



A Waters Company

Thekkekalathil Chandrasekhar
State of Florida DEP Chemistry Laboratory
2600 Blair Stone Road
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SOIL-83



Final Report

Soil/Hazardous Waste Proficiency Testing

Soil Study

Open Date: 07/22/13

Close Date: 09/05/13

Report Issued Date: 09/09/13



A Waters Company

September 9, 2013

Thekkekalathil Chandrasekhar
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Enclosed is your final report for ERA's SOIL-83 Proficiency Testing (PT) study. Your final report includes an evaluation of all results submitted by your laboratory to ERA.

Data Evaluation Protocols: All analytes in ERA's SOIL-83 Proficiency Testing study have been evaluated using the following tiered approach. If the analyte is listed in the current TNI Fields of Proficiency Testing (FoPT) tables, the evaluation was completed by comparing the reported result to the acceptance limits generated using the criteria contained in the current TNI FoPT tables. If the analyte is not included in the TNI FoPT tables, the reported result has been evaluated using the procedures outlined in ERA's Standard Operating Procedure for the Generation of Performance Acceptance Limits (SOP 0260).

Corrective Action Help: As part of your accreditation(s), you may be required to identify the root cause of any "Not Acceptable" results, implement the necessary corrective actions, and then satisfy your PT requirements by participating in a Supplemental (Quik™Response) or future ERA PT study. ERA's technical staff is available to help your laboratory resolve any technical issues that may be impairing your PT performance and possibly affecting your routine data quality. Our laboratory and technical staff have many years of collective experience in performing the full range of environmental analyses. As part of our technical support, ERA offers QC samples that can be useful in helping you work through your technical issues.

Please note the following changes to our final reports:

- At the request of the TNI Accreditation Council, we have included a Laboratory Exception Report that includes a list of all analytes reported with less than qualifiers when the assigned value was greater than "0." In addition, because we have received many requests from laboratories, this report also includes a list of all analytes with "Not Acceptable" evaluations.
- Some states have elected not to convert to the 2009 TNI Standards at this time. If you have released your results to a state that has retained the 2003 NELAC Evaluation Criteria, your final report will include a section that evaluates the results according to the 2003 Standard in addition to the 2009 TNI Standards.

Thank you for your participation in ERA's SOIL-83 Proficiency Testing study. If you have any questions, please contact our Proficiency Testing Department at 1-800-372-0122.

Sincerely,

Kristina Sanchez
Quality Officer

attachments



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Report Recipient	Contact/Phone Number	Reporting Type	Evaluation Type
Florida	Steve Arms / 904-791-1502	All Analytes	2009 TNI



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SOIL-83 Definitions & Study Discussion

Study Dates: 07/22/13 - 09/05/13

Report Issued: 09/09/13

SOIL Study Definitions

The Reported Value is the value that the laboratory reported to ERA.

The ERA Assigned Value for the Organic Proficiency Testing Standards is equal to 100% of the parameter present in the standard as determined by gravimetric and/or volumetric measurements made during standard preparation as applicable. The ERA assigned value for the Inorganic Proficiency Testing Standards, with the exception of the TCLP Metals in Soil and Total Organic Carbon (TOC) in the Nutrients in Soil sample, is equal to the maximum amount of the parameter available in the standard by applicable EPA methodologies. The ERA assigned value for the TCLP metals and TOC is equal to the mean of the study data, after the removal of outliers. All parameters not added to the standard are given an Assigned Value of "< PTRL", per the guidelines contained in the 2009 TNI Standards. The assigned values are directly traceable to the commercially prepared starting materials used to manufacture the PT standards.

The Acceptance Limits are established per the criteria contained in the most current TNI Fields of Proficiency Testing (FoPT) tables, or ERA's SOP for the Generation of Performance Acceptance Limits™ as applicable.

The Performance Evaluation:

Acceptable = Reported Value falls within the Acceptance Limits.

Not Acceptable = Reported Value falls outside the Acceptance Limits.

No Evaluation = Reported Value cannot be evaluated.

Not Reported = No Value reported.

The Method Description is the method the laboratory reported to ERA.

SOIL Study Discussion

ERA's SOIL-83 Proficiency Testing (PT) study has been reviewed by ERA senior management and certified compliant with the requirements of the 2009 TNI PT Standard and the criteria contained in the most current TNI Fields of Proficiency Testing (FoPT) tables.

ERA's SOIL-83 study standards were examined for any anomalies. A full review of all homogeneity, stability and accuracy verification data was completed. All analytical verification data for all analytes in the standards met the acceptance criteria contained in the 2009 TNI PT Standard and the criteria contained in the most current TNI FoPT tables.

The data submitted by participating laboratories was also examined for study anomalies. There were no anomalies observed during the statistical review of the data.

ERA's SOIL-83 Proficiency Testing study reports shall not be reproduced except in its entirety and not without the permission of the participating laboratory. The report must not be used by the participating laboratories to claim product endorsement any agency of the U. S. government.

The data contained herein are confidential and intended for your use only.

If you have any questions or concerns regarding your assessment in ERA's SOIL Proficiency Testing program, please contact our Proficiency Testing Department at 1-800-372-0122.





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SOIL-83 Laboratory Exception Report

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2009 TNI Evaluation Checks

There are no values reported with < where the assigned value was greater than 0.

2009 TNI Not Acceptable Evaluations

There were no Not Acceptable evaluations for this study.



All analytes are included in ERA's A2LA accreditation. Lab Code: 1539-01

16341 Table Mountain Pkwy • Golden, CO 80403 • 800.372.0122 • 303.431.8454 • fax 303.421.0159 • www.eraqc.com

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Final Report Results For Laboratory State of Florida DEP Chemistry Laboratory



2009 TNI Evaluation Report

Study: **SOIL-83**

ERA Customer Number: **S744803**

Laboratory Name: **State of Florida DEP
Chemistry Laboratory**

Inorganic Results



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SOIL-83 2009 TNI Evaluation Final Complete Report

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SOIL Metals in Soil (cat# 620)

1000	Aluminum	mg/kg	8770	9830	3210 - 13000	Acceptable	EPA 6010C 3 2007	8/9/2013	0.368	8100	1820	AYRES_J
1005	Antimony	mg/kg	70.6	256	25.6 - 293	Acceptable	EPA 6010C 3 2007	8/16/2013	-0.625	116	72.6	AYRES_J
1010	Arsenic	mg/kg	123	161	85.4 - 177	Acceptable	EPA 6010C 3 2007	8/9/2013	0.0843	122	10.1	AYRES_J
1015	Barium	mg/kg	168	189	122 - 212	Acceptable	EPA 6010C 3 2007	8/9/2013	0.0757	167	16.1	AYRES_J
1020	Beryllium	mg/kg	58.8	58.7	39.7 - 69.0	Acceptable	EPA 6010C 3 2007	8/9/2013	1.07	54.3	4.15	AYRES_J
1025	Boron	mg/kg	90.9	130	59.3 - 143	Acceptable	EPA 6010C 3 2007	8/9/2013	-0.627	98.9	12.7	AYRES_J
1030	Cadmium	mg/kg	84.5	101	64.5 - 112	Acceptable	EPA 6010C 3 2007	8/9/2013	-0.499	88.0	7.04	AYRES_J
1035	Calcium	mg/kg	6590	6360	4360 - 7480	Acceptable	EPA 6010C 3 2007	8/16/2013	1.30	5920	514	AYRES_J
1040	Chromium	mg/kg	103	119	70.8 - 133	Acceptable	EPA 6010C 3 2007	8/9/2013	0.115	102	9.91	AYRES_J
1050	Cobalt	mg/kg	99.0	110	73.9 - 125	Acceptable	EPA 6010C 3 2007	8/9/2013	-0.0502	99.4	7.43	AYRES_J
1055	Copper	mg/kg	83.6	93.6	57.5 - 103	Acceptable	EPA 6010C 3 2007	8/9/2013	0.897	78.0	6.22	AYRES_J
1070	Iron	mg/kg	16600	16300	5600 - 24600	Acceptable	EPA 6010C 3 2007	8/9/2013	0.444	15100	3400	AYRES_J
1075	Lead	mg/kg	103	107	66.6 - 122	Acceptable	EPA 6010C 3 2007	8/9/2013	1.07	94.4	8.00	AYRES_J
1085	Magnesium	mg/kg	3340	3420	1990 - 4040	Acceptable	EPA 6010C 3 2007	8/9/2013	1.03	3020	314	AYRES_J
1090	Manganese	mg/kg	402	439	305 - 497	Acceptable	EPA 6010C 3 2007	8/9/2013	0.0307	401	36.3	AYRES_J
1095	Mercury	mg/kg		3.62	2.03 - 5.93	Not Reported				3.98	0.385	
1100	Molybdenum	mg/kg	41.1	50.4	27.0 - 56.0	Acceptable	EPA 6010C 3 2007	8/9/2013	-0.119	41.5	3.74	AYRES_J
1105	Nickel	mg/kg	55.9	64.9	39.3 - 73.2	Acceptable	EPA 6010C 3 2007	8/9/2013	-0.0851	56.3	4.38	AYRES_J
1125	Potassium	mg/kg	2850	2820	1510 - 3470	Acceptable	EPA 6010C 3 2007	8/9/2013	1.09	2490	332	AYRES_J
1140	Selenium	mg/kg	168	181	106 - 207	Acceptable	EPA 6010C 3 2007	8/9/2013	0.718	156	15.9	AYRES_J



All analytes are included in ERA's A2LA accreditation. Lab Code: 1539-01

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SOIL Metals in Soil (cat# 620) (Continued)

1150	Silver	mg/kg	36.1	38.8	22.4 - 45.9	Acceptable	EPA 6010C 3 2007	8/9/2013	0.598	34.2	3.23	AYRES_J
1155	Sodium	mg/kg	266	286	78.8 - 414	Acceptable	EPA 6010C 3 2007	8/9/2013	0.516	246	38.0	AYRES_J
1160	Strontium	mg/kg	59.8	56.9	38.7 - 72.4	Acceptable	EPA 6010C 3 2007	8/9/2013	0.573	55.5	7.43	AYRES_J
1165	Thallium	mg/kg	125	135	78.2 - 154	Acceptable	EPA 6010C 3 2007	8/9/2013	0.771	116	11.8	AYRES_J
1175	Tin	mg/kg	98.2	117	57.2 - 144	Acceptable	EPA 6010C 3 2007	8/9/2013	-0.23	101	10.7	AYRES_J
1180	Titanium	mg/kg	312	361	5.22 - 622	Acceptable	EPA 6010C 3 2007	8/9/2013	-0.0151	314	103	AYRES_J
1185	Vanadium	mg/kg	69.2	117	38.8 - 129	Acceptable	EPA 6010C 3 2007	8/9/2013	0.205	67.1	10.2	AYRES_J
1190	Zinc	mg/kg	212	236	145 - 270	Acceptable	EPA 6010C 3 2007	8/9/2013	0.270	207	17.2	AYRES_J



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SOIL Metals in Soil (cat# 620)

1000	Aluminum	mg/kg		9830	3210 - 13000	Not Reported				8100	1820	
1005	Antimony	mg/kg	71.3	256	25.6 - 293	Acceptable	EPA 6020A 1	8/16/2013	-0.616	116	72.6	PETERSON_C
1010	Arsenic	mg/kg	126	161	85.4 - 177	Acceptable	EPA 6020A 1	8/14/2013	0.382	122	10.1	PETERSON_C
1015	Barium	mg/kg	178	189	122 - 212	Acceptable	EPA 6020A 1	8/12/2013	0.698	167	16.1	PETERSON_C
1020	Beryllium	mg/kg	59.5	58.7	39.7 - 69.0	Acceptable	EPA 6020A 1	8/9/2013	1.24	54.3	4.15	PETERSON_C
1025	Boron	mg/kg		130	59.3 - 143	Not Reported				98.9	12.7	
1030	Cadmium	mg/kg	88.7	101	64.5 - 112	Acceptable	EPA 6020A 1	8/8/2013	0.0982	88.0	7.04	PETERSON_C
1035	Calcium	mg/kg		6360	4360 - 7480	Not Reported				5920	514	
1040	Chromium	mg/kg	103	119	70.8 - 133	Acceptable	EPA 6020A 1	8/14/2013	0.115	102	9.91	PETERSON_C
1050	Cobalt	mg/kg	102	110	73.9 - 125	Acceptable	EPA 6020A 1	8/14/2013	0.354	99.4	7.43	PETERSON_C
1055	Copper	mg/kg	79.6	93.6	57.5 - 103	Acceptable	EPA 6020A 1	8/8/2013	0.254	78.0	6.22	PETERSON_C
1070	Iron	mg/kg		16300	5600 - 24600	Not Reported				15100	3400	
1075	Lead	mg/kg	96.0	107	66.6 - 122	Acceptable	EPA 6020A 1	8/8/2013	0.193	94.4	8.00	PETERSON_C
1085	Magnesium	mg/kg		3420	1990 - 4040	Not Reported				3020	314	
1090	Manganese	mg/kg	419	439	305 - 497	Acceptable	EPA 6020A 1	8/14/2013	0.499	401	36.3	PETERSON_C
1095	Mercury	mg/kg		3.62	2.03 - 5.93	Not Reported				3.98	0.385	
1100	Molybdenum	mg/kg	43.9	50.4	27.0 - 56.0	Acceptable	EPA 6020A 1	8/8/2013	0.629	41.5	3.74	PETERSON_C
1105	Nickel	mg/kg	57.6	64.9	39.3 - 73.2	Acceptable	EPA 6020A 1	8/8/2013	0.303	56.3	4.38	PETERSON_C
1125	Potassium	mg/kg		2820	1510 - 3470	Not Reported				2490	332	
1140	Selenium	mg/kg	165	181	106 - 207	Acceptable	EPA 6020A 1	8/14/2013	0.529	156	15.9	PETERSON_C



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SOIL Metals in Soil (cat# 620) (Continued)

1150	Silver	mg/kg	34.9	38.8	22.4 - 45.9	Acceptable	EPA 6020A 1	8/8/2013	0.227	34.2	3.23	PETERSON_C
1155	Sodium	mg/kg		286	78.8 - 414	Not Reported				246	38.0	
1160	Strontium	mg/kg		56.9	38.7 - 72.4	Not Reported				55.5	7.43	
1165	Thallium	mg/kg	124	135	78.2 - 154	Acceptable	EPA 6020A 1	8/14/2013	0.686	116	11.8	PETERSON_C
1175	Tin	mg/kg		117	57.2 - 144	Not Reported				101	10.7	
1180	Titanium	mg/kg		361	5.22 - 622	Not Reported				314	103	
1185	Vanadium	mg/kg		117	38.8 - 129	Not Reported				67.1	10.2	
1190	Zinc	mg/kg	218	236	145 - 270	Acceptable	EPA 6020A 1	8/14/2013	0.618	207	17.2	PETERSON_C



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SOIL Metals in Soil (cat# 620)

1000	Aluminum	mg/kg		9830	3210 - 13000	Not Reported				8100	1820	
1005	Antimony	mg/kg		256	25.6 - 293	Not Reported				116	72.6	
1010	Arsenic	mg/kg		161	85.4 - 177	Not Reported				122	10.1	
1015	Barium	mg/kg		189	122 - 212	Not Reported				167	16.1	
1020	Beryllium	mg/kg		58.7	39.7 - 69.0	Not Reported				54.3	4.15	
1025	Boron	mg/kg		130	59.3 - 143	Not Reported				98.9	12.7	
1030	Cadmium	mg/kg		101	64.5 - 112	Not Reported				88.0	7.04	
1035	Calcium	mg/kg		6360	4360 - 7480	Not Reported				5920	514	
1040	Chromium	mg/kg		119	70.8 - 133	Not Reported				102	9.91	
1050	Cobalt	mg/kg		110	73.9 - 125	Not Reported				99.4	7.43	
1055	Copper	mg/kg		93.6	57.5 - 103	Not Reported				78.0	6.22	
1070	Iron	mg/kg		16300	5600 - 24600	Not Reported				15100	3400	
1075	Lead	mg/kg		107	66.6 - 122	Not Reported				94.4	8.00	
1085	Magnesium	mg/kg		3420	1990 - 4040	Not Reported				3020	314	
1090	Manganese	mg/kg		439	305 - 497	Not Reported				401	36.3	
1095	Mercury	mg/kg	3.89	3.62	2.03 - 5.93	Acceptable	DEPSOP HG-008-3	7/26/2013	-0.24	3.98	0.385	
1100	Molybdenum	mg/kg		50.4	27.0 - 56.0	Not Reported				41.5	3.74	
1105	Nickel	mg/kg		64.9	39.3 - 73.2	Not Reported				56.3	4.38	
1125	Potassium	mg/kg		2820	1510 - 3470	Not Reported				2490	332	
1140	Selenium	mg/kg		181	106 - 207	Not Reported				156	15.9	



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SOIL Metals in Soil (cat# 620) (Continued)

1150	Silver	mg/kg		38.8	22.4 - 45.9	Not Reported				34.2	3.23	
1155	Sodium	mg/kg		286	78.8 - 414	Not Reported				246	38.0	
1160	Strontium	mg/kg		56.9	38.7 - 72.4	Not Reported				55.5	7.43	
1165	Thallium	mg/kg		135	78.2 - 154	Not Reported				116	11.8	
1175	Tin	mg/kg		117	57.2 - 144	Not Reported				101	10.7	
1180	Titanium	mg/kg		361	5.22 - 622	Not Reported				314	103	
1185	Vanadium	mg/kg		117	38.8 - 129	Not Reported				67.1	10.2	
1190	Zinc	mg/kg		236	145 - 270	Not Reported				207	17.2	

SOIL Nutrients in Soil (cat# 869)

1515	Ammonia as N	mg/kg		768	374 - 988	Not Reported				681	101	
1795	Total Kjeldahl Nitrogen	mg/kg		1050	563 - 1550	Not Reported				1060	227	
2040	Total Organic Carbon (TOC)	mg/kg	2360	3470	347 - 7490	Acceptable	DEPSOP NU-076-1	8/2/2013	-0.829	3470	1340	HUA_P
1910	Total Phosphorus	mg/kg		749	156 - 1300	Not Reported				728	198	



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2009 TNI Evaluation Report

Study: **SOIL-83**

ERA Customer Number: **S744803**

Laboratory Name: **State of Florida DEP
Chemistry Laboratory**

Organic Results





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SOIL-83 2009 TNI Evaluation Final Complete Report

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SOIL Volatiles in Soil (cat# 623)

4315	Acetone	µg/kg	305	819	86.2 - 1260	Acceptable	EPA 8260C	8/15/2013	-2.0	737	216	BOOESHAG_F
4320	Acetonitrile	µg/kg		794	237 - 1280	Not Reported				758	174	
4325	Acrolein	µg/kg		< 20.0	0.00 - 20.0	Not Reported						
4375	Benzene	µg/kg	149	145	87.5 - 198	Acceptable	EPA 8260C	8/15/2013	0.0369	148	21.7	BOOESHAG_F
4385	Bromobenzene	µg/kg		< 40.0	0.00 - 40.0	Not Reported						
4395	Bromodichloromethane	µg/kg	92.2	93.5	60.1 - 129	Acceptable	EPA 8260C	8/15/2013	-0.113	93.5	11.6	BOOESHAG_F
4400	Bromoform	µg/kg	< 2.00	< 9.30	0.00 - 9.30	Acceptable	EPA 8260C	8/15/2013				BOOESHAG_F
4950	Bromomethane	µg/kg	< 2.00	< 80.0	0.00 - 80.0	Acceptable	EPA 8260C	8/15/2013				BOOESHAG_F
4410	2-Butanone (MEK)	µg/kg	181	420	137 - 646	Acceptable	EPA 8260C	8/15/2013	-1.74	364	106	BOOESHAG_F
5000	tert-Butyl methyl ether (MTBE)	µg/kg	127	124	52.2 - 184	Acceptable	EPA 8260C	8/15/2013	-0.0943	129	17.2	BOOESHAG_F
4450	Carbon disulfide	µg/kg		< 20.0	0.00 - 20.0	Not Reported						
4455	Carbon tetrachloride	µg/kg	< 2.00	< 9.90	0.00 - 9.90	Acceptable	EPA 8260C	8/15/2013				BOOESHAG_F
4475	Chlorobenzene	µg/kg	74.9	76.0	42.3 - 105	Acceptable	EPA 8260C	8/15/2013	-0.159	76.6	10.6	BOOESHAG_F
4575	Chlorodibromomethane	µg/kg	124	135	82.4 - 186	Acceptable	EPA 8260C	8/15/2013	-0.639	133	14.9	BOOESHAG_F
4485	Chloroethane	µg/kg	< 2.00	< 80.0	0.00 - 80.0	Acceptable	EPA 8260C	8/15/2013				BOOESHAG_F
4500	2-Chloroethylvinylether	µg/kg		< 20.0	0.00 - 20.0	Not Reported						
4505	Chloroform	µg/kg	< 2.00	< 11.0	0.00 - 11.0	Acceptable	EPA 8260C	8/15/2013				BOOESHAG_F
4960	Chloromethane	µg/kg	< 2.00	< 80.0	0.00 - 80.0	Acceptable	EPA 8260C	8/15/2013				BOOESHAG_F
4570	1,2-Dibromo-3-chloropropane (DBCP)	µg/kg		< 4.00	0.00 - 4.00	Not Reported						
4585	1,2-Dibromoethane (EDB)	µg/kg		83.6	47.1 - 116	Not Reported				83.0	10.8	



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SOIL Volatiles in Soil (cat# 623) (Continued)

4595	Dibromomethane	µg/kg		< 20.0	0.00 - 20.0	Not Reported						
4610	1,2-Dichlorobenzene	µg/kg	176	163	79.0 - 230	Acceptable	EPA 8260C	8/15/2013	0.659	158	27.4	BOOESHAG_F
4615	1,3-Dichlorobenzene	µg/kg	< 2.00	< 5.10	0.00 - 5.10	Acceptable	EPA 8260C	8/15/2013				BOOESHAG_F
4620	1,4-Dichlorobenzene	µg/kg	209	196	67.5 - 278	Acceptable	EPA 8260C	8/15/2013	0.774	186	29.9	BOOESHAG_F
4625	Dichlorodifluoromethane (Freon 12)	µg/kg	< 2.00	< 80.0	0.00 - 80.0	Acceptable	EPA 8260C	8/15/2013				BOOESHAG_F
4630	1,1-Dichloroethane	µg/kg	< 2.00	< 11.0	0.00 - 11.0	Acceptable	EPA 8260C	8/15/2013				BOOESHAG_F
4635	1,2-Dichloroethane	µg/kg	65.0	61.5	36.2 - 86.5	Acceptable	EPA 8260C	8/15/2013	0.236	62.6	9.99	BOOESHAG_F
4640	1,1-Dichloroethylene	µg/kg	< 2.00	< 13.0	0.00 - 13.0	Acceptable	EPA 8260C	8/15/2013				BOOESHAG_F
4645	cis-1,2-Dichloroethylene	µg/kg	203	193	127 - 268	Acceptable	EPA 8260C	8/15/2013	0.656	188	23.3	BOOESHAG_F
4700	trans-1,2-Dichloroethylene	µg/kg	137	126	79.5 - 180	Acceptable	EPA 8260C	8/15/2013	0.369	129	21.6	BOOESHAG_F
4655	1,2-Dichloropropane	µg/kg	< 2.00	< 12.0	0.00 - 12.0	Acceptable	EPA 8260C	8/15/2013				BOOESHAG_F
4680	cis-1,3-Dichloropropylene	µg/kg	< 2.00	< 40.0	0.00 - 40.0	Acceptable	EPA 8260C	8/15/2013				BOOESHAG_F
4685	trans-1,3-Dichloropropylene	µg/kg	< 2.00	< 40.0	0.00 - 40.0	Acceptable	EPA 8260C	8/15/2013				BOOESHAG_F
4765	Ethylbenzene	µg/kg	192	192	108 - 272	Acceptable	EPA 8260C	8/15/2013	0.0572	190	28.9	BOOESHAG_F
4860	2-Hexanone	µg/kg	153	301	131 - 441	Acceptable	EPA 8260C	8/15/2013	-1.84	280	69.2	BOOESHAG_F
4900	Isopropylbenzene	µg/kg		< 40.0	0.00 - 40.0	Not Reported						
4975	Methylene chloride	µg/kg	43.8	37.9	17.4 - 58.0	Acceptable	EPA 8260C	8/15/2013	0.920	38.1	6.20	BOOESHAG_F
4995	4-Methyl-2-pentanone (MIBK)	µg/kg	248	338	151 - 487	Acceptable	EPA 8260C	8/15/2013	-1.29	332	65.3	BOOESHAG_F
5005	Naphthalene	µg/kg		47.5	10.5 - 71.2	Not Reported				42.3	9.68	
5100	Styrene	µg/kg	95.1	98.6	64.7 - 140	Acceptable	EPA 8260C	8/15/2013	-0.261	98.2	11.9	BOOESHAG_F



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SOIL Volatiles in Soil (cat# 623) (Continued)

5105	1,1,1,2-Tetrachloroethane	µg/kg		187	122 - 252	Not Reported				190	21.2	
5110	1,1,2,2-Tetrachloroethane	µg/kg	< 2.00	< 8.90	0.00 - 8.90	Acceptable	EPA 8260C	8/15/2013				BOOESHAG_F
5115	Tetrachloroethylene	µg/kg	< 2.00	< 8.30	0.00 - 8.30	Acceptable	EPA 8260C	8/15/2013				BOOESHAG_F
5140	Toluene	µg/kg	93.2	93.2	53.4 - 131	Acceptable	EPA 8260C	8/15/2013	0.142	91.4	12.6	BOOESHAG_F
5155	1,2,4-Trichlorobenzene	µg/kg		67.6	27.0 - 108	Not Reported				59.1	15.3	
5160	1,1,1-Trichloroethane	µg/kg	47.8	50.1	26.7 - 71.1	Acceptable	EPA 8260C	8/15/2013	-0.313	50.0	6.88	BOOESHAG_F
5165	1,1,2-Trichloroethane	µg/kg	< 2.00	< 13.0	0.00 - 13.0	Acceptable	EPA 8260C	8/15/2013				BOOESHAG_F
5170	Trichloroethylene	µg/kg	90.7	94.1	48.2 - 134	Acceptable	EPA 8260C	8/15/2013	0.0680	89.9	11.9	BOOESHAG_F
5175	Trichlorofluoromethane	µg/kg	< 2.00	< 80.0	0.00 - 80.0	Acceptable	EPA 8260C	8/15/2013				BOOESHAG_F
5180	1,2,3-Trichloropropane (TCP)	µg/kg		152	59.2 - 229	Not Reported				146	34.3	
5225	Vinyl acetate	µg/kg		< 20.0	0.00 - 20.0	Not Reported						
5235	Vinyl chloride	µg/kg	< 2.00	< 80.0	0.00 - 80.0	Acceptable	EPA 8260C	8/15/2013				BOOESHAG_F
5260	Xylenes, total	µg/kg	145	150	73.1 - 222	Acceptable	EPA 8260C	8/15/2013	-0.204	150	23.2	BOOESHAG_F



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SOIL Base/Neutrals and Acids in Soil (cat# 467)

5500	Acenaphthene	µg/kg	2270	2870	566 - 3320	Acceptable	EPA 8270D 3	8/22/2013	0.938	1940	349	GHAFFARI_M
5505	Acenaphthylene	µg/kg	< 6.70	< 100	0.00 - 100	Acceptable	EPA 8270D 3	8/22/2013				GHAFFARI_M
5145	2-Amino-1-methylbenzene (o-toluidine)	µg/kg		< 1000	0.00 - 1000	Not Reported						
5545	Aniline	µg/kg		< 1000	0.00 - 1000	Not Reported						
5555	Anthracene	µg/kg	1030	1540	180 - 1690	Acceptable	EPA 8270D 3	8/22/2013	0.574	933	169	GHAFFARI_M
5595	Benzidine	µg/kg		< 1000	0.00 - 1000	Not Reported						
5610	Benzoic acid	µg/kg		< 1000	0.00 - 1000	Not Reported						
5575	Benzo(a)anthracene	µg/kg	< 6.70	< 100	0.00 - 100	Acceptable	EPA 8270D 3	8/22/2013				GHAFFARI_M
5585	Benzo(b)fluoranthene	µg/kg	< 6.70	< 100	0.00 - 100	Acceptable	EPA 8270D 3	8/22/2013				GHAFFARI_M
5600	Benzo(k)fluoranthene	µg/kg	< 6.70	< 100	0.00 - 100	Acceptable	EPA 8270D 3	8/22/2013				GHAFFARI_M
5590	Benzo(g,h,i)perylene	µg/kg	< 6.70	< 100	0.00 - 100	Acceptable	EPA 8270D 3	8/22/2013				GHAFFARI_M
5580	Benzo(a)pyrene	µg/kg	2120	2580	602 - 3380	Acceptable	EPA 8270D 3	8/22/2013	0.386	1990	328	GHAFFARI_M
5630	Benzyl alcohol	µg/kg		< 1000	0.00 - 1000	Not Reported						
5760	bis(2-Chloroethoxy)methane	µg/kg	6550	7760	1480 - 9040	Acceptable	EPA 8270D 3	8/22/2013	1.18	5260	1090	GHAFFARI_M
5765	bis(2-Chloroethyl)ether	µg/kg	5760	8540	1260 - 9390	Acceptable	EPA 8270D 3	8/22/2013	0.534	5060	1300	GHAFFARI_M
5780	bis(2-Chloroisopropyl)ether	µg/kg	< 60.0	< 150	0.00 - 150	Acceptable	EPA 8270D 3	8/22/2013				GHAFFARI_M
5660	4-Bromophenyl-phenylether	µg/kg	4480	4800	1440 - 6020	Acceptable	EPA 8270D 3	8/22/2013	1.30	3730	577	GHAFFARI_M
5670	Butylbenzylphthalate	µg/kg	3170	3290	729 - 4570	Acceptable	EPA 8270D 3	8/22/2013	1.30	2650	400	GHAFFARI_M
5680	Carbazole	µg/kg		< 1000	0.00 - 1000	Not Reported						
5745	4-Chloroaniline	µg/kg		< 1000	0.00 - 1000	Not Reported						



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SOIL Base/Neutrals and Acids in Soil (cat# 467) (Continued)

5700	4-Chloro-3-methylphenol	µg/kg	5410	6530	1450 - 7180	Acceptable	EPA 8270D 3	8/22/2013	1.37	4250	847	GHAFFARI_M
5790	1-Chloronaphthalene	µg/kg		< 1000	0.00 - 1000	Not Reported						
5795	2-Chloronaphthalene	µg/kg	3310	3980	793 - 4670	Acceptable	EPA 8270D 3	8/22/2013	1.15	2730	502	GHAFFARI_M
5800	2-Chlorophenol	µg/kg	6770	9080	1340 - 9990	Acceptable	EPA 8270D 3	8/22/2013	1.16	5310	1250	GHAFFARI_M
5825	4-Chlorophenyl-phenylether	µg/kg	< 60.0	< 150	0.00 - 150	Acceptable	EPA 8270D 3	8/22/2013				GHAFFARI_M
5855	Chrysene	µg/kg	1200	1210	353 - 1660	Acceptable	EPA 8270D 3	8/22/2013	1.34	1010	143	GHAFFARI_M
5895	Dibenz(a,h)anthracene	µg/kg	1500	1880	207 - 2610	Acceptable	EPA 8270D 3	8/22/2013	0.359	1410	252	GHAFFARI_M
5905	Dibenzofuran	µg/kg	< 60.0	< 150	0.00 - 150	Acceptable	EPA 8270D 3	8/22/2013				GHAFFARI_M
5925	Di-n-butylphthalate	µg/kg	7490	8060	1920 - 10700	Acceptable	EPA 8270D 3	8/22/2013	0.924	6330	1260	GHAFFARI_M
4610	1,2-Dichlorobenzene	µg/kg		3040	304 - 3340	Not Reported				1590	527	
4615	1,3-Dichlorobenzene	µg/kg		< 150	0.00 - 150	Not Reported						
4620	1,4-Dichlorobenzene	µg/kg		9330	933 - 10300	Not Reported				4460	1770	
5945	3,3'-Dichlorobenzidine	µg/kg		< 1000	0.00 - 1000	Not Reported						
6000	2,4-Dichlorophenol	µg/kg	4030	5070	671 - 5810	Acceptable	EPA 8270D 3	8/22/2013	1.13	3240	699	GHAFFARI_M
6005	2,6-Dichlorophenol	µg/kg	< 60.0	< 1500	0.00 - 1500	Acceptable	EPA 8270D 3	8/22/2013				GHAFFARI_M
6070	Diethylphthalate	µg/kg	5160	5560	1080 - 7120	Acceptable	EPA 8270D 3	8/22/2013	1.33	4100	799	GHAFFARI_M
6130	2,4-Dimethylphenol	µg/kg	< 360	< 3000	0.00 - 3000	Acceptable	EPA 8270D 3	8/22/2013				GHAFFARI_M
6135	Dimethylphthalate	µg/kg	8140	8990	2530 - 10800	Acceptable	EPA 8270D 3	8/22/2013	1.13	6680	1290	GHAFFARI_M
6175	2,4-Dinitrophenol	µg/kg	< 360	< 3000	0.00 - 3000	Acceptable	EPA 8270D 3	8/22/2013				GHAFFARI_M
6185	2,4-Dinitrotoluene	µg/kg	4420	4930	740 - 6420	Acceptable	EPA 8270D 3	8/22/2013	1.25	3580	668	GHAFFARI_M



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SOIL Base/Neutrals and Acids in Soil (cat# 467) (Continued)

6190	2,6-Dinitrotoluene	µg/kg	< 60.0	< 150	0.00 - 150	Acceptable	EPA 8270D 3	8/22/2013				GHAFFARI_M
6200	Di-n-octylphthalate	µg/kg	< 60.0	< 150	0.00 - 150	Acceptable	EPA 8270D 3	8/22/2013				GHAFFARI_M
6065	bis(2-Ethylhexyl)phthalate	µg/kg	< 360	< 150	0.00 - 150	Acceptable	EPA 8270D 3	8/22/2013				GHAFFARI_M
6265	Fluoranthene	µg/kg	4070	4650	1420 - 5610	Acceptable	EPA 8270D 3	8/22/2013	0.916	3510	610	GHAFFARI_M
6270	Fluorene	µg/kg	4740	5540	1620 - 6480	Acceptable	EPA 8270D 3	8/22/2013	0.876	4050	790	GHAFFARI_M
6275	Hexachlorobenzene	µg/kg	6170	6960	2130 - 8560	Acceptable	EPA 8270D 3	8/22/2013	0.921	5350	894	GHAFFARI_M
4835	Hexachlorobutadiene	µg/kg	3460	4490	564 - 5050	Acceptable	EPA 8270D 3	8/22/2013	0.953	2810	685	GHAFFARI_M
6285	Hexachlorocyclopentadiene	µg/kg	< 60.0	< 1500	0.00 - 1500	Acceptable	EPA 8270D 3	8/22/2013				GHAFFARI_M
4840	Hexachloroethane	µg/kg	6320	8870	887 - 9760	Acceptable	EPA 8270D 3	8/22/2013	1.24	4420	1530	GHAFFARI_M
6315	Indeno(1,2,3-cd)pyrene	µg/kg	1810	2200	220 - 3290	Acceptable	EPA 8270D 3	8/22/2013	0.324	1710	312	GHAFFARI_M
6320	Isophorone	µg/kg	4200	4920	1120 - 5810	Acceptable	EPA 8270D 3	8/22/2013	1.00	3460	736	GHAFFARI_M
6360	4,6-Dinitro-2-methylphenol	µg/kg	< 60.0	< 3000	0.00 - 3000	Acceptable	EPA 8270D 3	8/22/2013				GHAFFARI_M
6385	2-Methylnaphthalene	µg/kg	3170	4070	1010 - 4580	Acceptable	EPA 8270D 3	8/22/2013	0.616	2790	611	GHAFFARI_M
6400	2-Methylphenol	µg/kg	1750	5290	529 - 5820	Acceptable	EPA 8270D 3	8/22/2013	0.600	1520	387	GHAFFARI_M
6410	3&4-Methylphenol	µg/kg	2150	4160	416 - 4580	Acceptable	EPA 8270D 3	8/22/2013	1.44	1590	391	GHAFFARI_M
5005	Naphthalene	µg/kg	< 6.70	< 100	0.00 - 100	Acceptable	EPA 8270D 3	8/22/2013				GHAFFARI_M
6460	2-Nitroaniline	µg/kg		< 1000	0.00 - 1000	Not Reported						
6465	3-Nitroaniline	µg/kg		< 1000	0.00 - 1000	Not Reported						
6470	4-Nitroaniline	µg/kg		< 1000	0.00 - 1000	Not Reported						
5015	Nitrobenzene	µg/kg	2820	3440	344 - 4140	Acceptable	EPA 8270D 3	8/22/2013	1.20	2240	483	GHAFFARI_M



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SOIL Base/Neutrals and Acids in Soil (cat# 467) (Continued)

6490	2-Nitrophenol	µg/kg	6390	8170	884 - 9550	Acceptable	EPA 8270D 3	8/22/2013	0.988	5220	1190	GHAFFARI_M
6500	4-Nitrophenol	µg/kg	6060	8700	870 - 10300	Acceptable	EPA 8270D 3	8/22/2013	1.01	4680	1370	GHAFFARI_M
6525	N-Nitrosodiethylamine	µg/kg		< 1000	0.00 - 1000	Not Reported						
6530	N-Nitrosodimethylamine	µg/kg	< 360	< 1500	0.00 - 1500	Acceptable	EPA 8270D 3	8/22/2013				GHAFFARI_M
6535	N-Nitrosodiphenylamine	µg/kg	< 60.0	< 1500	0.00 - 1500	Acceptable	EPA 8270D 3	8/22/2013				GHAFFARI_M
6545	N-Nitroso-di-n-propylamine	µg/kg	3090	3840	384 - 4840	Acceptable	EPA 8270D 3	8/22/2013	1.06	2520	538	GHAFFARI_M
6590	Pentachlorobenzene	µg/kg		< 1000	0.00 - 1000	Not Reported						
6605	Pentachlorophenol	µg/kg	2970	6780	678 - 7460	Acceptable	EPA 8270D 3	8/22/2013	-0.0701	3050	1120	GHAFFARI_M
6615	Phenanthrene	µg/kg	4550	5220	1530 - 6180	Acceptable	EPA 8270D 3	8/22/2013	1.02	3860	681	GHAFFARI_M
6625	Phenol	µg/kg	4020	5600	560 - 6220	Acceptable	EPA 8270D 3	8/22/2013	0.856	3350	785	GHAFFARI_M
6665	Pyrene	µg/kg	< 6.70	< 100	0.00 - 100	Acceptable	EPA 8270D 3	8/22/2013				GHAFFARI_M
5095	Pyridine	µg/kg		< 1000	0.00 - 1000	Not Reported						
6715	1,2,4,5-Tetrachlorobenzene	µg/kg		< 1000	0.00 - 1000	Not Reported						
6735	2,3,4,6-Tetrachlorophenol	µg/kg		< 1000	0.00 - 1000	Not Reported						
5155	1,2,4-Trichlorobenzene	µg/kg	< 180	< 150	0.00 - 150	Acceptable	EPA 8270D 3	8/22/2013				GHAFFARI_M
6835	2,4,5-Trichlorophenol	µg/kg	4440	4950	705 - 6050	Acceptable	EPA 8270D 3	8/22/2013	1.40	3380	760	GHAFFARI_M
6840	2,4,6-Trichlorophenol	µg/kg	10200	13700	2740 - 15100	Acceptable	EPA 8270D 3	8/22/2013	0.847	8590	1900	GHAFFARI_M



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TNI Analyte Code	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description	Analysis Date	Z Score	Study Mean	Study Standard Deviation	Analyst Name
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SOIL Chlorinated Acid Herbicides in Soil (cat# 626)

8505	Acifluorfen	µg/kg		< 100	0.00 - 100	Not Reported						
8530	Bentazon	µg/kg		447	138 - 492	Not Reported				314	58.6	
8540	Chloramben	µg/kg		239	0.00 - 263	Not Reported				73.8	36.8	
8545	2,4-D	µg/kg	673	666	66.6 - 990	Acceptable	DEPSOP LC-001-2	7/27/2013	1.46	373	206	REDDY_S
8560	2,4-DB	µg/kg	465	556	55.6 - 791	Acceptable	DEPSOP LC-001-2	7/27/2013	0.805	345	148	REDDY_S
8550	Dacthal diacid (DCPA)	µg/kg		< 100	0.00 - 100	Not Reported						
8555	Dalapon	µg/kg		< 100	0.00 - 100	Not Reported						
8595	Dicamba	µg/kg	278	288	28.8 - 407	Acceptable	DEPSOP LC-001-2	7/27/2013	1.37	170	78.8	REDDY_S
8600	3,5-Dichlorobenzoic acid	µg/kg		395	0.00 - 441	Not Reported				207	78.0	
8605	Dichlorprop	µg/kg		509	0.00 - 739	Not Reported				303	145	
8620	Dinoseb	µg/kg	465	578	57.8 - 697	Acceptable	DEPSOP LC-001-2	7/27/2013	1.53	222	158	REDDY_S
7775	MCPA	µg/kg		< 1000	0.00 - 1000	Not Reported						
7780	MCPP	µg/kg		< 1000	0.00 - 1000	Not Reported						
6500	4-Nitrophenol	µg/kg		505	0.00 - 803	Not Reported				284	173	
6605	Pentachlorophenol	µg/kg		286	31.5 - 315	Not Reported				159	42.6	
8645	Picloram	µg/kg		185	0.00 - 276	Not Reported				116	53.0	
8655	2,4,5-T	µg/kg	251	254	25.4 - 360	Acceptable	DEPSOP LC-001-2	7/27/2013	1.40	155	68.2	REDDY_S
8650	2,4,5-TP (Silvex)	µg/kg	373	402	40.2 - 556	Acceptable	DEPSOP LC-001-2	7/27/2013	1.32	229	109	REDDY_S



All analytes are included in ERA's A2LA accreditation. Lab Code: 1539-01

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