



A Waters Company

Thekkekalathil Madhavan Chandrasekhar
State of Florida DEP Chemistry Laboratory
2600 Blair Stone Road
Room A416D, MS 6512
Tallahassee, FL 32399-2400
USA

SOIL-91



Final Report

Soil/Hazardous Waste Proficiency Testing

Soil Study

Open Date: 07/20/15

Close Date: 09/03/15

Report Issued Date: 09/08/15



A Waters Company

September 8, 2015

Thekkekalathil Madhavan Chandrasekhar
State of Florida DEP Chemistry Laboratory
2600 Blair Stone Road
Room A416D, MS 6512
Tallahassee, FL 32399-2400

Enclosed is your final report for ERA's SOIL-91 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-91 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.

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-91 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-91 Definitions & Study Discussion

Study Dates: 07/20/15 - 09/03/15

Report Issued: 09/08/15

SOIL Study Definitions

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

The ERA Assigned Values for the Organic Proficiency Testing Standards, with the exception of Acetonitrile in the Volatiles in Soil sample, are 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 Acetonitrile is equal to the mean of the study data, after the removal of outliers. The ERA assigned values 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, are equal to the maximum amount of the parameter available in the standard by applicable EPA methodologies. The ERA assigned values for the TCLP metals and TOC are 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-91 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-91 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-91 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-91 Laboratory Exception Report

Thekkekalathil Madhavan Chandrasekhar
QA Officer
State of Florida DEP Chemistry Laboratory
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Room A416D, MS 6512
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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.



Final Report Results For Laboratory State of Florida DEP Chemistry Laboratory

2009 TNI Evaluation Report

Study: **SOIL-91**

ERA Customer Number: **S744803**

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

Inorganic Results



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SOIL-91 2009 TNI Evaluation Final Complete Report

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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	8460	9830	3200 - 13000	Acceptable	EPA 6010C 3 2007	8/10/2015	0.201	8080	1900	AYRES_J
1005	Antimony	mg/kg	61.7	245	24.5 - 310	Acceptable	EPA 6010C 3 2007	8/10/2015	-0.971	123	63.6	AYRES_J
1010	Arsenic	mg/kg	147	180	102 - 198	Acceptable	EPA 6010C 3 2007	8/10/2015	0.127	145	13.2	AYRES_J
1015	Barium	mg/kg	198	225	154 - 265	Acceptable	EPA 6010C 3 2007	8/10/2015	-0.557	209	20.3	AYRES_J
1020	Beryllium	mg/kg	101	103	72.5 - 122	Acceptable	EPA 6010C 3 2007	8/10/2015	0.454	97.3	8.19	AYRES_J
1025	Boron	mg/kg	144	161	75.7 - 177	Acceptable	EPA 6010C 3 2007	8/10/2015	1.27	126	14.0	AYRES_J
1030	Cadmium	mg/kg	84.7	95.9	64.2 - 111	Acceptable	EPA 6010C 3 2007	8/10/2015	-0.422	87.6	6.79	AYRES_J
1035	Calcium	mg/kg	6130	6360	4180 - 7200	Acceptable	EPA 6010C 3 2007	8/10/2015	0.932	5690	472	AYRES_J
1040	Chromium	mg/kg	140	157	100 - 185	Acceptable	EPA 6010C 3 2007	8/10/2015	-0.217	143	12.3	AYRES_J
1050	Cobalt	mg/kg	158	161	114 - 193	Acceptable	EPA 6010C 3 2007	8/10/2015	0.305	154	14.4	AYRES_J
1055	Copper	mg/kg	173	193	130 - 215	Acceptable	EPA 6010C 3 2007	8/10/2015	0.0286	173	14.0	AYRES_J
1070	Iron	mg/kg	13600	16300	5570 - 24500	Acceptable	EPA 6010C 3 2007	8/10/2015	-0.429	15000	3360	AYRES_J
1075	Lead	mg/kg	138	163	107 - 185	Acceptable	EPA 6010C 3 2007	8/10/2015	-0.670	146	11.8	AYRES_J
1085	Magnesium	mg/kg	2900	2900	1700 - 3590	Acceptable	EPA 6010C 3 2007	8/10/2015	0.732	2640	351	AYRES_J
1090	Manganese	mg/kg	304	327	231 - 387	Acceptable	EPA 6010C 3 2007	8/10/2015	-0.191	309	27.0	AYRES_J
1095	Mercury	mg/kg		12.5	6.32 - 18.3	Not Reported				12.3	1.77	
1100	Molybdenum	mg/kg	114	133	81.8 - 151	Acceptable	EPA 6010C 3 2007	8/10/2015	-0.218	116	10.7	AYRES_J
1105	Nickel	mg/kg	133	145	94.2 - 164	Acceptable	EPA 6010C 3 2007	8/10/2015	0.308	129	13.0	AYRES_J
1125	Potassium	mg/kg	2750	2560	1450 - 3360	Acceptable	EPA 6010C 3 2007	8/10/2015	1.02	2400	341	AYRES_J
1140	Selenium	mg/kg	176	193	121 - 234	Acceptable	EPA 6010C 3 2007	8/10/2015	-0.109	178	16.0	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	27.9	34.5	20.4 - 42.1	Acceptable	EPA 6010C 3 2007	8/10/2015	-0.959	31.3	3.50	AYRES_J
1155	Sodium	mg/kg	913	906	509 - 1230	Acceptable	EPA 6010C 3 2007	8/10/2015	0.500	869	88.9	AYRES_J
1160	Strontium	mg/kg	98.7	109	74.0 - 136	Acceptable	EPA 6010C 3 2007	8/10/2015	-0.587	105	11.0	AYRES_J
1165	Thallium	mg/kg	147	157	96.4 - 186	Acceptable	EPA 6010C 3 2007	8/10/2015	0.455	141	12.4	AYRES_J
1175	Tin	mg/kg	142	161	85.7 - 202	Acceptable	EPA 6010C 3 2007	8/10/2015	-0.131	144	13.9	AYRES_J
1180	Titanium	mg/kg	292	361	36.1 - 626	Acceptable	EPA 6010C 3 2007	8/10/2015	-0.229	316	104	AYRES_J
3055	Uranium	mg/kg		16.9	12.7 - 22.4	Not Reported				17.6	1.62	
1185	Vanadium	mg/kg	111	127	77.6 - 152	Acceptable	EPA 6010C 3 2007	8/10/2015	-0.298	115	12.9	AYRES_J
1190	Zinc	mg/kg	190	196	135 - 253	Acceptable	EPA 6010C 3 2007	8/10/2015	-0.206	194	18.8	AYRES_J



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SOIL Metals in Soil (cat# 620)

1000	Aluminum	mg/kg		9830	3200 - 13000	Not Reported				8080	1900	
1005	Antimony	mg/kg	69.0	245	24.5 - 310	Acceptable	EPA 6020A 1 2007	8/14/2015	-0.856	123	63.6	PETERSON_C
1010	Arsenic	mg/kg	141	180	102 - 198	Acceptable	EPA 6020A 1 2007	8/14/2015	-0.327	145	13.2	PETERSON_C
1015	Barium	mg/kg	203	225	154 - 265	Acceptable	EPA 6020A 1 2007	8/14/2015	-0.310	209	20.3	PETERSON_C
1020	Beryllium	mg/kg	98.6	103	72.5 - 122	Acceptable	EPA 6020A 1 2007	8/14/2015	0.161	97.3	8.19	PETERSON_C
1025	Boron	mg/kg		161	75.7 - 177	Not Reported				126	14.0	
1030	Cadmium	mg/kg	87.7	95.9	64.2 - 111	Acceptable	EPA 6020A 1 2007	8/14/2015	0.0197	87.6	6.79	PETERSON_C
1035	Calcium	mg/kg		6360	4180 - 7200	Not Reported				5690	472	
1040	Chromium	mg/kg	140	157	100 - 185	Acceptable	EPA 6020A 1 2007	8/14/2015	-0.217	143	12.3	PETERSON_C
1050	Cobalt	mg/kg	156	161	114 - 193	Acceptable	EPA 6020A 1 2007	8/14/2015	0.166	154	14.4	PETERSON_C
1055	Copper	mg/kg	168	193	130 - 215	Acceptable	EPA 6020A 1 2007	8/14/2015	-0.327	173	14.0	PETERSON_C
1070	Iron	mg/kg		16300	5570 - 24500	Not Reported				15000	3360	
1075	Lead	mg/kg	143	163	107 - 185	Acceptable	EPA 6020A 1 2007	8/14/2015	-0.248	146	11.8	PETERSON_C
1085	Magnesium	mg/kg		2900	1700 - 3590	Not Reported				2640	351	
1090	Manganese	mg/kg	303	327	231 - 387	Acceptable	EPA 6020A 1 2007	8/14/2015	-0.228	309	27.0	PETERSON_C
1095	Mercury	mg/kg		12.5	6.32 - 18.3	Not Reported				12.3	1.77	
1100	Molybdenum	mg/kg	122	133	81.8 - 151	Acceptable	EPA 6020A 1 2007	8/14/2015	0.529	116	10.7	PETERSON_C
1105	Nickel	mg/kg	131	145	94.2 - 164	Acceptable	EPA 6020A 1 2007	8/14/2015	0.155	129	13.0	PETERSON_C
1125	Potassium	mg/kg		2560	1450 - 3360	Not Reported				2400	341	
1140	Selenium	mg/kg	172	193	121 - 234	Acceptable	EPA 6020A 1 2007	8/14/2015	-0.360	178	16.0	PETERSON_C



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

1150	Silver	mg/kg	28.1	34.5	20.4 - 42.1	Acceptable	EPA 6020A 1 2007	8/14/2015	-0.902	31.3	3.50	PETERSON_C
1155	Sodium	mg/kg		906	509 - 1230	Not Reported				869	88.9	
1160	Strontium	mg/kg		109	74.0 - 136	Not Reported				105	11.0	
1165	Thallium	mg/kg	142	157	96.4 - 186	Acceptable	EPA 6020A 1 2007	8/14/2015	0.0521	141	12.4	PETERSON_C
1175	Tin	mg/kg		161	85.7 - 202	Not Reported				144	13.9	
1180	Titanium	mg/kg		361	36.1 - 626	Not Reported				316	104	
3055	Uranium	mg/kg		16.9	12.7 - 22.4	Not Reported				17.6	1.62	
1185	Vanadium	mg/kg		127	77.6 - 152	Not Reported				115	12.9	
1190	Zinc	mg/kg	202	196	135 - 253	Acceptable	EPA 6020A 1 2007	8/14/2015	0.433	194	18.8	PETERSON_C





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SOIL Metals in Soil (cat# 620)

1000	Aluminum	mg/kg		9830	3200 - 13000	Not Reported				8080	1900	
1005	Antimony	mg/kg		245	24.5 - 310	Not Reported				123	63.6	
1010	Arsenic	mg/kg		180	102 - 198	Not Reported				145	13.2	
1015	Barium	mg/kg		225	154 - 265	Not Reported				209	20.3	
1020	Beryllium	mg/kg		103	72.5 - 122	Not Reported				97.3	8.19	
1025	Boron	mg/kg		161	75.7 - 177	Not Reported				126	14.0	
1030	Cadmium	mg/kg		95.9	64.2 - 111	Not Reported				87.6	6.79	
1035	Calcium	mg/kg		6360	4180 - 7200	Not Reported				5690	472	
1040	Chromium	mg/kg		157	100 - 185	Not Reported				143	12.3	
1050	Cobalt	mg/kg		161	114 - 193	Not Reported				154	14.4	
1055	Copper	mg/kg		193	130 - 215	Not Reported				173	14.0	
1070	Iron	mg/kg		16300	5570 - 24500	Not Reported				15000	3360	
1075	Lead	mg/kg		163	107 - 185	Not Reported				146	11.8	
1085	Magnesium	mg/kg		2900	1700 - 3590	Not Reported				2640	351	
1090	Manganese	mg/kg		327	231 - 387	Not Reported				309	27.0	
1095	Mercury	mg/kg	10.7	12.5	6.32 - 18.3	Acceptable	EPA 7473 1998	8/3/2015	-0.906	12.3	1.77	TOPOLSKI_B
1100	Molybdenum	mg/kg		133	81.8 - 151	Not Reported				116	10.7	
1105	Nickel	mg/kg		145	94.2 - 164	Not Reported				129	13.0	
1125	Potassium	mg/kg		2560	1450 - 3360	Not Reported				2400	341	
1140	Selenium	mg/kg		193	121 - 234	Not Reported				178	16.0	



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		34.5	20.4 - 42.1	Not Reported				31.3	3.50	
1155	Sodium	mg/kg		906	509 - 1230	Not Reported				869	88.9	
1160	Strontium	mg/kg		109	74.0 - 136	Not Reported				105	11.0	
1165	Thallium	mg/kg		157	96.4 - 186	Not Reported				141	12.4	
1175	Tin	mg/kg		161	85.7 - 202	Not Reported				144	13.9	
1180	Titanium	mg/kg		361	36.1 - 626	Not Reported				316	104	
3055	Uranium	mg/kg		16.9	12.7 - 22.4	Not Reported				17.6	1.62	
1185	Vanadium	mg/kg		127	77.6 - 152	Not Reported				115	12.9	
1190	Zinc	mg/kg		196	135 - 253	Not Reported				194	18.8	



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1000	Aluminum	mg/kg		9830	3200 - 13000	Not Reported				8080	1900	
1005	Antimony	mg/kg		245	24.5 - 310	Not Reported				123	63.6	
1010	Arsenic	mg/kg		180	102 - 198	Not Reported				145	13.2	
1015	Barium	mg/kg		225	154 - 265	Not Reported				209	20.3	
1020	Beryllium	mg/kg		103	72.5 - 122	Not Reported				97.3	8.19	
1025	Boron	mg/kg		161	75.7 - 177	Not Reported				126	14.0	
1030	Cadmium	mg/kg		95.9	64.2 - 111	Not Reported				87.6	6.79	
1035	Calcium	mg/kg		6360	4180 - 7200	Not Reported				5690	472	
1040	Chromium	mg/kg		157	100 - 185	Not Reported				143	12.3	
1050	Cobalt	mg/kg		161	114 - 193	Not Reported				154	14.4	
1055	Copper	mg/kg		193	130 - 215	Not Reported				173	14.0	
1070	Iron	mg/kg		16300	5570 - 24500	Not Reported				15000	3360	
1075	Lead	mg/kg		163	107 - 185	Not Reported				146	11.8	
1085	Magnesium	mg/kg		2900	1700 - 3590	Not Reported				2640	351	
1090	Manganese	mg/kg		327	231 - 387	Not Reported				309	27.0	
1095	Mercury	mg/kg	10.5	12.5	6.32 - 18.3	Acceptable	DEPSOP:HG-008-1	7/31/2015	-1.02	12.3	1.77	TOPOLSKI_B
1100	Molybdenum	mg/kg		133	81.8 - 151	Not Reported				116	10.7	
1105	Nickel	mg/kg		145	94.2 - 164	Not Reported				129	13.0	
1125	Potassium	mg/kg		2560	1450 - 3360	Not Reported				2400	341	
1140	Selenium	mg/kg		193	121 - 234	Not Reported				178	16.0	



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SOIL-91 2009 TNI Evaluation Final Complete Report

Thekkekalathil Madhavan Chandrasekhar
QA Officer
State of Florida DEP Chemistry Laboratory
2600 Blair Stone Road
Room A416D, MS 6512
Tallahassee, FL 32399-2400
(850) 245-8075

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

1150	Silver	mg/kg		34.5	20.4 - 42.1	Not Reported				31.3	3.50	
1155	Sodium	mg/kg		906	509 - 1230	Not Reported				869	88.9	
1160	Strontium	mg/kg		109	74.0 - 136	Not Reported				105	11.0	
1165	Thallium	mg/kg		157	96.4 - 186	Not Reported				141	12.4	
1175	Tin	mg/kg		161	85.7 - 202	Not Reported				144	13.9	
1180	Titanium	mg/kg		361	36.1 - 626	Not Reported				316	104	
3055	Uranium	mg/kg		16.9	12.7 - 22.4	Not Reported				17.6	1.62	
1185	Vanadium	mg/kg		127	77.6 - 152	Not Reported				115	12.9	
1190	Zinc	mg/kg		196	135 - 253	Not Reported				194	18.8	

SOIL Nutrients in Soil (cat# 869)

1515	Ammonia as N	mg/kg		354	122 - 541	Not Reported				331	50.7	
1795	Total Kjeldahl Nitrogen	mg/kg		804	455 - 1300	Not Reported				876	107	
2040	Total Organic Carbon (TOC)	mg/kg	5860	5830	2190 - 9480	Acceptable	DEPSOP:NU-076-1	8/6/2015	0.0206	5830	1210	HUA_P
1910	Total Phosphorus	mg/kg		882	212 - 1580	Not Reported				895	144	



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ERA Customer Number: **S744803**

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

Organic Results



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SOIL Volatiles in Soil (cat# 623)

4315	Acetone	µg/kg	230	292	29.2 - 483	Acceptable	EPA 8260C 2006	8/25/2015	0.118	223	63.4	BOOESHAG_F
4320	Acetonitrile	µg/kg		344	0.00 - 731	Not Reported				344	129	
4325	Acrolein	µg/kg		< 20.0	0.00 - 20.0	Not Reported						
4375	Benzene	µg/kg	< 2.00	< 10.0	0.00 - 10.0	Acceptable	EPA 8260C 2006	8/25/2015				BOOESHAG_F
4385	Bromobenzene	µg/kg		< 40.0	0.00 - 40.0	Not Reported						
4390	Bromochloromethane	µg/kg		< 20.0	0.00 - 20.0	Not Reported						
4395	Bromodichloromethane	µg/kg	114	123	80.2 - 170	Acceptable	EPA 8260C 2006	8/25/2015	-0.681	125	16.1	BOOESHAG_F
4400	Bromoform	µg/kg	75.0	71.9	36.0 - 107	Acceptable	EPA 8260C 2006	8/25/2015	0.0761	74.1	11.9	BOOESHAG_F
4950	Bromomethane	µg/kg	< 2.00	< 80.0	0.00 - 80.0	Acceptable	EPA 8260C 2006	8/25/2015				BOOESHAG_F
4410	2-Butanone (MEK)	µg/kg	113	152	30.9 - 245	Acceptable	EPA 8260C 2006	8/25/2015	-0.443	128	33.5	BOOESHAG_F
4435	n-Butylbenzene	µg/kg		< 20.0	0.00 - 20.0	Not Reported						
4440	sec-Butylbenzene	µg/kg		< 20.0	0.00 - 20.0	Not Reported						
4445	tert-Butylbenzene	µg/kg		< 20.0	0.00 - 20.0	Not Reported						
5000	tert-Butyl methyl ether (MTBE)	µg/kg	< 2.00	< 7.80	0.00 - 7.80	Acceptable	EPA 8260C 2006	8/25/2015				BOOESHAG_F
4450	Carbon disulfide	µg/kg	< 2.00	< 20.0	0.00 - 20.0	Acceptable	EPA 8260C 2006	8/25/2015				BOOESHAG_F
4455	Carbon tetrachloride	µg/kg	< 2.00	< 9.90	0.00 - 9.90	Acceptable	EPA 8260C 2006	8/25/2015				BOOESHAG_F
4475	Chlorobenzene	µg/kg	140	155	87.8 - 215	Acceptable	EPA 8260C 2006	8/25/2015	-0.744	156	22.0	BOOESHAG_F
4575	Chlorodibromomethane	µg/kg	161	167	103 - 229	Acceptable	EPA 8260C 2006	8/25/2015	-0.437	170	20.1	BOOESHAG_F
4485	Chloroethane	µg/kg	< 2.00	< 80.0	0.00 - 80.0	Acceptable	EPA 8260C 2006	8/25/2015				BOOESHAG_F
4500	2-Chloroethylvinylether	µg/kg		< 20.0	0.00 - 20.0	Not Reported						



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

4505	Chloroform	µg/kg	136	149	90.5 - 207	Acceptable	EPA 8260C 2006	8/25/2015	-0.545	146	19.1	BOOESHAG_F
4960	Chloromethane	µg/kg	< 2.00	< 80.0	0.00 - 80.0	Acceptable	EPA 8260C 2006	8/25/2015				BOOESHAG_F
4535	2-Chlorotoluene	µg/kg	< 2.00	< 20.0	0.00 - 20.0	Acceptable	EPA 8260C 2006	8/25/2015				BOOESHAG_F
4540	4-Chlorotoluene	µg/kg		< 20.0	0.00 - 20.0	Not Reported						
4570	1,2-Dibromo-3-chloropropane (DBCP)	µg/kg		77.2	30.8 - 124	Not Reported				75.8	14.0	
4585	1,2-Dibromoethane (EDB)	µg/kg		85.7	48.2 - 119	Not Reported				85.2	9.67	
4595	Dibromomethane	µg/kg		< 20.0	0.00 - 20.0	Not Reported						
4610	1,2-Dichlorobenzene	µg/kg	30.7	35.3	16.4 - 50.6	Acceptable	EPA 8260C 2006	8/25/2015	-0.633	34.3	5.65	BOOESHAG_F
4615	1,3-Dichlorobenzene	µg/kg	< 2.00	< 5.10	0.00 - 5.10	Acceptable	EPA 8260C 2006	8/25/2015				BOOESHAG_F
4620	1,4-Dichlorobenzene	µg/kg	< 2.00	< 7.00	0.00 - 7.00	Acceptable	EPA 8260C 2006	8/25/2015				BOOESHAG_F
4625	Dichlorodifluoromethane (Freon 12)	µg/kg	< 2.00	< 80.0	0.00 - 80.0	Acceptable	EPA 8260C 2006	8/25/2015				BOOESHAG_F
4630	1,1-Dichloroethane	µg/kg	86.0	92.6	52.3 - 134	Acceptable	EPA 8260C 2006	8/25/2015	-0.560	92.0	10.6	BOOESHAG_F
4635	1,2-Dichloroethane	µg/kg	171	176	102 - 243	Acceptable	EPA 8260C 2006	8/25/2015	-0.147	174	21.2	BOOESHAG_F
4640	1,1-Dichloroethylene	µg/kg	< 2.00	< 13.0	0.00 - 13.0	Acceptable	EPA 8260C 2006	8/25/2015				BOOESHAG_F
4645	cis-1,2-Dichloroethylene	µg/kg	74.2	82.1	49.7 - 116	Acceptable	EPA 8260C 2006	8/25/2015	-0.712	81.2	9.88	BOOESHAG_F
4700	trans-1,2-Dichloroethylene	µg/kg	< 2.00	< 23.0	0.00 - 23.0	Acceptable	EPA 8260C 2006	8/25/2015				BOOESHAG_F
4655	1,2-Dichloropropane	µg/kg	106	116	68.0 - 156	Acceptable	EPA 8260C 2006	8/25/2015	-0.973	119	13.5	BOOESHAG_F
4660	1,3-Dichloropropane	µg/kg		< 20.0	0.00 - 20.0	Not Reported						
4665	2,2-Dichloropropane	µg/kg		< 20.0	0.00 - 20.0	Not Reported						
4670	1,1-Dichloropropene	µg/kg		< 20.0	0.00 - 20.0	Not Reported						



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

4680	cis-1,3-Dichloropropylene	µg/kg	< 2.00	< 40.0	0.00 - 40.0	Acceptable	EPA 8260C 2006	8/25/2015				BOOESHAG_F
4685	trans-1,3-Dichloropropylene	µg/kg	< 2.00	< 40.0	0.00 - 40.0	Acceptable	EPA 8260C 2006	8/25/2015				BOOESHAG_F
4765	Ethylbenzene	µg/kg	151	160	89.8 - 227	Acceptable	EPA 8260C 2006	8/25/2015	-0.473	161	22.0	BOOESHAG_F
4835	Hexachlorobutadiene	µg/kg		< 20.0	0.00 - 20.0	Not Reported						
4840	Hexachloroethane	µg/kg		< 20.0	0.00 - 20.0	Not Reported						
4860	2-Hexanone	µg/kg	130	136	47.8 - 211	Acceptable	EPA 8260C 2006	8/25/2015	0.0907	128	20.8	BOOESHAG_F
4900	Isopropylbenzene	µg/kg		< 40.0	0.00 - 40.0	Not Reported						
4910	4-Isopropyltoluene	µg/kg		< 20.0	0.00 - 20.0	Not Reported						
4975	Methylene chloride	µg/kg	137	149	69.7 - 215	Acceptable	EPA 8260C 2006	8/25/2015	-0.422	146	20.6	BOOESHAG_F
4995	4-Methyl-2-pentanone (MIBK)	µg/kg	118	130	55.1 - 192	Acceptable	EPA 8260C 2006	8/25/2015	-0.622	128	16.4	BOOESHAG_F
5005	Naphthalene	µg/kg		< 6.00	0.00 - 6.00	Not Reported						
5015	Nitrobenzene	µg/kg		< 20.0	0.00 - 20.0	Not Reported						
5090	n-Propylbenzene	µg/kg		< 20.0	0.00 - 20.0	Not Reported						
5100	Styrene	µg/kg	120	138	92.3 - 192	Acceptable	EPA 8260C 2006	8/25/2015	-0.798	136	20.5	BOOESHAG_F
5105	1,1,1,2-Tetrachloroethane	µg/kg		135	88.1 - 183	Not Reported				139	17.1	
5110	1,1,2,2-Tetrachloroethane	µg/kg	< 2.00	< 8.90	0.00 - 8.90	Acceptable	EPA 8260C 2006	8/25/2015				BOOESHAG_F
5115	Tetrachloroethylene	µg/kg	63.4	73.4	32.7 - 106	Acceptable	EPA 8260C 2006	8/25/2015	-0.627	69.4	9.63	BOOESHAG_F
5140	Toluene	µg/kg	< 2.00	< 11.0	0.00 - 11.0	Acceptable	EPA 8260C 2006	8/25/2015				BOOESHAG_F
5150	1,2,3-Trichlorobenzene	µg/kg		< 20.0	0.00 - 20.0	Not Reported						
5155	1,2,4-Trichlorobenzene	µg/kg		173	69.2 - 277	Not Reported				147	44.4	



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

5160	1,1,1-Trichloroethane	µg/kg	117	125	71.0 - 178	Acceptable	EPA 8260C 2006	8/25/2015	-0.0829	118	17.9	BOOESHAG_F
5165	1,1,2-Trichloroethane	µg/kg	35.1	37.8	23.2 - 54.7	Acceptable	EPA 8260C 2006	8/25/2015	-0.525	37.5	4.60	BOOESHAG_F
5170	Trichloroethylene	µg/kg	25.1	34.3	17.1 - 49.1	Acceptable	EPA 8260C 2006	8/25/2015	-2.06	33.7	4.19	BOOESHAG_F
5175	Trichlorofluoromethane	µg/kg	< 2.00	< 80.0	0.00 - 80.0	Acceptable	EPA 8260C 2006	8/25/2015				BOOESHAG_F
5180	1,2,3-Trichloropropane (TCP)	µg/kg		< 8.30	0.00 - 8.30	Not Reported						
5210	1,2,4-Trimethylbenzene	µg/kg		< 20.0	0.00 - 20.0	Not Reported						
5215	1,3,5-Trimethylbenzene	µg/kg		< 20.0	0.00 - 20.0	Not Reported						
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	8/25/2015				BOOESHAG_F
5240	m&p-Xylene	µg/kg	163	173	84.7 - 255	Acceptable	EPA 8260C 2006	8/25/2015	-0.428	174	25.1	BOOESHAG_F
5250	o-Xylene	µg/kg	70.1	77.1	36.3 - 116	Acceptable	EPA 8260C 2006	8/25/2015	-0.689	77.0	10.0	BOOESHAG_F
5260	Xylenes, total	µg/kg	233	250	123 - 367	Acceptable	EPA 8260C 2006	8/25/2015	-0.531	251	33.5	BOOESHAG_F



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

5500	Acenaphthene	µg/kg	7410	8770	2380 - 10200	Acceptable	EPA 8270D 2007	8/25/2015	0.715	6280	1580	GHAFFARI_M
5505	Acenaphthylene	µg/kg	< 6.70	< 100	0.00 - 100	Acceptable	EPA 8270D 2007	8/25/2015				GHAFFARI_M
5145	2-Amino-1-methylbenzene (o-toluidine)	µg/kg	< 180	< 1000	0.00 - 1000	Acceptable	EPA 8270D 2007	8/25/2015				GHAFFARI_M
5545	Aniline	µg/kg	< 360	< 1000	0.00 - 1000	Acceptable	EPA 8270D 2007	8/25/2015				GHAFFARI_M
5555	Anthracene	µg/kg	1720	2280	470 - 3000	Acceptable	EPA 8270D 2007	8/25/2015	-0.0398	1730	354	GHAFFARI_M
5595	Benzidine	µg/kg	< 1300	< 1000	0.00 - 1000	Acceptable	EPA 8270D 2007	8/25/2015				GHAFFARI_M
5610	Benzoic acid	µg/kg		< 1000	0.00 - 1000	Not Reported						
5575	Benzo(a)anthracene	µg/kg	1700	2000	590 - 2680	Acceptable	EPA 8270D 2007	8/25/2015	0.209	1640	307	GHAFFARI_M
5585	Benzo(b)fluoranthene	µg/kg	1600	1850	425 - 2650	Acceptable	EPA 8270D 2007	8/25/2015	0.223	1540	283	GHAFFARI_M
5600	Benzo(k)fluoranthene	µg/kg	1710	1820	507 - 2530	Acceptable	EPA 8270D 2007	8/25/2015	0.691	1520	277	GHAFFARI_M
5590	Benzo(g,h,i)perylene	µg/kg	8850	9430	2040 - 11600	Acceptable	EPA 8270D 2007	8/25/2015	1.32	6830	1530	GHAFFARI_M
5580	Benzo(a)pyrene	µg/kg	< 6.70	< 100	0.00 - 100	Acceptable	EPA 8270D 2007	8/25/2015				GHAFFARI_M
5630	Benzyl alcohol	µg/kg	< 60.0	< 1000	0.00 - 1000	Acceptable	EPA 8270D 2007	8/25/2015				GHAFFARI_M
5760	bis(2-Chloroethoxy)methane	µg/kg	< 60.0	< 150	0.00 - 150	Acceptable	EPA 8270D 2007	8/25/2015				GHAFFARI_M
5765	bis(2-Chloroethyl)ether	µg/kg	< 60.0	< 150	0.00 - 150	Acceptable	EPA 8270D 2007	8/25/2015				GHAFFARI_M
5780	bis(2-Chloroisopropyl)ether	µg/kg	< 60.0	< 150	0.00 - 150	Acceptable	EPA 8270D 2007	8/25/2015				GHAFFARI_M
5660	4-Bromophenyl-phenylether	µg/kg	10600	9480	2930 - 12100	Acceptable	EPA 8270D 2007	8/25/2015	1.93	7510	1600	GHAFFARI_M
5670	Butylbenzylphthalate	µg/kg	5020	5440	1250 - 7720	Acceptable	EPA 8270D 2007	8/25/2015	0.612	4480	874	GHAFFARI_M
5680	Carbazole	µg/kg	< 60.0	< 1000	0.00 - 1000	Acceptable	EPA 8270D 2007	8/25/2015				GHAFFARI_M
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	11700	12400	3370 - 13600	Acceptable	EPA 8270D 2007	8/25/2015	1.84	8290	1850	GHAFFARI_M
5790	1-Chloronaphthalene	µg/kg		< 1000	0.00 - 1000	Not Reported						
5795	2-Chloronaphthalene	µg/kg	2220	2980	561 - 3560	Acceptable	EPA 8270D 2007	8/25/2015	0.302	2060	523	GHAFFARI_M
5800	2-Chlorophenol	µg/kg	4350	5470	661 - 6020	Acceptable	EPA 8270D 2007	8/25/2015	1.35	3170	877	GHAFFARI_M
5825	4-Chlorophenyl-phenylether	µg/kg	8180	8700	2260 - 10500	Acceptable	EPA 8270D 2007	8/25/2015	1.22	6370	1490	GHAFFARI_M
5855	Chrysene	µg/kg	1790	2070	642 - 2940	Acceptable	EPA 8270D 2007	8/25/2015	0.00129	1790	319	GHAFFARI_M
5895	Dibenz(a,h)anthracene	µg/kg	3070	3370	756 - 4490	Acceptable	EPA 8270D 2007	8/25/2015	0.833	2620	536	GHAFFARI_M
5905	Dibenzofuran	µg/kg	5000	5250	1370 - 6330	Acceptable	EPA 8270D 2007	8/25/2015	1.35	3850	851	GHAFFARI_M
5925	Di-n-butylphthalate	µg/kg	< 360	< 150	0.00 - 150	Acceptable	EPA 8270D 2007	8/25/2015				GHAFFARI_M
4610	1,2-Dichlorobenzene	µg/kg		3790	379 - 4170	Not Reported				1960	669	
4615	1,3-Dichlorobenzene	µg/kg		< 150	0.00 - 150	Not Reported						
4620	1,4-Dichlorobenzene	µg/kg		5190	519 - 5710	Not Reported				2530	807	
5945	3,3'-Dichlorobenzidine	µg/kg	< 3600	< 1000	0.00 - 1000	Acceptable	EPA 8270D 2007	8/25/2015				GHAFFARI_M
6000	2,4-Dichlorophenol	µg/kg	4420	5050	649 - 5700	Acceptable	EPA 8270D 2007	8/25/2015	1.41	3180	880	GHAFFARI_M
6005	2,6-Dichlorophenol	µg/kg	< 60.0	< 1500	0.00 - 1500	Acceptable	EPA 8270D 2007	8/25/2015				GHAFFARI_M
6070	Diethylphthalate	µg/kg	6600	6960	1500 - 9350	Acceptable	EPA 8270D 2007	8/25/2015	1.27	5430	922	GHAFFARI_M
6130	2,4-Dimethylphenol	µg/kg	< 360	< 3000	0.00 - 3000	Acceptable	EPA 8270D 2007	8/25/2015				GHAFFARI_M
6135	Dimethylphthalate	µg/kg	6420	6870	1900 - 8510	Acceptable	EPA 8270D 2007	8/25/2015	1.18	5200	1030	GHAFFARI_M
6175	2,4-Dinitrophenol	µg/kg	< 360	< 3000	0.00 - 3000	Acceptable	EPA 8270D 2007	8/25/2015				GHAFFARI_M
6185	2,4-Dinitrotoluene	µg/kg	< 60.0	< 150	0.00 - 150	Acceptable	EPA 8270D 2007	8/25/2015				GHAFFARI_M



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Thekkekalathil Madhavan Chandrasekhar
QA Officer
State of Florida DEP Chemistry Laboratory
2600 Blair Stone Road
Room A416D, MS 6512
Tallahassee, FL 32399-2400
(850) 245-8075

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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 2007	8/25/2015				GHAFFARI_M
6200	Di-n-octylphthalate	µg/kg	11300	7850	1240 - 11900	Acceptable	EPA 8270D 2007	8/25/2015	3.84	6570	1230	GHAFFARI_M
6065	bis(2-Ethylhexyl)phthalate	µg/kg	5090	5230	1320 - 7520	Acceptable	EPA 8270D 2007	8/25/2015	0.876	4420	767	GHAFFARI_M
6265	Fluoranthene	µg/kg	1870	2260	731 - 3080	Acceptable	EPA 8270D 2007	8/25/2015	-0.0874	1900	381	GHAFFARI_M
6270	Fluorene	µg/kg	7760	8890	2850 - 10500	Acceptable	EPA 8270D 2007	8/25/2015	0.734	6660	1490	GHAFFARI_M
6275	Hexachlorobenzene	µg/kg	< 60.0	< 150	0.00 - 150	Acceptable	EPA 8270D 2007	8/25/2015				GHAFFARI_M
4835	Hexachlorobutadiene	µg/kg	< 180	< 150	0.00 - 150	Acceptable	EPA 8270D 2007	8/25/2015				GHAFFARI_M
6285	Hexachlorocyclopentadiene	µg/kg	< 60.0	< 1500	0.00 - 1500	Acceptable	EPA 8270D 2007	8/25/2015				GHAFFARI_M
4840	Hexachloroethane	µg/kg	2830	3810	381 - 4190	Acceptable	EPA 8270D 2007	8/25/2015	1.35	1950	655	GHAFFARI_M
6315	Indeno(1,2,3-cd)pyrene	µg/kg	3110	3090	309 - 4960	Acceptable	EPA 8270D 2007	8/25/2015	1.00	2600	512	GHAFFARI_M
6320	Isophorone	µg/kg	5500	6620	1580 - 7850	Acceptable	EPA 8270D 2007	8/25/2015	0.612	4720	1280	GHAFFARI_M
6360	4,6-Dinitro-2-methylphenol	µg/kg	< 60.0	< 3000	0.00 - 3000	Acceptable	EPA 8270D 2007	8/25/2015				GHAFFARI_M
6385	2-Methylnaphthalene	µg/kg	1920	2790	672 - 3200	Acceptable	EPA 8270D 2007	8/25/2015	-0.0302	1930	491	GHAFFARI_M
6400	2-Methylphenol	µg/kg	3130	8320	832 - 9150	Acceptable	EPA 8270D 2007	8/25/2015	0.753	2510	829	GHAFFARI_M
6410	4-Methylphenol	µg/kg	5730	9420	942 - 10400	Acceptable	EPA 8270D 2007	8/25/2015	1.27	3950	1400	GHAFFARI_M
5005	Naphthalene	µg/kg	6510	7680	1490 - 8450	Acceptable	EPA 8270D 2007	8/25/2015	1.12	4950	1400	GHAFFARI_M
6460	2-Nitroaniline	µg/kg	< 60.0	< 1000	0.00 - 1000	Acceptable	EPA 8270D 2007	8/25/2015				GHAFFARI_M
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 2007	8/25/2015				GHAFFARI_M



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

6490	2-Nitrophenol	µg/kg	7300	9030	903 - 9930	Acceptable	EPA 8270D 2007	8/25/2015	1.38	5200	1520	GHAFFARI_M
6500	4-Nitrophenol	µg/kg	4430	6120	612 - 7920	Acceptable	EPA 8270D 2007	8/25/2015	0.913	3540	973	GHAFFARI_M
6525	N-Nitrosodiethylamine	µg/kg	< 60.0	< 1000	0.00 - 1000	Acceptable	EPA 8270D 2007	8/25/2015				GHAFFARI_M
6530	N-Nitrosodimethylamine	µg/kg	< 360	< 1500	0.00 - 1500	Acceptable	EPA 8270D 2007	8/25/2015				GHAFFARI_M
6535	N-Nitrosodiphenylamine	µg/kg	< 60.0	< 1500	0.00 - 1500	Acceptable	EPA 8270D 2007	8/25/2015				GHAFFARI_M
6545	N-Nitroso-di-n-propylamine	µg/kg	6080	6590	702 - 8590	Acceptable	EPA 8270D 2007	8/25/2015	1.16	4650	1240	GHAFFARI_M
6590	Pentachlorobenzene	µg/kg	< 60.0	< 1000	0.00 - 1000	Acceptable	EPA 8270D 2007	8/25/2015				GHAFFARI_M
6605	Pentachlorophenol	µg/kg	< 60.0	< 300	0.00 - 300	Acceptable	EPA 8270D 2007	8/25/2015				GHAFFARI_M
6615	Phenanthrene	µg/kg	3240	3830	1110 - 4790	Acceptable	EPA 8270D 2007	8/25/2015	0.488	2950	594	GHAFFARI_M
6625	Phenol	µg/kg	7880	8770	877 - 9970	Acceptable	EPA 8270D 2007	8/25/2015	1.54	5370	1630	GHAFFARI_M
6665	Pyrene	µg/kg	< 6.70	< 100	0.00 - 100	Acceptable	EPA 8270D 2007	8/25/2015				GHAFFARI_M
5095	Pyridine	µg/kg	< 360	< 1000	0.00 - 1000	Acceptable	EPA 8270D 2007	8/25/2015				GHAFFARI_M
6715	1,2,4,5-Tetrachlorobenzene	µg/kg	< 60.0	< 1000	0.00 - 1000	Acceptable	EPA 8270D 2007	8/25/2015				GHAFFARI_M
6735	2,3,4,6-Tetrachlorophenol	µg/kg	< 60.0	< 1000	0.00 - 1000	Acceptable	EPA 8270D 2007	8/25/2015				GHAFFARI_M
5155	1,2,4-Trichlorobenzene	µg/kg	< 180	< 150	0.00 - 150	Acceptable	EPA 8270D 2007	8/25/2015				GHAFFARI_M
6835	2,4,5-Trichlorophenol	µg/kg	9270	9590	1450 - 11500	Acceptable	EPA 8270D 2007	8/25/2015	1.79	6480	1560	GHAFFARI_M
6840	2,4,6-Trichlorophenol	µg/kg	9220	10200	1970 - 11200	Acceptable	EPA 8270D 2007	8/25/2015	1.59	6480	1720	GHAFFARI_M



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SOIL Chlorinated Acid Herbicides in Soil (cat# 626)

8505	Acifluorfen	µg/kg	630	615	0.00 - 1140	Acceptable	EPA 8321B 1998	8/18/2015	0.927	402	245	KIM_J
8530	Bentazon	µg/kg	437	367	92.3 - 514	Acceptable	EPA 8321B 1998	8/18/2015	1.90	303	70.3	KIM_J
8540	Chloramben	µg/kg		374	0.00 - 411	Not Reported				119	79.7	
8545	2,4-D	µg/kg	677	628	62.8 - 976	Acceptable	EPA 8321B 1998	8/18/2015	1.47	389	196	KIM_J
8560	2,4-DB	µg/kg	337	356	35.6 - 512	Acceptable	EPA 8321B 1998	8/18/2015	1.18	224	95.7	KIM_J
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	335	375	37.5 - 548	Acceptable	EPA 8321B 1998	8/18/2015	0.948	236	104	KIM_J
8600	3,5-Dichlorobenzoic acid	µg/kg		799	0.00 - 1110	Not Reported				441	224	
8605	Dichlorprop	µg/kg	800	828	0.00 - 1090	Acceptable	EPA 8321B 1998	8/18/2015	1.58	480	203	KIM_J
8620	Dinoseb	µg/kg	140	138	13.8 - 249	Acceptable	EPA 8321B 1998	8/18/2015	1.11	76.0	57.6	KIM_J
7775	MCPA	µg/kg	< 13.0	< 1000	0.00 - 1000	Acceptable	EPA 8321B 1998	8/18/2015				KIM_J
7780	MCPP	µg/kg	< 13.0	< 1000	0.00 - 1000	Acceptable	EPA 8321B 1998	8/18/2015				KIM_J
6500	4-Nitrophenol	µg/kg		736	0.00 - 810	Not Reported				272	152	
6605	Pentachlorophenol	µg/kg		133	13.3 - 155	Not Reported				82.6	24.0	
8645	Picloram	µg/kg	197	439	0.00 - 576	Acceptable	EPA 8321B 1998	8/18/2015	-0.122	212	121	KIM_J
8655	2,4,5-T	µg/kg	393	471	47.1 - 634	Acceptable	EPA 8321B 1998	8/18/2015	1.01	270	121	KIM_J
8650	2,4,5-TP (Silvex)	µg/kg	124	151	15.1 - 239	Acceptable	EPA 8321B 1998	8/18/2015	0.576	96.6	47.6	KIM_J



CERTIFICATE OF EXCELLENCE

In recognition of the quality of your laboratory in proficiency testing for
SOIL-91

State of Florida DEP Chemistry Laboratory

is issued this certificate of achievement by ERA. This laboratory has been recognized as a Laboratory of Excellence for achieving 100% acceptable data in this study which included 216 participating laboratories. This achievement is a demonstration of the superior quality of the laboratory in evaluation of the standards listed below.

Base/Neutrals and Acids in Soil

Chlorinated Acid Herbicides in
Soil

Metals in Soil

Nutrients in Soil

Volatiles in Soil



Kristina Sanchez
Quality Officer