Chemical Analysis Report

SO-DIST-2016-04-26-01

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

Event Description: **SMP: Arbuckle above Morgan and Arbuckle Branch**
Request ID: **RQ-2016-03-21-15**
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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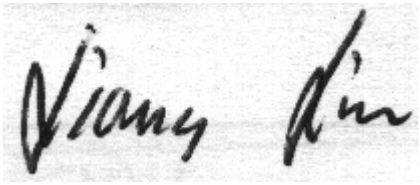
Certified by: Liang Lin, Environmental Administrator

Date Certified: 17-MAY-2016 17:16



Case Narrative

Unless otherwise noted, all samples included in this report were received in accordance with protocols referenced in Chapter 62-160, Florida Administrative Code (F.A.C.). Results published in this report pertain only to the samples as submitted to, and received by the laboratory. All times in this report are adjusted to the applicable Eastern Time Zone (EST or EDT).

Results for the following analytical group are included in this report: Nutrients.

Scientific notation may be used in reporting very large or small values. Values reported using scientific notation will take the form of the following example: 1.3E+03, which is equivalent to 1.3×10^3 or 1300.

Unless otherwise noted, analytical values for soil and sediment samples are reported on a dry weight basis, and analytical values for waste and tissue samples are reported on a wet weight basis.

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited or where accreditation for that field of testing is not applicable.

Any significant anomalies or deviations from established protocols are documented in Non-Conformance Reports, which, where appropriate, are included within this analytical report. Additional comments related to specific analytical tests may be included as remarks following the analytical results for each sample. Such comments and remarks are for informational purposes only and are not intended to convey judgement about the usability of the reported data.

A quality control report on the performance of the test method for the submitted samples is included. Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published quality control acceptance limits for each analytical test. Matrix quality control results (matrix spike recoveries and matrix sample precision) pertain only to the matrix sample tested and do not necessarily reflect test method performance for other samples.

Typical matrix quality control (QC) measurements may include matrix spike recovery, matrix spike duplicate recovery, matrix spike precision and matrix sample precision. Not all matrix QC results may be available or reportable; where they are not an explanation is provided. Typical reasons for unavailable QC results include, but are not limited to, a) insufficient matrix sample to perform some or all QC measurements; b) analyte concentration in the sample replicated was too low for a meaningful measurement of precision and c) analyte concentration in the matrix sample spiked was too high (relative to the amount of analyte spiked) for a meaningful measurement of recovery. Where matrix QC results are unavailable, other method performance metrics (e.g., LCS recovery, LCS precision, surrogate recovery) may be used to assess performance of the method. Comments explaining any missing QC measurements are not intended to convey any adverse conclusions about the quality of the reported data.

Precision is reported as relative percent difference unless otherwise noted.

Quality Control codes as defined below may be used in this report to indicate results that are associated with one or more quality control elements which did not fall within established test method criteria. Such results may be qualified as estimates using a J qualifier as required by 62-160 F.A.C. Explanations are included in the report for any results that were reported as estimates for other reasons.

QC Codes used in this report may include:

- LCS – Recovery for the batch Laboratory Control Sample (LCS) was outside existing control limits;
- MS – Recovery for the batch matrix spike (MS) was outside existing control limits;
- CCV – Recovery for a continuing calibration verification (CCV) standard was outside existing control limits;
- SUR – Recovery of a surrogate (SUR) for associated analytes was outside existing control limits;
- RPD – The precision, measured as relative percent difference (RPD), of batch replicate measurements was outside existing control limits;
- RSD – The precision, measured as relative standard deviation (RSD), of batch replicate measurements was outside existing control limits;
- SMP – Sample - used precision derived from replicate analyses of a sample;

The following data qualifiers are used, where applicable, in this report as specified in 62-160 F.A.C.

- A - Value reported is the mean of two or more determinations.
- B - Results based on colony counts outside the acceptable range.
- I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
- J - Estimated value and/or the analysis did not meet established quality control criteria.
- K - Actual value is known to be less than value given.
- L - Actual value is known to be greater than value given.
- N - Presumptive evidence of presence of material.
- O - Sampled, but analysis lost or not performed.
- Q - Sample held beyond normal holding time.
- T - Value reported is less than the criterion of detection.
- U - Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
- V - Analyte was detected in both sample and method blank.
- X - Too few individuals to calculate SCI value.
- Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
- Z - Colonies were too numerous to count (TNTC).

Quality control information from overflow laboratories may not be included in this report. Please refer to the associated report from the overflow laboratory for additional information.

Sample Location: BONNET CREEK **Collection Date/Time: 04/25/2016 12:55**

Field ID: G4SD0107 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1792545	EPA 180.1 Rev. 2.0	Turbidity	2.4		NTU	P303004	
	EPA 300.0 Rev. 2.1	Chloride	24		mg Cl/L	P303320	
		Sulfate	14		mg SO4/L	P303323	
	SM 2120 B	Color (true)	200		PCU	P303011	
	SM 2320 B-97	Total Alkalinity	14		mg CaCO3/L	P303266	
	SM 2540 C-97	TDS	124	A	mg/L	P303443	
	SM 2540 D-97	TSS	5	I	mg/L	P303310	
	SM 4500 F-C-97	Fluoride	0.089	I	mg F/L	P303270	
1792548	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P303682	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.83		mg N/L	P303877	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.013		mg N/L	P303528	
	EPA 365.1 Rev. 2.0	Total-P	0.52		mg P/L	P303697	
	SM 5310 B-00	Organic Carbon	21		mg C/L	P304037	
1792551	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.48		mg P/L	P302983	

Ref. Method and Comment:
SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.

Sample Location: ARBUCKLE CR. ABOVE MORGAN HOLE BY RAMP **Collection Date/Time: 04/25/2016 11:45**

Field ID: G4SD0117 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1792546	EPA 180.1 Rev. 2.0	Turbidity	6.5	A	NTU	P303005	
	EPA 300.0 Rev. 2.1	Chloride	17	A	mg Cl/L	P303320	
		Sulfate	24	A	mg SO4/L	P303323	
	SM 2120 B	Color (true)	140		PCU	P303012	
	SM 2320 B-97	Total Alkalinity	15	A	mg CaCO3/L	P303266	
	SM 2540 C-97	TDS	110		mg/L	P303443	
	SM 2540 D-97	TSS	8	I	mg/L	P303310	
	SM 4500 F-C-97	Fluoride	0.081	I	mg F/L	P303270	
1792549	EPA 350.1 Rev. 2.0	Ammonia-N	0.072		mg N/L	P303682	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P303877	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.078		mg N/L	P303529	
	EPA 365.1 Rev. 2.0	Total-P	0.067		mg P/L	P303697	
	SM 5310 B-00	Organic Carbon	16		mg C/L	P304037	
1792552	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.015		mg P/L	P302984	

Ref. Method and Comment:
SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.

Sample Location: ARBUCKLE BRANCH @ ARBUCKLE CREEK RD. **Collection Date/Time: 04/25/2016 11:00**

Field ID: G4SD-26010519 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1792547	EPA 180.1 Rev. 2.0	Turbidity	5.1		NTU	P303005	

Field ID: G4SD-26010519 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1792547	EPA 300.0 Rev. 2.1	Chloride	38		mg Cl/L	P303320	
		Sulfate	32		mg SO4/L	P303323	
	SM 2120 B	Color (true)	86	A	PCU	P303012	
	SM 2320 B-97	Total Alkalinity	5.9		mg CaCO3/L	P303266	
	SM 2540 C-97	TDS	148		mg/L	P303443	
	SM 2540 D-97	TSS	5	I	mg/L	P303310	
	SM 4500 F-C-97	Fluoride	0.054	I	mg F/L	P303270	
1792550	EPA 350.1 Rev. 2.0	Ammonia-N	0.085		mg N/L	P303682	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.93		mg N/L	P303877	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.029		mg N/L	P303529	
	EPA 365.1 Rev. 2.0	Total-P	0.041		mg P/L	P303697	
	SM 5310 B-00	Organic Carbon	17		mg C/L	P304037	
1792553	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.009	I	mg P/L	P302984	

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: P303004

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P303005

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P303320

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P303323

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303682

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303877

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303528

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303529

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P303697

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P302983

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P302984

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

Reference Method: SM 2120 B
Batch ID: P303011

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P303012

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P303266

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

Quality Assurance Report
Method Blank Results

Reference Method: SM 2540 C-97
Batch ID: P303443

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P303310

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P303270

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P304037

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P303320

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P303323

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: P303682

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.3		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303877

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303528

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303528

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303529

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P303697

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	98.4		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P302983

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P302984

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

Reference Method: SM 2320 B-97
Batch ID: P303266

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	100		P	95 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P303270

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.1		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P304037

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.2		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P303320

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P303320

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1792546	Chloride	97.7		P	90 - 110
1792604	Chloride	97.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P303323

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1792546	Sulfate	94.2		P	90 - 110
1792604	Sulfate	94.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303682

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1792521	Ammonia-N	97.8	98.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303877

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1792525	Kjeldahl Nitrogen	89.8	86.9	F/F	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303528

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1792518	NO2NO3-N	100	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303529

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1792549	NO2NO3-N	99.0	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P303697

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1792523	Total-P	96.9	96.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P302983

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1792527	O-Phosphate-P	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P302984

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1792664	O-Phosphate-P	100	101	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P303270

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1792546	Fluoride	97.0	97.0	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P304037

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1792519	Organic Carbon	94.8	93.2	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P303004

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1792509	Turbidity	1.03	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P303005

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1792546	Turbidity	1.69	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P303320

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1792546	Chloride	0.459	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P303323

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1792546	Sulfate	0.0185	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303682

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1792521	Ammonia-N	0.746	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303877

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits

Quality Assurance Report
Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303877

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1792525	Kjeldahl Nitrogen	2.67	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303528

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1792518	NO2NO3-N	1.52	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303529

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1792549	NO2NO3-N	2.15	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P303697

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1792523	Total-P	0.301	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P302983

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1792527	O-Phosphate-P	0.784	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P302984

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1792664	O-Phosphate-P	1.17	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P303011

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1792510	Color (true)	3.03	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P303012

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1792547	Color (true)	1.93	Sample	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2320 B-97
Batch ID: P303266

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1792546	Total Alkalinity	2.54	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P303443

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1792545	TDS	8.84	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P303270

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1792546	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P304037

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1792519	Organic Carbon	1.45	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: A69106
Included Lab Sample IDs: 1792551, 1792552, 1792553

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.2	P/P	90 - 110
O-Phosphate-P	101	99.3	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A69112
Included Lab Sample IDs: 1792545, 1792546, 1792547

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

Reference Method: SM 2120 B
Run ID: A69115
Included Lab Sample IDs: 1792545, 1792546, 1792547

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits

Quality Assurance Report
Calibration Verification

Reference Method: SM 2120 B
Run ID: A69115
Included Lab Sample IDs: 1792545, 1792546, 1792547

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	100	P/P	90 - 115
Color (true)	97.7	101	P/P	90 - 115

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A69144
Included Lab Sample IDs: 1792545, 1792546, 1792547

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	102	P/P	90 - 110
Chloride	102	103	P/P	90 - 110
Sulfate	100	94.8	P/P	90 - 110
Sulfate	99.3	96.9	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A69186
Included Lab Sample IDs: 1792545, 1792546, 1792547

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	97.5	P/P	90 - 110
Total Alkalinity	97.2	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A69186
Included Lab Sample IDs: 1792545, 1792546, 1792547

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.0	98.5	P/P	90 - 110
Fluoride	99.5	99.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A69271
Included Lab Sample IDs: 1792548, 1792549, 1792550

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	102	P/P	90 - 110
NO2NO3-N	102	104	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A69311
Included Lab Sample IDs: 1792548, 1792549, 1792550

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.9	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A69346
Included Lab Sample IDs: 1792548, 1792549

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.1	99.2	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A69361
Included Lab Sample IDs: 1792550

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A69419
Included Lab Sample IDs: 1792548, 1792549, 1792550

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	93.3	92.4	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A69421
Included Lab Sample IDs: 1792548, 1792549, 1792550

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.2	96.2	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					1.03	
	Turbidity					1.69	
EPA 300.0 Rev. 2.1	Chloride	98.9	97.7	97.8		0.459	
	Sulfate	95.6	94.2	94.1		0.0185	
EPA 350.1 Rev. 2.0	Ammonia-N	98.3	97.8	98.7			0.746
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	89.8	86.9			2.67
EPA 353.2 Rev. 2.0	NO2NO3-N	105	100	103			1.52
	NO2NO3-N	104	99.0	102			2.15
EPA 365.1 Rev. 2.0	Total-P	98.4	96.9	96.6			0.301
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	102	102			0.784
	O-Phosphate-P	103	100	101			1.17
SM 2120 B	Color (true)					3.03	
	Color (true)					1.93	
SM 2320 B-97	Total Alkalinity	100				2.54	
SM 2540 C-97	TDS					8.84	
SM 4500 F-C-97	Fluoride	98.1	97.0	97.0			0.0
SM 5310 B-00	Organic Carbon	98.2	94.8	93.2			1.45

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1792545, 1792546, 1792547
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1792545, 1792546, 1792547

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1792545, 1792546, 1792547
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1792548, 1792549, 1792550
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1792548, 1792549, 1792550
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1792548, 1792549, 1792550
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1792548, 1792549, 1792550
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1792551, 1792552, 1792553
SM 2120 B / E31780	True Color measured at 450 nm	1792545, 1792546, 1792547
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1792545, 1792546, 1792547
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1792545, 1792546, 1792547
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1792545, 1792546, 1792547
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1792545, 1792546, 1792547
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1792548, 1792549, 1792550

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	04/26/2016			04/26/2016 16:05	Blanca Fach	1792545, 1792546, 1792547
EPA 300.0 Rev. 2.1	04/26/2016			04/30/2016	Elisa J Lutz	1792545, 1792546, 1792547
EPA 350.1 Rev. 2.0	04/26/2016			05/05/2016	Diana M. Turner	1792548, 1792549, 1792550
EPA 351.2 Rev. 2.0	04/26/2016	05/10/2016	Sofia Elnemr	05/11/2016	Christopher Armour	1792548, 1792549, 1792550
EPA 353.2 Rev. 2.0	04/26/2016			05/04/2016	Peter D. Kaus	1792548, 1792549, 1792550
EPA 365.1 Rev. 2.0	04/26/2016	05/06/2016	Vijayalakshmi Reddy	05/09/2016	Lipi Saha	1792548, 1792549, 1792550
EPA 365.1 Rev. 2.0 dissolved	04/26/2016			04/26/2016 15:25	Julia Storbeck	1792552
	04/26/2016			04/26/2016 15:26	Julia Storbeck	1792553
	04/26/2016			04/26/2016 15:49	Julia Storbeck	1792551
SM 2120 B	04/26/2016			04/26/2016 16:19	Chrisoulla Rakowski	1792546
	04/26/2016			04/26/2016 16:21	Chrisoulla Rakowski	1792547
	04/26/2016			04/26/2016 17:07	Chrisoulla Rakowski	1792545
SM 2320 B-97	04/26/2016			04/29/2016	Dale L. Simmons	1792545, 1792546, 1792547
SM 2540 C-97	04/26/2016			04/27/2016	Yijie Li	1792545, 1792546, 1792547
SM 2540 D-97	04/26/2016			04/27/2016	Yijie Li	1792545, 1792546, 1792547
SM 4500 F-C-97	04/26/2016			04/29/2016	Dale L. Simmons	1792545, 1792546, 1792547
SM 5310 B-00	04/26/2016			05/10/2016	Diana M. Turner	1792548, 1792549, 1792550