Chemical Analysis Report

CEN-DIST-2016-05-06-02

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

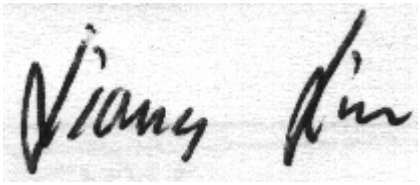
Event Description: **Bear/Florence/Minneola**
Request ID: **RQ-2016-05-02-79**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
3319 Maguire Blvd., Suite 232
Orlando, FL 32803-3767
Attn: Mike Linger

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: Liang Lin, Environmental Administrator

Date Certified: 01-JUN-2016 16:43



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: 05/05/2016 12:34**

Field ID: G1CE0002 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1796789	EPA 180.1 Rev. 2.0	Turbidity	1.1		NTU	P303724	
	EPA 300.0 Rev. 2.1	Chloride	16		mg Cl/L	P304372	
		Sulfate	0.79		mg SO4/L	P304375	
	SM 2120 B	Color (true)	240		PCU	P303710	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P304482	
	SM 2540 C-97	TDS	90		mg/L	P304438	
	SM 2540 D-97	TSS	3	I	mg/L	P304394	
	SM 4500 F-C-97	Fluoride	0.058	I	mg F/L	P304484	
1796791	EPA 350.1 Rev. 2.0	Ammonia-N	0.045		mg N/L	P304320	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P304684	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.007	I	mg N/L	P304269	
	EPA 365.1 Rev. 2.0	Total-P	0.019		mg P/L	P304763	
	SM 5310 B-00	Organic Carbon	26		mg C/L	P304875	
1796793	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P303718	

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: Lake Florence @ Center **Collection Date/Time: 05/05/2016 13:40**

Field ID: G1CE0006 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1796790	EPA 180.1 Rev. 2.0	Turbidity	6.7	A	NTU	P303725	
	EPA 300.0 Rev. 2.1	Chloride	31		mg Cl/L	P304373	
		Sulfate	15		mg SO4/L	P304376	
	SM 2120 B	Color (true)	14		PCU	P303710	
	SM 2320 B-97	Total Alkalinity	91	A	mg CaCO3/L	P304482	
	SM 2540 C-97	TDS	167		mg/L	P304438	
	SM 2540 D-97	TSS	8	I	mg/L	P304394	
	SM 4500 F-C-97	Fluoride	0.21		mg F/L	P304484	
1796792	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P304222	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.4		mg N/L	P304684	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P304270	
	EPA 365.1 Rev. 2.0	Total-P	0.027		mg P/L	P304706	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P304875	
1796794	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P303718	

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P303724

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P303725

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304372

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304373

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304375

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304376

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304222

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304320

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P304684

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: P304269

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304270

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P304706

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P304763

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P303718

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

Reference Method: SM 2120 B
Batch ID: P303710

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P304482

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

Reference Method: SM 2540 C-97
Batch ID: P304438

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P304394

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report
Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P304484

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P304875

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: P304372

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	97.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304373

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304375

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	96.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304376

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	96.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304222

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304320

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: P304684

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P304684

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	98.1		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304269

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304270

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P304706

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P304763

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P303718

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

Reference Method: SM 2320 B-97
Batch ID: P304482

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

Reference Method: SM 4500 F-C-97
Batch ID: P304484

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.8		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P304875

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.9		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304372

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796490	Chloride	95.1		P	90 - 110
1796789	Chloride	97.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304373

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796827	Chloride	96.2		P	90 - 110
1797005	Chloride	97.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304375

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796490	Sulfate	94.1		P	90 - 110
1796789	Sulfate	96.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304376

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796827	Sulfate	91.4		P	90 - 110
1797005	Sulfate	96.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304222

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796582	Ammonia-N	101	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304320

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1797503	Ammonia-N	100	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304269

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796582	NO2NO3-N	102	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304270

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796683	NO2NO3-N	102	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P304706

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P304706

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796792	Total-P	104	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P304763

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796941	Total-P	101	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P303718

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796591	O-Phosphate-P	101	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P304484

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796790	Fluoride	99.8	99.0	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P304875

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796584	Organic Carbon	94.5	95.4	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P303724

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796580	Turbidity	0.563	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P303725

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796790	Turbidity	1.33	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304372

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796490	Chloride	0.310	Sample	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304373

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1797005	Chloride	0.0197	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304375

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796490	Sulfate	0.984	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304376

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1797005	Sulfate	2.99	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304222

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796582	Ammonia-N	1.72	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304320

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1797503	Ammonia-N	0.936	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P304684

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796828	Kjeldahl Nitrogen	2.27	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304269

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796582	NO2NO3-N	0.613	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304270

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796683	NO2NO3-N	0.749	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P304706

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796792	Total-P	0.385	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P304763

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796941	Total-P	1.90	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P303718

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796591	O-Phosphate-P	1.28	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P303710

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796827	Color (true)	8.77	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P304482

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796790	Total Alkalinity	0.239	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P304438

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796744	TDS	1.73	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P304484

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796790	Fluoride	0.473	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P304875

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796584	Organic Carbon	0.820	Spike	P	0 - 20

Quality Assurance Report
Precision

* 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 365.1 Rev. 2.0 dissolved
Run ID: A69320
Included Lab Sample IDs: 1796793, 1796794

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.2	99.5	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A69321
Included Lab Sample IDs: 1796789, 1796790

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	99.5	P/P	95 - 105
Turbidity	99.5	99.0	P/P	95 - 105

Reference Method: SM 2120 B
Run ID: A69363
Included Lab Sample IDs: 1796789, 1796790

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	101	P/P	90 - 115

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A69423
Included Lab Sample IDs: 1796789, 1796790

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.4	99.6	P/P	90 - 110
Chloride	99.7	99.8	P/P	90 - 110
Sulfate	98.2	94.6	P/P	90 - 110
Sulfate	98.7	97.4	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A69447
Included Lab Sample IDs: 1796792

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A69466
Included Lab Sample IDs: 1796791, 1796792

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A69475
Included Lab Sample IDs: 1796791

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

Reference Method: SM 2320 B-97
Run ID: A69535
Included Lab Sample IDs: 1796789, 1796790

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	99.3	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A69535
Included Lab Sample IDs: 1796789, 1796790

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	99.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A69611
Included Lab Sample IDs: 1796791, 1796792

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.6	91.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A69630
Included Lab Sample IDs: 1796792

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.5	99.2	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A69651
Included Lab Sample IDs: 1796791, 1796792

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.2	97.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A69663
Included Lab Sample IDs: 1796791

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.8	99.8	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		Precision		
					LCS	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					0.563	
	Turbidity					1.33	
EPA 300.0 Rev. 2.1	Chloride	97.6	95.1	97.3		0.310	
	Chloride	98.4	97.7	96.2		0.0197	
	Sulfate	96.3	94.1	96.3		0.984	
	Sulfate	96.5	96.2	91.4		2.99	
EPA 350.1 Rev. 2.0	Ammonia-N	99.6	101	102			1.72
	Ammonia-N	100	100	101			0.936
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.1					2.27
EPA 353.2 Rev. 2.0	NO2NO3-N	104	102	103			0.613
	NO2NO3-N	104	102	104			0.749
EPA 365.1 Rev. 2.0	Total-P	105	104	103			0.385
	Total-P	105	101	103			1.90
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	101	102			1.28
SM 2120 B	Color (true)					8.77	
SM 2320 B-97	Total Alkalinity	101				0.239	
SM 2540 C-97	TDS					1.73	
SM 4500 F-C-97	Fluoride	98.8	99.8	99.0			0.473
SM 5310 B-00	Organic Carbon	96.9	94.5	95.4			0.820

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1796789, 1796790
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1796789, 1796790
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1796789, 1796790
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1796791, 1796792
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1796791, 1796792
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1796791, 1796792
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1796791, 1796792
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1796793, 1796794
SM 2120 B / E31780	True Color measured at 450 nm	1796789, 1796790
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1796789, 1796790
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1796789, 1796790
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1796789, 1796790
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1796789, 1796790
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1796791, 1796792

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	05/06/2016			05/06/2016 13:16	Sima Feizi	1796789, 1796790
EPA 300.0 Rev. 2.1	05/06/2016			05/14/2016	Elisa J Lutz	1796789, 1796790
EPA 350.1 Rev. 2.0	05/06/2016			05/12/2016	Diana M. Turner	1796792
	05/06/2016			05/13/2016	Diana M. Turner	1796791
EPA 351.2 Rev. 2.0	05/06/2016	05/19/2016	Sofia Elnemr	05/20/2016	Christopher Armour	1796791, 1796792
EPA 353.2 Rev. 2.0	05/06/2016			05/13/2016	Peter D. Kaus	1796791, 1796792
EPA 365.1 Rev. 2.0	05/06/2016	05/20/2016	Lipi Saha	05/23/2016	Lipi Saha	1796792
	05/06/2016	05/23/2016	Vijayalakshmi Reddy	05/24/2016	Lipi Saha	1796791
EPA 365.1 Rev. 2.0 dissolved	05/06/2016			05/06/2016 14:16	Julia Storbeck	1796793
	05/06/2016			05/06/2016 14:17	Julia Storbeck	1796794
SM 2120 B	05/06/2016			05/06/2016 13:59	Rochelle Y Jackson	1796790
	05/06/2016			05/06/2016 14:00	Rochelle Y Jackson	1796789
SM 2320 B-97	05/06/2016			05/17/2016	Dale L. Simmons	1796789, 1796790
SM 2540 C-97	05/06/2016			05/11/2016	Yijie Li	1796789, 1796790
SM 2540 D-97	05/06/2016			05/11/2016	Yijie Li	1796789, 1796790
SM 4500 F-C-97	05/06/2016			05/17/2016	Dale L. Simmons	1796789, 1796790
SM 5310 B-00	05/06/2016			05/24/2016	Diana M. Turner	1796791, 1796792