

Chemical Analysis Report

SW-DIST-2016-05-25-01

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

Event Description: **Lil Manatee Ref**
Request ID: **RQ-2016-05-23-49**
Customer: **SW-DIST**
Project ID: **SCIREF**

Send Reports to:
FL Dept. of Environmental Protection
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13051 N. Telecom Parkway
Temple Terrace, FL 33637-0926
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Certified by: Liang Lin, Environmental Administrator

Date Certified: 16-JUN-2016 14:54

A handwritten signature in black ink, appearing to read "Liang Lin", is shown 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: LITTLE MANATTE R. REF SITE

Collection Date/Time: 05/24/2016 12:00

Field ID: LTMANSFREF

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1801831	EPA 180.1 Rev. 2.0	Turbidity	2.0		NTU	P305037	
	EPA 300.0	Bromide**	0.16		mg Br/L	P305180	
	EPA 300.0 Rev. 2.1	Chloride	20		mg Cl/L	P305175	
		Sulfate	77		mg SO4/L	P305179	
	SM 2120 B	Color (true)	68		PCU	P305062	
	SM 2320 B-97	Total Alkalinity	24		mg CaCO3/L	P305452	
	SM 2540 C-97	TDS	220		mg/L	P305630	
	SM 2540 D-97	TSS	4	I	mg/L	P305821	RPD
	SM 4500 F-C-97	Fluoride	0.27		mg F/L	P305459	
1801832	EPA 350.1 Rev. 2.0	Ammonia-N	0.025		mg N/L	P305502	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.46		mg N/L	P305586	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.56		mg N/L	P305108	
	EPA 365.1 Rev. 2.0	Total-P	0.28		mg P/L	P305620	
	SM 5310 B-00	Organic Carbon	9.8		mg C/L	P305778	
1801848	EPA 200.7 Rev. 4.4	Calcium	24.6		mg/L	P305130	
		Magnesium	12.4		mg/L	P305130	
		Potassium	7.8		mg/L	P305130	
		Sodium	8.7		mg/L	P305130	
1801849	EPA 8321B	Diuron	0.039		ug/L	P304884	
		Fenuron	0.0080	U	ug/L	P304884	
		Imidacloprid	0.31		ug/L	P304884	
		Linuron	0.0040	U	ug/L	P304884	
		Sucralose**	0.010	U	ug/L	P304884	
		Acetaminophen**	0.0040	U	ug/L	P304884	
		Carbamazepine**	4.0E-04	U	ug/L	P304884	
		Primidone**	0.0080	U	ug/L	P304884	
		Fluridone**	4.0E-04	U	ug/L	P304884	

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P305037

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P305130

Component	Result	Code	Units
Calcium	0.075	U	mg/L
Magnesium	0.040	U	mg/L
Potassium	0.30	U	mg/L
Sodium	0.50	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0
Batch ID: P305180

Component	Result	Code	Units
Bromide	0.016	U	mg Br/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305175

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305179

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P305502

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305586

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P305108

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P305620

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

Reference Method: EPA 8321B
Batch ID: P304884

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
Sucralose	0.010	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2120 B
Batch ID: P305062

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P305452

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

Reference Method: SM 2540 C-97
Batch ID: P305630

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P305821

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P305459

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P305778

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P305130

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	100		P	85 - 115
Magnesium	100		P	85 - 115
Potassium	101		P	85 - 115
Sodium	101		P	85 - 115

Reference Method: EPA 300.0
Batch ID: P305180

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305175

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	99.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305179

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	99.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P305502

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305586

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	97.2		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P305108

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P305620

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	103		P	90 - 110

Reference Method: EPA 8321B
Batch ID: P304884

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acetaminophen	120		P	40 - 140
Carbamazepine	103		P	40 - 140
Diuron	107		P	40 - 140
Fenuron	94.8		P	40 - 140
Fluridone	104		P	40 - 140
Imidacloprid	116		P	40 - 160
Linuron	89.2		P	40 - 140
Primidone	128		P	40 - 140
Sucralose	95.4		P	40 - 140

Reference Method: SM 2320 B-97
Batch ID: P305452

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	95 - 105

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P305459

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

Reference Method: SM 5310 B-00
Batch ID: P305778

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.6		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P305130

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1801624	Calcium	97.3		P	80 - 120
1801624	Magnesium	99.0		P	80 - 120
1801624	Potassium	104		P	80 - 120
1801624	Sodium	101		P	80 - 120
1801952	Calcium	98.0	101	P/P	80 - 120
1801952	Magnesium	100	100	P/P	80 - 120
1801952	Potassium	101	102	P/P	80 - 120
1801952	Sodium	100	101	P/P	80 - 120

Reference Method: EPA 300.0
Batch ID: P305180

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1800451	Bromide	99.5	100	P/P	90 - 110
1800628	Bromide	102		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305175

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1800451	Chloride	96.5	97.4	P/P	90 - 110
1800628	Chloride	98.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305179

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1801237	Sulfate	99.0		P	90 - 110
1801238	Sulfate	100		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P305502

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1801820	Ammonia-N	98.9	101	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305586

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1801832	Kjeldahl Nitrogen	103	98.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P305108

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1801715	NO2NO3-N	98.5	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P305620

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1801832	Total-P	105	105	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P304884

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1801187	Acetaminophen	72.4	76.8	P/P	40 - 140
1801187	Carbamazepine	76.0	75.2	P/P	40 - 140
1801187	Diuron	69.2	106	P/P	40 - 140
1801187	Fenuron	70.8	74.8	P/P	40 - 140
1801187	Fluridone	93.4	101	P/P	40 - 140
1801187	Imidacloprid	122	136	P/P	40 - 160
1801187	Linuron	73.6	79.6	P/P	40 - 140
1801187	Primidone	92.0	102	P/P	40 - 140
1801187	Sucralose	56.0	54.7	P/P	40 - 140

Reference Method: SM 4500 F-C-97
Batch ID: P305459

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1801861	Fluoride	96.7	97.2	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P305778

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1801863	Organic Carbon	100	101	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P305037

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1801804	Turbidity	3.36	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P305130

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1801952	Calcium	1.50	Spike	P	0 - 20
1801952	Magnesium	0.259	Spike	P	0 - 20
1801952	Potassium	0.961	Spike	P	0 - 20
1801952	Sodium	0.590	Spike	P	0 - 20

Reference Method: EPA 300.0
Batch ID: P305180

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1800451	Bromide	0.658	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305175

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1800451	Chloride	0.588	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305179

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1801237	Sulfate	0.860	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P305502

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1801820	Ammonia-N	1.28	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305586

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1801832	Kjeldahl Nitrogen	3.00	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P305108

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1801715	NO2NO3-N	1.51	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P305620

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1801832	Total-P	0.0720	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P304884

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1801187	Acetaminophen	5.90	Spike	P	0 - 30
1801187	Carbamazepine	1.06	Spike	P	0 - 30
1801187	Diuron	12.1	Spike	P	0 - 30
1801187	Fenuron	5.49	Spike	P	0 - 30
1801187	Fluridone	7.21	Spike	P	0 - 30
1801187	Imidacloprid	4.30	Spike	P	0 - 30
1801187	Linuron	7.83	Spike	P	0 - 30
1801187	Primidone	10.3	Spike	P	0 - 30
1801187	Sucralose	2.35	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P305062

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1801819	Color (true)	0.679	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P305452

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1801861	Total Alkalinity	0.884	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P305630

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1801819	TDS	4.44	Sample	P	0 - 10

Reference Method: SM 2540 D-97
Batch ID: P305821

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1801819	TSS	10.9	Sample	F	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P305459

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1801861	Fluoride	0.492	Spike	P	0 - 3.0

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P305778

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1801863	Organic Carbon	0.0838	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: 1801849
Field Sample ID: LTMANSFREF

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	86.8	P	30 - 150
EPA 8321B	Acetaminophen-d4	86.8	P	30 - 150
EPA 8321B	Carbamazepine-d10	90.0	P	40 - 160
EPA 8321B	Carbamazepine-d10	90.0	P	40 - 160
EPA 8321B	Diuron-d6	78.6	P	40 - 150
EPA 8321B	Diuron-d6	78.6	P	40 - 150
EPA 8321B	Primidone-d5	112	P	40 - 150
EPA 8321B	Primidone-d5	112	P	40 - 150
EPA 8321B	Sucralose-d6	64.5	P	40 - 150
EPA 8321B	Sucralose-d6	64.5	P	40 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0
Run ID: A69676
Included Lab Sample IDs: 1801831

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	100	101	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A69676
Included Lab Sample IDs: 1801831

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	101	P/P	90 - 110
Sulfate	97.9	98.6	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A69695
Included Lab Sample IDs: 1801831

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

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B
Run ID: A69704
Included Lab Sample IDs: 1801831

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	96.6	95.6	P/P	90 - 115

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A69717
Included Lab Sample IDs: 1801832

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.0	99.0	P/P	90 - 110

Reference Method: EPA 8321B
Run ID: A69733
Included Lab Sample IDs: 1801849

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetaminophen	119	118	P/P	60 - 150
Carbamazepine	116	114	P/P	60 - 150
Diuron	129	116	P/P	60 - 150
Fenuron	109	111	P/P	60 - 150
Fluridone	103	108	P/P	60 - 150
Imidacloprid	119	129	P/P	60 - 150
Linuron	128	118	P/P	60 - 150
Primidone	110	129	P/P	60 - 150

Reference Method: EPA 8321B
Run ID: A69769
Included Lab Sample IDs: 1801849

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	90.8	96.6	P/P	70 - 150

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A69771
Included Lab Sample IDs: 1801848

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	97.3	97.7	P/P	90 - 110
Magnesium	97.3	97.7	P/P	90 - 110
Potassium	97.9	98.2	P/P	90 - 110
Sodium	98.4	98.8	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A69805
Included Lab Sample IDs: 1801831

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	103	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97
Run ID: A69805
Included Lab Sample IDs: 1801831

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	101	99.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A69820
Included Lab Sample IDs: 1801832

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	99.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A69899
Included Lab Sample IDs: 1801832

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.3	96.8	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A69914
Included Lab Sample IDs: 1801832

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.6	97.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A69917
Included Lab Sample IDs: 1801832

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	103	99.6	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	LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity				3.36	
EPA 200.7 Rev. 4.4	Calcium	100	97.3	98.0	101	1.50
	Magnesium	100	99.0	100	100	0.259
	Potassium	101	104	101	102	0.961
	Sodium	101	101	100	101	0.590
EPA 300.0	Bromide	101	99.5	100	102	0.658
EPA 300.0 Rev. 2.1	Chloride	99.6	96.5	97.4	98.8	0.588
	Sulfate	99.2	99.0	100		0.860
EPA 350.1 Rev. 2.0	Ammonia-N	102	98.9	101		1.28
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	97.2	103	98.8		3.00
EPA 353.2 Rev. 2.0	NO2NO3-N	102	98.5	100		1.51

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision SMP	MS
EPA 365.1 Rev. 2.0	Total-P	103	105	105			0.0720
EPA 8321B	Acetaminophen	120	72.4	76.8			5.90
	Carbamazepine	103	76.0	75.2			1.06
	Diuron	107	69.2	106			12.1
	Fenuron	94.8	70.8	74.8			5.49
	Fluridone	104	93.4	101			7.21
	Imidacloprid	116	122	136			4.30
	Linuron	89.2	73.6	79.6			7.83
	Primidone	128	92.0	102			10.3
	Sucralose	95.4	56.0	54.7			2.35
SM 2120 B	Color (true)					0.679	
SM 2320 B-97	Total Alkalinity	103				0.884	
SM 2540 C-97	TDS					4.44	
SM 2540 D-97	TSS					10.9	
SM 4500 F-C-97	Fluoride	98.3	96.7	97.2			0.492
SM 5310 B-00	Organic Carbon	99.6	100	101			0.0838

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1801831
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1801848
EPA 300.0 / E31780	Bromide in aqueous matrices	1801831
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1801831
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1801831
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1801832
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1801832
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1801832
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1801832
EPA 8321B / E31780	Analysis of sucralose in water matrices by HPLC/MS/MS	1801849
EPA 8321B / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1801849
SM 2120 B / E31780	True Color measured at 450 nm	1801831
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1801831
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1801831
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1801831
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1801831
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1801832

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	05/25/2016			05/25/2016 16:22	Sima Feizi	1801831
EPA 200.7 Rev. 4.4	05/25/2016	05/26/2016	Elliott D. Healy	05/31/2016	Joshua Ayres	1801848
EPA 300.0	05/25/2016			05/26/2016	Ping Hua	1801831
EPA 300.0 Rev. 2.1	05/25/2016			05/26/2016	Ping Hua	1801831
	05/25/2016			05/27/2016	Ping Hua	1801831
EPA 350.1 Rev. 2.0	05/25/2016			06/02/2016	Diana M. Turner	1801832
EPA 351.2 Rev. 2.0	05/25/2016	06/06/2016	Sofia Elnemr	06/07/2016	Christopher Armour	1801832
EPA 353.2 Rev. 2.0	05/25/2016			05/26/2016	Peter D. Kaus	1801832
EPA 365.1 Rev. 2.0	05/25/2016	06/06/2016	Vijayalakshmi Reddy	06/08/2016	Rochelle Y Jackson	1801832
EPA 8321B	05/25/2016	05/26/2016	Hoor Shaik	05/27/2016	Juyoung Kim	1801849
SM 2120 B	05/25/2016			05/25/2016 17:07	Chrisoulla Rakowski	1801831
SM 2320 B-97	05/25/2016			06/01/2016	Dale L. Simmons	1801831
SM 2540 C-97	05/25/2016			05/27/2016	Yijie Li	1801831
SM 2540 D-97	05/25/2016			05/27/2016	Yijie Li	1801831
SM 4500 F-C-97	05/25/2016			06/01/2016	Dale L. Simmons	1801831
SM 5310 B-00	05/25/2016			06/07/2016	Diana M. Turner	1801832