

Chemical Analysis Report

SO-DIST-2016-03-08-01

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

Event Description: **SMP: Highlands Lakes**

Request ID: **RQ-2016-03-07-23**

Customer: **SO-DIST**

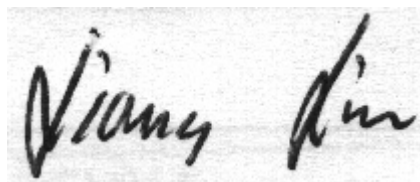
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901
Attn: Ben Paswater

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Certified by: Liang Lin, Environmental Administrator

Date Certified: 25-MAR-2016 15:35

A handwritten signature in black ink, appearing to read "Liang Lin", is written over a light gray, textured 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 group are included in this report: Nutrients.

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: Lake Adelaide Center South

Collection Date/Time: 03/07/2016 11:00

Field ID: SD030716-4

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1777690	EPA 180.1 Rev. 2.0	Turbidity	1.7		NTU	P299951	
	EPA 300.0 Rev. 2.1	Chloride	17		mg Cl/L	P300102	
		Sulfate	14		mg SO4/L	P300105	
	SM 2120 B	Color (true)	53		PCU	P299987	
	SM 2320 B-97	Total Alkalinity	6.0	A	mg CaCO3/L	P300452	
	SM 2540 C-97	TDS	75		mg/L	P300416	
	SM 2540 D-97	TSS	2	I	mg/L	P300127	
	SM 4500 F-C-97	Fluoride	0.040	I	mg F/L	P300456	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P300472	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.65		mg N/L	P300346	
1777693	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P300302	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P300404	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P300325	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	U	mg P/L	P299956	
	dissolved						

Ref. Method and Comment:

SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.

Sample Location: Red Water Lake at Center

Collection Date/Time: 03/07/2016 13:50

Field ID: SD030716-6

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1777691	EPA 180.1 Rev. 2.0	Turbidity	6.1	A	NTU	P299952	
	EPA 300.0 Rev. 2.1	Chloride	18		mg Cl/L	P300102	
		Sulfate	30		mg SO4/L	P300105	
	SM 2120 B	Color (true)	25		PCU	P299987	
	SM 2320 B-97	Total Alkalinity	21		mg CaCO3/L	P300452	
	SM 2540 C-97	TDS	96		mg/L	P300417	
	SM 2540 D-97	TSS	3	I	mg/L	P300128	
	SM 4500 F-C-97	Fluoride	0.052	I	mg F/L	P300456	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P300472	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.93		mg N/L	P300720	
1777694	EPA 353.2 Rev. 2.0	NO2NO3-N	0.79		mg N/L	P300302	
	EPA 365.1 Rev. 2.0	Total-P	0.018		mg P/L	P300444	
	SM 5310 B-00	Organic Carbon	9.3		mg C/L	P300325	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	U	mg P/L	P299956	
	dissolved						

Ref. Method and Comment:

SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.

EPA 351.2 Rev. 2.0: The result was confirmed on 03/17/2015.

Sample Location: Lake Adelaide Center South duplicate

Collection Date/Time: 03/07/2016 11:05

Field ID: SD030716-7 dup

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1777692	EPA 180.1 Rev. 2.0	Turbidity	1.6		NTU	P299952	
	EPA 300.0 Rev. 2.1	Chloride	17		mg Cl/L	P300102	

Field ID: SD030716-7 dup

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1777692	EPA 300.0 Rev. 2.1	Sulfate	14		mg SO4/L	P300105	
	SM 2120 B	Color (true)	54		PCU	P299987	
	SM 2320 B-97	Total Alkalinity	6.0		mg CaCO3/L	P300452	
	SM 2540 C-97	TDS	87		mg/L	P300417	
	SM 2540 D-97	TSS	2	I	mg/L	P300128	
	SM 4500 F-C-97	Fluoride	0.040	I	mg F/L	P300456	
1777695	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P300472	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.75		mg N/L	P300720	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P300302	
	EPA 365.1 Rev. 2.0	Total-P	0.014		mg P/L	P300444	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P300325	
1777698	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P299956	

Ref. Method and Comment:

SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.

EPA 351.2 Rev. 2.0: The result was confirmed on 03/17/2015.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P299951

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P299952

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P300102

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P300105

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P300472

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300346

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300720

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P300302

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P300404

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P300444

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299956

Component	Result	Code	Units
O-Phosphate-P	0.004	U	mg P/L

Reference Method: SM 2120 B
Batch ID: P299987

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P300452

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

Reference Method: SM 2540 C-97
Batch ID: P300416

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 C-97
Batch ID: P300417

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P300127

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P300128

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P300456

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P300325

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P300102

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	104		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P300105

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300472

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300346

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300346

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	92.1		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300720

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	100		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P300302

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	98.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P300404

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	93.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P300444

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	91.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299956

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	97.9		P	90 - 110

Reference Method: SM 2320 B-97
Batch ID: P300452

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	95 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P300456

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.6		P	94 - 108

Reference Method: SM 5310 B-00
Batch ID: P300325

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	92.4		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P300102

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1777288	Chloride	104		P	90 - 110
1777548	Chloride	103		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P300105

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1777288	Sulfate	100		P	90 - 110
1777548	Sulfate	99.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300472

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1777709	Ammonia-N	99.5	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300346

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1777551	Kjeldahl Nitrogen	91.1	98.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300720

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1777694	Kjeldahl Nitrogen	98.8	95.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P300302

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1777554	NO2NO3-N	97.5	98.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P300404

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1777551	Total-P	92.7	94.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P300444

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1777694	Total-P	91.3	95.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299956

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1777555	O-Phosphate-P	93.1	92.8	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P300456

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1777690	Fluoride	94.6	95.1	P/P	94 - 107

Reference Method: SM 5310 B-00
Batch ID: P300325

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1777554	Organic Carbon	93.2	92.0	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P299951

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777632	Turbidity	2.74	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P299952

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777691	Turbidity	0.655	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P300102

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777288	Chloride	0.0687	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P300105

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777288	Sulfate	0.916	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300472

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777709	Ammonia-N	1.32	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300346

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
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Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300346

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777551	Kjeldahl Nitrogen	3.93	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300720

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777694	Kjeldahl Nitrogen	1.89	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P300302

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777554	NO2NO3-N	0.480	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P300404

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777551	Total-P	1.63	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P300444

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777694	Total-P	4.58	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299956

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777555	O-Phosphate-P	0.300	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P299987

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777547	Color (true)	0.424	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P300452

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777690	Total Alkalinity	1.30	Sample	P	0 - 4.8

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
Batch ID: P300416

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777877	TDS	4.88	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P300417

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777708	TDS	6.76	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P300456

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777690	Fluoride	0.487	Spike	P	0 - 3.7

Reference Method: SM 5310 B-00
Batch ID: P300325

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777554	Organic Carbon	0.626	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 Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A68081
Included Lab Sample IDs: 1777690, 1777691, 1777692

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	99.5	P/P	95 - 105
Turbidity	99.5	100	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A68082
Included Lab Sample IDs: 1777696, 1777697, 1777698

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.1	97.2	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A68089
Included Lab Sample IDs: 1777690, 1777691, 1777692

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A68089

Included Lab Sample IDs: 1777690, 1777691, 1777692

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sulfate	99.1	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A68199

Included Lab Sample IDs: 1777693, 1777694, 1777695

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	100	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A68205

Included Lab Sample IDs: 1777693, 1777694, 1777695

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.6	94.2	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A68254

Included Lab Sample IDs: 1777690, 1777691, 1777692

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A68254

Included Lab Sample IDs: 1777690, 1777691, 1777692

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.5	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A68260

Included Lab Sample IDs: 1777693, 1777694, 1777695

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A68301

Included Lab Sample IDs: 1777693

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.7	98.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A68308

Included Lab Sample IDs: 1777694, 1777695

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A68316

Included Lab Sample IDs: 1777693

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.2	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A68380

Included Lab Sample IDs: 1777694, 1777695

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	94.5	96.2	P/P	90 - 110
Kjeldahl Nitrogen	97.8	94.5	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					2.74	
	Turbidity					0.655	
EPA 300.0 Rev. 2.1	Chloride	104	104	103		0.0687	
	Sulfate	101	100	99.8		0.916	
EPA 350.1 Rev. 2.0	Ammonia-N	99.5	99.5	101			1.32
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	92.1	91.1	98.4			3.93
	Kjeldahl Nitrogen	100	98.8	95.5			1.89
EPA 353.2 Rev. 2.0	NO2NO3-N	98.0	97.5	98.0			0.480
EPA 365.1 Rev. 2.0	Total-P	93.0	92.7	94.4			1.63
	Total-P	91.0	91.3	95.8			4.58
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.9	93.1	92.8			0.300
SM 2120 B	Color (true)					0.424	
SM 2320 B-97	Total Alkalinity	102				1.30	
SM 2540 C-97	TDS					4.88	
	TDS					6.76	
SM 4500 F-C-97	Fluoride	97.6	94.6	95.1			0.487
SM 5310 B-00	Organic Carbon	92.4	93.2	92.0			0.626

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1777690, 1777691, 1777692
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1777690, 1777691, 1777692
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1777690, 1777691, 1777692
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1777693, 1777694, 1777695
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1777693, 1777694, 1777695

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1777693, 1777694, 1777695
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1777693, 1777694, 1777695
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1777696, 1777697, 1777698
SM 2120 B / E31780	True Color measured at 450 nm	1777690, 1777691, 1777692
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1777690, 1777691, 1777692
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1777690, 1777691, 1777692
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1777690, 1777691, 1777692
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1777690, 1777691, 1777692
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1777693, 1777694, 1777695

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	03/08/2016			03/08/2016 15:41	Sima Feizi	1777690, 1777691, 1777692
EPA 300.0 Rev. 2.1	03/08/2016			03/10/2016	Julia Storbeck	1777690, 1777691, 1777692
EPA 350.1 Rev. 2.0	03/08/2016			03/16/2016	Diana M. Turner	1777693, 1777694, 1777695
EPA 351.2 Rev. 2.0	03/08/2016	03/15/2016	Sofia Elnemr	03/17/2016	Rochelle Y Jackson	1777693
	03/08/2016	03/21/2016	Sofia Elnemr	03/22/2016	Christopher Armour	1777694, 1777695
EPA 353.2 Rev. 2.0	03/08/2016			03/11/2016	Diana M. Turner	1777693, 1777694, 1777695
EPA 365.1 Rev. 2.0	03/08/2016	03/16/2016	Christopher Armour	03/18/2016	Lipi Saha	1777693, 1777694, 1777695
EPA 365.1 Rev. 2.0 dissolved	03/08/2016			03/08/2016 15:44	Ping Hua	1777696, 1777697
	03/08/2016			03/08/2016 15:45	Ping Hua	1777698
SM 2120 B	03/08/2016			03/08/2016 16:02	Blanca Fach	1777690
	03/08/2016			03/08/2016 16:03	Blanca Fach	1777691
	03/08/2016			03/08/2016 16:04	Blanca Fach	1777692
SM 2320 B-97	03/08/2016			03/15/2016	Dale L. Simmons	1777690, 1777691, 1777692
SM 2540 C-97	03/08/2016			03/08/2016	Yijie Li	1777690, 1777691, 1777692
SM 2540 D-97	03/08/2016			03/08/2016	Yijie Li	1777690, 1777691, 1777692
SM 4500 F-C-97	03/08/2016			03/15/2016	Dale L. Simmons	1777690, 1777691, 1777692
SM 5310 B-00	03/08/2016			03/11/2016	Sofia Elnemr	1777693, 1777694, 1777695