

Chemical Analysis Report

CEN-DIST-2016-02-18-01

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

Event Description: **Minneola/Bear/Florence**

Request ID: **RQ-2016-02-15-70**

Customer: **CEN-DIST**

Project ID: **SMP**

Send Reports to:

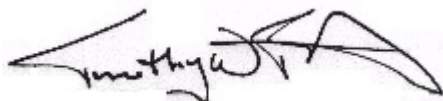
FL Dept. of Environmental Protection
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For additional information please contact

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Certified by: Timothy Fitzpatrick, Program Administrator

Date Certified: 09-MAR-2016 12:49

A handwritten signature in black ink, appearing to read 'Timothy W. Fitzpatrick', with a stylized flourish at the end.

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: Bear Lake @ Center

Collection Date/Time: 02/17/2016 11:25

Field ID: G1CE0002

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1772646	EPA 180.1 Rev. 2.0	Turbidity	0.85		NTU	P298861	
	EPA 300.0 Rev. 2.1	Chloride	15		mg Cl/L	P298970	
		Sulfate	0.83		mg SO4/L	P298971	
	SM 2120 B	Color (true)	250		PCU	P298866	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P299410	RPD
	SM 2540 C-97	TDS	65		mg/L	P299525	
	SM 2540 D-97	TSS	2	U	mg/L	P299447	
	SM 4500 F-C-97	Fluoride	0.047	I	mg F/L	P299322	
1772649	EPA 350.1 Rev. 2.0	Ammonia-N	0.13		mg N/L	P299316	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P299208	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.10		mg N/L	P299442	
	EPA 365.1 Rev. 2.0	Total-P	0.013		mg P/L	P299161	
	SM 5310 B-00	Organic Carbon	28		mg C/L	P299304	
1772652	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P298851	

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: Lake Florence @ Center

Collection Date/Time: 02/17/2016 10:15

Field ID: G1CE0006

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1772647	EPA 180.1 Rev. 2.0	Turbidity	6.3	A	NTU	P298862	
	EPA 300.0 Rev. 2.1	Chloride	31		mg Cl/L	P298970	
		Sulfate	15		mg SO4/L	P298971	
	SM 2120 B	Color (true)	10	A	PCU	P298866	
	SM 2320 B-97	Total Alkalinity	92		mg CaCO3/L	P299410	RPD
	SM 2540 C-97	TDS	165	A	mg/L	P299525	
	SM 2540 D-97	TSS	7	I	mg/L	P299447	
	SM 4500 F-C-97	Fluoride	0.20		mg F/L	P299322	
1772650	EPA 350.1 Rev. 2.0	Ammonia-N	0.056		mg N/L	P299316	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.5		mg N/L	P299208	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P299442	
	EPA 365.1 Rev. 2.0	Total-P	0.022		mg P/L	P299161	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P299304	
1772653	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P298851	

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: Lake Minneola 1/2 Mile N.

Collection Date/Time: 02/17/2016 12:30

Field ID: G1CE0022

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1772648	EPA 180.1 Rev. 2.0	Turbidity	1.8		NTU	P298862	
	EPA 300.0 Rev. 2.1	Chloride	21		mg Cl/L	P298970	
		Sulfate	6.0		mg SO4/L	P298971	

Field ID: G1CE0022

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1772648	SM 2120 B	Color (true)	190		PCU	P298866	
	SM 2320 B-97	Total Alkalinity	3.9		mg CaCO3/L	P299410	RPD
	SM 2540 C-97	TDS	93		mg/L	P299526	
	SM 2540 D-97	TSS	2	I	mg/L	P299448	
	SM 4500 F-C-97	Fluoride	0.076	I	mg F/L	P299322	
1772651	EPA 350.1 Rev. 2.0	Ammonia-N	0.030		mg N/L	P299316	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P299213	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.089		mg N/L	P299442	
	EPA 365.1 Rev. 2.0	Total-P	0.017		mg P/L	P299161	
	SM 5310 B-00	Organic Carbon	27		mg C/L	P299304	
1772654	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P298851	

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P298861

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P298862

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P298970

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P298971

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P299316

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P299208

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P299213

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P299442

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P299161

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P298851

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

Reference Method: SM 2120 B
Batch ID: P298866

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P299410

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO ₃ /L

Reference Method: SM 2540 C-97
Batch ID: P299525

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P299526

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P299447

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P299448

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P299322

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P299304

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: P298970

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P298971

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P299316

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: P299208

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	99.3		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P299213

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	97.7		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P299442

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P299442

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P299161

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P298851

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

Reference Method: SM 2320 B-97
Batch ID: P299410

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	95 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P299322

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

Reference Method: SM 5310 B-00
Batch ID: P299304

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.2		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P298970

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1772618	Chloride	103		P	90 - 110
1773346	Chloride	105	103	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P298971

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1772618	Sulfate	99.0		P	90 - 110
1773346	Sulfate	100	99.6	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P299316

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1772682	Ammonia-N	99.0	98.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P299208

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1772550	Kjeldahl Nitrogen	98.6	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P299213

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1772682	Kjeldahl Nitrogen	109	96.7	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P299442

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1772650	NO2NO3-N	98.5	99.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P299161

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1772649	Total-P	99.8	99.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P298851

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1772691	O-Phosphate-P	102	104	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P299322

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1772627	Fluoride	96.6	98.3	P/P	94 - 107

Reference Method: SM 5310 B-00
Batch ID: P299304

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1772215	Organic Carbon	98.5	99.8	P/P	85 - 115

Quality Assurance Report Precision

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P298861

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1772594	Turbidity	0.434	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P298862

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1772647	Turbidity	1.43	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P298970

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1773346	Chloride	2.13	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P298971

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1773346	Sulfate	0.786	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P299316

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1772682	Ammonia-N	0.358	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P299208

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1772550	Kjeldahl Nitrogen	2.01	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P299213

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1772682	Kjeldahl Nitrogen	7.44	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P299442

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1772650	NO2NO3-N	0.506	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P299161

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1772649	Total-P	0.364	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P298851

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1772691	O-Phosphate-P	1.65	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P298866

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1772647	Color (true)	5.22	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P299410

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1772627	Total Alkalinity	8.88	Sample	F	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P299525

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1772647	TDS	1.21	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P299526

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1772681	TDS	4.14	Sample	P	0 - 10

Reference Method: SM 2540 D-97
Batch ID: P299448

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1772681	TSS	0.0	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P299322

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1772627	Fluoride	0.940	Spike	P	0 - 3.7

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P299304

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1772215	Organic Carbon	1.14	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 300.0 Rev. 2.1
Run ID: A67638
Included Lab Sample IDs: 1772646, 1772647, 1772648

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.7	99.8	P/P	90 - 110
Chloride	99.8	101	P/P	90 - 110
Sulfate	96.0	99.2	P/P	90 - 110
Sulfate	97.9	96.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A67674
Included Lab Sample IDs: 1772652, 1772653, 1772654

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.4	99.3	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A67676
Included Lab Sample IDs: 1772646, 1772647, 1772648

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: SM 2120 B
Run ID: A67678
Included Lab Sample IDs: 1772646, 1772647, 1772648

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	96.0	P/P	90 - 115
Color (true)	96.5	99.3	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A67829
Included Lab Sample IDs: 1772649, 1772650, 1772651

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

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00

Run ID: A67848

Included Lab Sample IDs: 1772649, 1772650, 1772651

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.2	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A67850

Included Lab Sample IDs: 1772649, 1772650, 1772651

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

Reference Method: SM 4500 F-C-97

Run ID: A67854

Included Lab Sample IDs: 1772646, 1772647, 1772648

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A67889

Included Lab Sample IDs: 1772649, 1772650, 1772651

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A67892

Included Lab Sample IDs: 1772649, 1772650, 1772651

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	94.6	97.6	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A67974

Included Lab Sample IDs: 1772646, 1772647, 1772648

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	103	P/P	90 - 110
Total Alkalinity	103	102	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				0.434	
	Turbidity				1.43	
EPA 300.0 Rev. 2.1	Chloride	103	105	103		2.13

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			Precision SMP	MS
			LCS				
EPA 300.0 Rev. 2.1	Sulfate	98.5	100	99.6	99.0		0.786
EPA 350.1 Rev. 2.0	Ammonia-N	100	99.0	98.6			0.358
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.3	98.6	101			2.01
	Kjeldahl Nitrogen	97.7	109	96.7			7.44
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	98.5	98.5	99.0			0.506
EPA 365.1 Rev. 2.0	Total-P	99.1	99.8	99.4			0.364
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	102	104			1.65
SM 2120 B	Color (true)					5.22	
SM 2320 B-97	Total Alkalinity	104				8.88	
SM 2540 C-97	TDS					1.21	
	TDS					4.14	
SM 2540 D-97	TSS					0.0	
SM 4500 F-C-97	Fluoride	97.6	96.6	98.3			0.940
SM 5310 B-00	Organic Carbon	99.2	98.5	99.8			1.14

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1772646, 1772647, 1772648
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1772646, 1772647, 1772648
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1772646, 1772647, 1772648
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1772649, 1772650, 1772651
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1772649, 1772650, 1772651
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1772649, 1772650, 1772651
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1772649, 1772650, 1772651
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1772652, 1772653, 1772654
SM 2120 B / E31780	True Color measured at 450 nm	1772646, 1772647, 1772648
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1772646, 1772647, 1772648
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1772646, 1772647, 1772648
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1772646, 1772647, 1772648
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1772646, 1772647, 1772648
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1772649, 1772650, 1772651

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	02/18/2016			02/18/2016 15:08	Sima Feizi	1772646, 1772647, 1772648
EPA 300.0 Rev. 2.1	02/18/2016			02/19/2016	Ping Hua	1772646, 1772647, 1772648
EPA 350.1 Rev. 2.0	02/18/2016			02/25/2016	Diana M. Turner	1772649, 1772650, 1772651
EPA 351.2 Rev. 2.0	02/18/2016	02/25/2016	Christopher Armour	02/26/2016	Rochelle Y Jackson	1772649, 1772650, 1772651
EPA 353.2 Rev. 2.0	02/18/2016			02/26/2016	Diana M. Turner	1772649, 1772650, 1772651
EPA 365.1 Rev. 2.0	02/18/2016	02/24/2016	Christopher Armour	02/25/2016	Lipi Saha	1772649, 1772650, 1772651
EPA 365.1 Rev. 2.0 dissolved	02/18/2016			02/18/2016 13:28	Bryan A. Werth	1772652
	02/18/2016			02/18/2016 13:29	Bryan A. Werth	1772653
	02/18/2016			02/18/2016 13:30	Bryan A. Werth	1772654
SM 2120 B	02/18/2016			02/18/2016 16:23	Rochelle Y Jackson	1772646, 1772648
	02/18/2016			02/18/2016 16:37	Rochelle Y Jackson	1772647
SM 2320 B-97	02/18/2016			02/28/2016	Dale L. Simmons	1772646, 1772647, 1772648
SM 2540 C-97	02/18/2016			02/22/2016	Sima Feizi	1772646, 1772647, 1772648
SM 2540 D-97	02/18/2016			02/22/2016	Sima Feizi	1772646, 1772647, 1772648
SM 4500 F-C-97	02/18/2016			02/23/2016	Dale L. Simmons	1772646, 1772647, 1772648
SM 5310 B-00	02/18/2016			02/24/2016	Sofia Elnemr	1772649, 1772650, 1772651