

Chemical Analysis Report

CEN-DIST-2016-02-26-01

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

Event Description: **Tiger Crk/Kissimmee**
Request ID: **RQ-2016-02-22-53**
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: Colin Wright, Environmental Administrator

Date Certified: 16-MAR-2016 14:25

A handwritten signature in black ink, appearing to read "Colin Wright", is written on a light-colored rectangular background.

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: Kissimmee River @ 1.5 Miles of US of Lake Kissimmee

Collection Date/Time: 02/25/2016 13:20

Field ID: G4CE0055

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1774827	EPA 180.1 Rev. 2.0	Turbidity	8.2		NTU	P299406	
	EPA 300.0 Rev. 2.1	Chloride	21		mg Cl/L	P299647	
		Sulfate	6.9		mg SO4/L	P299649	
	SM 2120 B	Color (true)	140		PCU	P299363	
	SM 2320 B-97	Total Alkalinity	28		mg CaCO3/L	P299825	
	SM 2540 C-97	TDS	99		mg/L	P299885	
	SM 2540 D-97	TSS	14		mg/L	P299788	
	SM 4500 F-C-97	Fluoride	0.077	I	mg F/L	P299768	
1774832	EPA 350.1 Rev. 2.0	Ammonia-N	0.024		mg N/L	P300068	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P299725	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.022		mg N/L	P299708	
	EPA 365.1 Rev. 2.0	Total-P	0.066		mg P/L	P299743	
	SM 5310 B-00	Organic Carbon	19		mg C/L	P299515	
1774837	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P299373	

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: Tiger Creek

Collection Date/Time: 02/25/2016 13:46

Field ID: G4CE0067

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1774828	EPA 180.1 Rev. 2.0	Turbidity	4.5		NTU	P299406	
	EPA 300.0 Rev. 2.1	Chloride	14		mg Cl/L	P299647	
		Sulfate	7.9		mg SO4/L	P299649	
	SM 2120 B	Color (true)	100		PCU	P299363	
	SM 2320 B-97	Total Alkalinity	14		mg CaCO3/L	P299825	
	SM 2540 C-97	TDS	76		mg/L	P299885	
	SM 2540 D-97	TSS	4	I	mg/L	P299788	
	SM 4500 F-C-97	Fluoride	0.076	I	mg F/L	P299768	
1774833	EPA 350.1 Rev. 2.0	Ammonia-N	0.016		mg N/L	P300068	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.77		mg N/L	P299725	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.014		mg N/L	P299708	
	EPA 365.1 Rev. 2.0	Total-P	0.16		mg P/L	P299743	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P299515	
1774838	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.099		mg P/L	P299373	

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: Tiger Creek

Collection Date/Time: 02/25/2016 13:50

Field ID: G4CE0068

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1774829	EPA 180.1 Rev. 2.0	Turbidity	4.5		NTU	P299406	
	EPA 300.0 Rev. 2.1	Chloride	14		mg Cl/L	P299648	

Field ID: G4CE0068

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1774829	EPA 300.0 Rev. 2.1	Sulfate	8.2		mg SO4/L	P299650	
	SM 2120 B	Color (true)	96		PCU	P299363	
	SM 2320 B-97	Total Alkalinity	13		mg CaCO3/L	P299825	
	SM 2540 C-97	TDS	78		mg/L	P299885	
	SM 2540 D-97	TSS	4	I	mg/L	P299788	
	SM 4500 F-C-97	Fluoride	0.075	I	mg F/L	P299768	
1774834	EPA 350.1 Rev. 2.0	Ammonia-N	0.017		mg N/L	P300069	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.70		mg N/L	P299725	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.015		mg N/L	P299708	
	EPA 365.1 Rev. 2.0	Total-P	0.15		mg P/L	P299743	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P299515	
1774839	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.098		mg P/L	P299373	

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: Tiger Creek

Collection Date/Time: 02/25/2016 13:54

Field ID: G4CE0069

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1774830	EPA 180.1 Rev. 2.0	Turbidity	4.8		NTU	P299406	
	EPA 300.0 Rev. 2.1	Chloride	14		mg Cl/L	P299648	
		Sulfate	8.3		mg SO4/L	P299650	
	SM 2120 B	Color (true)	98		PCU	P299364	
	SM 2320 B-97	Total Alkalinity	14		mg CaCO3/L	P299825	
	SM 2540 C-97	TDS	82		mg/L	P299885	
	SM 2540 D-97	TSS	5	I	mg/L	P299788	
	SM 4500 F-C-97	Fluoride	0.076	I	mg F/L	P299768	
1774835	EPA 350.1 Rev. 2.0	Ammonia-N	0.019		mg N/L	P300069	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.78		mg N/L	P299725	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.017		mg N/L	P299708	
	EPA 365.1 Rev. 2.0	Total-P	0.15		mg P/L	P299743	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P299515	
1774840	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.095		mg P/L	P299373	

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: Tiger Creek

Collection Date/Time: 02/25/2016 13:58

Field ID: G4CE0070

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1774831	EPA 180.1 Rev. 2.0	Turbidity	5.7		NTU	P299406	
	EPA 300.0 Rev. 2.1	Chloride	14		mg Cl/L	P299648	
		Sulfate	8.3		mg SO4/L	P299650	
	SM 2120 B	Color (true)	96		PCU	P299364	
	SM 2320 B-97	Total Alkalinity	14		mg CaCO3/L	P299825	
	SM 2540 C-97	TDS	80		mg/L	P299886	

Field ID: G4CE0070

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1774831	SM 2540 D-97	TSS	7	I	mg/L	P299789	
	SM 4500 F-C-97	Fluoride	0.075	I	mg F/L	P299768	
1774836	EPA 350.1 Rev. 2.0	Ammonia-N	0.019		mg N/L	P300069	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.81		mg N/L	P299725	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.018		mg N/L	P299708	
	EPA 365.1 Rev. 2.0	Total-P	0.15		mg P/L	P299743	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P299515	
1774841	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.093		mg P/L	P299373	

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: P299406

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P299647

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P299648

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P299649

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P299650

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P300068

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300069

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P299725

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P299708

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P299743

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299373

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

Reference Method: SM 2120 B
Batch ID: P299363

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P299364

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P299825

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

Reference Method: SM 2540 C-97
Batch ID: P299885

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 C-97
Batch ID: P299886

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P299788

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P299789

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P299768

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P299515

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: P299647

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P299648

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P299649

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P299650

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P299650

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300068

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300069

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.9		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P299725

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	93.7		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P299708

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: P299743

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299373

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

Reference Method: SM 2320 B-97
Batch ID: P299825

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

Reference Method: SM 4500 F-C-97
Batch ID: P299768

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.9		P	94 - 108

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
 Batch ID: P299515

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: P299647

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1774802	Chloride	104		P	90 - 110
1774803	Chloride	103		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P299648

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1775316	Chloride	103		P	90 - 110
1775317	Chloride	104		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P299649

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1774802	Sulfate	99.8		P	90 - 110
1774803	Sulfate	99.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P299650

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1775316	Sulfate	101		P	90 - 110
1775317	Sulfate	101		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P300068

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1774814	Ammonia-N	99.3	99.1	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P300069

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1774948	Ammonia-N	99.1	99.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P299725

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1774815	Kjeldahl Nitrogen	92.5	93.7	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P299708

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1774833	NO2NO3-N	98.2	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P299743

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1774815	Total-P	103	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299373

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1774826	O-Phosphate-P	100	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P299768

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1774946	Fluoride	96.3	96.8	P/P	94 - 107

Reference Method: SM 5310 B-00
Batch ID: P299515

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1774771	Organic Carbon	96.2	96.0	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P299406

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1774805	Turbidity	3.34	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P299647

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1774802	Chloride	0.0669	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P299648

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1775316	Chloride	0.00612	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P299649

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1774802	Sulfate	1.09	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P299650

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1775316	Sulfate	0.356	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300068

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1774814	Ammonia-N	0.190	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300069

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1774948	Ammonia-N	0.174	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P299725

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1774815	Kjeldahl Nitrogen	0.895	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P299708

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1774833	NO2NO3-N	1.88	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P299743

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1774815	Total-P	0.234	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299373

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1774826	O-Phosphate-P	1.19	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B
Batch ID: P299363

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1774806	Color (true)	2.33	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P299364

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1774890	Color (true)	2.98	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P299825

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1774946	Total Alkalinity	1.04	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P299885

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1774945	TDS	3.88	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P299886

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1774946	TDS	2.23	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P299768

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1774946	Fluoride	0.492	Spike	P	0 - 3.7

Reference Method: SM 5310 B-00
Batch ID: P299515

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1774771	Organic Carbon	0.250	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: A67865

Included Lab Sample IDs: 1774827, 1774828, 1774829, 1774830, 1774831

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	94.3	97.9	P/P	85 - 115
Color (true)	94.7	94.3	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A67867

Included Lab Sample IDs: 1774837, 1774838, 1774839, 1774840, 1774841

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.4	99.1	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A67879

Included Lab Sample IDs: 1774827, 1774828, 1774829, 1774830, 1774831

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

Reference Method: SM 5310 B-00

Run ID: A67917

Included Lab Sample IDs: 1774832, 1774833, 1774834, 1774835, 1774836

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.6	95.9	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A67933

Included Lab Sample IDs: 1774827, 1774828, 1774829, 1774830, 1774831

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	102	P/P	90 - 110
Chloride	102	101	P/P	90 - 110
Sulfate	100	95.3	P/P	90 - 110
Sulfate	96.3	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A67984

Included Lab Sample IDs: 1774832, 1774833, 1774834, 1774835, 1774836

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

Reference Method: SM 4500 F-C-97

Run ID: A68004

Included Lab Sample IDs: 1774827, 1774828, 1774829, 1774830, 1774831

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A68021

Included Lab Sample IDs: 1774832, 1774833, 1774834, 1774835, 1774836

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	102	105	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A68022

Included Lab Sample IDs: 1774827, 1774828, 1774829, 1774830, 1774831

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.3	99.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A68112

Included Lab Sample IDs: 1774832, 1774833, 1774834, 1774835, 1774836

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.7	100	P/P	90 - 110
Ammonia-N	99.7	99.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A68114

Included Lab Sample IDs: 1774832, 1774833, 1774834, 1774835, 1774836

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	94.3	94.4	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				3.34	
EPA 300.0 Rev. 2.1	Chloride	103	104 103		0.0669	
	Chloride	104	103 104		0.0061	
	Sulfate	99.6	99.8 99.4		1.09	
	Sulfate	100	101 101		0.356	
EPA 350.1 Rev. 2.0	Ammonia-N	101	99.3 99.1			0.190
	Ammonia-N	99.9	99.1 99.3			0.174
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	93.7	92.5 93.7			0.895
EPA 353.2 Rev. 2.0	NO2NO3-N	104	98.2 100			1.88
EPA 365.1 Rev. 2.0	Total-P	101	103 103			0.234
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	103	100 101			1.19
SM 2120 B	Color (true)				2.33	
	Color (true)				2.98	
SM 2320 B-97	Total Alkalinity	101			1.04	
SM 2540 C-97	TDS				3.88	
	TDS				2.23	
SM 4500 F-C-97	Fluoride	95.9	96.3 96.8			0.492

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	LCS	Precision SMP	MS
SM 5310 B-00	Organic Carbon	96.9	96.2 96.0			0.250

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1774827, 1774828, 1774829, 1774830, 1774831
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1774827, 1774828, 1774829, 1774830, 1774831
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1774827, 1774828, 1774829, 1774830, 1774831
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1774832, 1774833, 1774834, 1774835, 1774836
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1774832, 1774833, 1774834, 1774835, 1774836
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1774832, 1774833, 1774834, 1774835, 1774836
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1774832, 1774833, 1774834, 1774835, 1774836
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1774837, 1774838, 1774839, 1774840, 1774841
SM 2120 B / E31780	True Color measured at 450 nm	1774827, 1774828, 1774829, 1774830, 1774831
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1774827, 1774828, 1774829, 1774830, 1774831
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1774827, 1774828, 1774829, 1774830, 1774831
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1774827, 1774828, 1774829, 1774830, 1774831
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1774827, 1774828, 1774829, 1774830, 1774831
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1774832, 1774833, 1774834, 1774835, 1774836

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	02/26/2016			02/26/2016 14:01	Blanca Fach	1774827, 1774828, 1774829, 1774830, 1774831
EPA 300.0 Rev. 2.1	02/26/2016			03/02/2016	Ping Hua	1774827, 1774828, 1774829, 1774830
	02/26/2016			03/03/2016	Ping Hua	1774831
EPA 350.1 Rev. 2.0	02/26/2016			03/09/2016	Diana M. Turner	1774832, 1774833, 1774834, 1774835, 1774836
EPA 351.2 Rev. 2.0	02/26/2016	03/04/2016	Christopher Armour	03/08/2016	Rochelle Y Jackson	1774832, 1774833, 1774834, 1774835, 1774836
EPA 353.2 Rev. 2.0	02/26/2016			03/03/2016	Peter D. Kaus	1774832, 1774833, 1774834, 1774835, 1774836
EPA 365.1 Rev. 2.0	02/26/2016	03/04/2016	Christopher Armour	03/04/2016	Lipi Saha	1774832, 1774833, 1774834, 1774835, 1774836
EPA 365.1 Rev. 2.0 dissolved	02/26/2016			02/26/2016 14:56	Ping Hua	1774837, 1774838
	02/26/2016			02/26/2016 14:57	Ping Hua	1774839
	02/26/2016			02/26/2016 14:58	Ping Hua	1774840
	02/26/2016			02/26/2016 14:59	Ping Hua	1774841
SM 2120 B	02/26/2016			02/26/2016 13:23	Rochelle Y Jackson	1774827
	02/26/2016			02/26/2016 13:24	Rochelle Y Jackson	1774828, 1774829
	02/26/2016			02/26/2016 13:27	Rochelle Y Jackson	1774830
	02/26/2016			02/26/2016 13:28	Rochelle Y Jackson	1774831
SM 2320 B-97	02/26/2016			03/05/2016	Dale L. Simmons	1774827, 1774828, 1774829, 1774830, 1774831
SM 2540 C-97	02/26/2016			03/02/2016	Yijie Li	1774827, 1774828, 1774829, 1774830, 1774831
SM 2540 D-97	02/26/2016			03/02/2016	Yijie Li	1774827, 1774828, 1774829, 1774830, 1774831
SM 4500 F-C-97	02/26/2016			03/04/2016	Dale L. Simmons	1774827, 1774828, 1774829, 1774830, 1774831
SM 5310 B-00	02/26/2016			03/01/2016	Sofia Elnemr	1774832, 1774833, 1774834, 1774835, 1774836