

Chemical Analysis Report

BSSP-2016-07-21-01

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

Event Description: **Reference Lake Sampling**

Request ID: **RQ-2016-07-18-59**

Customer: **BSSP**

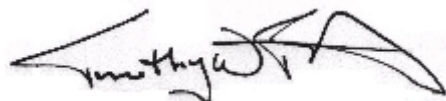
Project ID: **SCIREF**

Send Reports to:
FL Dept. of Environmental Protection
2600 Blair Stone Rd.
Tallahassee, FL 32399-2400
Attn: Ashley ONeal

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: Timothy Fitzpatrick, Program Administrator

Date Certified: 18-AUG-2016 11:15



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 groups are included in this report: Metals and 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: OTTER LAKE

Collection Date/Time: 07/21/2016 12:15

Field ID: OTTERREF

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1818417	EPA 180.1 Rev. 2.0	Turbidity	0.60	Q	NTU	P309831	
	EPA 300.0 Rev. 2.1	Chloride	32		mg Cl/L	P309181	
		Sulfate	4.4		mg SO4/L	P309184	
	SM 2120 B	Color (true)	360		PCU	P308390	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P308881	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P308884	
1818418	EPA 350.1 Rev. 2.0	Ammonia-N	0.01		mg N/L	P308497	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.75		mg N/L	P309064	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.018		mg N/L	P309121	
	EPA 365.1 Rev. 2.0	Total-P	0.039		mg P/L	P308694	
	SM 5310 B-00	Organic Carbon	28		mg C/L	P309197	
	EPA 200.7 Rev. 4.4	Calcium	3.63		mg/L	P308653	
1818421		Iron	290		ug/L	P308653	
		Magnesium	2.42		mg/L	P308653	
		Potassium	0.48	I	mg/L	P308653	
		Sodium	19.6		mg/L	P308653	
		Zinc	5.0	U	ug/L	P308653	
	EPA 200.8 Rev. 5.4	Arsenic	0.32		ug/L	P308653	
		Cadmium	0.020	U	ug/L	P308653	
		Chromium	0.26		ug/L	P308653	
		Copper	0.17	I	ug/L	P308653	
		Lead	0.48		ug/L	P308653	
		Nickel	0.30		ug/L	P308653	
		Silver	0.0050	U	ug/L	P308653	

Ref. Method and Comment:
 EPA 180.1 Rev. 2.0: The sample expired prior to analysis.

Non-Conformance Report

NCR ID: 5985

Event(s)

BSSP-2016-07-21-01

Job(s)

TLH-2016-07-21-121

Sample(s)

1818417

Test(s)

TURBIDITY

NCR Type: SHIPPING/RECEIVING

NCR Category: Receiving

Observation: Customer requested on the field sheet that Turbidity be added to the analysis suite. This note was not observed during login of the event. Upon review of the event for certification the request was noticed and the Turbidity test was added.

Resolution: Turbidity was analyzed and the result qualified for the analysis being performed out of hold time.

Authorised by/Date: Colin Wright 8/18/2016

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: P309831

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P308653

Component	Result	Code	Units
Calcium	0.075	U	mg/L
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L
Potassium	0.30	U	mg/L
Sodium	0.50	U	mg/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P308653

Component	Result	Code	Units
Arsenic	0.050	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.050	U	ug/L
Copper	0.10	U	ug/L
Lead	0.050	U	ug/L
Nickel	0.050	U	ug/L
Silver	0.0050	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P309181

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P309184

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P308497

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P309064

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P309121

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P308694

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

Reference Method: SM 2120 B
Batch ID: P308390

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P308881

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

Reference Method: SM 4500 F-C-97
Batch ID: P308884

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P309197

Component	Result	Code	Units
Organic Carbon	0.50	U	mg C/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P308653

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	109		P	85 - 115
Iron	106		P	85 - 115
Magnesium	108		P	85 - 115
Potassium	102		P	85 - 115
Sodium	105		P	85 - 115
Zinc	100		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P308653

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	101		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P308653

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Cadmium	99.3		P	85 - 115
Chromium	97.7		P	85 - 115
Copper	98.9		P	85 - 115
Lead	98.6		P	85 - 115
Nickel	100		P	85 - 115
Silver	98.2		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P309181

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P309184

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	95.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P308497

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	96.6		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P309064

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P309121

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: P308694

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	97.1		P	90 - 110

Reference Method: SM 2320 B-97
Batch ID: P308881

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	95 - 108

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P308884

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.8		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P309197

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	100		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P308653

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1817962	Calcium	109	106	P/P	80 - 120
1817962	Iron	107	103	P/P	80 - 120
1817962	Magnesium	109	104	P/P	80 - 120
1817962	Potassium	102	99.3	P/P	80 - 120
1817962	Sodium	103		P	80 - 120
1817962	Zinc	103	101	P/P	80 - 120
1818927	Calcium	108		P	80 - 120
1818927	Iron	107		P	80 - 120
1818927	Magnesium	102		P	80 - 120
1818927	Potassium	101		P	80 - 120
1818927	Sodium	104		P	80 - 120
1818927	Zinc	98.5		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P308653

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1817962	Arsenic	99.6	99.9	P/P	80 - 120
1817962	Cadmium	100	99.5	P/P	80 - 120
1817962	Chromium	98.7	97.6	P/P	80 - 120
1817962	Copper	98.9	98.8	P/P	80 - 120
1817962	Lead	99.6	98.5	P/P	80 - 120
1817962	Nickel	100	99.9	P/P	80 - 120
1817962	Silver	98.2	98.0	P/P	80 - 120
1818927	Arsenic	101		P	80 - 120
1818927	Cadmium	101		P	80 - 120
1818927	Chromium	94.4		P	80 - 120
1818927	Copper	92.3		P	80 - 120
1818927	Lead	99.1		P	80 - 120
1818927	Nickel	94.0		P	80 - 120
1818927	Silver	98.4		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P309181

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P309181

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1818087	Chloride	98.4		P	90 - 110
1818088	Chloride	98.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P309184

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1818087	Sulfate	95.6		P	90 - 110
1818088	Sulfate	95.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P308497

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1818313	Ammonia-N	101	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P309064

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1818897	Kjeldahl Nitrogen	95.7	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P309121

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1818426	NO2NO3-N	103		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P308694

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1818280	Total-P	96.4	99.2	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P308884

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1818863	Fluoride	98.1	97.6	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P309197

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1819390	Organic Carbon	105		P	85 - 115

Quality Assurance Report Precision

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P309831

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1823653	Turbidity	0.292	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
 Batch ID: P308653

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1817962	Calcium	2.33	Spike	P	0 - 20
1817962	Iron	3.86	Spike	P	0 - 20
1817962	Magnesium	3.96	Spike	P	0 - 20
1817962	Potassium	2.89	Spike	P	0 - 20
1817962	Sodium	1.87	Spike	P	0 - 20
1817962	Zinc	1.94	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
 Batch ID: P308653

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1817962	Arsenic	0.305	Spike	P	0 - 20
1817962	Cadmium	0.412	Spike	P	0 - 20
1817962	Chromium	1.13	Spike	P	0 - 20
1817962	Copper	0.158	Spike	P	0 - 20
1817962	Lead	1.12	Spike	P	0 - 20
1817962	Nickel	0.256	Spike	P	0 - 20
1817962	Silver	0.216	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P309181

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1818088	Chloride	0.0777	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P309184

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1818088	Sulfate	0.751	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P308497

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1818313	Ammonia-N	1.24	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P309064

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1818897	Kjeldahl Nitrogen	4.85	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P309121

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1818426	NO2NO3-N	0.475	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P308694

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1818280	Total-P	2.48	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P308390

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1818265	Color (true)	2.99	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P308881

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1818863	Total Alkalinity	0.0457	Sample	P	0 - 4.8

Reference Method: SM 4500 F-C-97
Batch ID: P308884

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1818863	Fluoride	0.482	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P309197

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1819390	Organic Carbon	0.460	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: A70686
Included Lab Sample IDs: 1818417

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	93.9	96.5	P/P	90 - 115

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A70713
Included Lab Sample IDs: 1818418

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

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A70820
Included Lab Sample IDs: 1818421

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	102	101	P/P	90 - 110
Iron	99.6	100	P/P	90 - 110
Magnesium	99.7	101	P/P	90 - 110
Potassium	99.5	98.0	P/P	90 - 110
Sodium	101	98.2	P/P	90 - 110
Zinc	98.1	99.1	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A70823
Included Lab Sample IDs: 1818421

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	101	99.0	P/P	90 - 110
Cadmium	98.5	99.0	P/P	90 - 110
Chromium	98.0	98.4	P/P	90 - 110
Copper	101	99.5	P/P	90 - 110
Lead	97.6	96.7	P/P	90 - 110
Nickel	102	101	P/P	90 - 110
Silver	97.4	97.8	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A70836
Included Lab Sample IDs: 1818417

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

Reference Method: SM 4500 F-C-97
Run ID: A70836
Included Lab Sample IDs: 1818417

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A70885

Included Lab Sample IDs: 1818417

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	102	P/P	90 - 110
Sulfate	97.1	97.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A70927

Included Lab Sample IDs: 1818418

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

Reference Method: SM 5310 B-00

Run ID: A70945

Included Lab Sample IDs: 1818418

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A70991

Included Lab Sample IDs: 1818418

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A71036

Included Lab Sample IDs: 1818418

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A71160

Included Lab Sample IDs: 1818417

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

* Pass/Fail determinations are made for each bracketing calibration verification check.

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			Precision	
			LCS			SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					0.292	
EPA 200.7 Rev. 4.4	Calcium	109	109	106	108		2.33
	Iron	106	107	103	107		3.86

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			Precision SMP	MS
			LCS				
EPA 200.7 Rev. 4.4	Magnesium	108	109	104	102		3.96
	Potassium	102	102	99.3	101		2.89
	Sodium	105	103	104			1.87
	Zinc	100	103	101	98.5		1.94
EPA 200.8 Rev. 5.4	Arsenic	101	99.6	99.9	101		0.305
	Cadmium	99.3	100	99.5	101		0.412
	Chromium	97.7	98.7	97.6	94.4		1.13
	Copper	98.9	98.9	98.8	92.3		0.158
	Lead	98.6	99.6	98.5	99.1		1.12
	Nickel	100	100	99.9	94.0		0.256
	Silver	98.2	98.2	98.0	98.4		0.216
EPA 300.0 Rev. 2.1	Chloride	99.8	98.8	98.4		0.0777	
	Sulfate	95.6	95.8	95.6		0.751	
EPA 350.1 Rev. 2.0	Ammonia-N	96.6	101	103			1.24
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	95.7	102			4.85
EPA 353.2 Rev. 2.0	NO2NO3-N	102	103				0.475
EPA 365.1 Rev. 2.0	Total-P	97.1	96.4	99.2			2.48
SM 2120 B	Color (true)					2.99	
SM 2320 B-97	Total Alkalinity	104				0.0457	
SM 4500 F-C-97	Fluoride	97.8	98.1	97.6			0.482
SM 5310 B-00	Organic Carbon	100	105				0.460

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1818417
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1818421
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	1818421
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1818417
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1818417
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1818418
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1818418
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1818418
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1818418
SM 2120 B / E31780	True Color measured at 450 nm	1818417
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1818417
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1818417
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1818418

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	07/21/2016			08/16/2016 16:27	Sima Feizi	1818417
EPA 200.7 Rev. 4.4	07/21/2016	07/26/2016	Elliott D. Healy	07/28/2016	Joshua Ayres	1818421
EPA 200.8 Rev. 5.4	07/21/2016	07/26/2016	Elliott D. Healy	07/28/2016	Charles J. Peterson	1818421
EPA 300.0 Rev. 2.1	07/21/2016			08/04/2016	Ping Hua	1818417
EPA 350.1 Rev. 2.0	07/21/2016			07/22/2016	Julie Michelle Frank	1818418
EPA 351.2 Rev. 2.0	07/21/2016	08/03/2016	Sofia Elhemr	08/04/2016	Christopher Armour	1818418
EPA 353.2 Rev. 2.0	07/21/2016			08/03/2016	Virginia P. Brown	1818418
EPA 365.1 Rev. 2.0	07/21/2016	07/27/2016	Vijayalakshmi Reddy	08/04/2016	Lipi Saha	1818418
SM 2120 B	07/21/2016			07/21/2016 16:41	Rochelle Y Jackson	1818417
SM 2320 B-97	07/21/2016			07/28/2016	Dale L. Simmons	1818417
SM 4500 F-C-97	07/21/2016			07/28/2016	Dale L. Simmons	1818417
SM 5310 B-00	07/21/2016			08/03/2016	Sofia Elhemr	1818418