

Chemical Analysis Report

CEN-DIST-2017-02-28-01

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

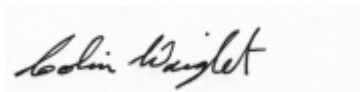
Event Description: **Hatch Canal/Kiss River/Tiger Crk**
Request ID: **RQ-2017-02-27-52**
Customer: **CEN-DIST**
Project ID: **SMP**

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
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
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Phone (850) 245-8085

Certified by: Colin Wright, Program Administrator

Date Certified: 28-MAR-2017 13:14



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: Tiger Creek 1.45 km DS of Lk Kissimmee

Collection Date/Time: 02/27/2017 11:55

Field ID: G4CE0070

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1875902	EPA 180.1 Rev. 2.0	Turbidity	4.2	Y	NTU	P320676	
	EPA 300.0 Rev. 2.1	Chloride	14		mg Cl/L	P321443	
		Sulfate	8.6	Y	mg SO4/L	P321446	
	SM 2120 B	Color (true)	59	Y	PCU	P320666	
	SM 2320 B-97	Total Alkalinity	17	Y	mg CaCO3/L	P321207	
	SM 2540 C-97	TDS	82	Y	mg/L	P321094	
	SM 2540 D-97	TSS	4	IY	mg/L	P321058	
	SM 4500 F-C-97	Fluoride	0.079	I	mg F/L	P321042	
1875905	EPA 350.1 Rev. 2.0	Ammonia-N	0.027		mg N/L	P320996	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.79		mg N/L	P320716	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.028		mg N/L	P320827	
	EPA 365.1 Rev. 2.0	Total-P	0.10		mg P/L	P320723	
	SM 5310 B-00	Organic Carbon	10		mg C/L	P320853	
1875908	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.070	Y	mg P/L	P320679	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: Sample temperature was outside the acceptable range when received at the laboratory.

EPA 300.0 Rev. 2.1: Sulfate: Sample temperature was outside the acceptable range when received at the laboratory.

SM 2120 B: Sample temperature was outside the acceptable range when received at the laboratory.

SM 2320 B-97: Sample temperature was outside the acceptable range when received at the laboratory.

SM 2540 C-97: Sample temperature was outside the acceptable range when received at the laboratory.

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. Sample temperature was outside the acceptable range when received at the laboratory.

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: Sample temperature was outside the acceptable range when received at the laboratory.

Sample Location: Kissimmee River @ 500m US of Lk Kissimmee

Collection Date/Time: 02/27/2017 12:53

Field ID: G4CE0141

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1875903	EPA 180.1 Rev. 2.0	Turbidity	5.2	Y	NTU	P320676	
	EPA 300.0 Rev. 2.1	Chloride	21		mg Cl/L	P321443	
		Sulfate	6.2	Y	mg SO4/L	P321446	
	SM 2120 B	Color (true)	73	Y	PCU	P320666	
	SM 2320 B-97	Total Alkalinity	35	Y	mg CaCO3/L	P321038	
	SM 2540 C-97	TDS	94	Y	mg/L	P321094	
	SM 2540 D-97	TSS	8	IY	mg/L	P321058	
	SM 4500 F-C-97	Fluoride	0.086	I	mg F/L	P321042	
1875906	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P320996	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P320717	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P320827	
	EPA 365.1 Rev. 2.0	Total-P	0.048		mg P/L	P320723	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P320853	
1875909	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	UY	mg P/L	P320679	

Field ID: G4CE0141

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
Ref. Method and Comment:							
EPA 180.1 Rev. 2.0: Sample temperature was outside the acceptable range when received at the laboratory.							
EPA 300.0 Rev. 2.1: Sulfate: Sample temperature was outside the acceptable range when received at the laboratory.							
SM 2120 B: Sample temperature was outside the acceptable range when received at the laboratory.							
SM 2320 B-97: Sample temperature was outside the acceptable range when received at the laboratory.							
SM 2540 C-97: Sample temperature was outside the acceptable range when received at the laboratory.							
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. Sample temperature was outside the acceptable range when received at the laboratory.							
EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: Sample temperature was outside the acceptable range when received at the laboratory.							

Sample Location: Hatchineha Canal 50 yds S of Cypress Lake

Collection Date/Time: 02/27/2017 13:21

Field ID: G4CE0140

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1875904	EPA 180.1 Rev. 2.0	Turbidity	4.4	Y	NTU	P320676	
	EPA 300.0 Rev. 2.1	Chloride	21		mg Cl/L	P321443	
		Sulfate	5.8	Y	mg SO4/L	P321446	
	SM 2120 B	Color (true)	55	Y	PCU	P320666	
	SM 2320 B-97	Total Alkalinity	38	Y	mg CaCO3/L	P320783	
	SM 2540 C-97	TDS	104	AY	mg/L	P321095	
	SM 2540 D-97	TSS	9	IY	mg/L	P321059	
	SM 4500 F-C-97	Fluoride	0.079	I	mg F/L	P320785	
1875907	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P320996	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.97		mg N/L	P320717	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P320827	
	EPA 365.1 Rev. 2.0	Total-P	0.039		mg P/L	P320723	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P320853	
1875910	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	UY	mg P/L	P320679	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: Sample temperature was outside the acceptable range when received at the laboratory.

EPA 300.0 Rev. 2.1: Sulfate: Sample temperature was outside the acceptable range when received at the laboratory.

SM 2120 B: Sample temperature was outside the acceptable range when received at the laboratory.

SM 2320 B-97: Sample temperature was outside the acceptable range when received at the laboratory.

SM 2540 C-97: Sample temperature was outside the acceptable range when received at the laboratory.

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. Sample temperature was outside the acceptable range when received at the laboratory.

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: Sample temperature was outside the acceptable range when received at the laboratory.

Non-Conformance Report

NCR ID: 6312

Event(s)	Job(s)	Sample(s)	Test(s)
CEN-DIST-2017-02-28-01	TLH-2017-02-28-36	1875902	
CEN-DIST-2017-02-28-01	TLH-2017-02-28-36	1875903	
CEN-DIST-2017-02-28-01	TLH-2017-02-28-36	1875904	
CEN-DIST-2017-02-28-01	TLH-2017-02-28-36	1875908	
CEN-DIST-2017-02-28-01	TLH-2017-02-28-36	1875909	
CEN-DIST-2017-02-28-01	TLH-2017-02-28-36	1875910	

NCR Type: SHIPPING/RECEIVING

NCR Category: Receiving

Observation: Cooler temperature (7.3 deg C), exceeds acceptable limit for ice preserved samples.

Non-Conformance Report

NCR ID: 6312

Event(s)
 Resolution: Supervisor notified.
 Customer (Mike Linger) notified by email.

Job(s)

Sample(s)

Test(s)

Authorised by/Date: Ramsey K. White 3/27/2017

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

Chemistry Colin Wright (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: P320676

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P321443

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P321446

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P320996

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P320716

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P320717

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P320827

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P320827

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P320723

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P320679

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

Reference Method: SM 2120 B
Batch ID: P320666

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P320783

Component	Result	Code	Units
Total Alkalinity	1.7	I	mg CaCO3/L

Reference Method: SM 2320 B-97
Batch ID: P321038

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

Reference Method: SM 2320 B-97
Batch ID: P321207

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

Reference Method: SM 2540 C-97
Batch ID: P321094

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P321095

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P321058

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P321059

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P320785

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P321042

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P320853

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: P321443

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P321446

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	97.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P320996

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P320716

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P320716

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	107		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P320717

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P320827

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P320723

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	94.6		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P320679

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

Reference Method: SM 2320 B-97
Batch ID: P320783

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	105		P	95 - 108

Reference Method: SM 2320 B-97
Batch ID: P321038

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	105		P	95 - 108

Reference Method: SM 2320 B-97
Batch ID: P321207

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P320785

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	93.2		P	92 - 103

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P321042

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.3		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P320853

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.5		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P321443

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1875902	Chloride	101		P	90 - 110
1875919	Chloride	103		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P321446

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1875902	Sulfate	99.9		P	90 - 110
1875919	Sulfate	99.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P320996

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1875862	Ammonia-N	95.8	94.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P320716

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1875850	Kjeldahl Nitrogen	98.0	94.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P320717

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1875783	Kjeldahl Nitrogen	101	96.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P320827

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1875906	NO2NO3-N	102	104	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P320723

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1875850	Total-P	95.6	94.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P320679

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1875786	O-Phosphate-P	95.5	97.3	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P320785

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1875692	Fluoride	101	101	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P321042

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1875792	Fluoride	102	101	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P320853

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1875905	Organic Carbon	96.4	97.3	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P320676

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1875877	Turbidity	7.19	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P321443

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1875919	Chloride	0.0634	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P321446

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1875919	Sulfate	0.154	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P320996

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1875862	Ammonia-N	1.11	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P320716

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1875850	Kjeldahl Nitrogen	1.58	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P320717

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1875783	Kjeldahl Nitrogen	2.73	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P320827

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1875906	NO2NO3-N	1.95	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P320723

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1875850	Total-P	1.36	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P320679

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1875786	O-Phosphate-P	1.87	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P320666

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1875861	Color (true)	1.40	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P320783

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1875692	Total Alkalinity	0.0455	Sample	P	0 - 4.8

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
Batch ID: P321038

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1875792	Total Alkalinity	0.378	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P321207

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1876211	Total Alkalinity	0.106	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P321094

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1875782	TDS	3.10	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P321095

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1875904	TDS	7.69	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P320785

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1875692	Fluoride	0.480	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P321042

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1875792	Fluoride	0.480	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P320853

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1875905	Organic Carbon	0.638	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: A74777

Included Lab Sample IDs: 1875902, 1875903, 1875904

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	95.9	95.0	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A74781

Included Lab Sample IDs: 1875902, 1875903, 1875904

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A74782

Included Lab Sample IDs: 1875908, 1875909, 1875910

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.7	99.0	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A74820

Included Lab Sample IDs: 1875904

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	108	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A74820

Included Lab Sample IDs: 1875904

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	101	96.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A74824

Included Lab Sample IDs: 1875905

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A74836

Included Lab Sample IDs: 1875905, 1875906, 1875907

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: A74838

Included Lab Sample IDs: 1875906, 1875907

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.2	98.8	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00

Run ID: A74852

Included Lab Sample IDs: 1875905, 1875906, 1875907

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.7	97.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A74858

Included Lab Sample IDs: 1875905, 1875906, 1875907

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	99.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A74904

Included Lab Sample IDs: 1875905, 1875906, 1875907

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

Reference Method: SM 2320 B-97

Run ID: A74917

Included Lab Sample IDs: 1875903

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	104	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A74917

Included Lab Sample IDs: 1875902, 1875903

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	99.0	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A74976

Included Lab Sample IDs: 1875902

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	109	104	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A74977

Included Lab Sample IDs: 1875902, 1875903, 1875904

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	101	P/P	90 - 110
Chloride	102	101	P/P	90 - 110
Sulfate	97.4	93.1	P/P	90 - 110
Sulfate	98.3	92.5	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	MS
EPA 180.1 Rev. 2.0	Turbidity				7.19	
EPA 300.0 Rev. 2.1	Chloride	102	103	101	0.0634	
	Sulfate	97.9	99.3	99.9	0.154	
EPA 350.1 Rev. 2.0	Ammonia-N	99.8	95.8	94.7		1.11
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	107	98.0	94.9		1.58
	Kjeldahl Nitrogen	105	101	96.5		2.73
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	103	102	104		1.95
EPA 365.1 Rev. 2.0	Total-P	94.6	95.6	94.3		1.36
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.4	95.5	97.3		1.87
SM 2120 B	Color (true)				1.40	
SM 2320 B-97	Total Alkalinity	105			0.0455	
	Total Alkalinity	105			0.378	
	Total Alkalinity	103			0.106	
SM 2540 C-97	TDS				3.10	
	TDS				7.69	
SM 4500 F-C-97	Fluoride	93.2	101	101		0.480
	Fluoride	97.3	102	101		0.480
SM 5310 B-00	Organic Carbon	95.5	96.4	97.3		0.638

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1875902, 1875903, 1875904
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1875902, 1875903, 1875904
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1875902, 1875903, 1875904
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1875905, 1875906, 1875907
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1875905, 1875906, 1875907
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1875905, 1875906, 1875907
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1875905, 1875906, 1875907
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1875908, 1875909, 1875910
SM 2120 B / E31780	True Color measured at 450 nm	1875902, 1875903, 1875904
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1875902, 1875903, 1875904
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1875902, 1875903, 1875904
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1875902, 1875903, 1875904
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1875902, 1875903, 1875904
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1875905, 1875906, 1875907

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	02/28/2017			02/28/2017 14:48	Sima Feizi	1875902, 1875903, 1875904
EPA 300.0 Rev. 2.1	02/28/2017			03/10/2017	Elisa J Lutz	1875902, 1875903, 1875904
EPA 350.1 Rev. 2.0	02/28/2017			03/02/2017	Sofia Elnemr	1875905, 1875906, 1875907
EPA 351.2 Rev. 2.0	02/28/2017	03/01/2017	Adrian Shelby	03/02/2017	Joseph Suarez	1875905, 1875906, 1875907
EPA 353.2 Rev. 2.0	02/28/2017			03/02/2017	Beverly Y. Sanders	1875905, 1875906, 1875907
EPA 365.1 Rev. 2.0	02/28/2017	03/01/2017	Vijayalakshmi Reddy	03/01/2017	Lipi Saha	1875905
	02/28/2017	03/01/2017	Vijayalakshmi Reddy	03/02/2017	Lipi Saha	1875906, 1875907
EPA 365.1 Rev. 2.0 dissolved	02/28/2017			02/28/2017 15:59	Julia Storbeck	1875908
	02/28/2017			02/28/2017 16:00	Julia Storbeck	1875909
	02/28/2017			02/28/2017 16:01	Julia Storbeck	1875910
SM 2120 B	02/28/2017			02/28/2017 15:12	Julie Michelle Frank	1875902
	02/28/2017			02/28/2017 15:13	Julie Michelle Frank	1875903
	02/28/2017			02/28/2017 15:14	Julie Michelle Frank	1875904
SM 2320 B-97	02/28/2017			03/01/2017	Dale L. Simmons	1875904
	02/28/2017			03/04/2017	Dale L. Simmons	1875903
	02/28/2017			03/09/2017	Dale L. Simmons	1875902
SM 2540 C-97	02/28/2017			03/01/2017	Yijie Li	1875902, 1875903, 1875904
SM 2540 D-97	02/28/2017			03/01/2017	Yijie Li	1875902, 1875903, 1875904
SM 4500 F-C-97	02/28/2017			03/01/2017	Dale L. Simmons	1875904
	02/28/2017			03/04/2017	Dale L. Simmons	1875902, 1875903
SM 5310 B-00	02/28/2017			03/02/2017	Julie Michelle Frank	1875905, 1875906, 1875907