

Chemical Analysis Report

SO-DIST-2016-06-30-02

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

Event Description: **SMP: Bobcat and UnNamed**

Request ID: **RQ-2016-06-27-47**

Customer: **SO-DIST**

Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901
Attn: Ben Paswater

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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator

Date Certified: 21-JUL-2016 15:22



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: 2028 Site 3

Collection Date/Time: 06/29/2016 09:55

Field ID: 25020580FTM

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1812511	EPA 180.1 Rev. 2.0	Turbidity	17		NTU	P307192	
	EPA 300.0 Rev. 2.1	Chloride	40		mg Cl/L	P307886	
		Sulfate	16		mg SO4/L	P307888	
	SM 2120 B	Color (true)	230	A	PCU	P307170	
	SM 2320 B-97	Total Alkalinity	51		mg CaCO3/L	P307616	
	SM 2540 C-97	TDS	214		mg/L	P307745	
	SM 2540 D-97	TSS	10		mg/L	P307716	
	SM 4500 F-C-97	Fluoride	0.41		mg F/L	P307620	
1812515	EPA 350.1 Rev. 2.0	Ammonia-N	0.14		mg N/L	P307421	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	3.3		mg N/L	P307264	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.036		mg N/L	P307383	
	EPA 365.1 Rev. 2.0	Total-P	2.7		mg P/L	P307322	
	SM 5310 B-00	Organic Carbon	38		mg C/L	P307806	
1812519	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.33		mg P/L	P307158	

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: Bobcat Creek in Preserve East

Collection Date/Time: 06/29/2016 09:00

Field ID: PEACRV0012FTM

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1812512	EPA 180.1 Rev. 2.0	Turbidity	6.6		NTU	P307192	
	EPA 300.0 Rev. 2.1	Chloride	21		mg Cl/L	P307886	
		Sulfate	6.7		mg SO4/L	P307888	
	SM 2120 B	Color (true)	360		PCU	P307165	
	SM 2320 B-97	Total Alkalinity	36		mg CaCO3/L	P307617	
	SM 2540 C-97	TDS	128		mg/L	P307745	
	SM 2540 D-97	TSS	16		mg/L	P307716	
	SM 4500 F-C-97	Fluoride	0.22		mg F/L	P307621	
1812516	EPA 350.1 Rev. 2.0	Ammonia-N	0.035		mg N/L	P307421	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P307264	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.039		mg N/L	P307383	
	EPA 365.1 Rev. 2.0	Total-P	0.45		mg P/L	P307322	
	SM 5310 B-00	Organic Carbon	29		mg C/L	P307806	
1812520	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.33		mg P/L	P307159	

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: Bobcat Creek in Preserve East-Dup

Collection Date/Time: 06/29/2016 09:15

Field ID: PEACRV0012FTM-DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1812513	EPA 180.1 Rev. 2.0	Turbidity	7.4		NTU	P307192	
	EPA 300.0 Rev. 2.1	Chloride	21		mg Cl/L	P307886	
		Sulfate	6.6		mg SO4/L	P307888	

Field ID: PEACRV0012FTM-DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1812513	SM 2120 B	Color (true)	370		PCU	P307165	
	SM 2320 B-97	Total Alkalinity	36		mg CaCO3/L	P307617	
	SM 2540 C-97	TDS	130		mg/L	P307745	
	SM 2540 D-97	TSS	17		mg/L	P307716	
	SM 4500 F-C-97	Fluoride	0.22		mg F/L	P307621	
1812517	EPA 350.1 Rev. 2.0	Ammonia-N	0.035		mg N/L	P307421	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P307264	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.040		mg N/L	P307383	
	EPA 365.1 Rev. 2.0	Total-P	0.45		mg P/L	P307322	
	SM 5310 B-00	Organic Carbon	29		mg C/L	P307806	
1812521	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.32		mg P/L	P307159	

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: 06/29/2016 09:15

Field ID: G3SD-Blank

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1812514	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P307193	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P307886	
		Sulfate	0.20	U	mg SO4/L	P307888	
		Color (true)	2.5	U	PCU	P307165	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P307617	
	SM 2540 C-97	TDS	15	U	mg/L	P307745	
	SM 2540 D-97	TSS	2	U	mg/L	P307716	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P307621	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P307421	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P307264	
1812518	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P307383	
	EPA 365.1 Rev. 2.0	Total-P	0.002	I	mg P/L	P307322	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P307806	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P307159	

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: P307192

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P307193

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P307193

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307886

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307888

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P307421

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P307264

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P307383

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P307322

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P307158

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P307159

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

Quality Assurance Report Method Blank Results

Reference Method: SM 2120 B
Batch ID: P307165

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P307170

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P307616

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

Reference Method: SM 2320 B-97
Batch ID: P307617

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

Reference Method: SM 2540 C-97
Batch ID: P307745

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P307716

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P307620

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P307621

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P307806

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: P307886

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307888

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P307421

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P307264

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: P307383

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: P307322

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P307158

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P307159

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

Reference Method: SM 2320 B-97
Batch ID: P307616

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
 Batch ID: P307617

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

Reference Method: SM 4500 F-C-97
 Batch ID: P307620

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.9		P	92 - 103

Reference Method: SM 4500 F-C-97
 Batch ID: P307621

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.9		P	92 - 103

Reference Method: SM 5310 B-00
 Batch ID: P307806

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	104		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P307886

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1812030	Chloride	96.8		P	90 - 110
1812200	Chloride	98.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P307888

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1812030	Sulfate	99.4		P	90 - 110
1812200	Sulfate	99.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P307421

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1812470	Ammonia-N	97.9	99.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P307264

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1812503	Kjeldahl Nitrogen	97.8	98.8	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P307383

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1812471	NO2NO3-N	99.1	99.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P307322

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1812505	Total-P	96.7	95.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P307158

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1812324	O-Phosphate-P	97.2	99.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P307159

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1812566	O-Phosphate-P	95.9	97.6	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P307620

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1812263	Fluoride	99.2	98.6	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P307621

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1812688	Fluoride	98.2	98.8	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P307806

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1812470	Organic Carbon	98.0	99.6	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P307192

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1812480	Turbidity	1.99	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P307193

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1812628	Turbidity	3.09	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307886

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1812030	Chloride	0.239	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307888

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1812030	Sulfate	0.317	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P307421

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1812470	Ammonia-N	1.49	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P307264

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1812503	Kjeldahl Nitrogen	0.588	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P307383

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1812471	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P307322

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1812505	Total-P	1.02	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P307158

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1812324	O-Phosphate-P	1.94	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P307159

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1812566	O-Phosphate-P	1.76	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P307165

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1812496	Color (true)	0.933	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P307170

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1812511	Color (true)	1.68	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P307616

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1812263	Total Alkalinity	0.0901	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P307617

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1812688	Total Alkalinity	0.729	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P307745

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1812333	TDS	0.213	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P307620

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1812263	Fluoride	0.466	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P307621

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1812688	Fluoride	0.467	Spike	P	0 - 3.0

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P307806

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1812470	Organic Carbon	1.11	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: EPA 365.1 Rev. 2.0 dissolved
Run ID: A70326
Included Lab Sample IDs: 1812519, 1812520, 1812521, 1812522

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	101	99.8	P/P	90 - 110
O-Phosphate-P	99.7	99.1	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A70328
Included Lab Sample IDs: 1812512, 1812513, 1812514

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	93.0	94.8	P/P	90 - 115
Color (true)	95.6	95.4	P/P	90 - 115

Reference Method: SM 2120 B
Run ID: A70329
Included Lab Sample IDs: 1812511

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.8	95.9	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A70349
Included Lab Sample IDs: 1812511, 1812512, 1812513, 1812514

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	101	100	P/P	95 - 105
Turbidity	99.5	101	P/P	95 - 105

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A70411
Included Lab Sample IDs: 1812515, 1812516, 1812517, 1812518

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	100	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A70418

Included Lab Sample IDs: 1812515, 1812516, 1812517

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	98.2	P/P	90 - 110
Total-P	98.8	100	P/P	90 - 110
Total-P	99.1	98.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A70419

Included Lab Sample IDs: 1812515, 1812516, 1812517, 1812518

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A70434

Included Lab Sample IDs: 1812518

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A70469

Included Lab Sample IDs: 1812515, 1812516, 1812517, 1812518

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	93.4	97.1	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A70474

Included Lab Sample IDs: 1812511, 1812512, 1812513, 1812514

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

Reference Method: SM 4500 F-C-97

Run ID: A70474

Included Lab Sample IDs: 1812511, 1812512, 1812513, 1812514

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	101	P/P	90 - 110
Fluoride	101	99.5	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A70521

Included Lab Sample IDs: 1812515, 1812516, 1812517, 1812518

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.8	99.4	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A70540

Included Lab Sample IDs: 1812511, 1812512, 1812513, 1812514

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	99.7	P/P	90 - 110
Chloride	97.8	99.7	P/P	90 - 110
Chloride	99.6	101	P/P	90 - 110
Sulfate	100	94.0	P/P	90 - 110
Sulfate	93.4	98.8	P/P	90 - 110
Sulfate	94.5	100	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				1.99	
	Turbidity				3.09	
EPA 300.0 Rev. 2.1	Chloride	99.0	96.8 98.6		0.239	
	Sulfate	99.8	99.4 99.7		0.317	
EPA 350.1 Rev. 2.0	Ammonia-N	98.5	97.9 99.5			1.49
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	93.7	97.8 98.8			0.588
EPA 353.2 Rev. 2.0	NO2NO3-N	104	99.1 99.1			0.0
EPA 365.1 Rev. 2.0	Total-P	98.0	96.7 95.6			1.02
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.8	97.2 99.1			1.94
	O-Phosphate-P	101	95.9 97.6			1.76
SM 2120 B	Color (true)				0.933	
	Color (true)				1.68	
SM 2320 B-97	Total Alkalinity	103			0.0901	
	Total Alkalinity	103			0.729	
SM 2540 C-97	TDS				0.213	
SM 4500 F-C-97	Fluoride	98.9	99.2 98.6			0.466
	Fluoride	99.9	98.2 98.8			0.467
SM 5310 B-00	Organic Carbon	104	98.0 99.6			1.11

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1812511, 1812512, 1812513, 1812514
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1812511, 1812512, 1812513, 1812514
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1812511, 1812512, 1812513, 1812514
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1812515, 1812516, 1812517, 1812518
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1812515, 1812516, 1812517, 1812518
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1812515, 1812516, 1812517, 1812518

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1812515, 1812516, 1812517, 1812518
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1812519, 1812520, 1812521, 1812522
SM 2120 B / E31780	True Color measured at 450 nm	1812511, 1812512, 1812513, 1812514
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1812511, 1812512, 1812513, 1812514
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1812511, 1812512, 1812513, 1812514
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1812511, 1812512, 1812513, 1812514
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1812511, 1812512, 1812513, 1812514
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1812515, 1812516, 1812517, 1812518

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	06/30/2016			06/30/2016 16:24	Blanca Fach	1812511, 1812512, 1812513, 1812514
EPA 300.0 Rev. 2.1	06/30/2016			07/13/2016	Ping Hua	1812511, 1812512, 1812513, 1812514
EPA 350.1 Rev. 2.0	06/30/2016			07/06/2016	Diana M. Turner	1812515, 1812516, 1812517, 1812518
EPA 351.2 Rev. 2.0	06/30/2016	07/05/2016	Sofia Elnemr	07/07/2016	Christopher Armour	1812515, 1812516, 1812517, 1812518
EPA 353.2 Rev. 2.0	06/30/2016			07/06/2016	Beverly Y. Sanders	1812515, 1812516, 1812517, 1812518
EPA 365.1 Rev. 2.0	06/30/2016	07/05/2016	Vijayalakshmi Reddy	07/06/2016	Lipi Saha	1812515, 1812516, 1812517
	06/30/2016	07/05/2016	Vijayalakshmi Reddy	07/07/2016	Lipi Saha	1812518
EPA 365.1 Rev. 2.0 dissolved	06/30/2016			06/30/2016 14:26	Julia Storbeck	1812522
	06/30/2016			06/30/2016 14:54	Julia Storbeck	1812520
	06/30/2016			06/30/2016 14:55	Julia Storbeck	1812521
	06/30/2016			06/30/2016 14:57	Julia Storbeck	1812519
SM 2120 B	06/30/2016			06/30/2016 15:51	Rochelle Y Jackson	1812514
	06/30/2016			06/30/2016 16:04	Rochelle Y Jackson	1812512
	06/30/2016			06/30/2016 16:05	Rochelle Y Jackson	1812513
	06/30/2016			06/30/2016 17:02	Rochelle Y Jackson	1812511
SM 2320 B-97	06/30/2016			07/08/2016	Dale L. Simmons	1812511, 1812512, 1812513, 1812514
SM 2540 C-97	06/30/2016			07/05/2016	Sima Feizi	1812511, 1812512, 1812513, 1812514
SM 2540 D-97	06/30/2016			07/05/2016	Sima Feizi	1812511, 1812512, 1812513, 1812514
SM 4500 F-C-97	06/30/2016			07/08/2016	Dale L. Simmons	1812511, 1812512, 1812513, 1812514
SM 5310 B-00	06/30/2016			07/12/2016	Sofia Elnemr	1812515, 1812516, 1812517, 1812518