

ACZ Laboratories Inc.

To: Analytical Staff
From: Kristen Russell
Cc: Audrey Stover, Matt Sowards
Subject: CAR876

PT Study SOIL-60 [L65874]

Open: 10/19/07

Close: 12/03/07

ACZ received the results of ERA's SOIL – 60 study. Unacceptable results and corrective actions follow:

Not Acceptable Results							
Parameter	Method	Units	Reported	Assigned	Limits	%R	WG#
Ignitability / FP	1010	°F	132	112	95.0 – 129	118	235596
Chrysene	8270C	ug/Kg	< 300	1340	410 – 1920	0	236317
Volatiles	8260B		<i>Not reported</i>				
GRO (TPH)	8015B		<i>Not reported</i>				

CORRECTIVE ACTIONS

Ignitability / FP – Flashpoint was analyzed and reported by EPA 1010A and a value of 132 °F was reported, which was outside of the acceptance limits.

~ 75 mL of sample was poured into the closed sample cup and then left open in the freezer for 2 – 3 minutes. The sample flashed at 12 °C (79.2 °F) with a second and larger flash at 14 °C (82.8 °F). A second attempt was performed with the remaining PT sample; however, there was insufficient volume (< 75 mL) to fill the sample cup. A flash occurred at 36 °C with a corrected endpoint of 41.3 °C (132 °F), which was reported.

A QC standard was analyzed as a single-blind sample (L68544-03). The sample flashed at 114 °F. The certified flashpoint = 112 °F and the QC PALs acceptance limits = 98.6 – 125 °F. The system is judged to be in control.

Chrysene – Chrysene was analyzed and reported by EPA 8270C. The value of < 300 ug/Kg (< RL) was reported erroneously. A value of 1160 ug/Kg should have been reported for Chrysene, which is within the 410 – 1920 ug/Kg acceptance limits. This error would not occur for client samples, because data is automatically uploaded from the instrument into ACZ's database.

No further corrective action is required.



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L 65874

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SOIL-60



Final Report

Soil/Hazardous Waste Proficiency Testing

Soil Study

Open Date: 10/19/07

Close Date: 12/03/07

Report Issued Date: 01/03/08



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Study: **SOIL-60**

ERA Customer Number: **A144801**

Laboratory Name: **ACZ Laboratories**

Inorganic Results





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(970) 879-6590

EPA ID: CO00028
ERA Customer Number: A144801
Report Issued: 01/03/08
Study Dates: 10/19/07 - 12/03/07

Anal. No.	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description
SOIL Metals in Soil							
1000	Aluminum	mg/kg	14100	12100	4560 - 15600	Acceptable	EPA 6010B
1005	Antimony	mg/kg	121	282	28.2 - 310	Acceptable	EPA 6010B
1010	Arsenic	mg/kg	162	189	110 - 208	Acceptable	EPA 6010B
1015	Barium	mg/kg	397	379	268 - 455	Acceptable	EPA 6010B
1020	Beryllium	mg/kg	164	152	106 - 175	Acceptable	EPA 6010B
1025	Boron	mg/kg	146	145	75.6 - 170	Acceptable	EPA 6010B
1030	Cadmium	mg/kg	155	159	104 - 179	Acceptable	EPA 6010B
1035	Calcium	mg/kg	10700	9880	7370 - 12200	Acceptable	EPA 6010B
1040	Chromium	mg/kg	82.5	84.0	52.4 - 100	Acceptable	EPA 6010B
1050	Cobalt	mg/kg	91.1	91.7	62.4 - 105	Acceptable	EPA 6010B
1055	Copper	mg/kg	81.8	81.7	56.8 - 97.5	Acceptable	EPA 6010B
1070	Iron	mg/kg	19200	18700	7410 - 28200	Acceptable	EPA 6010B
1075	Lead	mg/kg	70.1	81.5	49.7 - 96.1	Acceptable	EPA 6010B
1085	Magnesium	mg/kg	4630	4220	2790 - 5250	Acceptable	EPA 6010B
1090	Manganese	mg/kg	494	467	357 - 574	Acceptable	EPA 6010B
1095	Mercury	mg/kg		12.0	6.02 - 17.4	Not Reported	
1100	Molybdenum	mg/kg	199	199	121 - 219	Acceptable	EPA 6010B
1105	Nickel	mg/kg	95.2	93.1	60.5 - 108	Acceptable	EPA 6010B
1125	Potassium	mg/kg	6350	6010	3560 - 7120	Acceptable	EPA 6010B
1140	Selenium	mg/kg	222	220	135 - 260	Acceptable	EPA 6010B
1150	Silver	mg/kg	49.9	50.1	31.1 - 62.7	Acceptable	EPA 6010B
1155	Sodium	mg/kg	855	717	396 - 1010	Acceptable	EPA 6010B
1160	Strontium	mg/kg	181	151	103 - 188	Acceptable	EPA 6010B
1165	Thallium	mg/kg	213	242	151 - 286	Acceptable	EPA 6010B
1175	Tin	mg/kg	147	150	84.3 - 199	Acceptable	EPA 6010B
1180	Titanium	mg/kg	629	447	0.00 - 792	Acceptable	EPA 6010B
1185	Vanadium	mg/kg	73.4	74.6	35.3 - 90.2	Acceptable	EPA 6010B
1190	Zinc	mg/kg	207	210	143 - 266	Acceptable	EPA 6010B



SOIL-60 Final Complete Report



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Anal. No.	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description
SOIL Metals in Soil							
1000	Aluminum	mg/kg		12100	4560 - 15600	Not Reported	
1005	Antimony	mg/kg		282	28.2 - 310	Not Reported	
1010	Arsenic	mg/kg		189	110 - 208	Not Reported	
1015	Barium	mg/kg		379	268 - 455	Not Reported	
1020	Beryllium	mg/kg		152	106 - 175	Not Reported	
1025	Boron	mg/kg		145	75.6 - 170	Not Reported	
1030	Cadmium	mg/kg		159	104 - 179	Not Reported	
1035	Calcium	mg/kg		9880	7370 - 12200	Not Reported	
1040	Chromium	mg/kg		84.0	52.4 - 100	Not Reported	
1050	Cobalt	mg/kg		91.7	62.4 - 105	Not Reported	
1055	Copper	mg/kg		81.7	56.8 - 97.5	Not Reported	
1070	Iron	mg/kg		18700	7410 - 28200	Not Reported	
1075	Lead	mg/kg		81.5	49.7 - 96.1	Not Reported	
1085	Magnesium	mg/kg		4220	2790 - 5250	Not Reported	
1090	Manganese	mg/kg		467	357 - 574	Not Reported	
1095	Mercury	mg/kg	9.85	12.0	6.02 - 17.4	Acceptable	EPA 7471A
1100	Molybdenum	mg/kg		199	121 - 219	Not Reported	
1105	Nickel	mg/kg		93.1	60.5 - 108	Not Reported	
1125	Potassium	mg/kg		6010	3560 - 7120	Not Reported	
1140	Selenium	mg/kg		220	135 - 260	Not Reported	
1150	Silver	mg/kg		50.1	31.1 - 62.7	Not Reported	
1155	Sodium	mg/kg		717	396 - 1010	Not Reported	
1160	Strontium	mg/kg		151	103 - 188	Not Reported	
1165	Thallium	mg/kg		242	151 - 286	Not Reported	
1175	Tin	mg/kg		150	84.3 - 199	Not Reported	
1180	Titanium	mg/kg		447	0.00 - 792	Not Reported	
1185	Vanadium	mg/kg		74.6	35.3 - 90.2	Not Reported	
1190	Zinc	mg/kg		210	143 - 266	Not Reported	





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SOIL Metals in Soil							
1000	Aluminum	mg/kg	13310	12100	4560 - 15600	Acceptable	EPA 6020
1005	Antimony	mg/kg	137	282	28.2 - 310	Acceptable	EPA 6020
1010	Arsenic	mg/kg	175	189	110 - 208	Acceptable	EPA 6020
1015	Barium	mg/kg	373	379	268 - 455	Acceptable	EPA 6020
1020	Beryllium	mg/kg	154	152	106 - 175	Acceptable	EPA 6020
1025	Boron	mg/kg		145	75.6 - 170	Not Reported	
1030	Cadmium	mg/kg	150	159	104 - 179	Acceptable	EPA 6020
1035	Calcium	mg/kg		9880	7370 - 12200	Not Reported	
1040	Chromium	mg/kg	87.7	84.0	52.4 - 100	Acceptable	EPA 6020
1050	Cobalt	mg/kg	82.7	91.7	62.4 - 105	Acceptable	EPA 6020
1055	Copper	mg/kg	82.7	81.7	56.8 - 97.5	Acceptable	EPA 6020
1070	Iron	mg/kg		18700	7410 - 28200	Not Reported	
1075	Lead	mg/kg	70.3	81.5	49.7 - 96.1	Acceptable	EPA 6020
1085	Magnesium	mg/kg		4220	2790 - 5250	Not Reported	
1090	Manganese	mg/kg	488	467	357 - 574	Acceptable	EPA 6020
1095	Mercury	mg/kg		12.0	6.02 - 17.4	Not Reported	
1100	Molybdenum	mg/kg	188	199	121 - 219	Acceptable	EPA 6020
1105	Nickel	mg/kg	99.1	93.1	60.5 - 108	Acceptable	EPA 6020
1125	Potassium	mg/kg		6010	3560 - 7120	Not Reported	
1140	Selenium	mg/kg	217	220	135 - 260	Acceptable	EPA 6020
1150	Silver	mg/kg	45.0	50.1	31.1 - 62.7	Acceptable	EPA 6020
1155	Sodium	mg/kg		717	396 - 1010	Not Reported	
1160	Strontium	mg/kg		151	103 - 188	Not Reported	
1165	Thallium	mg/kg	234	242	151 - 286	Acceptable	EPA 6020
1175	Tin	mg/kg		150	84.3 - 199	Not Reported	
1180	Titanium	mg/kg		447	0.00 - 792	Not Reported	
1185	Vanadium	mg/kg	80.2	74.6	35.3 - 90.2	Acceptable	EPA 6020
1190	Zinc	mg/kg	222	210	143 - 266	Acceptable	EPA 6020

SOIL Hexavalent Chromium in Soil

1045	Chromium VI	mg/kg	244	259	89.1 - 339	Acceptable	EPA 7196A
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SOIL Cyanide in Soil

1635	Cyanide, total	mg/kg	39.4	38.1	14.2 - 54.6	Acceptable	EPA 9012A
1640	Reactive Cyanide	mg/kg		< 25.0		Not Reported	

SOIL Corrosivity/pH in Soil

1625	Corrosivity (pH)	S.U.	7.28	7.33	6.73 - 7.93	Acceptable	EPA 9045C
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SOIL Ignitability/Flashpoint

1780	Ignitability/Flashpoint	°F	132	112	95.0 - 129	Not Acceptable	EPA 1010
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Study: **SOIL-60**

ERA Customer Number: **A144801**

Laboratory Name: **ACZ Laboratories**

Organic Results





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Anal. No.	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description
SOIL Base/Neutrals and Acids in Soil							
5500	Acenaphthene	µg/kg	4040	4740	1220 - 5790	Acceptable	EPA 8270C
5505	Acenaphthylene	µg/kg	2340	2920	610 - 3690	Acceptable	EPA 8270C
5145	2-Amino-1-methylbenzene (o-toluidine)	µg/kg		0.00		Not Reported	
5545	Aniline	µg/kg		0.00		Not Reported	
5555	Anthracene	µg/kg	4550	5210	1360 - 7010	Acceptable	EPA 8270C
5595	Benzidine	µg/kg		0.00		Not Reported	
5610	Benzoic acid	µg/kg	< 2000	0.00		Acceptable	EPA 8270C
5575	Benzo(a)anthracene	µg/kg	1800	2230	672 - 2970	Acceptable	EPA 8270C
5585	Benzo(b)fluoranthene	µg/kg	1470	1840	406 - 2570	Acceptable	EPA 8270C
5600	Benzo(k)fluoranthene	µg/kg	1550	1960	565 - 2800	Acceptable	EPA 8270C
5590	Benzo(g,h,i)perylene	µg/kg	4680	4530	1020 - 6250	Acceptable	EPA 8270C
5580	Benzo(a)pyrene	µg/kg	2240	5230	596 - 5750	Acceptable	EPA 8270C
5630	Benzyl alcohol	µg/kg	< 300	0.00		Acceptable	EPA 8270C
5760	bis(2-Chloroethoxy)methane	µg/kg	< 300	0.00		Acceptable	EPA 8270C
5765	bis(2-Chloroethyl)ether	µg/kg	< 300	0.00		Acceptable	EPA 8270C
5780	bis(2-Chloroisopropyl)ether	µg/kg	5970	8330	1080 - 9730	Acceptable	EPA 8270C
5660	4-Bromophenyl-phenylether	µg/kg	4640	5530	1700 - 7110	Acceptable	EPA 8270C
5670	Butylbenzylphthalate	µg/kg	7480	7920	1770 - 10900	Acceptable	EPA 8270C
5680	Carbazole	µg/kg		12200	3030 - 15500	Not Reported	
5745	4-Chloroaniline	µg/kg	< 300	0.00		Acceptable	EPA 8270C
5700	4-Chloro-3-methylphenol	µg/kg	5840	6440	1440 - 7080	Acceptable	EPA 8270C
5790	1-Chloronaphthalene	µg/kg		0.00		Not Reported	
5795	2-Chloronaphthalene	µg/kg	< 300	0.00		Acceptable	EPA 8270C
5800	2-Chlorophenol	µg/kg	5730	7150	990 - 7860	Acceptable	EPA 8270C
5825	4-Chlorophenyl-phenylether	µg/kg	< 300	0.00		Acceptable	EPA 8270C
5855	Chrysene	µg/kg	< 300	1340	410 - 1920	Not Acceptable	EPA 8270C
5895	Dibenz(a,h)anthracene	µg/kg	< 300	0.00		Acceptable	EPA 8270C
5905	Dibenzofuran	µg/kg	3160	3760	993 - 4580	Acceptable	EPA 8270C
5925	Di-n-butylphthalate	µg/kg	9060	9390	2260 - 12300	Acceptable	EPA 8270C
4610	1,2-Dichlorobenzene	µg/kg	< 300	0.00		Acceptable	EPA 8270C
4615	1,3-Dichlorobenzene	µg/kg	< 300	0.00		Acceptable	EPA 8270C
4620	1,4-Dichlorobenzene	µg/kg	3900	6520	923 - 7170	Acceptable	EPA 8270C



SOIL-60 Final Complete Report



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Anal. No.	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description
SOIL Base/Neutrals and Acids in Soil (Continued)							
5945	3,3'-Dichlorobenzidine	µg/kg	< 700	0.00		Acceptable	EPA 8270C
6000	2,4-Dichlorophenol	µg/kg	8290	9660	1610 - 10600	Acceptable	EPA 8270C
6005	2,6-Dichlorophenol	µg/kg		2690	839 - 2960	Not Reported	
6070	Diethylphthalate	µg/kg	13300	13400	2970 - 17100	Acceptable	EPA 8270C
6130	2,4-Dimethylphenol	µg/kg	< 700	0.00		Acceptable	EPA 8270C
6135	Dimethylphthalate	µg/kg	10700	11300	3340 - 13800	Acceptable	EPA 8270C
6175	2,4-Dinitrophenol	µg/kg	8830	10000	0.00 - 11000	Acceptable	EPA 8270C
6185	2,4-Dinitrotoluene	µg/kg	8460	8400	1680 - 11100	Acceptable	EPA 8270C
6190	2,6-Dinitrotoluene	µg/kg	7210	8120	2520 - 9700	Acceptable	EPA 8270C
6200	Di-n-octylphthalate	µg/kg	< 300	0.00		Acceptable	EPA 8270C
6255	bis(2-Ethylhexyl)phthalate	µg/kg	3550	4100	917 - 5720	Acceptable	EPA 8270C
6265	Fluoranthene	µg/kg	7360	7720	2530 - 9690	Acceptable	EPA 8270C
6270	Fluorene	µg/kg	2300	2610	700 - 3480	Acceptable	EPA 8270C
6275	Hexachlorobenzene	µg/kg	10100	11800	3660 - 14500	Acceptable	EPA 8270C
4835	Hexachlorobutadiene	µg/kg	5270	7810	1160 - 8990	Acceptable	EPA 8270C
6285	Hexachlorocyclopentadiene	µg/kg	< 300	0.00		Acceptable	EPA 8270C
4840	Hexachloroethane	µg/kg	8750	14400	2410 - 15800	Acceptable	EPA 8270C
6315	Indeno(1,2,3-cd)pyrene	µg/kg	< 300	0.00		Acceptable	EPA 8270C
6320	Isophorone	µg/kg	9070	9430	2600 - 11000	Acceptable	EPA 8270C
6360	4,6-Dinitro-2-methylphenol	µg/kg	< 2000	0.00		Acceptable	EPA 8270C
6385	2-Methylnaphthalene	µg/kg	3920	4610	1190 - 5270	Acceptable	EPA 8270C
6400	2-Methylphenol	µg/kg	3850	8760	876 - 9640	Acceptable	EPA 8270C
6410	3&4-Methylphenol	µg/kg	4990	9460	40.5 - 10400	Acceptable	EPA 8270C
5005	Naphthalene	µg/kg	6930	9150	1870 - 10200	Acceptable	EPA 8270C
6460	2-Nitroaniline	µg/kg	< 2000	0.00		Acceptable	EPA 8270C
6465	3-Nitroaniline	µg/kg	< 2000	0.00		Acceptable	EPA 8270C
6470	4-Nitroaniline	µg/kg	< 2000	0.00		Acceptable	EPA 8270C
5015	Nitrobenzene	µg/kg	4830	6370	999 - 7530	Acceptable	EPA 8270C
6490	2-Nitrophenol	µg/kg	5400	6950	695 - 7940	Acceptable	EPA 8270C
6500	4-Nitrophenol	µg/kg	10900	11000	1100 - 13600	Acceptable	EPA 8270C
6525	N-Nitrosodiethylamine	µg/kg		0.00		Not Reported	
6530	N-Nitrosodimethylamine	µg/kg	3700	6680	547 - 7350	Acceptable	EPA 8270C





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SOIL Base/Neutrals and Acids in Soil (Continued)

6535	N-Nitrosodiphenylamine	µg/kg	< 300	0.00		Acceptable	EPA 8270C
6545	N-Nitroso-di-n-propylamine	µg/kg	5470	5950	595 - 7570	Acceptable	EPA 8270C
6590	Pentachlorobenzene	µg/kg		0.00		Not Reported	
6605	Pentachlorophenol	µg/kg	4980	7640	764 - 8400	Acceptable	EPA 8270C
6615	Phenanthrene	µg/kg	8190	9480	3090 - 11400	Acceptable	EPA 8270C
6625	Phenol	µg/kg	6920	8110	811 - 8950	Acceptable	EPA 8270C
6665	Pyrene	µg/kg	2790	3450	1060 - 4590	Acceptable	EPA 8270C
5095	Pyridine	µg/kg		0.00		Not Reported	
6715	1,2,4,5-Tetrachlorobenzene	µg/kg		7480	2490 - 7860	Not Reported	
6735	2,3,4,6-Tetrachlorophenol	µg/kg		13800	2090 - 15900	Not Reported	
5155	1,2,4-Trichlorobenzene	µg/kg	9980	13800	2540 - 15400	Acceptable	EPA 8270C
6835	2,4,5-Trichlorophenol	µg/kg	10900	12900	1870 - 14500	Acceptable	EPA 8270C
6840	2,4,6-Trichlorophenol	µg/kg	8360	10200	2050 - 11300	Acceptable	EPA 8270C

SOIL Diesel Range Organics (DRO) in Soil

9369	Diesel Range Organics (DRO)	mg/kg	920	1300	381 - 1620	Acceptable	EPA 8015B
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SOIL BTEX & MTBE in Soil

4375	Benzene	µg/kg	161	156	94.4 - 213	Acceptable	EPA 8021B
5000	tert-Butyl methyl ether (MTBE)	µg/kg	202	169	71.5 - 248	Acceptable	EPA 8021B
4765	Ethylbenzene	µg/kg	162	158	88.6 - 225	Acceptable	EPA 8021B
5140	Toluene	µg/kg	32.2	30.6	17.0 - 43.6	Acceptable	EPA 8021B
5260	Xylenes, total	µg/kg	352	328	163 - 480	Acceptable	EPA 8021B

