

Chemical Analysis Report

CEN-DIST-2016-04-26-01

Florida Department of Environmental Protection
Central Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
DOH Accreditation E31780

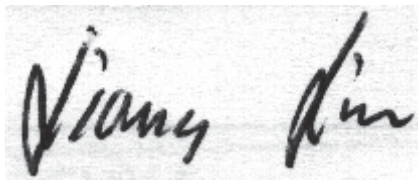
Event Description: **Reference SCI**
Request ID: **RQ-2016-03-28-39**
Customer: **CEN-DIST**
Project ID: **SCIREF**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
3319 Maguire Blvd., Suite 232
Orlando, FL 32803-3767
Attn: Michael Linger

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Certified by: Liang Lin, Environmental Administrator

Date Certified: 18-MAY-2016 15:44

A handwritten signature in black ink, appearing to read "Liang Lin", on a light-colored background.

Case Narrative

Unless otherwise noted, all samples included in this report were received in accordance with protocols referenced in Chapter 62-160, Florida Administrative Code (F.A.C.). Results published in this report pertain only to the samples as submitted to, and received by the laboratory. All times in this report are adjusted to the applicable Eastern Time Zone (EST or EDT).

Results for the following analytical groups are included in this report: Metals, Nutrients and Pesticides.

Scientific notation may be used in reporting very large or small values. Values reported using scientific notation will take the form of the following example: 1.3E+03, which is equivalent to 1.3×10^3 or 1300.

Unless otherwise noted, analytical values for soil and sediment samples are reported on a dry weight basis, and analytical values for waste and tissue samples are reported on a wet weight basis.

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited or where accreditation for that field of testing is not applicable.

Any significant anomalies or deviations from established protocols are documented in Non-Conformance Reports, which, where appropriate, are included within this analytical report. Additional comments related to specific analytical tests may be included as remarks following the analytical results for each sample. Such comments and remarks are for informational purposes only and are not intended to convey judgement about the usability of the reported data.

A quality control report on the performance of the test method for the submitted samples is included. Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published quality control acceptance limits for each analytical test. Matrix quality control results (matrix spike recoveries and matrix sample precision) pertain only to the matrix sample tested and do not necessarily reflect test method performance for other samples.

Typical matrix quality control (QC) measurements may include matrix spike recovery, matrix spike duplicate recovery, matrix spike precision and matrix sample precision. Not all matrix QC results may be available or reportable; where they are not an explanation is provided. Typical reasons for unavailable QC results include, but are not limited to, a) insufficient matrix sample to perform some or all QC measurements; b) analyte concentration in the sample replicated was too low for a meaningful measurement of precision and c) analyte concentration in the matrix sample spiked was too high (relative to the amount of analyte spiked) for a meaningful measurement of recovery. Where matrix QC results are unavailable, other method performance metrics (e.g., LCS recovery, LCS precision, surrogate recovery) may be used to assess performance of the method. Comments explaining any missing QC measurements are not intended to convey any adverse conclusions about the quality of the reported data.

Precision is reported as relative percent difference unless otherwise noted.

Quality Control codes as defined below may be used in this report to indicate results that are associated with one or more quality control elements which did not fall within established test method criteria. Such results may be qualified as estimates using a J qualifier as required by 62-160 F.A.C. Explanations are included in the report for any results that were reported as estimates for other reasons.

QC Codes used in this report may include:

- LCS – Recovery for the batch Laboratory Control Sample (LCS) was outside existing control limits;
- MS – Recovery for the batch matrix spike (MS) was outside existing control limits;
- CCV – Recovery for a continuing calibration verification (CCV) standard was outside existing control limits;
- SUR – Recovery of a surrogate (SUR) for associated analytes was outside existing control limits;
- RPD – The precision, measured as relative percent difference (RPD), of batch replicate measurements was outside existing control limits;
- RSD – The precision, measured as relative standard deviation (RSD), of batch replicate measurements was outside existing control limits;
- SMP – Sample - used precision derived from replicate analyses of a sample;

The following data qualifiers are used, where applicable, in this report as specified in 62-160 F.A.C.

- A - Value reported is the mean of two or more determinations.
- B - Results based on colony counts outside the acceptable range.
- I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
- J - Estimated value and/or the analysis did not meet established quality control criteria.
- K - Actual value is known to be less than value given.
- L - Actual value is known to be greater than value given.
- N - Presumptive evidence of presence of material.
- O - Sampled, but analysis lost or not performed.
- Q - Sample held beyond normal holding time.
- T - Value reported is less than the criterion of detection.
- U - Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
- V - Analyte was detected in both sample and method blank.
- X - Too few individuals to calculate SCI value.
- Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
- Z - Colonies were too numerous to count (TNTC).

Quality control information from overflow laboratories may not be included in this report. Please refer to the associated report from the overflow laboratory for additional information.

**Sample Location: TIGER CREEK 50YD UPSTREAM OF LAKE
 WALK AT WALKING WATERS**

Collection Date/Time: 04/25/2016 14:15

Field ID: G4CE0113

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1792704	EPA 180.1 Rev. 2.0	Turbidity	0.70		NTU	P303006	
	EPA 300.0	Bromide**	0.058		mg Br/L	P303386	
	EPA 300.0 Rev. 2.1	Chloride	15		mg Cl/L	P303387	
		Sulfate	15		mg SO4/L	P303388	
	SM 2120 B	Color (true)	100		PCU	P303014	
	SM 2320 B-97	Total Alkalinity	28		mg CaCO3/L	P303462	
	SM 2540 C-97	TDS	97		mg/L	P303445	
	SM 2540 D-97	TSS	2	U	mg/L	P303312	RPD
	SM 4500 F-C-97	Fluoride	0.054	I	mg F/L	P303278	
1792705	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P303684	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.45		mg N/L	P303944	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.014		mg N/L	P303530	
	EPA 365.1 Rev. 2.0	Total-P	0.024		mg P/L	P303701	
	SM 5310 B-00	Organic Carbon	9.4		mg C/L	P304038	
1792709	EPA 200.7 Rev. 4.4	Calcium	11.4		mg/L	P303141	
		Magnesium	6.34		mg/L	P303622	
		Potassium	5.8		mg/L	P303622	
		Sodium	5.8		mg/L	P303622	
1792710	EPA 8321B	Diuron	0.0022	I	ug/L	P303010	
		Fenuron	0.0080	U	ug/L	P303010	
		Imidacloprid	0.023		ug/L	P303010	
		Linuron	0.0040	U	ug/L	P303010	
		Sucralose**	0.010	U	ug/L	P302576	
		Acetaminophen**	0.0040	UJ	ug/L	P303010	LCS
		Carbamazepine**	4.0E-04	U	ug/L	P303010	
		Primidone**	0.0080	U	ug/L	P303010	
		Fluridone**	4.0E-04	U	ug/L	P303010	

Ref. Method and Comment:
 EPA 8321B: Refer to the narrative for an explanation of QC Codes.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P303006

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P303141

Component	Result	Code	Units
Calcium	0.075	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P303622

Component	Result	Code	Units
Magnesium	0.040	U	mg/L
Potassium	0.30	U	mg/L
Sodium	0.50	U	mg/L

Reference Method: EPA 300.0
Batch ID: P303386

Component	Result	Code	Units
Bromide	0.016	U	mg Br/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P303387

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P303388

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303684

Component	Result	Code	Units
Ammonia-N	0.002	U	mg N/L

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303944

Component	Result	Code	Units
Kjeldahl Nitrogen	0.080	U	mg N/L

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303530

Component	Result	Code	Units
NO2NO3-N	0.004	U	mg N/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P303701

Component	Result	Code	Units
Total-P	0.002	U	mg P/L

Reference Method: EPA 8321B
Batch ID: P302576

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B
Batch ID: P303010

Component	Result	Code	Units
Acetaminophen	0.0040	U	ug/L
Carbamazepine	4.0E-04	U	ug/L
Diuron	0.0020	U	ug/L
Fenuron	0.0080	U	ug/L
Fluridone	4.0E-04	U	ug/L
Imidacloprid	0.0040	U	ug/L
Linuron	0.0040	U	ug/L
Primidone	0.0080	U	ug/L

Reference Method: SM 2120 B
Batch ID: P303014

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P303462

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO3/L

Reference Method: SM 2540 C-97
Batch ID: P303445

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P303312

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P303278

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P304038

Component	Result	Code	Units
Organic Carbon	0.50	U	mg C/L

Quality Assurance Report Laboratory Control Sample Accuracy

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P303141

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	106		P	85 - 115

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P303622

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Magnesium	105		P	85 - 115
Potassium	105		P	85 - 115
Sodium	105		P	85 - 115

Reference Method: EPA 300.0
Batch ID: P303386

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Bromide	97.1		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P303387

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	97.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P303388

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	94.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303684

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.2		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303944

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	101		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303530

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	104		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P303701

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	95.1		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
 Batch ID: P302576

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	131		P	40 - 140

Reference Method: EPA 8321B
 Batch ID: P303010

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acetaminophen	13.4		F	40 - 140
Carbamazepine	110		P	40 - 140
Diuron	106		P	40 - 140
Fenuron	89.2		P	40 - 140
Fluridone	103		P	40 - 140
Imidacloprid	104		P	40 - 160
Linuron	91.2		P	40 - 140
Primidone	86.8		P	40 - 140

Reference Method: SM 2320 B-97
 Batch ID: P303462

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	95 - 105

Reference Method: SM 4500 F-C-97
 Batch ID: P303278

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.3		P	92 - 103

Reference Method: SM 5310 B-00
 Batch ID: P304038

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.3		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
 Batch ID: P303141

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1792794	Calcium	110		P	80 - 120
1793080	Calcium	105	106	P/P	80 - 120

Reference Method: EPA 200.7 Rev. 4.4
 Batch ID: P303622

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1792597	Magnesium	106		P	80 - 120
1792597	Potassium	106		P	80 - 120
1792597	Sodium	103		P	80 - 120
1792913	Magnesium	106	107	P/P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P303622

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1792913	Potassium	106	106	P/P	80 - 120
1792913	Sodium	103	104	P/P	80 - 120

Reference Method: EPA 300.0
Batch ID: P303386

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1792755	Bromide	98.4	98.6	P/P	90 - 110
1792800	Bromide	97.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P303387

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1792755	Chloride	96.7	98.1	P/P	90 - 110
1792800	Chloride	95.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P303388

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1792755	Sulfate	94.3	95.4	P/P	90 - 110
1792800	Sulfate	92.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303684

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1792657	Ammonia-N	99.5	96.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303944

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1792660	Kjeldahl Nitrogen	103	98.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303530

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1792655	NO2NO3-N	103		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P303701

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1792659	Total-P	96.9	99.7	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P302576

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P302576

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1790938	Sucralose	117	122	P/P	40 - 140

Reference Method: EPA 8321B
Batch ID: P303010

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1790938	Acetaminophen	75.2	77.2	P/P	40 - 140
1790938	Carbamazepine	112	112	P/P	40 - 140
1790938	Diuron	97.2	95.6	P/P	40 - 140
1790938	Fenuron	86.0	86.0	P/P	40 - 140
1790938	Fluridone	96.4	97.2	P/P	40 - 140
1790938	Imidacloprid	138	142	P/P	40 - 160
1790938	Linuron	83.2	89.6	P/P	40 - 140
1790938	Primidone	88.4	98.8	P/P	40 - 140

Reference Method: SM 4500 F-C-97
Batch ID: P303278

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1793381	Fluoride	97.9	98.6	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P304038

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1792759	Organic Carbon	95.9	93.8	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P303006

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1792642	Turbidity	3.11	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P303141

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1793080	Calcium	0.506	Spike	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P303622

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1792913	Magnesium	0.879	Spike	P	0 - 20
1792913	Potassium	0.492	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P303622

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1792913	Sodium	0.559	Spike	P	0 - 20

Reference Method: EPA 300.0
Batch ID: P303386

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1792755	Bromide	0.179	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P303387

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1792755	Chloride	1.28	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P303388

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1792755	Sulfate	1.05	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303684

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1792657	Ammonia-N	2.28	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303944

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1792660	Kjeldahl Nitrogen	3.70	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303530

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1792655	NO2NO3-N	0.396	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P303701

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1792659	Total-P	2.47	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P302576

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1790938	Sucralose	3.75	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P303010

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1790938	Acetaminophen	2.62	Spike	P	0 - 30
1790938	Carbamazepine	0.0	Spike	P	0 - 30
1790938	Diuron	1.66	Spike	P	0 - 30
1790938	Fenuron	0.0	Spike	P	0 - 30
1790938	Fluridone	0.692	Spike	P	0 - 30
1790938	Imidacloprid	2.57	Spike	P	0 - 30
1790938	Linuron	7.41	Spike	P	0 - 30
1790938	Primidone	11.1	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P303014

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1792648	Color (true)	0.624	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P303462

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1793381	Total Alkalinity	0.380	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P303445

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1792756	TDS	7.59	Sample	P	0 - 10

Reference Method: SM 2540 D-97
Batch ID: P303312

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1792756	TSS	11.3	Sample	F	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P303278

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1793381	Fluoride	0.509	Spike	P	0 - 3.0

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
 Batch ID: P304038

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1792759	Organic Carbon	1.90	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.
 Replicate spike precision may be reported when sample results are below quantifiable levels.

Quality Assurance Report Surrogates

Lab Sample ID: 1792710
 Field Sample ID: G4CE0113

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	59.0	P	30 - 150
EPA 8321B	Acetaminophen-d4	59.0	P	30 - 150
EPA 8321B	Carbamazepine-d10	124	P	40 - 160
EPA 8321B	Carbamazepine-d10	124	P	40 - 160
EPA 8321B	Diuron-d6	101	P	40 - 150
EPA 8321B	Diuron-d6	101	P	40 - 150
EPA 8321B	Primidone-d5	105	P	40 - 150
EPA 8321B	Primidone-d5	105	P	40 - 150
EPA 8321B	Sucralose-d6	108	P	40 - 150
EPA 8321B	Sucralose-d6	108	P	40 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0
 Run ID: A69112
 Included Lab Sample IDs: 1792704

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	101	101	P/P	95 - 105

Reference Method: SM 2120 B
 Run ID: A69115
 Included Lab Sample IDs: 1792704

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	103	102	P/P	90 - 115

Reference Method: EPA 8321B
 Run ID: A69127
 Included Lab Sample IDs: 1792710

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	95.0	93.0	P/P	70 - 150

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97
Run ID: A69187
Included Lab Sample IDs: 1792704

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.5	101	P/P	90 - 110

Reference Method: EPA 8321B
Run ID: A69200
Included Lab Sample IDs: 1792710

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetaminophen	92.8	90.8	P/P	60 - 150
Carbamazepine	121	125	P/P	60 - 150
Diuron	101	102	P/P	60 - 150
Fenuron	112	118	P/P	60 - 150
Fluridone	102	99.6	P/P	60 - 150
Imidacloprid	104	96.0	P/P	60 - 150
Linuron	123	122	P/P	60 - 150
Primidone	91.2	109	P/P	60 - 150

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A69210
Included Lab Sample IDs: 1792709

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	101	102	P/P	90 - 110

Reference Method: EPA 300.0
Run ID: A69217
Included Lab Sample IDs: 1792704

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	98.8	101	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A69217
Included Lab Sample IDs: 1792704

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.9	99.5	P/P	90 - 110
Sulfate	97.3	98.9	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A69249
Included Lab Sample IDs: 1792704

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	98.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A69271
Included Lab Sample IDs: 1792705

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	102	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A69311

Included Lab Sample IDs: 1792705

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A69361

Included Lab Sample IDs: 1792705

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.5	99.0	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A69374

Included Lab Sample IDs: 1792709

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Magnesium	102	102	P/P	90 - 110
Potassium	100	100	P/P	90 - 110
Sodium	101	99.4	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A69421

Included Lab Sample IDs: 1792705

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.7	95.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A69428

Included Lab Sample IDs: 1792705

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	92.5	97.6	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			Precision SMP	MS
			LCS				
EPA 180.1 Rev. 2.0	Turbidity					3.11	
EPA 200.7 Rev. 4.4	Calcium	106	110	105	106		0.506
	Magnesium	105	106	106	107		0.879
	Potassium	105	106	106	106		0.492
	Sodium	105	103	103	104		0.559
EPA 300.0	Bromide	97.1	98.4	98.6	97.9		0.179
EPA 300.0 Rev. 2.1	Chloride	97.3	96.7	98.1	95.2		1.28
	Sulfate	94.8	94.3	95.4	92.8		1.05
EPA 350.1 Rev. 2.0	Ammonia-N	98.2	99.5	96.9			2.28

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision	MS
						SMP	
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	103	98.4			3.70
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	104	103				0.396
EPA 365.1 Rev. 2.0	Total-P	95.1	96.9	99.7			2.47
EPA 8321B	Acetaminophen	13.4	75.2	77.2			2.62
	Carbamazepine	110	112	112			0.0
	Diuron	106	97.2	95.6			1.66
	Fenuron	89.2	86.0	86.0			0.0
	Fluridone	103	97.2	96.4			0.692
	Imidacloprid	104	138	142			2.57
	Linuron	91.2	89.6	83.2			7.41
	Primidone	86.8	88.4	98.8			11.1
	Sucralose	131	117	122			3.75
SM 2120 B	Color (true)					0.624	
SM 2320 B-97	Total Alkalinity	101				0.380	
SM 2540 C-97	TDS					7.59	
SM 2540 D-97	TSS					11.3	
SM 4500 F-C-97	Fluoride	98.3	97.9	98.6			0.509
SM 5310 B-00	Organic Carbon	97.3	95.9	93.8			1.90

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1792704
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1792709
EPA 300.0 / E31780	Bromide in aqueous matrices	1792704
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1792704
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1792704
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1792705
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1792705
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1792705
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1792705
EPA 8321B / E31780	Analysis of sucralose in water matrices by HPLC/MS/MS	1792710
EPA 8321B / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1792710
SM 2120 B / E31780	True Color measured at 450 nm	1792704
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1792704
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1792704
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1792704
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1792704
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1792705

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	04/26/2016			04/26/2016 16:05	Blanca Fach	1792704
EPA 200.7 Rev. 4.4	04/26/2016	04/28/2016	Elliott D. Healy	05/02/2016	Joshua Ayres	1792709
	04/26/2016	05/05/2016	Elliott D. Healy	05/09/2016	Joshua Ayres	1792709
EPA 300.0	04/26/2016			05/03/2016	Elisa J Lutz	1792704
EPA 300.0 Rev. 2.1	04/26/2016			05/03/2016	Elisa J Lutz	1792704
EPA 350.1 Rev. 2.0	04/26/2016			05/05/2016	Diana M. Turner	1792705
EPA 351.2 Rev. 2.0	04/26/2016			05/11/2016	Christopher Armour	1792705
EPA 353.2 Rev. 2.0	04/26/2016	05/10/2016	Sofia Elnemr	05/04/2016	Peter D. Kaus	1792705
EPA 365.1 Rev. 2.0	04/26/2016			05/09/2016	Lipi Saha	1792705
EPA 8321B	04/26/2016	05/06/2016	Vijayalakshmi Reddy	04/26/2016	Mohammad Ghaffari	1792710
	04/26/2016	04/26/2016	Hoor Shaik	04/28/2016	Juyoung Kim	1792710
	04/26/2016	04/26/2016	Hoor Shaik	04/26/2016 16:44	Chrisoulla Rakowski	1792704
SM 2120 B	04/26/2016			05/03/2016	Dale L. Simmons	1792704
SM 2320 B-97	04/26/2016			04/27/2016	Yijie Li	1792704
SM 2540 C-97	04/26/2016			04/27/2016	Yijie Li	1792704
SM 2540 D-97	04/26/2016			04/30/2016	Dale L. Simmons	1792704
SM 4500 F-C-97	04/26/2016			05/11/2016	Diana M. Turner	1792705
SM 5310 B-00	04/26/2016					