

Chemical Analysis Report

CEN-DIST-2016-04-27-03

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

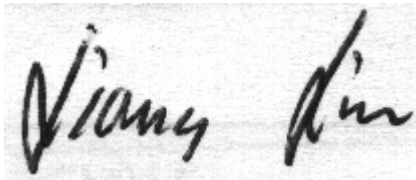
Event Description: **C-54 Canal+HA+D&B**
Request ID: **RQ-2016-04-11-42**
Customer: **CEN-DIST**
Project ID: **SMP**

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: 23-MAY-2016 21:35

A handwritten signature in black ink, appearing to read "Liang Lin", on a light-colored background.

NON-CONFORMANCE REPORT INCLUDED

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: C-54 CANAL @ 400M W OF I-95

Collection Date/Time: 04/26/2016 12:31

Field ID: G5CE0052

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1793102	EPA 180.1 Rev. 2.0	Turbidity	2.1		NTU	P303116	
	EPA 300.0 Rev. 2.1	Chloride	100		mg Cl/L	P303579	
		Sulfate	31		mg SO4/L	P303583	
	SM 2120 B	Color (true)	94		PCU	P303048	
	SM 2320 B-97	Total Alkalinity	143		mg CaCO3/L	P303463	
	SM 2540 C-97	TDS	410	A	mg/L	P303760	
	SM 2540 D-97	TSS	4	I	mg/L	P303751	
	SM 4500 F-C-97	Fluoride	0.25		mg F/L	P303279	
1793105	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P303689	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.92		mg N/L	P303949	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P303854	
	EPA 365.1 Rev. 2.0	Total-P	0.035		mg P/L	P303810	
	SM 5310 B-00	Organic Carbon	18		mg C/L	P304299	
1793108	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P303099	

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: C-54 CANAL @ 400M W OF I-95

Collection Date/Time: 04/26/2016 12:39

Field ID: G5CE0052-DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1793103	EPA 180.1 Rev. 2.0	Turbidity	2.2		NTU	P303116	
	EPA 300.0 Rev. 2.1	Chloride	100		mg Cl/L	P303579	
		Sulfate	31		mg SO4/L	P303583	
	SM 2120 B	Color (true)	94		PCU	P303048	
	SM 2320 B-97	Total Alkalinity	143		mg CaCO3/L	P303463	
	SM 2540 C-97	TDS	415		mg/L	P303760	
	SM 2540 D-97	TSS	4	I	mg/L	P303751	
	SM 4500 F-C-97	Fluoride	0.25		mg F/L	P303279	
1793106	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P303689	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.91		mg N/L	P303949	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.006	I	mg N/L	P303854	
	EPA 365.1 Rev. 2.0	Total-P	0.033		mg P/L	P303810	
	SM 5310 B-00	Organic Carbon	18		mg C/L	P304299	
1793109	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P303099	

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: FIELD BLANK

Collection Date/Time: 04/26/2016 13:11

Field ID: BLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1793104	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P303116	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P303579	
		Sulfate	0.20	U	mg SO4/L	P303583	

Field ID: BLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1793104	SM 2120 B	Color (true)	2.5	U	PCU	P303048	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P303463	
	SM 2540 C-97	TDS	15	U	mg/L	P303758	
	SM 2540 D-97	TSS	2	U	mg/L	P303749	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P303279	
1793107	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P303689	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P303949	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P303837	
	EPA 365.1 Rev. 2.0	Total-P	0.002	I	mg P/L	P303810	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P304299	
1793110	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P303100	

Ref. Method and Comment:

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

EPA 365.1 Rev. 2.0: Total-P: The result was confirmed on 05/13/2016.

Non-Conformance Report

NCR ID: 5837

Event(s)

CEN-DIST-2016-04-27-03

Job(s)

Sample(s)

Test(s)

NCR Type: SHIPPING/RECEIVING

NCR Category: Receiving

Observation: The sample container for Field ID: G5CE0052_DUP, Test ID: CHLSUITE-W was received empty.

Resolution: Customer was notified (Mike Linger) via email.

Authorised by/Date: Kathryn Holland 4/29/2016

The Non-Conformance Report details exceptions or problems encountered with the events/jobs/samples/test.
 Please address questions to:

Chemistry Tim Fitzpatrick (850) 245-8085
 Biology Cheryl Swanson (850) 245-8177

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P303116

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P303579

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P303583

Component	Result	Code	Units
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Quality Assurance Report

Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P303583

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303689

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303949

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303837

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303854

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P303810

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P303099

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P303100

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

Reference Method: SM 2120 B
Batch ID: P303048

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report Method Blank Results

Reference Method: SM 2320 B-97
 Batch ID: P303463

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

Reference Method: SM 2540 C-97
 Batch ID: P303758

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
 Batch ID: P303760

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
 Batch ID: P303749

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
 Batch ID: P303751

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
 Batch ID: P303279

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
 Batch ID: P304299

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: P303579

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	95.1		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P303583

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: P303583

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	92.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303689

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: P303949

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	99.8		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303837

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	101		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303854

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P303810

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P303099

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P303100

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

Reference Method: SM 2320 B-97
Batch ID: P303463

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	100		P	95 - 105

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P303279

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

Reference Method: SM 5310 B-00
Batch ID: P304299

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	102		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P303579

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1793068	Chloride	92.8		P	90 - 110
1793193	Chloride	95.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P303583

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1793068	Sulfate	92.4		P	90 - 110
1793193	Sulfate	92.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303689

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1793106	Ammonia-N	98.7	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303949

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1793072	Kjeldahl Nitrogen	101	97.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303837

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1793124	NO2NO3-N	99.2		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303854

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1793053	NO2NO3-N	102	102	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P303810

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1793126	Total-P	96.0	95.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P303099

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1793108	O-Phosphate-P	103	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P303100

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1793135	O-Phosphate-P	102	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97
 Batch ID: P303279

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1793064	Fluoride	97.4	97.9	P/P	91 - 105

Reference Method: SM 5310 B-00
 Batch ID: P304299

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1793071	Organic Carbon	98.8	98.6	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P303116

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1793064	Turbidity	1.19	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P303579

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1793193	Chloride	0.0888	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P303583

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1793193	Sulfate	0.520	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303689

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1793106	Ammonia-N	1.86	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303949

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1793072	Kjeldahl Nitrogen	2.30	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303837

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1793124	NO2NO3-N	0.742	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303854

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1793053	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P303810

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1793126	Total-P	0.162	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P303099

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1793108	O-Phosphate-P	0.970	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P303100

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1793135	O-Phosphate-P	0.683	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P303048

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1793064	Color (true)	0.463	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
Batch ID: P303463

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1793064	Total Alkalinity	0.435	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P303758

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1792960	TDS	3.85	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P303760

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1793102	TDS	4.88	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P303279

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1793064	Fluoride	0.492	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P304299

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1793071	Organic Carbon	0.0630	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: SM 2120 B
Run ID: A69125
Included Lab Sample IDs: 1793102, 1793103, 1793104

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	97.7	98.8	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A69135
Included Lab Sample IDs: 1793108, 1793109, 1793110

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.7	P/P	90 - 110
O-Phosphate-P	99.7	102	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A69135

Included Lab Sample IDs: 1793108, 1793109, 1793110

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.7	99.9	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A69141

Included Lab Sample IDs: 1793102, 1793103, 1793104

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	101	P/P	95 - 105

Reference Method: SM 4500 F-C-97

Run ID: A69187

Included Lab Sample IDs: 1793102, 1793103, 1793104

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	101	99.5	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A69217

Included Lab Sample IDs: 1793102, 1793103, 1793104

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	101	P/P	90 - 110
Sulfate	98.0	99.9	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A69249

Included Lab Sample IDs: 1793102, 1793103, 1793104

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.0	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A69311

Included Lab Sample IDs: 1793105, 1793106, 1793107

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A69340

Included Lab Sample IDs: 1793105, 1793106

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A69353

Included Lab Sample IDs: 1793107

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A69353

Included Lab Sample IDs: 1793107

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A69412

Included Lab Sample IDs: 1793105, 1793106, 1793107

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A69442

Included Lab Sample IDs: 1793105, 1793106, 1793107

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.1	97.4	P/P	90 - 110
Kjeldahl Nitrogen	97.4	96.8	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A69474

Included Lab Sample IDs: 1793105, 1793106, 1793107

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	100	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				1.19	
EPA 300.0 Rev. 2.1	Chloride	95.1	95.4 92.8		0.0888	
	Sulfate	92.5	92.9 92.4		0.520	
EPA 350.1 Rev. 2.0	Ammonia-N	100	98.7 101			1.86
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.8	101 97.0			2.30
EPA 353.2 Rev. 2.0	NO2NO3-N	101	99.2			0.742
	NO2NO3-N	102	102 102			0.0
EPA 365.1 Rev. 2.0	Total-P	102	96.0 95.8			0.162
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	103 104			0.970
	O-Phosphate-P	106	102 103			0.683
SM 2120 B	Color (true)				0.463	
SM 2320 B-97	Total Alkalinity	100			0.435	
SM 2540 C-97	TDS				3.85	
	TDS				4.88	
SM 4500 F-C-97	Fluoride	98.8	97.4 97.9			0.492
SM 5310 B-00	Organic Carbon	102	98.8 98.6			0.0630

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1793102, 1793103, 1793104
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1793102, 1793103, 1793104
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1793102, 1793103, 1793104
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1793105, 1793106, 1793107
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1793105, 1793106, 1793107
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1793105, 1793106, 1793107
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1793105, 1793106, 1793107
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1793108, 1793109, 1793110
SM 2120 B / E31780	True Color measured at 450 nm	1793102, 1793103, 1793104
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1793102, 1793103, 1793104
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1793102, 1793103, 1793104
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1793102, 1793103, 1793104
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1793102, 1793103, 1793104
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1793105, 1793106, 1793107

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	04/27/2016			04/27/2016 16:13	Sima Feizi	1793102, 1793103, 1793104
EPA 300.0 Rev. 2.1	04/27/2016			05/04/2016	Elisa J Lutz	1793102, 1793103, 1793104
EPA 350.1 Rev. 2.0	04/27/2016			05/05/2016	Diana M. Turner	1793105, 1793106, 1793107
EPA 351.2 Rev. 2.0	04/27/2016	05/11/2016	Sofia Elnemr	05/12/2016	Christopher Armour	1793105, 1793106, 1793107
EPA 353.2 Rev. 2.0	04/27/2016			05/06/2016	Virginia P. Brown	1793105, 1793106
	04/27/2016			05/09/2016	Peter D. Kaus	1793107
EPA 365.1 Rev. 2.0	04/27/2016	05/09/2016	Vijayalakshmi Reddy	05/10/2016	Lipi Saha	1793105, 1793106, 1793107
EPA 365.1 Rev. 2.0 dissolved	04/27/2016			04/27/2016 14:20	Julia Storbeck	1793108
	04/27/2016			04/27/2016 15:02	Julia Storbeck	1793110
	04/27/2016			04/27/2016 15:11	Julia Storbeck	1793109
SM 2120 B	04/27/2016			04/27/2016 12:44	Rochelle Y Jackson	1793102
	04/27/2016			04/27/2016 12:45	Rochelle Y Jackson	1793103
	04/27/2016			04/27/2016 12:46	Rochelle Y Jackson	1793104
SM 2320 B-97	04/27/2016			05/03/2016	Dale L. Simmons	1793102, 1793103, 1793104
SM 2540 C-97	04/27/2016			04/29/2016	Yijie Li	1793102, 1793103, 1793104
SM 2540 D-97	04/27/2016			04/29/2016	Yijie Li	1793102, 1793103, 1793104
SM 4500 F-C-97	04/27/2016			04/30/2016	Dale L. Simmons	1793102, 1793103, 1793104
SM 5310 B-00	04/27/2016			05/14/2016	Diana M. Turner	1793105, 1793106, 1793107