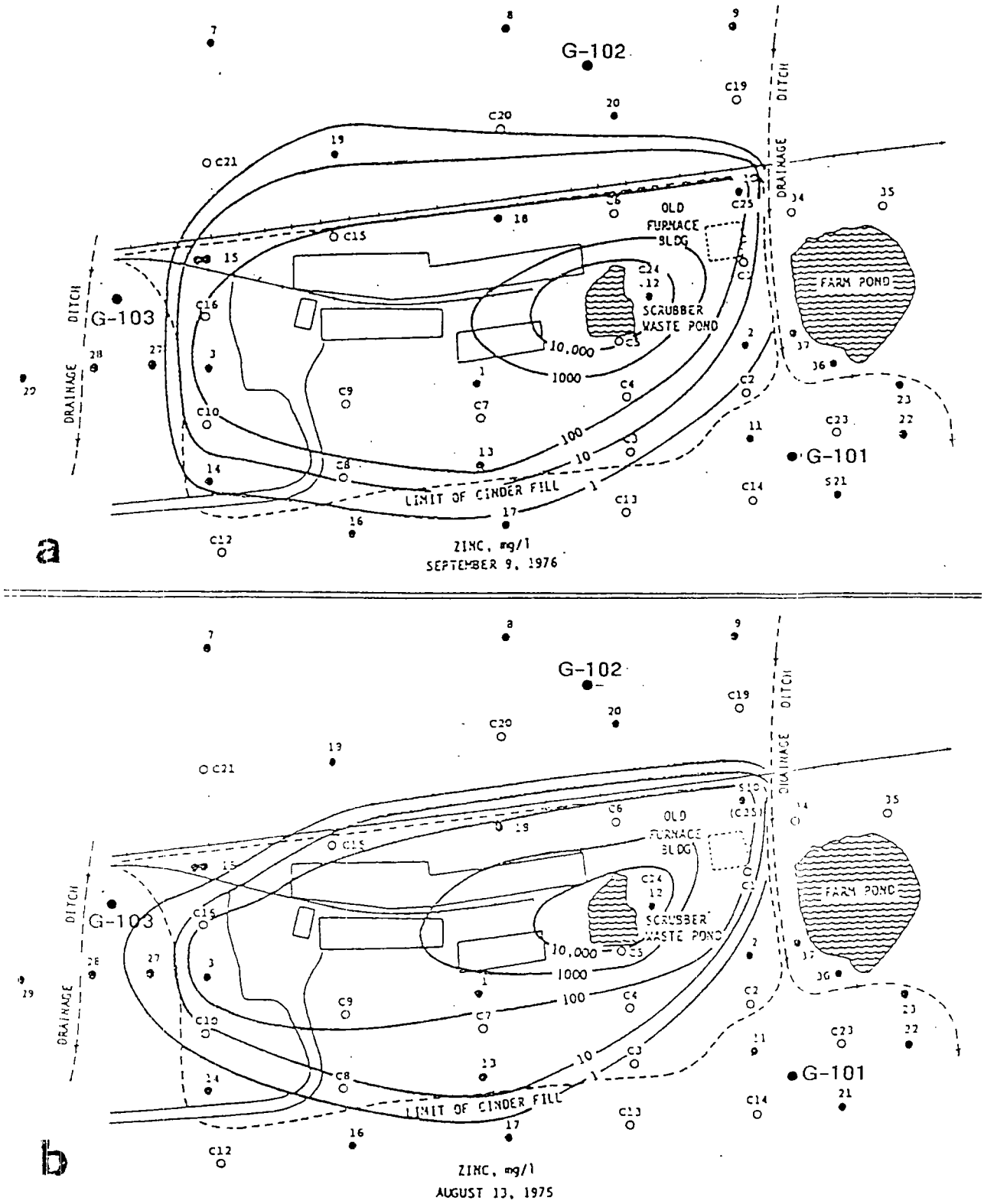
STAGE	UNIT
WISCONSINAN	PEORIA LOESS
	ROXANA SILT
SANGAMONIAN	BERRY CLAY MEMBER-GLASFORD FORMATION
ILLINOIAN	HAGARSTOWN MEMBER-GLASFORD FORMATION
	GLASFORD FORMATION TILL
YARMOUTHIAN	LIERLE CLAY MEMBER-BANNER FORMATION
KANSAN	BANNER FORMATION TILL
PENSYLVANIAN SYSTEM	BOND FORMATION

(After Willman et al., 1975)

Illinois Environmental Protection Agency

Sandoval Zinc Site

Figure 3-3
Generalized Stratigraphic Column



Scale (feet)

0 100 200 300

o Core Hole

● Monitoring Well

N

Illinois Environmental Protection Agency
Sandoval Zinc Site
Figure 1-3 Zinc Plume With IEPA Monitoring Wells Superimposed
EBASCO SERVICES INCORPORATED

Table 1-1
Summary of Analytical Results From
Previous IEPA Study - Soil (ug/g)
Sandoval Zinc
Sandoval, Illinois

PARAMETER	X101	X102	X103	X201	X202	X203	X204	X205
Antimony	14	14	30	140	28	41	14	32
Arsenic	7	13	10	4	17	26	11	11
Beryllium	1	1	1	1	3	1	1	1
Cadmium	27.2	26.6	14.2	35.1	21.9	19.6	60.9	110
Chromium	39.1	18.1	23.5	1,360	9.8	9.2	22.9	22.2
Copper	1,240	418	880	34,200	320	1,780	1,560	2,810
Lead	7,560	1,590	5,650	25,800	40,000	10,000	69,600	22,400
Mercury	0.36	0.04	9.43	0.11	0.28	0.25	4.55	5.79
Nickel	570	14.4	230	12,100	52	220	610	800
Selenium	6	6	2	20	12	4	6	6
Silver	3.1	0.8	2.5	5.1	5.2	4.4	1.9	3.2
Titanium	3	3	2	2	6	2	3	3
Zinc	71,100	8,360	56,700	16%	40.3%	26,400	32.8%	19.5%

Note: Samples collected by IEPA on July 25, 1986.

Table 1-2
Summary of Analytical Results Collected By IEPA - Surface Water Samples (mg/l)
Sandoval Zinc
Sandoval, Illinois

PARAMETER	S101	S102	S103	S104	S105	S0106
Aluminium	0.33	0.51	0.54	0.84	1.9	2.2
Antimony	0.006	0.004	0.003	BDL[1]	0.003	BDL
Arsenic	BDL	BDL	BDL	BDL	0.022	BDL
Cadmium	0.510	0.465	0.59	0.021	0.59	0.13
Chromium	0.018	0.018	0.018	0.022	0.022	0.022
Copper	0.041	0.038	0.027	0.01	0.034	0.01
Iron	0.75	0.83	0.59	1.2	1.4	1.8
Lead	0.076	0.052	0.048	0.014	0.034	0.006
Mercury	BDL	BDL	BDL	BDL	BDL	0.0002
Nickel	0.15	0.11	0.09	BDL	0.07	BDL
Silver	0.008	0.007	0.01	0.007	0.01	0.008
Zinc	52	46	20	0.65	23	0.12

1 - Below Detection Limit (BDL)

Note: Samples collected by Dennis Newman on March 30, 1987.

Table 1-3
Summary of Analytical Results Collected By IEPA - Sediment Samples (mg/kg)
Sandoval Zinc
Sandoval, Illinois

PARAMETER	X101	X102	X103	X104	X105	X106	X110
Aluminium	4,733	8,732	7,712	5,029	5,476	7,020	2,344
Antimony	1.6	0.26	BDL[1]	0.5	0.27	0.28	16
Arsenic	26	24	18	15	BDL	12	12
Cadmium	24	13	19	7.4	1.5	2.2	46
Chromium	34	41	22	25	11	18	20
Copper	1,065	960	252	688	38	71	1,250
Iron	20,710	17,990	7,854	8,621	5,476	9,200	5,370
Lead	710	1,660	15	1,026	189	140	1,760
Mercury	2.5	0.43	0.08	0.18	0.05	0.04	2.7
Nickel	716	515	117	287	5.4	28	114
Silver	2.2	2.5	1.4	1.6	1.0	1.1	8.0
Zinc	15,310	24,230	4,863	13,700	507	1,158	62,400

1 - Below Detection Limit (BDL)

Note: Samples collected by Dennis Newman on March 30, 1987.

Table 1-4
Summary of Analytical Results Collected By IEPA - Additional Soil Samples
Sandoval Zinc
Sandoval, Illinois

PARAMETER	SAMPLE X101		SAMPLE X102		SAMPLE X103	
	Total (mg/kg)	E.P. Toxicity (mg/l)	Total (mg/kg)	E.P. Toxicity (mg/l)	Total (mg/kg)	E.P. Toxicity (mg/l)
Aluminium	6,030	0.64	5,860	1.03	1,930	0.68
Antimony	BDL[1]	BDL	BDL	BDL	69.8	BDL
Arsenic	28.1	BDL	38.5	BDL	25.2	BDL
Cadmium	23.3	0.5	60.3	1.0	7.6	0.1
Chromium	16.6	BDL	32.2	BDL	8.79	BDL
Copper	1,850	3.0	2,710	9.0	956	2.0
Iron	12,900	0.99	14,600	BDL	5,280	BDL
Lead	29,200	381	10,600	14.2	38,900	106
Mercury	8.8	BDL	1.3	BDL	1.2	BDL
Nickel	547	3.0	281	1.0	114	0.6
Silver	3.82	BDL	7.92	BDL	4.36	BDL
Zinc	226,000	2,400	281,000	1,800	493,000	2,200

1 - Below Detection Limit (BDL)

Note: Soil samples collected on April 9, 1987.

Table 1-5
Summary of E.P. Toxicity Results (mg/l) Collected By IEPA
Sandoval Zinc
Sandoval, Illinois

PARAMETER	X101	X201	X301
Aluminium	BDL[1]	BDL	BDL
Antimony	BDL	BDL	BDL
Arsenic	BDL	BDL	BDL
Cadmium	0.007	0.011	0.02
Chromium	0.01	0.02	0.01
Copper	BDL	BDL	BDL
Iron	1.1	0.13	0.1
Lead	0.009	0.018	BDL
Mercury	BDL	BDL	BDL
Nickel	BDL	BDL	BDL
Silver	BDL	BDL	BDL
Zinc	0.23	0.005	0.097

1 - Below Detection Limit (BDL)

Note: Samples collected by Kevin Rodgers on April 27, 1987.

Table 1-6
Summary of Analytical Results Collected By Bureau of Mines
Sandoval Zinc
Sandoval, Illinois

Analyte	Concentration (Weight Percent)
Aluminum	14.9%
Carbon	9.0
Iron	2.8
Lead	2.5
Silicon	14.9
Zinc	23.0

Note: Sample was a composite soil sample collected by R.L. Johnson on February 20, 1987.

Table 1-7
Summary of Organic Analytical Results
Collected by Environdyne - Groundwater (ug/l)
Sandoval Zinc
Sandoval, Illinois

PARAMETER	G101	G102	G103
Diethylphthalate	2	7	-
Di-N-Butylphthalate	2	2	2
Hexanedioic Acid, Dioctylester	62	98	-
Carbon Disulfide	-	2	-
Benzene	-	3	1
Di-N-Octylphthalate	-	3	-
2 (3H) Furanone, Dihydro	-	9	-
Hexanoic Acid, 6-Amino	-	12	-
Unknown	-	4	-
Unknown	-	-	10
Unknown	-	-	7
Unknown	-	-	44

Note Groundwater samples collected May 14, 1987

Source: Environdyne PA/SI

Table 1-8
Summary of Inorganic Analytical Results
Collected by Environdyne - Groundwater (ug/l)
Sandoval Zinc
Sandoval, Illinois

PARAMETER	G101	G102	G103
Aluminium	BDL[1]	BDL	82
Antimony	BDL	BDL	BDL
Arsenic	BDL	BDL	BDL
Cadmium	BDL	BDL	BDL
Chromium	BDL	BDL	BDL
Copper	BDL	BDL	BDL
Iron	140	BDL	61
Lead	2	BDL	BDL
Mercury	BDL	BDL	BDL
Nickel	BDL	BDL	BDL
Silver	BDL	BDL	BDL
Zinc	36	24	110
Sulfate	276,000	89,600	273,300
Sulfide	BDL	BDL	1,600

1 - Below Detection Limit (BDL)

Note: Groundwater samples collected May 14, 1987

Source: Environdyne PA/SI

Table 1-9
Summary of Organic Analytical Results
Collected by Environdyne - Soil (ug/kg)
Sandoval Zinc
Sandoval, Illinois

PARAMETER	S101	S102	S201	S202
Acetone	63	160	76	
2-Butanone	-	21	7	
2 (3H) - Furanone, Dihydro	-	1,856	1,608	1,831
Toluene	-	15	-	-
Chloroform	-	-	-	6
Naphthalene	-	-	-	190
Dibenzofuran	-	-	-	190
Phenanthrene	-	-	-	1,00
Anthracene	-	-	-	220
Fluroanthene	-	-	-	1,100
Pyrene	-	-	-	1,400
2-Methylnaphthalene	-	-	-	900
Benzo (a) Anthracene	-	-	-	570
Chrysene	-	-	-	1,300
Benzo (b) Fluoranthene	-	-	-	710
Unknown Organics[1]	-	40,000	45,000	24,000

Note: Samples collected May 14, 1987

Source: Environdyne PA/SI

Table 1-10
Summary of Inorganic Analytical Results
Collected by Environdyne - Soil (ug/kg)
Sandoval Zinc
Sandoval, Illinois

PARAMETER	S101	S102	S201	S202
Aluminum	10,500,000	15,300,000	15,200,000	10,300,000
Antimony	43,600	BDL	BDL	BDL
Arsenic	27,500	14,300	5,670	4,900
Cadmium	49,000	44,600	23,200	11,200
Chromium	18,600	14,400	16,600	41,400
Copper	446,000	129,000	67,200	1,370,000
Iron	32,100,000	15,300,000	18,500,000	41,600,000
Lead	1,226,000	272,000	139,000	4,662,000
Mercury	BDL	BDL	BDL	670
Nickel	199,000	40,000	20,600	334,000
Silver	BDL	BDL	BDL	1,500
Zinc	10,300,000	6,030,000	3,770,000	44,700,000
Cyanide	350	BDL	BDL	BDL
Sulfate	?	2,600	?	110,200
Sulfide	BDL	7,600	34,200	BDL

Note: Samples collected May 14, 1987

Source: Environdyne PA/SI