

Chemical Analysis Report

SO-DIST-2017-05-12-01

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-2017-05-01-16**
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: Liang Lin, Environmental Administrator

Date Certified: 08-JUN-2017 13:39

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: G5SD051017-7

Collection Date/Time: 05/11/2017 09:00

Field ID: G5SD051017-7

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1898788	EPA 180.1 Rev. 2.0	Turbidity	0.30		NTU	P325309	
	SM 2320 B-97	Total Alkalinity	119		mg CaCO3/L	P325592	
	SM 2540 D-97	TSS	3	U	mg/L	P325681	
	SM 4500 F-C-97	Fluoride	1.3		mg F/L	P325882	
1898790	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P325280	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.19	I	mg N/L	P325451	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P325485	
	EPA 365.1 Rev. 2.0	Total-P	0.003	I	mg P/L	P325338	
	SM 5310 B-00	Organic Carbon	1.4	I	mg C/L	P326008	
1898792	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P325224	
1898796	EPA 200.7 Rev. 4.4	Iron	120	U	ug/L	P325389	
	EPA 200.8 Rev. 5.4	Arsenic	1.2	U	ug/L	P325389	
		Cadmium	0.25	U	ug/L	P325389	
		Chromium	1.5	U	ug/L	P325389	
		Copper	2.5	U	ug/L	P325389	
		Lead	1.0	U	ug/L	P325389	
		Nickel	1.0	U	ug/L	P325389	
		Silver	0.050	U	ug/L	P325389	
		Zinc	25	U	ug/L	P325389	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: G5SD051017-8

Collection Date/Time: 05/11/2017 08:30

Field ID: G5SD051017-8

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1898789	EPA 180.1 Rev. 2.0	Turbidity	0.30		NTU	P325309	
	SM 2320 B-97	Total Alkalinity	118		mg CaCO3/L	P325592	
	SM 2540 D-97	TSS	3	U	mg/L	P325681	
	SM 4500 F-C-97	Fluoride	1.3		mg F/L	P325882	
1898791	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P325280	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.21	I	mg N/L	P325451	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P325485	
	EPA 365.1 Rev. 2.0	Total-P	0.003	I	mg P/L	P325338	
	SM 5310 B-00	Organic Carbon	1.4	I	mg C/L	P326008	
1898793	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P325224	
1898797	EPA 200.7 Rev. 4.4	Iron	120	U	ug/L	P325389	
	EPA 200.8 Rev. 5.4	Arsenic	1.2	U	ug/L	P325389	
		Cadmium	0.25	U	ug/L	P325389	
		Chromium	1.5	U	ug/L	P325389	
		Copper	2.5	U	ug/L	P325389	
		Lead	1.0	U	ug/L	P325389	
		Nickel	1.0	U	ug/L	P325389	
		Silver	0.050	U	ug/L	P325389	

Field ID: G5SD051017-8

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1898797	EPA 200.8 Rev. 5.4	Zinc	25	U	ug/L	P325389	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P325309

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P325389

Component	Result	Code	Units
Iron	30	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P325389

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	0.20	U	ug/L
Silver	0.010	U	ug/L
Zinc	5.0	U	ug/L

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P325280

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P325451

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

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P325485

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

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P325338

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P325224

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

Reference Method: SM 2320 B-97
Batch ID: P325592

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

Reference Method: SM 2540 D-97
Batch ID: P325681

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P325882

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P326008

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: P325389

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	102		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P325389

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	95.9		P	85 - 115
Cadmium	101		P	85 - 115
Chromium	96.1		P	85 - 115
Copper	95.0		P	85 - 115
Lead	97.7		P	85 - 115
Nickel	100		P	85 - 115
Silver	101		P	85 - 115
Zinc	95.9		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P325280

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325451

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: P325485

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P325338

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: P325224

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

Reference Method: SM 2320 B-97
Batch ID: P325592

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

Reference Method: SM 4500 F-C-97
Batch ID: P325882

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.3		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P326008

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.0		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P325389

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

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P325389

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898453	Iron	97.4	97.2	P/P	70 - 130
1898796	Iron	96.3		P	70 - 130

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P325389

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898453	Arsenic	124	121	P/P	70 - 130
1898453	Cadmium	108	109	P/P	70 - 130
1898453	Chromium	124	122	P/P	70 - 130
1898453	Copper	110	109	P/P	70 - 130
1898453	Lead	126	127	P/P	70 - 130
1898453	Nickel	97.8	95.5	P/P	70 - 130
1898453	Silver	89.5	88.8	P/P	70 - 130
1898453	Zinc	108	106	P/P	70 - 130
1898796	Arsenic	120		P	70 - 130
1898796	Cadmium	115		P	70 - 130
1898796	Chromium	120		P	70 - 130
1898796	Copper	105		P	70 - 130
1898796	Lead	124		P	70 - 130
1898796	Nickel	94.5		P	70 - 130
1898796	Silver	89.8		P	70 - 130
1898796	Zinc	92.8		P	70 - 130

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P325280

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898929	Ammonia-N	103	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325451

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898759	Kjeldahl Nitrogen	102	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325485

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898790	NO2NO3-N	103	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P325338

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898791	Total-P	90.0	90.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P325224

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P325224

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898761	O-Phosphate-P	97.4	97.2	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P325882

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898426	Fluoride	92.2	93.0	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P326008

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898609	Organic Carbon	92.6	92.1	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P325309

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898776	Turbidity	1.73	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P325389

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898453	Iron	0.149	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P325389

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898453	Arsenic	2.47	Spike	P	0 - 20
1898453	Cadmium	0.708	Spike	P	0 - 20
1898453	Chromium	1.63	Spike	P	0 - 20
1898453	Copper	0.765	Spike	P	0 - 20
1898453	Lead	0.634	Spike	P	0 - 20
1898453	Nickel	2.32	Spike	P	0 - 20
1898453	Silver	0.872	Spike	P	0 - 20
1898453	Zinc	1.74	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P325280

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898929	Ammonia-N	0.149	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325451

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898759	Kjeldahl Nitrogen	0.884	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325485

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898790	NO2NO3-N	0.976	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P325338

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898791	Total-P	0.360	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P325224

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898761	O-Phosphate-P	0.170	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P325592

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898380	Total Alkalinity	0.354	Sample	P	0 - 4.8

Reference Method: SM 4500 F-C-97
Batch ID: P325882

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898426	Fluoride	0.483	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P326008

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898609	Organic Carbon	0.394	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: EPA 365.1 Rev. 2.0 dissolved

Run ID: A76386

Included Lab Sample IDs: 1898792, 1898793

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.5	98.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A76421

Included Lab Sample IDs: 1898790, 1898791

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	105	106	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A76437

Included Lab Sample IDs: 1898788, 1898789

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A76491

Included Lab Sample IDs: 1898790, 1898791

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.2	99.5	P/P	90 - 110
Total-P	99.5	99.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A76509

Included Lab Sample IDs: 1898790, 1898791

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.5	99.5	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A76561

Included Lab Sample IDs: 1898788, 1898789

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A76562

Included Lab Sample IDs: 1898790, 1898791

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

Reference Method: SM 4500 F-C-97

Run ID: A76685

Included Lab Sample IDs: 1898788, 1898789

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4
 Run ID: A76689
 Included Lab Sample IDs: 1898796, 1898797

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	98.9	93.6	P/P	90 - 110
Cadmium	99.5	96.1	P/P	90 - 110
Chromium	97.9	91.4	P/P	90 - 110
Copper	96.4	90.8	P/P	90 - 110
Lead	99.8	95.9	P/P	90 - 110
Zinc	96.5	91.1	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
 Run ID: A76728
 Included Lab Sample IDs: 1898796, 1898797

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Nickel	99.2	99.9	P/P	90 - 110
Nickel	99.9	96.9	P/P	90 - 110
Silver	103	103	P/P	90 - 110
Silver	103	101	P/P	90 - 110

Reference Method: SM 5310 B-00
 Run ID: A76758
 Included Lab Sample IDs: 1898790, 1898791

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.2	94.8	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4
 Run ID: A76844
 Included Lab Sample IDs: 1898796, 1898797

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	99.8	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			Precision	
			LCS			SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					1.73	
EPA 200.7 Rev. 4.4	Iron	102	97.4	97.2	96.3		0.149
EPA 200.8 Rev. 5.4	Arsenic	95.9	124	121	120		2.47
	Cadmium	101	108	109	115		0.708
	Chromium	96.1	124	122	120		1.63
	Copper	95.0	110	109	105		0.765
	Lead	97.7	126	127	124		0.634
	Nickel	100	97.8	95.5	94.5		2.32
	Silver	101	89.5	88.8	89.8		0.872
	Zinc	95.9	108	106	92.8		1.74

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision LCS	SMP	MS
EPA 350.1 Rev. 2.0	Ammonia-N	103	103	103			0.149
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	102	101			0.884
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	100	103	102			0.976
EPA 365.1 Rev. 2.0	Total-P	101	90.0	90.4			0.360
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	104	97.4	97.2			0.170
SM 2320 B-97	Total Alkalinity	104				0.354	
SM 4500 F-C-97	Fluoride	96.3	92.2	93.0			0.483
SM 5310 B-00	Organic Carbon	95.0	92.6	92.1			0.394

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1898788, 1898789
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1898796, 1898797
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	1898796, 1898797
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1898790, 1898791
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1898790, 1898791
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1898790, 1898791
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1898790, 1898791
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1898792, 1898793
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1898788, 1898789
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1898788, 1898789
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1898788, 1898789
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1898790, 1898791

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	05/12/2017			05/12/2017 15:15	Blanca Fach	1898788, 1898789
EPA 200.7 Rev. 4.4	05/12/2017	05/16/2017	Elliott D. Healy	06/02/2017	Betina Topolski	1898796, 1898797
EPA 200.8 Rev. 5.4	05/12/2017	05/16/2017	Elliott D. Healy	05/25/2017	Robert K Palmer	1898796, 1898797
	05/12/2017	05/16/2017	Elliott D. Healy	05/29/2017	Robert K Palmer	1898796, 1898797
EPA 350.1 Rev. 2.0	05/12/2017			05/15/2017	Julia Storbeck	1898790, 1898791
EPA 351.2 Rev. 2.0	05/12/2017	05/18/2017	Adrian Shelby	05/19/2017	Joseph Suarez	1898790, 1898791
EPA 353.2 Rev. 2.0	05/12/2017			05/18/2017	Beverly Y. Sanders	1898790, 1898791
EPA 365.1 Rev. 2.0	05/12/2017	05/16/2017	Adrian Shelby	05/17/2017	Lipi Saha	1898790, 1898791
EPA 365.1 Rev. 2.0 dissolved	05/12/2017			05/12/2017 12:59	Anthony C. Onicha	1898792
	05/12/2017			05/12/2017 13:00	Anthony C. Onicha	1898793
SM 2320 B-97	05/12/2017			05/20/2017	Dale L. Simmons	1898788, 1898789
SM 2540 D-97	05/12/2017			05/17/2017	Yijie Li	1898788, 1898789
SM 4500 F-C-97	05/12/2017			05/26/2017	Dale L. Simmons	1898788, 1898789
SM 5310 B-00	05/12/2017			05/30/2017	Julie Michelle Frank	1898790, 1898791