

Chemical Analysis Report

SW-DIST-2016-03-01-01

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

Event Description: **WBIDs 1329G, 1435, 1758F**

Request ID: **RQ-2016-02-29-25**

Customer: **SW-DIST**

Project ID: **SMP**

Send Reports to:

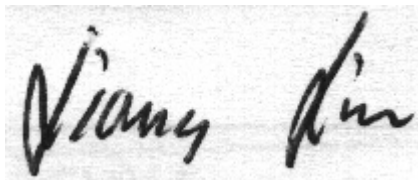
FL Dept. of Environmental Protection
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13051 N. Telecom Parkway
Temple Terrace, FL 33637-0926
Attn: Stephen Clingerman

For additional information please contact

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Certified by: Liang Lin, Environmental Administrator

Date Certified: 17-MAR-2016 11:15

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 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: G4SW0099

Collection Date/Time: 02/29/2016 10:30

Field ID: G4SW0099

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1775315	EPA 180.1 Rev. 2.0	Turbidity	1.1	A	NTU	P299551	
	EPA 300.0 Rev. 2.1	Chloride	17		mg Cl/L	P299648	
		Sulfate	0.20	U	mg SO4/L	P299650	
	SM 2120 B	Color (true)	470		PCU	P299531	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P300008	
	SM 2540 C-97	TDS	130		mg/L	P299886	
	SM 2540 D-97	TSS	2	I	mg/L	P299789	
	SM 4500 F-C-97	Fluoride	0.072	I	mg F/L	P300012	
1775322	EPA 350.1 Rev. 2.0	Ammonia-N	0.018		mg N/L	P300070	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.5		mg N/L	P299727	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P299709	
	EPA 365.1 Rev. 2.0	Total-P	0.028		mg P/L	P299745	
	SM 5310 B-00	Organic Carbon	54		mg C/L	P299695	
1775329	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.009	I	mg P/L	P299516	

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: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: G5SW0111

Collection Date/Time: 02/29/2016 12:25

Field ID: G5SW0111

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1775316	EPA 180.1 Rev. 2.0	Turbidity	1.7		NTU	P299551	
	EPA 300.0 Rev. 2.1	Chloride	22	A	mg Cl/L	P299648	
		Sulfate	7.7	A	mg SO4/L	P299650	
	SM 2120 B	Color (true)	29		PCU	P299531	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P300008	
	SM 2540 C-97	TDS	70		mg/L	P299886	
	SM 2540 D-97	TSS	2	U	mg/L	P299789	
	SM 4500 F-C-97	Fluoride	0.076	I	mg F/L	P300012	
1775323	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P300070	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.73		mg N/L	P299727	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P299709	
	EPA 365.1 Rev. 2.0	Total-P	0.034		mg P/L	P299745	
	SM 5310 B-00	Organic Carbon	8.2		mg C/L	P299695	
1775330	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P299516	

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: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: G5SW0112

Collection Date/Time: 02/29/2016 12:40

Field ID: G5SW0112

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1775317	EPA 180.1 Rev. 2.0	Turbidity	1.7		NTU	P299551	

Field ID: G5SW0112

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1775317	EPA 300.0 Rev. 2.1	Chloride	22		mg Cl/L	P299648	
		Sulfate	7.8		mg SO4/L	P299650	
	SM 2120 B	Color (true)	28		PCU	P299531	
	SM 2320 B-97	Total Alkalinity	0.74	I	mg CaCO3/L	P300008	
	SM 2540 C-97	TDS	65		mg/L	P299886	
	SM 2540 D-97	TSS	2	I	mg/L	P299789	
	SM 4500 F-C-97	Fluoride	0.076	I	mg F/L	P300012	
1775324	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P300070	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.74		mg N/L	P299727	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P299709	
	EPA 365.1 Rev. 2.0	Total-P	0.031		mg P/L	P299745	
	SM 5310 B-00	Organic Carbon	7.9		mg C/L	P299695	
1775331	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P299516	

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: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: G5SW0115

Collection Date/Time: 02/29/2016 13:20

Field ID: G5SW0115

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1775318	EPA 180.1 Rev. 2.0	Turbidity	2.1		NTU	P299551	
	EPA 300.0 Rev. 2.1	Chloride	25		mg Cl/L	P299648	
		Sulfate	12		mg SO4/L	P299650	
	SM 2120 B	Color (true)	36		PCU	P299531	
	SM 2320 B-97	Total Alkalinity	31		mg CaCO3/L	P300008	
	SM 2540 C-97	TDS	90		mg/L	P299886	
	SM 2540 D-97	TSS	2	I	mg/L	P299789	
1775325	SM 4500 F-C-97	Fluoride	0.073	I	mg F/L	P300012	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P300070	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.73		mg N/L	P299727	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P299709	
	EPA 365.1 Rev. 2.0	Total-P	0.020		mg P/L	P299745	
1775332	SM 5310 B-00	Organic Carbon	10		mg C/L	P299695	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P299516	

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: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: G5SW0116

Collection Date/Time: 02/29/2016 13:35

Field ID: G5SW0116

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1775319	EPA 180.1 Rev. 2.0	Turbidity	1.9		NTU	P299551	
	EPA 300.0 Rev. 2.1	Chloride	26		mg Cl/L	P299648	
		Sulfate	12		mg SO4/L	P299650	

Field ID: G5SW0116

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1775319	SM 2120 B	Color (true)	35		PCU	P299531	
	SM 2320 B-97	Total Alkalinity	29		mg CaCO3/L	P300008	
	SM 2540 C-97	TDS	102		mg/L	P299886	
	SM 2540 D-97	TSS	2	I	mg/L	P299789	
	SM 4500 F-C-97	Fluoride	0.073	I	mg F/L	P300012	
1775326	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P300070	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.77		mg N/L	P299727	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P299709	
	EPA 365.1 Rev. 2.0	Total-P	0.022		mg P/L	P299745	
	SM 5310 B-00	Organic Carbon	10		mg C/L	P299695	
1775333	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P299516	

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: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: G5SW0113

Collection Date/Time: 02/29/2016 14:15

Field ID: G5SW0113

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1775320	EPA 180.1 Rev. 2.0	Turbidity	2.6		NTU	P299551	
	EPA 300.0 Rev. 2.1	Chloride	25		mg Cl/L	P299648	
		Sulfate	13		mg SO4/L	P299650	
	SM 2120 B	Color (true)	38	A	PCU	P299531	
	SM 2320 B-97	Total Alkalinity	24		mg CaCO3/L	P300008	
	SM 2540 C-97	TDS	98		mg/L	P299886	
	SM 2540 D-97	TSS	3	I	mg/L	P299789	
	SM 4500 F-C-97	Fluoride	0.077	I	mg F/L	P300012	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P300070	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.83		mg N/L	P299727	
1775327	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P299709	
	EPA 365.1 Rev. 2.0	Total-P	0.022		mg P/L	P299745	
	SM 5310 B-00	Organic Carbon	10		mg C/L	P299695	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P299516	

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: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: G5SW0114

Collection Date/Time: 02/29/2016 14:35

Field ID: G5SW0114

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1775321	EPA 180.1 Rev. 2.0	Turbidity	2.5		NTU	P299551	
	EPA 300.0 Rev. 2.1	Chloride	25		mg Cl/L	P299648	
		Sulfate	13		mg SO4/L	P299650	
	SM 2120 B	Color (true)	37		PCU	P299531	
	SM 2320 B-97	Total Alkalinity	39		mg CaCO3/L	P300008	

Field ID: G5SW0114

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1775321	SM 2540 C-97	TDS	103		mg/L	P299886	
	SM 2540 D-97	TSS	2	I	mg/L	P299789	
	SM 4500 F-C-97	Fluoride	0.078	I	mg F/L	P300012	
1775328	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P300070	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.87		mg N/L	P299727	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P299709	
	EPA 365.1 Rev. 2.0	Total-P	0.022		mg P/L	P299745	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P299695	
1775335	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P299516	

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: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P299551

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P299648

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P299650

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P300070

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P299727

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

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P299709

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P299745

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299516

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

Reference Method: SM 2120 B
Batch ID: P299531

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P300008

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

Reference Method: SM 2540 C-97
Batch ID: P299886

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P299789

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P300012

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P299695

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: P299648

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P299648

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P299650

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300070

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P299727

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P299709

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	105		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P299745

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	108		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299516

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

Reference Method: SM 2320 B-97
Batch ID: P300008

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

Reference Method: SM 4500 F-C-97
Batch ID: P300012

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.8		P	94 - 108

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P299695

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 300.0 Rev. 2.1
Batch ID: P299648

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1775316	Chloride	103		P	90 - 110
1775317	Chloride	104		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P299650

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1775316	Sulfate	101		P	90 - 110
1775317	Sulfate	101		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300070

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1775324	Ammonia-N	99.5	99.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P299709

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1775041	NO2NO3-N	96.0	97.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P299745

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1775322	Total-P	106	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299516

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1775330	O-Phosphate-P	102	104	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P300012

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1775634	Fluoride	96.3	99.1	P/P	94 - 107

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P299695

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1774895	Organic Carbon	92.8	93.2	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P299551

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1775315	Turbidity	9.87	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P299648

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1775316	Chloride	0.00612	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P299650

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1775316	Sulfate	0.356	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300070

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1775324	Ammonia-N	0.0914	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P299727

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1775322	Kjeldahl Nitrogen	8.54	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P299709

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1775041	NO2NO3-N	1.46	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P299745

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1775322	Total-P	1.39	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299516

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1775330	O-Phosphate-P	1.07	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P299531

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1775320	Color (true)	1.42	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P300008

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1775634	Total Alkalinity	0.0953	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P299886

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1774946	TDS	2.23	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P300012

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1775634	Fluoride	1.93	Spike	P	0 - 3.7

Reference Method: SM 5310 B-00
Batch ID: P299695

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1774895	Organic Carbon	0.204	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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A67918

Included Lab Sample IDs: 1775329, 1775330, 1775331, 1775332, 1775333, 1775334, 1775335

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.3	99.1	P/P	90 - 110
O-Phosphate-P	99.1	99.3	P/P	90 - 110
O-Phosphate-P	99.6	99.3	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A67922

Included Lab Sample IDs: 1775315, 1775316, 1775317, 1775318, 1775319, 1775320, 1775321

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	99.4	P/P	90 - 115
Color (true)	97.0	97.1	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A67932

Included Lab Sample IDs: 1775315, 1775316, 1775317, 1775318, 1775319, 1775320, 1775321

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A67933

Included Lab Sample IDs: 1775315, 1775316, 1775317, 1775318, 1775319, 1775320, 1775321

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	102	P/P	90 - 110
Chloride	101	103	P/P	90 - 110
Sulfate	95.3	99.9	P/P	90 - 110
Sulfate	96.3	100	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A67982

Included Lab Sample IDs: 1775322, 1775323, 1775324, 1775325, 1775326, 1775327, 1775328

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.3	95.0	P/P	90 - 110
Organic Carbon	94.8	94.3	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A67984

Included Lab Sample IDs: 1775322, 1775323, 1775324, 1775325, 1775326, 1775327, 1775328

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A68042

Included Lab Sample IDs: 1775322, 1775323, 1775324, 1775325, 1775326, 1775327, 1775328

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	99.2	P/P	90 - 110
Total-P	102	100	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97

Run ID: A68093

Included Lab Sample IDs: 1775315, 1775316, 1775317, 1775318, 1775319, 1775320, 1775321

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	98.7	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A68094

Included Lab Sample IDs: 1775315, 1775316, 1775317, 1775318, 1775319, 1775320, 1775321

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.0	98.1	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A68112

Included Lab Sample IDs: 1775322, 1775323, 1775324, 1775325, 1775326, 1775327, 1775328

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	101	P/P	90 - 110
Ammonia-N	101	99.9	P/P	90 - 110
Ammonia-N	99.9	99.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A68116

Included Lab Sample IDs: 1775323, 1775324, 1775325, 1775326, 1775327, 1775328

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	106	P/P	90 - 110
Kjeldahl Nitrogen	106	107	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				9.87	
EPA 300.0 Rev. 2.1	Chloride	104	103	104	0.0061	
	Sulfate	100	101	101	0.356	
EPA 350.1 Rev. 2.0	Ammonia-N	100	99.5	99.6		0.0914
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104				8.54
EPA 353.2 Rev. 2.0	NO2NO3-N	105	96.0	97.6		1.46
EPA 365.1 Rev. 2.0	Total-P	108	106	107		1.39
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	102	104		1.07
SM 2120 B	Color (true)				1.42	
SM 2320 B-97	Total Alkalinity	101			0.0953	
SM 2540 C-97	TDS				2.23	
SM 4500 F-C-97	Fluoride	97.8	96.3	99.1		1.93
SM 5310 B-00	Organic Carbon	99.6	92.8	93.2		0.204

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1775315, 1775316, 1775317, 1775318, 1775319, 1775320, 1775321
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1775315, 1775316, 1775317, 1775318, 1775319, 1775320, 1775321
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1775315, 1775316, 1775317, 1775318, 1775319, 1775320, 1775321
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1775322, 1775323, 1775324, 1775325, 1775326, 1775327, 1775328
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1775322, 1775323, 1775324, 1775325, 1775326, 1775327, 1775328
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1775322, 1775323, 1775324, 1775325, 1775326, 1775327, 1775328
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1775322, 1775323, 1775324, 1775325, 1775326, 1775327, 1775328
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1775329, 1775330, 1775331, 1775332, 1775333, 1775334, 1775335
SM 2120 B / E31780	True Color measured at 450 nm	1775315, 1775316, 1775317, 1775318, 1775319, 1775320, 1775321
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1775315, 1775316, 1775317, 1775318, 1775319, 1775320, 1775321
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1775315, 1775316, 1775317, 1775318, 1775319, 1775320, 1775321
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1775315, 1775316, 1775317, 1775318, 1775319, 1775320, 1775321
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1775315, 1775316, 1775317, 1775318, 1775319, 1775320, 1775321
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1775322, 1775323, 1775324, 1775325, 1775326, 1775327, 1775328

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	03/01/2016			03/01/2016 15:06	Sima Feizi	1775315, 1775316, 1775317, 1775318, 1775319, 1775320, 1775321
EPA 300.0 Rev. 2.1	03/01/2016			03/02/2016	Ping Hua	1775316, 1775317
	03/01/2016			03/03/2016	Ping Hua	1775315, 1775318, 1775319, 1775320, 1775321
EPA 350.1 Rev. 2.0	03/01/2016			03/09/2016	Diana M. Turner	1775322, 1775323, 1775324, 1775325, 1775326, 1775327, 1775328
EPA 351.2 Rev. 2.0	03/01/2016	03/04/2016	Christopher Armour	03/09/2016	Rochelle Y Jackson	1775322, 1775323, 1775324, 1775325, 1775326, 1775327, 1775328
EPA 353.2 Rev. 2.0	03/01/2016			03/03/2016	Peter D. Kaus	1775322, 1775323, 1775324, 1775325, 1775326, 1775327, 1775328
EPA 365.1 Rev. 2.0	03/01/2016	03/04/2016	Christopher Armour	03/07/2016	Lipi Saha	1775322, 1775323, 1775324, 1775325, 1775326, 1775327, 1775328
EPA 365.1 Rev. 2.0 dissolved	03/01/2016			03/01/2016 13:50	Julia Storbeck	1775330
	03/01/2016			03/01/2016 14:19	Julia Storbeck	1775329
	03/01/2016			03/01/2016 14:20	Julia Storbeck	1775331
	03/01/2016			03/01/2016 14:21	Julia Storbeck	1775332
	03/01/2016			03/01/2016 14:22	Julia Storbeck	1775333
	03/01/2016			03/01/2016 14:27	Julia Storbeck	1775334
	03/01/2016			03/01/2016 14:28	Julia Storbeck	1775335
SM 2120 B	03/01/2016			03/01/2016 16:07	Rochelle Y Jackson	1775316
	03/01/2016			03/01/2016 16:08	Rochelle Y Jackson	1775317
	03/01/2016			03/01/2016 16:09	Rochelle Y Jackson	1775318, 1775319
	03/01/2016			03/01/2016 16:11	Rochelle Y Jackson	1775320
	03/01/2016			03/01/2016 16:12	Rochelle Y Jackson	1775321
	03/01/2016			03/01/2016 17:04	Rochelle Y Jackson	1775315
SM 2320 B-97	03/01/2016			03/07/2016	Dale L. Simmons	1775315, 1775316, 1775317, 1775318, 1775319
	03/01/2016			03/08/2016	Dale L. Simmons	1775320, 1775321
SM 2540 C-97	03/01/2016			03/02/2016	Yijie Li	1775315, 1775316, 1775317, 1775318, 1775319, 1775320, 1775321
SM 2540 D-97	03/01/2016			03/02/2016	Yijie Li	1775315, 1775316, 1775317, 1775318, 1775319, 1775320, 1775321
SM 4500 F-C-97	03/01/2016			03/07/2016	Dale L. Simmons	1775315, 1775316, 1775317, 1775318, 1775319, 1775320, 1775321
SM 5310 B-00	03/01/2016			03/02/2016	Sofia Elnemr	1775322, 1775323, 1775324, 1775325, 1775326, 1775327, 1775328