



A Waters Company

Thekkekalathil Chandrasekhar
State of Florida DEP Chemistry Laboratory
2600 Blair Stone Road
Room A416D, MS6512
Tallahassee, FL 32399-2400

SOIL-81



Final Report

Soil/Hazardous Waste Proficiency Testing

Soil Study

Open Date: 01/21/13

Close Date: 03/07/13

Report Issued Date: 03/21/13



A Waters Company

March 21, 2013

Thekkekalathil Chandrasekhar
State of Florida DEP Chemistry Laboratory
2600 Blair Stone Road
Room A416D, MS6512
Tallahassee, FL 32399-2400

Enclosed is your final report for ERA's SOIL-81 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-81 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-81 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-81 Definitions & Study Discussion

Study Dates: 01/21/13 - 03/07/13

Report Issued: 03/21/13

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-81 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-81 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-81 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-81 Laboratory Exception Report

Thekkekalathil Chandrasekhar
QA Officer
State of Florida DEP Chemistry Laboratory
2600 Blair Stone Road
Room A416D, MS6512
Tallahassee, FL 32399-2400
(850) 245-8075

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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-81**

ERA Customer Number: **S744803**

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

Inorganic Results



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SOIL-81 2009 TNI Evaluation Final Complete Report

Thekkekalathil Chandrasekhar
QA Officer
State of Florida DEP Chemistry Laboratory
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Room A416D, MS6512
Tallahassee, FL 32399-2400
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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 Metals in Soil (cat# 620)

1000	Aluminum	mg/kg		10100	4080 - 14700	Not Reported				9390	2340	
1005	Antimony	mg/kg	76.7	289	28.9 - 322	Acceptable	EPA 6020A 1 2007	2/5/2013	-0.649	129	80.1	PETERSON_C
1010	Arsenic	mg/kg	87.0	100	61.0 - 116	Acceptable	EPA 6020A 1 2007	2/12/2013	-0.179	88.4	8.08	PETERSON_C
1015	Barium	mg/kg	222	219	154 - 266	Acceptable	EPA 6020A 1 2007	2/12/2013	0.636	210	18.3	PETERSON_C
1020	Beryllium	mg/kg	59.2	61.5	40.8 - 70.9	Acceptable	EPA 6020A 1 2007	2/20/2013	0.676	55.8	4.98	PETERSON_C
1025	Boron	mg/kg		128	60.7 - 142	Not Reported				101	14.4	
1030	Cadmium	mg/kg	151	165	104 - 182	Acceptable	EPA 6020A 1 2007	2/12/2013	0.712	142	11.9	PETERSON_C
1035	Calcium	mg/kg		7810	5620 - 9440	Not Reported				7530	565	
1040	Chromium	mg/kg	90.3	96.7	60.0 - 114	Acceptable	EPA 6020A 1 2007	2/12/2013	0.476	86.8	7.35	PETERSON_C
1050	Cobalt	mg/kg	207	220	148 - 250	Acceptable	EPA 6020A 1 2007	2/12/2013	0.469	199	16.4	PETERSON_C
1055	Copper	mg/kg	268	300	204 - 332	Acceptable	EPA 6020A 1 2007	2/12/2013	0.00208	268	22.7	PETERSON_C
1070	Iron	mg/kg		15000	4040 - 21500	Not Reported				12800	2030	
1075	Lead	mg/kg	102	108	69.3 - 126	Acceptable	EPA 6020A 1 2007	2/12/2013	0.486	97.9	8.47	PETERSON_C
1085	Magnesium	mg/kg		2980	1860 - 3840	Not Reported				2850	331	
1090	Manganese	mg/kg	432	439	324 - 525	Acceptable	EPA 6020A 1 2007	2/12/2013	0.211	425	34.5	PETERSON_C
1095	Mercury	mg/kg		9.20	4.63 - 13.4	Not Reported				9.03	1.13	
1100	Molybdenum	mg/kg	102	131	72.3 - 144	Acceptable	EPA 6020A 1 2007	2/12/2013	-0.128	103	11.1	PETERSON_C
1105	Nickel	mg/kg	243	275	175 - 302	Acceptable	EPA 6020A 1 2007	2/12/2013	0.341	236	19.2	PETERSON_C
1125	Potassium	mg/kg		2690	1570 - 3570	Not Reported				2570	386	
1140	Selenium	mg/kg	125	145	84.6 - 170	Acceptable	EPA 6020A 1 2007	2/12/2013	-0.167	127	12.6	PETERSON_C



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

1150	Silver	mg/kg	60.2	73.5	44.4 - 88.0	Acceptable	EPA 6020A 1 2007	2/15/2013	-0.943	66.2	6.37	PETERSON_C
1155	Sodium	mg/kg		1150	628 - 1450	Not Reported				1040	99.4	
1160	Strontium	mg/kg		182	118 - 216	Not Reported				167	13.1	
1165	Thallium	mg/kg	144	160	95.6 - 185	Acceptable	EPA 6020A 1 2007	2/12/2013	0.264	140	13.9	PETERSON_C
1175	Tin	mg/kg		171	89.0 - 209	Not Reported				149	13.2	
1180	Titanium	mg/kg		247	0.00 - 464	Not Reported				215	82.8	
1185	Vanadium	mg/kg		179	112 - 202	Not Reported				156	14.1	
1190	Zinc	mg/kg	134	136	87.0 - 173	Acceptable	EPA 6020A 1 2007	2/12/2013	0.306	130	12.5	PETERSON_C



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State of Florida DEP Chemistry Laboratory
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Room A416D, MS6512
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SOIL Metals in Soil (cat# 620)

1000	Aluminum	mg/kg	9430	10100	4080 - 14700	Acceptable	EPA 6010C 3 2007	2/18/2013	0.0154	9390	2340	AYRES_J
1005	Antimony	mg/kg	71.1	289	28.9 - 322	Acceptable	EPA 6010C 3 2007	2/5/2013	-0.719	129	80.1	AYRES_J
1010	Arsenic	mg/kg	84.7	100	61.0 - 116	Acceptable	EPA 6010C 3 2007	2/5/2013	-0.464	88.4	8.08	AYRES_J
1015	Barium	mg/kg	209	219	154 - 266	Acceptable	EPA 6010C 3 2007	2/5/2013	-0.0751	210	18.3	AYRES_J
1020	Beryllium	mg/kg	58.4	61.5	40.8 - 70.9	Acceptable	EPA 6010C 3 2007	2/5/2013	0.515	55.8	4.98	AYRES_J
1025	Boron	mg/kg	102	128	60.7 - 142	Acceptable	EPA 6010C 3 2007	2/5/2013	0.0617	101	14.4	AYRES_J
1030	Cadmium	mg/kg	138	165	104 - 182	Acceptable	EPA 6010C 3 2007	2/5/2013	-0.382	142	11.9	AYRES_J
1035	Calcium	mg/kg	8390	7810	5620 - 9440	Acceptable	EPA 6010C 3 2007	2/5/2013	1.53	7530	565	AYRES_J
1040	Chromium	mg/kg	86.2	96.7	60.0 - 114	Acceptable	EPA 6010C 3 2007	2/5/2013	-0.0823	86.8	7.35	AYRES_J
1050	Cobalt	mg/kg	206	220	148 - 250	Acceptable	EPA 6010C 3 2007	2/5/2013	0.408	199	16.4	AYRES_J
1055	Copper	mg/kg	262	300	204 - 332	Acceptable	EPA 6010C 3 2007	2/5/2013	-0.263	268	22.7	AYRES_J
1070	Iron	mg/kg	13900	15000	4040 - 21500	Acceptable	EPA 6010C 3 2007	2/5/2013	0.562	12800	2030	AYRES_J
1075	Lead	mg/kg	103	108	69.3 - 126	Acceptable	EPA 6010C 3 2007	2/5/2013	0.604	97.9	8.47	AYRES_J
1085	Magnesium	mg/kg	3200	2980	1860 - 3840	Acceptable	EPA 6010C 3 2007	2/5/2013	1.04	2850	331	AYRES_J
1090	Manganese	mg/kg	425	439	324 - 525	Acceptable	EPA 6010C 3 2007	2/5/2013	0.00753	425	34.5	AYRES_J
1095	Mercury	mg/kg		9.20	4.63 - 13.4	Not Reported				9.03	1.13	
1100	Molybdenum	mg/kg	103	131	72.3 - 144	Acceptable	EPA 6010C 3 2007	2/5/2013	-0.0382	103	11.1	AYRES_J
1105	Nickel	mg/kg	245	275	175 - 302	Acceptable	EPA 6010C 3 2007	2/5/2013	0.446	236	19.2	AYRES_J
1125	Potassium	mg/kg	2890	2690	1570 - 3570	Acceptable	EPA 6010C 3 2007	2/5/2013	0.824	2570	386	AYRES_J
1140	Selenium	mg/kg	127	145	84.6 - 170	Acceptable	EPA 6010C 3 2007	2/5/2013	-0.00837	127	12.6	AYRES_J



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

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Thekkekalathil Chandrasekhar
QA Officer
State of Florida DEP Chemistry Laboratory
2600 Blair Stone Road
Room A416D, MS6512
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SOIL Metals in Soil (cat# 620) (Continued)

1150	Silver	mg/kg	59.9	73.5	44.4 - 88.0	Acceptable	EPA 6010C 3 2007	2/18/2013	-0.99	66.2	6.37	AYRES_J
1155	Sodium	mg/kg	1060	1150	628 - 1450	Acceptable	EPA 6010C 3 2007	2/5/2013	0.204	1040	99.4	AYRES_J
1160	Strontium	mg/kg	173	182	118 - 216	Acceptable	EPA 6010C 3 2007	2/5/2013	0.438	167	13.1	AYRES_J
1165	Thallium	mg/kg	145	160	95.6 - 185	Acceptable	EPA 6010C 3 2007	2/5/2013	0.336	140	13.9	AYRES_J
1175	Tin	mg/kg	155	171	89.0 - 209	Acceptable	EPA 6010C 3 2007	2/5/2013	0.465	149	13.2	AYRES_J
1180	Titanium	mg/kg	226	247	0.00 - 464	Acceptable	EPA 6010C 3 2007	2/5/2013	0.127	215	82.8	AYRES_J
1185	Vanadium	mg/kg	158	179	112 - 202	Acceptable	EPA 6010C 3 2007	2/5/2013	0.104	156	14.1	AYRES_J
1190	Zinc	mg/kg	130	136	87.0 - 173	Acceptable	EPA 6010C 3 2007	2/5/2013	-0.0135	130	12.5	AYRES_J





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SOIL Metals in Soil (cat# 620)

1000	Aluminum	mg/kg		10100	4080 - 14700	Not Reported				9390	2340	
1005	Antimony	mg/kg		289	28.9 - 322	Not Reported				129	80.1	
1010	Arsenic	mg/kg		100	61.0 - 116	Not Reported				88.4	8.08	
1015	Barium	mg/kg		219	154 - 266	Not Reported				210	18.3	
1020	Beryllium	mg/kg		61.5	40.8 - 70.9	Not Reported				55.8	4.98	
1025	Boron	mg/kg		128	60.7 - 142	Not Reported				101	14.4	
1030	Cadmium	mg/kg		165	104 - 182	Not Reported				142	11.9	
1035	Calcium	mg/kg		7810	5620 - 9440	Not Reported				7530	565	
1040	Chromium	mg/kg		96.7	60.0 - 114	Not Reported				86.8	7.35	
1050	Cobalt	mg/kg		220	148 - 250	Not Reported				199	16.4	
1055	Copper	mg/kg		300	204 - 332	Not Reported				268	22.7	
1070	Iron	mg/kg		15000	4040 - 21500	Not Reported				12800	2030	
1075	Lead	mg/kg		108	69.3 - 126	Not Reported				97.9	8.47	
1085	Magnesium	mg/kg		2980	1860 - 3840	Not Reported				2850	331	
1090	Manganese	mg/kg		439	324 - 525	Not Reported				425	34.5	
1095	Mercury	mg/kg	7.26	9.20	4.63 - 13.4	Acceptable	DEPSOP:HG-008-3	2/7/2013	-1.56	9.03	1.13	ACOSTA_M
1100	Molybdenum	mg/kg		131	72.3 - 144	Not Reported				103	11.1	
1105	Nickel	mg/kg		275	175 - 302	Not Reported				236	19.2	
1125	Potassium	mg/kg		2690	1570 - 3570	Not Reported				2570	386	
1140	Selenium	mg/kg		145	84.6 - 170	Not Reported				127	12.6	



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		73.5	44.4 - 88.0	Not Reported				66.2	6.37	
1155	Sodium	mg/kg		1150	628 - 1450	Not Reported				1040	99.4	
1160	Strontium	mg/kg		182	118 - 216	Not Reported				167	13.1	
1165	Thallium	mg/kg		160	95.6 - 185	Not Reported				140	13.9	
1175	Tin	mg/kg		171	89.0 - 209	Not Reported				149	13.2	
1180	Titanium	mg/kg		247	0.00 - 464	Not Reported				215	82.8	
1185	Vanadium	mg/kg		179	112 - 202	Not Reported				156	14.1	
1190	Zinc	mg/kg		136	87.0 - 173	Not Reported				130	12.5	

SOIL Nutrients in Soil (cat# 869)

1515	Ammonia as N	mg/kg		941	471 - 1160	Not Reported				816	117	
1795	Total Kjeldahl Nitrogen	mg/kg		1160	631 - 1720	Not Reported				1170	136	
2040	Total Organic Carbon (TOC)	mg/kg	2270	2460	246 - 4680	Acceptable	DEPSOP:NU-076-1	2/7/2013	-0.261	2460	739	HUA_P
1910	Total Phosphorus	mg/kg		420	49.7 - 777	Not Reported				414	62.3	



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

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2009 TNI Evaluation Report

Study: **SOIL-81**

ERA Customer Number: **S744803**

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

Organic Results



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SOIL-81 2009 TNI Evaluation Final Complete Report

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SOIL Volatiles in Soil (cat# 623)

4315	Acetone	µg/kg	725	844	89.4 - 1300	Acceptable	EPA 8260C 2006	2/16/2013	-0.365	811	236	BOOESHAG_F
4320	Acetonitrile	µg/kg		238	64.2 - 438	Not Reported				251	62.3	
4325	Acrolein	µg/kg		< 20.0	0.00 - 20.0	Not Reported						
4375	Benzene	µg/kg	84.3	86.5	51.2 - 119	Acceptable	EPA 8260C 2006	2/16/2013	-0.00165	84.3	9.79	BOOESHAG_F
4385	Bromobenzene	µg/kg		< 40.0	0.00 - 40.0	Not Reported						
4395	Bromodichloromethane	µg/kg	196	192	127 - 264	Acceptable	EPA 8260C 2006	2/16/2013	-0.0614	198	26.1	BOOESHAG_F
4400	Bromoform	µg/kg	24.6	29.3	14.1 - 43.8	Acceptable	EPA 8260C 2006	2/16/2013	-0.884	29.0	5.04	BOOESHAG_F
4950	Bromomethane	µg/kg	< 2.00	< 80.0	0.00 - 80.0	Acceptable	EPA 8260C 2006	2/16/2013				BOOESHAG_F
4410	2-Butanone (MEK)	µg/kg	285	360	113 - 556	Acceptable	EPA 8260C 2006	2/16/2013	-1.04	359	71.7	BOOESHAG_F
5000	tert-Butyl methyl ether (MTBE)	µg/kg	< 2.00	< 7.80	0.00 - 7.80	Acceptable	EPA 8260C 2006	2/16/2013				BOOESHAG_F
4450	Carbon disulfide	µg/kg		< 20.0	0.00 - 20.0	Not Reported						
4455	Carbon tetrachloride	µg/kg	164	172	83.8 - 254	Acceptable	EPA 8260C 2006	2/16/2013	-0.442	176	27.1	BOOESHAG_F
4475	Chlorobenzene	µg/kg	188	184	104 - 255	Acceptable	EPA 8260C 2006	2/16/2013	0.192	184	22.8	BOOESHAG_F
4575	Chlorodibromomethane	µg/kg	< 2.00	< 9.90	0.00 - 9.90	Acceptable	EPA 8260C 2006	2/16/2013				BOOESHAG_F
4485	Chloroethane	µg/kg	< 2.00	< 80.0	0.00 - 80.0	Acceptable	EPA 8260C 2006	2/16/2013				BOOESHAG_F
4500	2-Chloroethylvinylether	µg/kg		< 20.0	0.00 - 20.0	Not Reported						
4505	Chloroform	µg/kg	119	116	70.2 - 162	Acceptable	EPA 8260C 2006	2/16/2013	0.0842	118	14.9	BOOESHAG_F
4960	Chloromethane	µg/kg	< 2.00	< 80.0	0.00 - 80.0	Acceptable	EPA 8260C 2006	2/16/2013				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		< 24.0	0.00 - 24.0	Not Reported						



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QA Officer
State of Florida DEP Chemistry Laboratory
2600 Blair Stone Road
Room A416D, MS6512
Tallahassee, FL 32399-2400
(850) 245-8075

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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	< 2.00	< 8.90	0.00 - 8.90	Acceptable	EPA 8260C 2006	2/16/2013				BOOESHAG_F
4615	1,3-Dichlorobenzene	µg/kg	21.4	22.7	6.20 - 33.7	Acceptable	EPA 8260C 2006	2/16/2013	-0.229	22.2	3.64	BOOESHAG_F
4620	1,4-Dichlorobenzene	µg/kg	74.9	73.6	25.4 - 105	Acceptable	EPA 8260C 2006	2/16/2013	0.363	70.8	11.3	BOOESHAG_F
4625	Dichlorodifluoromethane (Freon 12)	µg/kg	< 2.00	< 80.0	0.00 - 80.0	Acceptable	EPA 8260C 2006	2/16/2013				BOOESHAG_F
4630	1,1-Dichloroethane	µg/kg	72.0	69.1	38.8 - 100	Acceptable	EPA 8260C 2006	2/16/2013	0.353	68.7	9.36	BOOESHAG_F
4635	1,2-Dichloroethane	µg/kg	< 2.00	< 12.0	0.00 - 12.0	Acceptable	EPA 8260C 2006	2/16/2013				BOOESHAG_F
4640	1,1-Dichloroethylene	µg/kg	65.4	64.3	28.5 - 100	Acceptable	EPA 8260C 2006	2/16/2013	-0.4	68.8	8.58	BOOESHAG_F
4645	cis-1,2-Dichloroethylene	µg/kg	106	108	67.9 - 152	Acceptable	EPA 8260C 2006	2/16/2013	-0.0144	106	13.6	BOOESHAG_F
4700	trans-1,2-Dichloroethylene	µg/kg	75.6	73.4	44.8 - 105	Acceptable	EPA 8260C 2006	2/16/2013	0.108	74.7	8.62	BOOESHAG_F
4655	1,2-Dichloropropane	µg/kg	107	103	60.4 - 138	Acceptable	EPA 8260C 2006	2/16/2013	0.244	104	13.6	BOOESHAG_F
4680	cis-1,3-Dichloropropylene	µg/kg	< 2.00	< 40.0	0.00 - 40.0	Acceptable	EPA 8260C 2006	2/16/2013				BOOESHAG_F
4685	trans-1,3-Dichloropropylene	µg/kg	< 2.00	< 40.0	0.00 - 40.0	Acceptable	EPA 8260C 2006	2/16/2013				BOOESHAG_F
4765	Ethylbenzene	µg/kg	< 2.00	< 9.40	0.00 - 9.40	Acceptable	EPA 8260C 2006	2/16/2013				BOOESHAG_F
4860	2-Hexanone	µg/kg	207	203	81.4 - 304	Acceptable	EPA 8260C 2006	2/16/2013	0.696	189	25.6	BOOESHAG_F
4900	Isopropylbenzene	µg/kg		< 40.0	0.00 - 40.0	Not Reported						
4975	Methylene chloride	µg/kg	106	97.2	45.3 - 142	Acceptable	EPA 8260C 2006	2/16/2013	0.786	95.6	13.2	BOOESHAG_F
4995	4-Methyl-2-pentanone (MIBK)	µg/kg	< 10.0	< 32.0	0.00 - 32.0	Acceptable	EPA 8260C 2006	2/16/2013				BOOESHAG_F
5005	Naphthalene	µg/kg		< 6.00	0.00 - 6.00	Not Reported						
5100	Styrene	µg/kg	193	188	127 - 257	Acceptable	EPA 8260C 2006	2/16/2013	0.290	185	28.0	BOOESHAG_F



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State of Florida DEP Chemistry Laboratory
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SOIL Volatiles in Soil (cat# 623) (Continued)

5105	1,1,1,2-Tetrachloroethane	µg/kg		180	118 - 242	Not Reported				184	26.1	
5110	1,1,2,2-Tetrachloroethane	µg/kg	< 4.30	< 8.90	0.00 - 8.90	Acceptable	EPA 8260C 2006	2/16/2013				BOOESHAG_F
5115	Tetrachloroethylene	µg/kg	109	112	50.3 - 162	Acceptable	EPA 8260C 2006	2/16/2013	0.117	106	23.2	BOOESHAG_F
5140	Toluene	µg/kg	66.1	69.1	39.4 - 97.4	Acceptable	EPA 8260C 2006	2/16/2013	-0.327	68.7	8.05	BOOESHAG_F
5155	1,2,4-Trichlorobenzene	µg/kg		49.3	19.7 - 78.9	Not Reported				40.8	10.3	
5160	1,1,1-Trichloroethane	µg/kg	< 2.00	< 9.00	0.00 - 9.00	Acceptable	EPA 8260C 2006	2/16/2013				BOOESHAG_F
5165	1,1,2-Trichloroethane	µg/kg	51.7	47.7	28.9 - 68.0	Acceptable	EPA 8260C 2006	2/16/2013	0.563	47.5	7.52	BOOESHAG_F
5170	Trichloroethylene	µg/kg	47.0	48.4	24.4 - 69.2	Acceptable	EPA 8260C 2006	2/16/2013	-0.0773	47.5	6.25	BOOESHAG_F
5175	Trichlorofluoromethane	µg/kg	< 2.00	< 80.0	0.00 - 80.0	Acceptable	EPA 8260C 2006	2/16/2013				BOOESHAG_F
5180	1,2,3-Trichloropropane (TCP)	µg/kg		104	37.4 - 162	Not Reported				93.9	21.7	
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 2006	2/16/2013				BOOESHAG_F
5260	Xylenes, total	µg/kg	116	122	59.0 - 181	Acceptable	EPA 8260C 2006	2/16/2013	-0.429	122	14.7	BOOESHAG_F



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State of Florida DEP Chemistry Laboratory
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SOIL Base/Neutrals and Acids in Soil (cat# 467)

5500	Acenaphthene	µg/kg	6240	7870	2210 - 9550	Acceptable	EPA 8270D 3 2007	2/21/2013	0.333	5880	1070	GHAFFARI_M
5505	Acenaphthylene	µg/kg	< 6.70	< 100	0.00 - 100	Acceptable	EPA 8270D 3 2007	2/21/2013				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	5660	6440	1680 - 8500	Acceptable	EPA 8270D 3 2007	2/21/2013	0.695	5090	818	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	3300	3600	1200 - 4810	Acceptable	EPA 8270D 3 2007	2/21/2013	0.745	3000	396	GHAFFARI_M
5585	Benzo(b)fluoranthene	µg/kg	3450	4020	1090 - 5470	Acceptable	EPA 8270D 3 2007	2/21/2013	0.331	3280	514	GHAFFARI_M
5600	Benzo(k)fluoranthene	µg/kg	3370	3730	1070 - 5160	Acceptable	EPA 8270D 3 2007	2/21/2013	0.454	3120	552	GHAFFARI_M
5590	Benzo(g,h,i)perylene	µg/kg	< 6.70	< 100	0.00 - 100	Acceptable	EPA 8270D 3 2007	2/21/2013				GHAFFARI_M
5580	Benzo(a)pyrene	µg/kg	5270	6120	1480 - 8210	Acceptable	EPA 8270D 3 2007	2/21/2013	0.522	4850	806	GHAFFARI_M
5630	Benzyl alcohol	µg/kg		< 1000	0.00 - 1000	Not Reported						
5760	bis(2-Chloroethoxy)methane	µg/kg	< 60.0	< 150	0.00 - 150	Acceptable	EPA 8270D 3 2007	2/21/2013				GHAFFARI_M
5765	bis(2-Chloroethyl)ether	µg/kg	6020	8910	1580 - 10300	Acceptable	EPA 8270D 3 2007	2/21/2013	0.0539	5950	1360	GHAFFARI_M
5780	bis(2-Chloroisopropyl)ether	µg/kg	< 60.0	< 150	0.00 - 150	Acceptable	EPA 8270D 3 2007	2/21/2013				GHAFFARI_M
5660	4-Bromophenyl-phenylether	µg/kg	8080	8210	2520 - 10400	Acceptable	EPA 8270D 3 2007	2/21/2013	1.39	6480	1140	GHAFFARI_M
5670	Butylbenzylphthalate	µg/kg	5450	5530	1260 - 7830	Acceptable	EPA 8270D 3 2007	2/21/2013	0.952	4550	949	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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State of Florida DEP Chemistry Laboratory
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SOIL Base/Neutrals and Acids in Soil (cat# 467) (Continued)

5700	4-Chloro-3-methylphenol	µg/kg	3490	4190	858 - 5160	Acceptable	EPA 8270D 3 2007	2/21/2013	0.846	3010	567	GHAFFARI_M
5790	1-Chloronaphthalene	µg/kg		< 1000	0.00 - 1000	Not Reported						
5795	2-Chloronaphthalene	µg/kg	< 60.0	< 100	0.00 - 100	Acceptable	EPA 8270D 3 2007	2/21/2013				GHAFFARI_M
5800	2-Chlorophenol	µg/kg	6170	8640	1470 - 9970	Acceptable	EPA 8270D 3 2007	2/21/2013	0.322	5720	1390	GHAFFARI_M
5825	4-Chlorophenyl-phenylether	µg/kg	2390	2820	768 - 3590	Acceptable	EPA 8270D 3 2007	2/21/2013	0.496	2180	428	GHAFFARI_M
5855	Chrysene	µg/kg	< 6.70	< 100	0.00 - 100	Acceptable	EPA 8270D 3 2007	2/21/2013				GHAFFARI_M
5895	Dibenz(a,h)anthracene	µg/kg	< 6.70	< 100	0.00 - 100	Acceptable	EPA 8270D 3 2007	2/21/2013				GHAFFARI_M
5905	Dibenzofuran	µg/kg	< 60.0	< 150	0.00 - 150	Acceptable	EPA 8270D 3 2007	2/21/2013				GHAFFARI_M
5925	Di-n-butylphthalate	µg/kg	2370	2560	404 - 3840	Acceptable	EPA 8270D 3 2007	2/21/2013	0.622	2120	398	GHAFFARI_M
4610	1,2-Dichlorobenzene	µg/kg		7160	716 - 8110	Not Reported				4280	1270	
4615	1,3-Dichlorobenzene	µg/kg		7100	710 - 7920	Not Reported				3880	1280	
4620	1,4-Dichlorobenzene	µg/kg		4880	488 - 5490	Not Reported				2740	903	
5945	3,3'-Dichlorobenzidine	µg/kg		< 1000	0.00 - 1000	Not Reported						
6000	2,4-Dichlorophenol	µg/kg	2060	2880	288 - 3720	Acceptable	EPA 8270D 3 2007	2/21/2013	0.158	1990	448	GHAFFARI_M
6005	2,6-Dichlorophenol	µg/kg	< 60.0	< 1500	0.00 - 1500	Acceptable	EPA 8270D 3 2007	2/21/2013				GHAFFARI_M
6070	Diethylphthalate	µg/kg	9260	9440	2090 - 12400	Acceptable	EPA 8270D 3 2007	2/21/2013	1.40	7270	1430	GHAFFARI_M
6130	2,4-Dimethylphenol	µg/kg	< 360	< 3000	0.00 - 3000	Acceptable	EPA 8270D 3 2007	2/21/2013				GHAFFARI_M
6135	Dimethylphthalate	µg/kg	< 60.0	< 150	0.00 - 150	Acceptable	EPA 8270D 3 2007	2/21/2013				GHAFFARI_M
6175	2,4-Dinitrophenol	µg/kg	< 360	< 3000	0.00 - 3000	Acceptable	EPA 8270D 3 2007	2/21/2013				GHAFFARI_M
6185	2,4-Dinitrotoluene	µg/kg	7000	8130	1630 - 10900	Acceptable	EPA 8270D 3 2007	2/21/2013	0.614	6270	1190	GHAFFARI_M



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State of Florida DEP Chemistry Laboratory
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Tallahassee, FL 32399-2400
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SOIL Base/Neutrals and Acids in Soil (cat# 467) (Continued)

6190	2,6-Dinitrotoluene	µg/kg	4340	5170	1520 - 6410	Acceptable	EPA 8270D 3 2007	2/21/2013	0.466	3970	802	GHAFFARI_M
6200	Di-n-octylphthalate	µg/kg	4200	4400	683 - 6620	Acceptable	EPA 8270D 3 2007	2/21/2013	0.777	3650	703	GHAFFARI_M
6065	bis(2-Ethylhexyl)phthalate	µg/kg	< 360	< 150	0.00 - 150	Acceptable	EPA 8270D 3 2007	2/21/2013				GHAFFARI_M
6265	Fluoranthene	µg/kg	5420	5860	1950 - 7550	Acceptable	EPA 8270D 3 2007	2/21/2013	0.821	4750	818	GHAFFARI_M
6270	Fluorene	µg/kg	5120	6180	1880 - 7320	Acceptable	EPA 8270D 3 2007	2/21/2013	0.598	4600	864	GHAFFARI_M
6275	Hexachlorobenzene	µg/kg	1680	1960	581 - 2570	Acceptable	EPA 8270D 3 2007	2/21/2013	0.413	1570	255	GHAFFARI_M
4835	Hexachlorobutadiene	µg/kg	< 180	< 150	0.00 - 150	Acceptable	EPA 8270D 3 2007	2/21/2013				GHAFFARI_M
6285	Hexachlorocyclopentadiene	µg/kg	< 60.0	< 1500	0.00 - 1500	Acceptable	EPA 8270D 3 2007	2/21/2013				GHAFFARI_M
4840	Hexachloroethane	µg/kg	1740	2430	243 - 2750	Acceptable	EPA 8270D 3 2007	2/21/2013	0.833	1370	447	GHAFFARI_M
6315	Indeno(1,2,3-cd)pyrene	µg/kg	4700	5700	570 - 7840	Acceptable	EPA 8270D 3 2007	2/21/2013	0.671	4130	855	GHAFFARI_M
6320	Isophorone	µg/kg	7930	8940	2280 - 11000	Acceptable	EPA 8270D 3 2007	2/21/2013	0.944	6620	1390	GHAFFARI_M
6360	4,6-Dinitro-2-methylphenol	µg/kg	< 60.0	< 3000	0.00 - 3000	Acceptable	EPA 8270D 3 2007	2/21/2013				GHAFFARI_M
6385	2-Methylnaphthalene	µg/kg	< 6.70	< 100	0.00 - 100	Acceptable	EPA 8270D 3 2007	2/21/2013				GHAFFARI_M
6400	2-Methylphenol	µg/kg	3580	6160	616 - 6780	Acceptable	EPA 8270D 3 2007	2/21/2013	0.770	2970	787	GHAFFARI_M
6410	3&4-Methylphenol	µg/kg	3710	5150	515 - 5660	Acceptable	EPA 8270D 3 2007	2/21/2013	1.04	2840	829	GHAFFARI_M
5005	Naphthalene	µg/kg	3660	4930	936 - 5680	Acceptable	EPA 8270D 3 2007	2/21/2013	0.475	3300	745	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	< 60.0	< 150	0.00 - 150	Acceptable	EPA 8270D 3 2007	2/21/2013				GHAFFARI_M



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

6490	2-Nitrophenol	µg/kg	2460	4220	422 - 4970	Acceptable	EPA 8270D 3 2007	2/21/2013	-0.214	2620	766	GHAFFARI_M
6500	4-Nitrophenol	µg/kg	7030	8860	886 - 10800	Acceptable	EPA 8270D 3 2007	2/21/2013	1.22	4910	1740	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 2007	2/21/2013				GHAFFARI_M
6535	N-Nitrosodiphenylamine	µg/kg	< 60.0	< 1500	0.00 - 1500	Acceptable	EPA 8270D 3 2007	2/21/2013				GHAFFARI_M
6545	N-Nitroso-di-n-propylamine	µg/kg	< 60.0	< 150	0.00 - 150	Acceptable	EPA 8270D 3 2007	2/21/2013				GHAFFARI_M
6590	Pentachlorobenzene	µg/kg		< 1000	0.00 - 1000	Not Reported						
6605	Pentachlorophenol	µg/kg	2620	4500	450 - 4950	Acceptable	EPA 8270D 3 2007	2/21/2013	0.425	2210	964	GHAFFARI_M
6615	Phenanthrene	µg/kg	< 6.70	< 100	0.00 - 100	Acceptable	EPA 8270D 3 2007	2/21/2013				GHAFFARI_M
6625	Phenol	µg/kg	5760	7440	744 - 8960	Acceptable	EPA 8270D 3 2007	2/21/2013	0.769	4830	1210	GHAFFARI_M
6665	Pyrene	µg/kg	2460	3000	936 - 4060	Acceptable	EPA 8270D 3 2007	2/21/2013	-0.11	2500	372	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 2007	2/21/2013				GHAFFARI_M
6835	2,4,5-Trichlorophenol	µg/kg	2580	3250	494 - 4500	Acceptable	EPA 8270D 3 2007	2/21/2013	0.134	2500	602	GHAFFARI_M
6840	2,4,6-Trichlorophenol	µg/kg	4920	6840	1250 - 7820	Acceptable	EPA 8270D 3 2007	2/21/2013	0.363	4540	1060	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		< 100	0.00 - 100	Not Reported						
8540	Chloramben	µg/kg		< 100	0.00 - 100	Not Reported						
8545	2,4-D	µg/kg	599	628	62.8 - 951	Acceptable	DEPSOP:LC-001-2	2/21/2013	0.748	482	156	REDDY_S
8560	2,4-DB	µg/kg	209	356	35.6 - 498	Acceptable	DEPSOP:LC-001-2	2/21/2013	-0.436	246	84.3	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	239	370	37.0 - 560	Acceptable	DEPSOP:LC-001-2	2/21/2013	-0.0389	243	106	REDDY_S
8600	3,5-Dichlorobenzoic acid	µg/kg		< 100	0.00 - 100	Not Reported						
8605	Dichlorprop	µg/kg		< 100	0.00 - 100	Not Reported						
8620	Dinoseb	µg/kg	410	600	60.0 - 874	Acceptable	DEPSOP:LC-001-2	2/21/2013	0.616	290	195	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		< 100	0.00 - 100	Not Reported						
6605	Pentachlorophenol	µg/kg		409	40.9 - 691	Not Reported				264	142	
8645	Picloram	µg/kg		< 100	0.00 - 100	Not Reported						
8655	2,4,5-T	µg/kg	636	704	70.4 - 1110	Acceptable	DEPSOP:LC-001-2	2/21/2013	0.881	438	225	REDDY_S
8650	2,4,5-TP (Silvex)	µg/kg	197	201	20.1 - 337	Acceptable	DEPSOP:LC-001-2	2/21/2013	0.838	143	64.6	REDDY_S



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

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