Chemical Analysis Report

SO-DIST-2016-04-28-04

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

Event Description: **SMP:2074 Alligator**
Request ID: **RQ-2016-04-25-62**
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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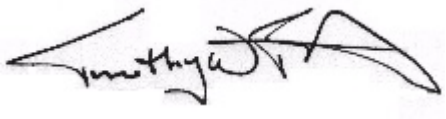
Certified by: Timothy Fitzpatrick, Program Administrator

Date Certified: 24-MAY-2016 15:42



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: Alligator Cr South Branch @ SR768 **Collection Date/Time: 04/27/2016 10:35**

Field ID: G2SD04272016-3 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1793851	EPA 180.1 Rev. 2.0	Turbidity	1.4		NTU	P303206	
	EPA 300.0 Rev. 2.1	Chloride	46		mg Cl/L	P303648	
		Sulfate	7.0		mg SO4/L	P303651	
	SM 2120 B	Color (true)	53		PCU	P303189	
	SM 2320 B-97	Total Alkalinity	90	A	mg CaCO3/L	P303816	
	SM 2540 C-97	TDS	210		mg/L	P303911	
	SM 2540 D-97	TSS	2	U	mg/L	P303788	
	SM 4500 F-C-97	Fluoride	0.085	I	mg F/L	P303821	
1793852	EPA 350.1 Rev. 2.0	Ammonia-N	0.16		mg N/L	P303871	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.78		mg N/L	P304146	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.12		mg N/L	P304004	
	EPA 365.1 Rev. 2.0	Total-P	0.055		mg P/L	P304053	
	SM 5310 B-00	Organic Carbon	9.5		mg C/L	P304638	
1793853	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.035		mg P/L	P303182	
1793855	EPA 200.7 Rev. 4.4	Calcium	40.2		mg/L	P303173	
		Iron	970		ug/L	P303173	
		Magnesium	4.84		mg/L	P303173	
		Potassium	0.96	I	mg/L	P303173	
		Sodium	23.5		mg/L	P303173	
		Zinc	5.0	U	ug/L	P303173	
	EPA 200.8 Rev. 5.4	Arsenic	1.16		ug/L	P303173	
		Cadmium	0.020	U	ug/L	P303173	
		Chromium	0.13	I	ug/L	P303173	
		Copper	0.16	I	ug/L	P303173	
		Lead	0.072	I	ug/L	P303173	
		Nickel	0.16	I	ug/L	P303173	
		Silver	0.0050	U	ug/L	P303173	

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: P303206

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P303173

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P303173

Component	Result	Code	Units
Sodium	0.50	U	mg/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P303173

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: P303648

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P303651

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303871

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P304146

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304004

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P304053

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: P303182

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

Reference Method: SM 2120 B
Batch ID: P303189

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P303816

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

Reference Method: SM 2540 C-97
Batch ID: P303911

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P303788

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P303821

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P304638

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: P303173

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	109		P	85 - 115
Iron	105		P	85 - 115
Magnesium	112		P	85 - 115
Potassium	103		P	85 - 115
Sodium	108		P	85 - 115
Zinc	101		P	85 - 115

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P303173

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	100		P	85 - 115
Cadmium	98.3		P	85 - 115
Chromium	100		P	85 - 115
Copper	99.6		P	85 - 115
Lead	100		P	85 - 115
Nickel	102		P	85 - 115
Silver	96.3		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P303648

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P303651

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	96.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303871

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: P304146

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	98.6		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304004

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: P304053

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P303182

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	105		P	90 - 110

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P303816

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

Reference Method: SM 4500 F-C-97
Batch ID: P303821

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.5		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P304638

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.6		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P303173

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1792559	Calcium	106	108	P/P	80 - 120
1792559	Iron	105	106	P/P	80 - 120
1792559	Magnesium	109	110	P/P	80 - 120
1792559	Potassium	101	101	P/P	80 - 120
1792559	Sodium	100	99.5	P/P	80 - 120
1792559	Zinc	101	101	P/P	80 - 120
1792863	Calcium	106		P	80 - 120
1792863	Iron	104		P	80 - 120
1792863	Magnesium	106		P	80 - 120
1792863	Potassium	98.7		P	80 - 120
1792863	Sodium	98.1		P	80 - 120
1792863	Zinc	101		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P303173

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1792559	Arsenic	96.4	99.0	P/P	80 - 120
1792559	Cadmium	98.5	97.8	P/P	80 - 120
1792559	Chromium	119	99.6	P/P	80 - 120
1792559	Copper	96.1	97.1	P/P	80 - 120
1792559	Lead	98.8	99.7	P/P	80 - 120
1792559	Nickel	98.2	99.0	P/P	80 - 120
1792559	Silver	95.5	96.1	P/P	80 - 120
1792863	Arsenic	102		P	80 - 120
1792863	Cadmium	101		P	80 - 120
1792863	Chromium	100		P	80 - 120
1792863	Copper	97.3		P	80 - 120
1792863	Lead	101		P	80 - 120
1792863	Nickel	99.3		P	80 - 120

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P303173

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1792863	Silver	94.7		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P303648

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1793758	Chloride	99.1		P	90 - 110
1793763	Chloride	99.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P303651

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1793758	Sulfate	95.3		P	90 - 110
1793763	Sulfate	94.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303871

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1794731	Ammonia-N	99.8	99.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P304146

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1793816	Kjeldahl Nitrogen	99.4	95.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304004

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1793775	NO2NO3-N	94.2	98.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P304053

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1793773	Total-P	100	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P303182

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1793853	O-Phosphate-P	100	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P303821

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1793851	Fluoride	95.9	95.4	P/P	91 - 105

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P304638

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1793776	Organic Carbon	98.1	97.2	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P303206

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1793833	Turbidity	2.04	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P303173

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1792559	Calcium	1.01	Spike	P	0 - 20
1792559	Iron	0.466	Spike	P	0 - 20
1792559	Magnesium	0.997	Spike	P	0 - 20
1792559	Potassium	0.0699	Spike	P	0 - 20
1792559	Sodium	0.320	Spike	P	0 - 20
1792559	Zinc	0.194	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P303173

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1792559	Arsenic	2.62	Spike	P	0 - 20
1792559	Cadmium	0.737	Spike	P	0 - 20
1792559	Chromium	17.7	Spike	P	0 - 20
1792559	Copper	1.08	Spike	P	0 - 20
1792559	Lead	0.966	Spike	P	0 - 20
1792559	Nickel	0.824	Spike	P	0 - 20
1792559	Silver	0.613	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P303648

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1793758	Chloride	0.105	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P303651

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1793758	Sulfate	0.219	Sample	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303871

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1794731	Ammonia-N	0.231	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P304146

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1793816	Kjeldahl Nitrogen	2.36	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304004

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1793775	NO2NO3-N	3.94	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P304053

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1793773	Total-P	0.458	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P303182

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1793853	O-Phosphate-P	0.368	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P303189

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1793813	Color (true)	1.62	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P303816

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1793851	Total Alkalinity	0.0379	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P303911

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1793815	TDS	5.34	Sample	P	0 - 10

Quality Assurance Report
Precision

Reference Method: SM 4500 F-C-97
Batch ID: P303821

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1793851	Fluoride	0.490	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P304638

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1793776	Organic Carbon	0.662	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: A69156
Included Lab Sample IDs: 1793853

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

Reference Method: SM 2120 B
Run ID: A69157
Included Lab Sample IDs: 1793851

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	100	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A69165
Included Lab Sample IDs: 1793851

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

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A69210
Included Lab Sample IDs: 1793855

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	102	101	P/P	90 - 110
Iron	100	99.1	P/P	90 - 110
Magnesium	102	101	P/P	90 - 110
Potassium	101	98.1	P/P	90 - 110
Sodium	101	94.0	P/P	90 - 110
Zinc	100	101	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A69214
Included Lab Sample IDs: 1793855

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	99.3	98.3	P/P	90 - 110
Cadmium	97.9	97.9	P/P	90 - 110
Chromium	99.0	100	P/P	90 - 110
Copper	98.7	97.9	P/P	90 - 110
Lead	96.3	96.0	P/P	90 - 110
Nickel	99.4	97.2	P/P	90 - 110
Silver	96.7	95.9	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A69217
Included Lab Sample IDs: 1793851

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	101	P/P	90 - 110
Sulfate	99.8	97.1	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A69345
Included Lab Sample IDs: 1793851

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.1	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A69345
Included Lab Sample IDs: 1793851

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A69351
Included Lab Sample IDs: 1793852

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.7	99.7	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A69407
Included Lab Sample IDs: 1793852

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.0	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A69432
Included Lab Sample IDs: 1793852

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A69486
Included Lab Sample IDs: 1793852

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.6	95.0	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A69584
Included Lab Sample IDs: 1793852

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.5	98.6	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						2.04	
EPA 200.7 Rev. 4.4	Calcium	109	106	108	106			1.01
	Iron	105	105	106	104			0.466
	Magnesium	112	109	110	106			0.997
	Potassium	103	101	101	98.7			0.0699
	Sodium	108	100	99.5	98.1			0.320
	Zinc	101	101	101	101			0.194
EPA 200.8 Rev. 5.4	Arsenic	100	96.4	99.0	102			2.62
	Cadmium	98.3	98.5	97.8	101			0.737
	Chromium	100	119	99.6	100			17.7
	Copper	99.6	96.1	97.1	97.3			1.08
	Lead	100	98.8	99.7	101			0.966
	Nickel	102	98.2	99.0	99.3			0.824
	Silver	96.3	95.5	96.1	94.7			0.613
EPA 300.0 Rev. 2.1	Chloride	100	99.1	99.4			0.105	
	Sulfate	96.9	95.3	94.9			0.219	
EPA 350.1 Rev. 2.0	Ammonia-N	98.5	99.8	99.4				0.231
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.6	99.4	95.9				2.36
EPA 353.2 Rev. 2.0	NO2NO3-N	102	94.2	98.2				3.94
EPA 365.1 Rev. 2.0	Total-P	99.2	100	101				0.458
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	105	100	101				0.368
SM 2120 B	Color (true)						1.62	
SM 2320 B-97	Total Alkalinity	101					0.0379	
SM 2540 C-97	TDS						5.34	
SM 4500 F-C-97	Fluoride	96.5	95.9	95.4				0.490
SM 5310 B-00	Organic Carbon	97.6	98.1	97.2				0.662

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1793851
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1793855
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	1793855
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1793851
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1793851
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1793852
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1793852
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1793852
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1793852
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1793853
SM 2120 B / E31780	True Color measured at 450 nm	1793851
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1793851
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1793851
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1793851
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1793851
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1793852

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	04/28/2016			04/28/2016 15:12	Sima Feizi	1793851
EPA 200.7 Rev. 4.4	04/28/2016	04/28/2016	Elliott D. Healy	05/02/2016	Joshua Ayres	1793855
EPA 200.8 Rev. 5.4	04/28/2016	04/28/2016	Elliott D. Healy	05/02/2016	Charles J. Peterson	1793855
EPA 300.0 Rev. 2.1	04/28/2016			05/05/2016	Elisa J Lutz	1793851
EPA 350.1 Rev. 2.0	04/28/2016			05/09/2016	Diana M. Turner	1793852
EPA 351.2 Rev. 2.0	04/28/2016	05/12/2016	Christopher Armour	05/16/2016	Christopher Armour	1793852
EPA 353.2 Rev. 2.0	04/28/2016			05/10/2016	Peter D. Kaus	1793852
EPA 365.1 Rev. 2.0	04/28/2016	05/11/2016	Vijayalakshmi Reddy	05/11/2016	Lipi Saha	1793852
EPA 365.1 Rev. 2.0 dissolved	04/28/2016			04/28/2016 16:08	Julia Storbeck	1793853
SM 2120 B	04/28/2016			04/28/2016 14:21	Rochelle Y Jackson	1793851
SM 2320 B-97	04/28/2016			05/07/2016	Dale L. Simmons	1793851
SM 2540 C-97	04/28/2016			05/03/2016	Yijie Li	1793851
SM 2540 D-97	04/28/2016			05/03/2016	Yijie Li	1793851
SM 4500 F-C-97	04/28/2016			05/07/2016	Dale L. Simmons	1793851
SM 5310 B-00	04/28/2016			05/19/2016	Diana M. Turner	1793852