

Chemical Analysis Report

SO-DIST-2017-01-12-01

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

Event Description: **SMP: Florida Keys**
Request ID: **RQ-2017-01-09-05**
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
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Certified by: Liang Lin, Environmental Administrator

Date Certified: 07-FEB-2017 15:17

A handwritten signature in black ink, appearing to read "Liang Lin", on a light-colored 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 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: 8073 #4 ENRG2

Collection Date/Time: 01/11/2017 11:00

Field ID: G5SD0065

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1863369	EPA 180.1 Rev. 2.0	Turbidity	7.8		NTU	P318178	
	SM 2320 B-97	Total Alkalinity	128	A	mg CaCO3/L	P318584	
	SM 2540 D-97	TSS	14	A	mg/L	P318596	
	SM 4500 F-C-97	Fluoride	1.3		mg F/L	P318707	
1863371	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P318269	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.36	I	mg N/L	P318324	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P318482	
	EPA 365.1 Rev. 2.0	Total-P	0.011	J	mg P/L	P318354	MS
	SM 5310 B-00	Organic Carbon	1.4	I	mg C/L	P318262	
1863373	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P318190	
1863379	EPA 200.7 Rev. 4.4	Iron	90	U	ug/L	P318363	
	EPA 200.8 Rev. 5.4	Arsenic	1.8	I	ug/L	P318363	
		Cadmium	0.15	U	ug/L	P318363	
		Chromium	0.90	U	ug/L	P318363	
		Copper	1.5	U	ug/L	P318363	
		Lead	0.60	U	ug/L	P318363	
		Nickel	0.75	U	ug/L	P318363	
		Silver	0.075	U	ug/L	P318363	
		Zinc	15	U	ug/L	P318363	

Ref. Method and Comment:

EPA 365.1 Rev. 2.0: Total-P: Refer to the narrative for an explanation of QC Codes.

Sample Location: 8073 #5 ENRG1

Collection Date/Time: 01/11/2017 11:35

Field ID: G5SD0066

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1863370	EPA 180.1 Rev. 2.0	Turbidity	1.4		NTU	P318178	
	SM 2320 B-97	Total Alkalinity	127		mg CaCO3/L	P318584	
	SM 2540 D-97	TSS	4	I	mg/L	P318596	
	SM 4500 F-C-97	Fluoride	1.3		mg F/L	P318707	
1863372	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P318271	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.32	I	mg N/L	P318324	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P318482	
	EPA 365.1 Rev. 2.0	Total-P	0.008	I	mg P/L	P318354	MS
	SM 5310 B-00	Organic Carbon	1.7	I	mg C/L	P318262	
1863374	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P318190	
1863380	EPA 200.7 Rev. 4.4	Iron	90	U	ug/L	P318363	
	EPA 200.8 Rev. 5.4	Arsenic	1.3	I	ug/L	P318363	
		Cadmium	0.15	U	ug/L	P318363	
		Chromium	0.90	U	ug/L	P318363	
		Copper	1.5	U	ug/L	P318363	
		Lead	0.60	U	ug/L	P318363	
		Nickel	0.75	U	ug/L	P318363	
		Silver	0.075	U	ug/L	P318363	

Field ID: G5SD0066

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1863380	EPA 200.8 Rev. 5.4	Zinc	15	U	ug/L	P318363	

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P318178

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P318363

Component	Result	Code	Units
Iron	30	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P318363

Component	Result	Code	Units
Arsenic	0.25	U	ug/L
Cadmium	0.050	U	ug/L
Chromium	0.30	U	ug/L
Copper	0.50	U	ug/L
Lead	0.20	U	ug/L
Nickel	0.25	U	ug/L
Silver	0.025	U	ug/L
Zinc	5.0	U	ug/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P318269

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P318271

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P318324

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P318482

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P318354

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P318190

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

Reference Method: SM 2320 B-97
Batch ID: P318584

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

Reference Method: SM 2540 D-97
Batch ID: P318596

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P318707

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P318262

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: P318363

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

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P318363

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	96.2		P	80 - 120
Cadmium	96.6		P	80 - 120
Chromium	96.0		P	80 - 120
Copper	96.7		P	80 - 120
Lead	96.7		P	80 - 120
Nickel	96.4		P	80 - 120

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P318363

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Silver	94.6		P	80 - 120
Zinc	97.7		P	80 - 120

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P318269

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P318271

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P318324

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P318482

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: P318354

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	93.1		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P318190

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

Reference Method: SM 2320 B-97
Batch ID: P318584

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P318707

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.9		P	92 - 103

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P318262

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.0		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P318363

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1863379	Iron	101	100	P/P	70 - 130

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P318363

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1863379	Arsenic	98.4	96.3	P/P	80 - 120
1863379	Cadmium	91.2	86.9	P/P	80 - 120
1863379	Chromium	104	101	P/P	80 - 120
1863379	Copper	92.2	90.8	P/P	80 - 120
1863379	Lead	107	105	P/P	80 - 120
1863379	Nickel	94.9	93.1	P/P	80 - 120
1863379	Silver	90.8	89.1	P/P	80 - 120
1863379	Zinc	84.9	82.2	P/P	80 - 120

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P318269

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1863371	Ammonia-N	103	104	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P318271

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1863372	Ammonia-N	110	107	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P318324

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1863371	Kjeldahl Nitrogen	98.9	97.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P318482

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1863372	NO2NO3-N	104	104	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P318354

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1863371	Total-P	83.2	83.5	F/F	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P318190

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1863355	O-Phosphate-P	98.2	98.9	P/P	90 - 110

Reference Method: SM 4500 F-C-97
 Batch ID: P318707

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1864868	Fluoride	95.9	96.5	P/P	91 - 105

Reference Method: SM 5310 B-00
 Batch ID: P318262

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1863020	Organic Carbon	103	100	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P318178

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1863312	Turbidity	1.39	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
 Batch ID: P318363

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1863379	Iron	0.351	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
 Batch ID: P318363

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1863379	Arsenic	2.03	Spike	P	0 - 20
1863379	Cadmium	4.93	Spike	P	0 - 20
1863379	Chromium	3.37	Spike	P	0 - 20
1863379	Copper	1.47	Spike	P	0 - 20
1863379	Lead	2.45	Spike	P	0 - 20
1863379	Nickel	1.90	Spike	P	0 - 20
1863379	Silver	1.86	Spike	P	0 - 20
1863379	Zinc	3.25	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P318269

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1863371	Ammonia-N	0.517	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P318271

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1863372	Ammonia-N	2.16	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P318324

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1863371	Kjeldahl Nitrogen	0.918	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P318482

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1863372	NO2NO3-N	0.482	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P318354

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1863371	Total-P	0.325	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P318190

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1863355	O-Phosphate-P	0.648	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P318584

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1863369	Total Alkalinity	0.153	Sample	P	0 - 4.8

Reference Method: SM 2540 D-97
Batch ID: P318596

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1863369	TSS	0.0	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
Batch ID: P318707

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1864868	Fluoride	0.490	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P318262

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1863020	Organic Carbon	2.39	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 180.1 Rev. 2.0
Run ID: A73906
Included Lab Sample IDs: 1863369, 1863370

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A73910
Included Lab Sample IDs: 1863373, 1863374

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.6	98.7	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A73931
Included Lab Sample IDs: 1863371, 1863372

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.8	97.1	P/P	90 - 110
Organic Carbon	99.2	96.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A73934
Included Lab Sample IDs: 1863371, 1863372

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	96.3	P/P	90 - 110
Ammonia-N	98.0	96.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A73986
Included Lab Sample IDs: 1863371, 1863372

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A73986

Included Lab Sample IDs: 1863371, 1863372

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	102	101	P/P	90 - 110
Kjeldahl Nitrogen	104	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A74017

Included Lab Sample IDs: 1863371, 1863372

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	98.0	97.0	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A74038

Included Lab Sample IDs: 1863379, 1863380

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A74055

Included Lab Sample IDs: 1863371, 1863372

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.0	99.0	P/P	90 - 110
Total-P	99.0	98.8	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A74056

Included Lab Sample IDs: 1863379, 1863380

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	97.5	98.7	P/P	90 - 110
Cadmium	97.7	100	P/P	90 - 110
Chromium	97.2	99.8	P/P	90 - 110
Copper	96.7	98.7	P/P	90 - 110
Lead	96.8	98.4	P/P	90 - 110
Nickel	96.9	98.5	P/P	90 - 110
Silver	97.4	99.7	P/P	90 - 110
Zinc	97.9	98.9	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A74060

Included Lab Sample IDs: 1863369, 1863370

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	103	P/P	90 - 110
Total Alkalinity	103	102	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97

Run ID: A74096

Included Lab Sample IDs: 1863369, 1863370

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.0	99.5	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	LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity				1.39	
EPA 200.7 Rev. 4.4	Iron	104	101 100			0.351
EPA 200.8 Rev. 5.4	Arsenic	96.2	98.4 96.3			2.03
	Cadmium	96.6	91.2 86.9			4.93
	Chromium	96.0	104 101			3.37
	Copper	96.7	92.2 90.8			1.47
	Lead	96.7	107 105			2.45
	Nickel	96.4	94.9 93.1			1.90
	Silver	94.6	90.8 89.1			1.86
	Zinc	97.7	84.9 82.2			3.25
EPA 350.1 Rev. 2.0	Ammonia-N	107	103 104			0.517
	Ammonia-N	98.8	110 107			2.16
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104	98.9 97.8			0.918
EPA 353.2 Rev. 2.0	NO2NO3-N	102	104 104			0.482
EPA 365.1 Rev. 2.0	Total-P	93.1	83.2 83.5			0.325
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	98.2 98.9			0.648
SM 2320 B-97	Total Alkalinity	102			0.153	
SM 2540 D-97	TSS				0.0	
SM 4500 F-C-97	Fluoride	96.9	95.9 96.5			0.490
SM 5310 B-00	Organic Carbon	99.0	103 100			2.39

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1863369, 1863370
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1863379, 1863380
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	1863379, 1863380
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1863371, 1863372
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1863371, 1863372
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1863371, 1863372
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1863371, 1863372
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1863373, 1863374

Reference Method Descriptions

Method / DoH Cert #	Description	<u>Associated Samples</u>
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1863369, 1863370
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1863369, 1863370
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1863369, 1863370
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1863371, 1863372

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	01/12/2017			01/12/2017 14:52	Sima Feizi	1863369, 1863370
EPA 200.7 Rev. 4.4	01/12/2017	01/18/2017	Elliott D. Healy	01/20/2017	Joshua Ayres	1863379, 1863380
EPA 200.8 Rev. 5.4	01/12/2017	01/18/2017	Elliott D. Healy	01/23/2017	Robert K Palmer	1863379, 1863380
EPA 350.1 Rev. 2.0	01/12/2017			01/13/2017	Sofia Elnemr	1863371, 1863372
EPA 351.2 Rev. 2.0	01/12/2017	01/18/2017	Adrian Shelby	01/18/2017	Joseph Suarez	1863371, 1863372
EPA 353.2 Rev. 2.0	01/12/2017			01/20/2017	Beverly Y. Sanders	1863371, 1863372
EPA 365.1 Rev. 2.0	01/12/2017	01/18/2017	Vijayalakshmi Reddy	01/23/2017	Lipi Saha	1863371, 1863372
EPA 365.1 Rev. 2.0 dissolved	01/12/2017			01/12/2017 15:09	Julia Storbeck	1863373
	01/12/2017			01/12/2017 15:10	Julia Storbeck	1863374
SM 2320 B-97	01/12/2017			01/23/2017	Dale L. Simmons	1863369, 1863370
SM 2540 D-97	01/12/2017			01/17/2017	Sima Feizi	1863369, 1863370
SM 4500 F-C-97	01/12/2017			01/25/2017	Dale L. Simmons	1863369, 1863370
SM 5310 B-00	01/12/2017			01/13/2017	Julie Michelle Frank	1863371, 1863372