

Chemical Analysis Report

NW-DIST-2016-02-19-01

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

Event Description: **WBID 145, 179A, 83A**

Request ID: **RQ-2016-02-15-09**

Customer: **NW-DIST**

Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
160 W Government St
Suite 208A
Pensacola, FL 32502-5794
Attn: Michael King

For additional information please contact
Timothy W. Fitzpatrick
Liang-Tsair Lin, Ph.D.
Colin Wright, Ph.D.
Thekkekalathil Chandrasekhar, PhD, QA Officer
Phone (850) 245-8085

Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator

Date Certified: 10-MAR-2016 12:16



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 KARICK AT CENTER

Collection Date/Time: 02/18/2016 12:00

Field ID: G4NW0274

Matrix: WATER

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1773292	EPA 180.1 Rev. 2.0	Turbidity	1.3		NTU	P298940	
	EPA 300.0 Rev. 2.1	Chloride	2.5		mg Cl/L	P299229	
		Sulfate	0.94		mg SO4/L	P299231	
	SM 2120 B	Color (true)	15		PCU	P298926	
	SM 2320 B-97	Total Alkalinity	6.0		mg CaCO3/L	P299660	
	SM 2540 C-97	TDS	15	U	mg/L	P299492	
	SM 2540 D-97	TSS	2	I	mg/L	P299429	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P299323	
1773295	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P299631	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.24		mg N/L	P299401	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P299467	
	EPA 365.1 Rev. 2.0	Total-P	0.014		mg P/L	P299420	
	SM 5310 B-00	Organic Carbon	3.1		mg C/L	P299308	
1773298	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P298930	

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: HURRICANE LAKE @ CENTER

Collection Date/Time: 02/18/2016 13:10

Field ID: G4NW0117

Matrix: WATER

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1773293	EPA 180.1 Rev. 2.0	Turbidity	1.0		NTU	P298940	
	EPA 300.0 Rev. 2.1	Chloride	2.7		mg Cl/L	P299229	
		Sulfate	0.83		mg SO4/L	P299231	
	SM 2120 B	Color (true)	15		PCU	P298926	
	SM 2320 B-97	Total Alkalinity	4.9		mg CaCO3/L	P299660	
	SM 2540 C-97	TDS	15	I	mg/L	P299492	
	SM 2540 D-97	TSS	2	I	mg/L	P299429	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P299331	
1773296	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P299631	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.30		mg N/L	P299401	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P299467	
	EPA 365.1 Rev. 2.0	Total-P	0.016		mg P/L	P299420	
	SM 5310 B-00	Organic Carbon	4.1		mg C/L	P299308	
1773299	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P298930	

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: BEAR LAKE

Collection Date/Time: 02/18/2016 14:30

Field ID: G4NW0361

Matrix: WATER

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1773294	EPA 180.1 Rev. 2.0	Turbidity	1.6		NTU	P298940	
	EPA 300.0 Rev. 2.1	Chloride	2.7		mg Cl/L	P299229	
		Sulfate	0.79		mg SO4/L	P299231	

Field ID: G4NW0361

Matrix: WATER

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1773294	SM 2120 B	Color (true)	25		PCU	P298926	
	SM 2320 B-97	Total Alkalinity	8.6		mg CaCO3/L	P299660	
	SM 2540 C-97	TDS	17	I	mg/L	P299492	
	SM 2540 D-97	TSS	3	I	mg/L	P299429	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P299331	
1773297	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P299632	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.34		mg N/L	P299401	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P299467	
	EPA 365.1 Rev. 2.0	Total-P	0.018		mg P/L	P299420	
	SM 5310 B-00	Organic Carbon	4.9		mg C/L	P299308	
1773300	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P298930	

Ref. Method and Comment:

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P298940

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P299229

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P299231

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P299631

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

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P299632

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P299401

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P299467

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P299420

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P298930

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

Reference Method: SM 2120 B
Batch ID: P298926

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P299660

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

Reference Method: SM 2540 C-97
Batch ID: P299492

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P299429

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P299323

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P299331

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report Method Blank Results

Reference Method: SM 5310 B-00
 Batch ID: P299308

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: P299229

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

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P299231

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

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P299631

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

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P299632

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	96.0		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P299401

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P299467

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	106		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P299420

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P298930

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
-----------	---------	---------	-----------	----------------

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P298930

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

Reference Method: SM 2320 B-97
Batch ID: P299660

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

Reference Method: SM 4500 F-C-97
Batch ID: P299323

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.1		P	94 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P299331

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.3		P	94 - 108

Reference Method: SM 5310 B-00
Batch ID: P299308

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.0		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P299229

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1773192	Chloride	104		P	90 - 110
1773193	Chloride	103		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P299231

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1773192	Sulfate	103		P	90 - 110
1773193	Sulfate	101		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P299631

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1773233	Ammonia-N	99.6	98.5	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P299632

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1773415	Ammonia-N	97.7	97.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P299401

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1773233	Kjeldahl Nitrogen	93.0	94.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P299467

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1773349	NO2NO3-N	102		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P299420

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1773295	Total-P	98.5	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P298930

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1773299	O-Phosphate-P	101	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P299323

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1773220	Fluoride	98.7	98.7	P/P	94 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P299331

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1773459	Fluoride	96.5	98.9	P/P	94 - 107

Reference Method: SM 5310 B-00
Batch ID: P299308

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1773197	Organic Carbon	99.0		P	85 - 115

Quality Assurance Report Precision

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P298940

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1773224	Turbidity	5.37	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P299229

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1773192	Chloride	0.0195	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P299231

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1773192	Sulfate	2.85	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P299631

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1773233	Ammonia-N	0.772	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P299632

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1773415	Ammonia-N	0.474	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P299401

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1773233	Kjeldahl Nitrogen	1.57	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P299467

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1773349	NO2NO3-N	0.411	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P299420

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1773295	Total-P	2.90	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P298930

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1773299	O-Phosphate-P	0.595	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P298926

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1773223	Color (true)	1.33	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P299660

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1773459	Total Alkalinity	0.851	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P299492

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1773413	TDS	2.38	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P299323

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1773220	Fluoride	0.0	Spike	P	0 - 3.7

Reference Method: SM 4500 F-C-97
Batch ID: P299331

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1773459	Fluoride	1.45	Spike	P	0 - 3.7

Reference Method: SM 5310 B-00
Batch ID: P299308

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1773197	Organic Carbon	1.67	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: SM 2120 B

Run ID: A67701

Included Lab Sample IDs: 1773292, 1773293, 1773294

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	97.6	99.3	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A67702

Included Lab Sample IDs: 1773298, 1773299, 1773300

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.7	98.3	P/P	90 - 110
O-Phosphate-P	99.0	98.8	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A67706

Included Lab Sample IDs: 1773292, 1773293, 1773294

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A67740

Included Lab Sample IDs: 1773292, 1773293, 1773294

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	103	103	P/P	90 - 110
Sulfate	97.4	101	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A67849

Included Lab Sample IDs: 1773295, 1773296, 1773297

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.4	95.8	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A67854

Included Lab Sample IDs: 1773292

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

Reference Method: SM 4500 F-C-97

Run ID: A67857

Included Lab Sample IDs: 1773293, 1773294

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.5	99.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A67899

Included Lab Sample IDs: 1773295, 1773296, 1773297

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
-----------	---------	---------	------------	----------------

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A67899

Included Lab Sample IDs: 1773295, 1773296, 1773297

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	103	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A67920

Included Lab Sample IDs: 1773295, 1773296, 1773297

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	99.8	P/P	90 - 110
Total-P	99.8	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A67955

Included Lab Sample IDs: 1773295, 1773296, 1773297

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	100	P/P	90 - 110
Ammonia-N	101	100	P/P	90 - 110
Ammonia-N	101	102	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A67973

Included Lab Sample IDs: 1773292, 1773293, 1773294

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A68018

Included Lab Sample IDs: 1773295, 1773296, 1773297

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.6	101	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				5.37	
EPA 300.0 Rev. 2.1	Chloride	104	104	103	0.0195	
	Sulfate	101	103	101	2.85	
EPA 350.1 Rev. 2.0	Ammonia-N	100	99.6	98.5		0.772
	Ammonia-N	96.0	97.7	97.0		0.474
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	96.8	93.0	94.9		1.57
EPA 353.2 Rev. 2.0	NO2NO3-N	106	102			0.411
EPA 365.1 Rev. 2.0	Total-P	98.2	98.5	101		2.90

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision	MS
						SMP	
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	101	101			0.595
SM 2120 B	Color (true)					1.33	
SM 2320 B-97	Total Alkalinity	102				0.851	
SM 2540 C-97	TDS					2.38	
SM 4500 F-C-97	Fluoride	97.1	98.7	98.7			0.0
	Fluoride	96.3	96.5	98.9			1.45
SM 5310 B-00	Organic Carbon	97.0	99.0				1.67

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1773292, 1773293, 1773294
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1773292, 1773293, 1773294
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1773292, 1773293, 1773294
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1773295, 1773296, 1773297
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1773295, 1773296, 1773297
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1773295, 1773296, 1773297
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1773295, 1773296, 1773297
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1773298, 1773299, 1773300
SM 2120 B / E31780	True Color measured at 450 nm	1773292, 1773293, 1773294
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1773292, 1773293, 1773294
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1773292, 1773293, 1773294
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1773292, 1773293, 1773294
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1773292, 1773293, 1773294
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1773295, 1773296, 1773297

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	02/19/2016			02/19/2016 15:35	Sima Feizi	1773292, 1773293, 1773294
EPA 300.0 Rev. 2.1	02/19/2016			02/25/2016	Julia Storbeck	1773292, 1773293, 1773294
EPA 350.1 Rev. 2.0	02/19/2016			03/02/2016	Diana M. Turner	1773295, 1773296, 1773297
EPA 351.2 Rev. 2.0	02/19/2016	02/29/2016	Christopher Armour	03/03/2016	Rochelle Y Jackson	1773295, 1773296, 1773297
EPA 353.2 Rev. 2.0	02/19/2016			02/29/2016	Diana M. Turner	1773295, 1773296, 1773297
EPA 365.1 Rev. 2.0	02/19/2016	02/29/2016	Christopher Armour	03/01/2016	Lipi Saha	1773295, 1773296, 1773297
EPA 365.1 Rev. 2.0 dissolved	02/19/2016			02/19/2016 14:27	Bryan A. Werth	1773299
	02/19/2016			02/19/2016 15:07	Bryan A. Werth	1773298
	02/19/2016			02/19/2016 15:08	Bryan A. Werth	1773300
SM 2120 B	02/19/2016			02/19/2016 15:01	Rochelle Y Jackson	1773292
	02/19/2016			02/19/2016 15:02	Rochelle Y Jackson	1773293, 1773294
SM 2320 B-97	02/19/2016			03/02/2016	Dale L. Simmons	1773292
	02/19/2016			03/03/2016	Dale L. Simmons	1773293, 1773294
SM 2540 C-97	02/19/2016			02/24/2016	Yijie Li	1773292, 1773293, 1773294
SM 2540 D-97	02/19/2016			02/24/2016	Yijie Li	1773292, 1773293, 1773294
SM 4500 F-C-97	02/19/2016			02/23/2016	Dale L. Simmons	1773292
	02/19/2016			02/24/2016	Dale L. Simmons	1773293, 1773294
SM 5310 B-00	02/19/2016			02/25/2016	Sofia Elnemr	1773295, 1773296, 1773297