

Chemical Analysis Report

SE-DIST-2016-09-28-01

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

Event Description: **SMP-5 mile creek Run**
Request ID: **RQ-2016-09-26-10**
Customer: **SE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
2199 South Rock Road
Fort Pierce, FL 34945
Attn: Matthew Sewell

For additional information please contact
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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 25-OCT-2016 10:33



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: 5 MILE @ EDWARDS

Collection Date/Time: 09/27/2016 11:35

Field ID: 28010022

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1835486	EPA 180.1 Rev. 2.0	Turbidity	4.9		NTU	P312080	
	EPA 300.0 Rev. 2.1	Chloride	130		mg Cl/L	P312301	
		Sulfate	51		mg SO4/L	P312834	
		Color (true)	100		PCU	P312041	
	SM 2320 B-97	Total Alkalinity	161		mg CaCO3/L	P312352	
	SM 2540 C-97	TDS	478		mg/L	P312418	
	SM 2540 D-97	TSS	3	I	mg/L	P312364	
	SM 4500 F-C-97	Fluoride	0.29		mg F/L	P312354	
1835489	EPA 350.1 Rev. 2.0	Ammonia-N	0.037		mg N/L	P312504	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P312692	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.15		mg N/L	P312513	
	EPA 365.1 Rev. 2.0	Total-P	0.23		mg P/L	P313022	
	SM 5310 B-00	Organic Carbon	16		mg C/L	P312547	
1835492	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.17		mg P/L	P312069	

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: 5 MILE @ KIRBY LOOP RD.

Collection Date/Time: 09/27/2016 11:55

Field ID: 28010133

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1835487	EPA 180.1 Rev. 2.0	Turbidity	5.2		NTU	P312080	
	EPA 300.0 Rev. 2.1	Chloride	130		mg Cl/L	P312301	
		Sulfate	51		mg SO4/L	P312834	
		Color (true)	110		PCU	P312041	
	SM 2320 B-97	Total Alkalinity	163		mg CaCO3/L	P312352	
	SM 2540 C-97	TDS	489		mg/L	P312418	
	SM 2540 D-97	TSS	4	I	mg/L	P312364	
	SM 4500 F-C-97	Fluoride	0.30		mg F/L	P312354	
1835490	EPA 350.1 Rev. 2.0	Ammonia-N	0.043		mg N/L	P312504	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.99		mg N/L	P312692	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.15		mg N/L	P312513	
	EPA 365.1 Rev. 2.0	Total-P	0.25		mg P/L	P313022	
	SM 5310 B-00	Organic Carbon	16		mg C/L	P312547	
1835493	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.18		mg P/L	P312069	

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: 5 MILE CREEK @ OKEECHOBEE

Collection Date/Time: 09/27/2016 12:15

Field ID: 28010001

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1835488	EPA 180.1 Rev. 2.0	Turbidity	5.4		NTU	P312080	
	EPA 300.0 Rev. 2.1	Chloride	130		mg Cl/L	P312593	
		Sulfate	51		mg SO4/L	P312834	

Field ID: 28010001

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1835488	SM 2120 B	Color (true)	110		PCU	P312041	
	SM 2320 B-97	Total Alkalinity	164		mg CaCO3/L	P312352	
	SM 2540 C-97	TDS	502	A	mg/L	P312770	
	SM 2540 D-97	TSS	4	I	mg/L	P312753	
	SM 4500 F-C-97	Fluoride	0.30		mg F/L	P312354	
1835491	EPA 350.1 Rev. 2.0	Ammonia-N	0.030		mg N/L	P312504	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.99		mg N/L	P312692	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.15		mg N/L	P312513	
	EPA 365.1 Rev. 2.0	Total-P	0.25		mg P/L	P313053	
	SM 5310 B-00	Organic Carbon	17		mg C/L	P312547	
1835494	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.19		mg P/L	P312070	

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: P312080

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P312301

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P312593

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P312834

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P312504

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P312692

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P312513

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P313022

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P313053

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P312069

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P312070

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

Reference Method: SM 2120 B
Batch ID: P312041

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P312352

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

Reference Method: SM 2540 C-97
Batch ID: P312418

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P312770

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P312364

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P312753

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P312354

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P312547

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: P312301

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P312593

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	97.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P312834

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	95.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P312504

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P312692

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P312692

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P312513

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: P313022

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P313053

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	92.3		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P312069

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P312070

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

Reference Method: SM 2320 B-97
Batch ID: P312352

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

Reference Method: SM 4500 F-C-97
Batch ID: P312354

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

Reference Method: SM 5310 B-00
Batch ID: P312547

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P312301

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1835205	Chloride	100		P	90 - 110
1835206	Chloride	99.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P312593

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1836244	Chloride	96.6	99.2	P/P	90 - 110
1836245	Chloride	99.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P312834

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1836244	Sulfate	93.5	93.3	P/P	90 - 110
1836245	Sulfate	94.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P312504

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1835590	Ammonia-N	100	106	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P312692

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1835474	Kjeldahl Nitrogen	102	97.7	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P312513

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1835469	NO2NO3-N	105	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P313022

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1835471	Total-P	97.1	98.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P313053

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1835491	Total-P	97.6	97.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P312069

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1835478	O-Phosphate-P	101	102	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P312070

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1835480	O-Phosphate-P	100	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P312354

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1835978	Fluoride	96.4	96.4	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P312547

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1833096	Organic Carbon	113		P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P312080

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1835461	Turbidity	3.47	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P312301

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1835205	Chloride	0.322	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P312593

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1836244	Chloride	1.55	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P312834

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1836244	Sulfate	0.167	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P312504

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1835590	Ammonia-N	5.31	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P312692

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1835474	Kjeldahl Nitrogen	2.43	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P312513

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1835469	NO2NO3-N	1.44	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P313022

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1835471	Total-P	0.851	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P313053

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1835491	Total-P	0.280	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P312069

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1835478	O-Phosphate-P	0.985	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P312070

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1835480	O-Phosphate-P	0.894	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P312041

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1835602	Color (true)	1.22	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P312352

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1835978	Total Alkalinity	0.0310	Sample	P	0 - 4.8

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
Batch ID: P312418

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1835204	TDS	9.74	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P312770

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1835488	TDS	3.79	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P312354

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1835978	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P312547

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1833096	Organic Carbon	0.673	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 300.0 Rev. 2.1
Run ID: A71882
Included Lab Sample IDs: 1835486, 1835487

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	98.9	100	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A71888
Included Lab Sample IDs: 1835486, 1835487, 1835488

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.8	98.4	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A71901
Included Lab Sample IDs: 1835492, 1835493, 1835494

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A71903

Included Lab Sample IDs: 1835486, 1835487, 1835488

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A71988

Included Lab Sample IDs: 1835488

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	97.5	98.7	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A71991

Included Lab Sample IDs: 1835486, 1835487, 1835488

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

Reference Method: SM 4500 F-C-97

Run ID: A71991

Included Lab Sample IDs: 1835486, 1835487, 1835488

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A72029

Included Lab Sample IDs: 1835489, 1835490, 1835491

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	104	104	P/P	90 - 110
Ammonia-N	105	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A72032

Included Lab Sample IDs: 1835489, 1835490, 1835491

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

Reference Method: SM 5310 B-00

Run ID: A72041

Included Lab Sample IDs: 1835489, 1835490, 1835491

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	108	106	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A72131

Included Lab Sample IDs: 1835486, 1835487, 1835488

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A72163

Included Lab Sample IDs: 1835489, 1835490, 1835491

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.0	99.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A72194

Included Lab Sample IDs: 1835489, 1835490

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A72232

Included Lab Sample IDs: 1835491

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.7	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				3.47	
EPA 300.0 Rev. 2.1	Chloride	99.5	100	99.4	0.322	
	Chloride	97.3	96.6	99.2		1.55
	Sulfate	95.7	93.5	93.3		0.167
EPA 350.1 Rev. 2.0	Ammonia-N	107	100	106		5.31
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.2	102	97.7		2.43
EPA 353.2 Rev. 2.0	NO2NO3-N	102	105	104		1.44
EPA 365.1 Rev. 2.0	Total-P	98.3	97.1	98.0		0.851
	Total-P	92.3	97.6	97.2		0.280
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	101	102		0.985
	O-Phosphate-P	104	100	101		0.894
SM 2120 B	Color (true)				1.22	
SM 2320 B-97	Total Alkalinity	102			0.0310	
SM 2540 C-97	TDS				9.74	
	TDS				3.79	
SM 4500 F-C-97	Fluoride	97.8	96.4	96.4		0.0
SM 5310 B-00	Organic Carbon	105	113			0.673

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1835486, 1835487, 1835488
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1835486, 1835487, 1835488

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1835486, 1835487, 1835488
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1835489, 1835490, 1835491
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1835489, 1835490, 1835491
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1835489, 1835490, 1835491
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1835489, 1835490, 1835491
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1835492, 1835493, 1835494
SM 2120 B / E31780	True Color measured at 450 nm	1835486, 1835487, 1835488
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1835486, 1835487, 1835488
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1835486, 1835487, 1835488
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1835486, 1835487, 1835488
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1835486, 1835487, 1835488
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1835489, 1835490, 1835491

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	09/28/2016			09/28/2016 16:47	Sima Feizi	1835486, 1835487, 1835488
EPA 300.0 Rev. 2.1	09/28/2016			10/01/2016	Ping Hua	1835486, 1835487
	09/28/2016			10/05/2016	Ping Hua	1835488
	09/28/2016			10/10/2016	Ping Hua	1835486, 1835487, 1835488
EPA 350.1 Rev. 2.0	09/28/2016			10/04/2016	Sofia Elnemr	1835489, 1835490, 1835491
EPA 351.2 Rev. 2.0	09/28/2016	10/07/2016	Adrian Shelby	10/11/2016	Christopher Armour	1835489, 1835490, 1835491
EPA 353.2 Rev. 2.0	09/28/2016			10/04/2016	Beverly Y. Sanders	1835489, 1835490, 1835491
EPA 365.1 Rev. 2.0	09/28/2016	10/12/2016	Vijayalakshmi Reddy	10/12/2016	Lipi Saha	1835489, 1835490
	09/28/2016	10/13/2016	Vijayalakshmi Reddy	10/14/2016	Lipi Saha	1835491
EPA 365.1 Rev. 2.0 dissolved	09/28/2016			09/28/2016 18:08	Julia Storbeck	1835492
	09/28/2016			09/28/2016 18:09	Julia Storbeck	1835493
	09/28/2016			09/28/2016 18:10	Julia Storbeck	1835494
SM 2120 B	09/28/2016			09/28/2016 22:11	Julie Michelle Frank	1835486
	09/28/2016			09/28/2016 22:12	Julie Michelle Frank	1835487, 1835488
SM 2320 B-97	09/28/2016			10/03/2016	Dale L. Simmons	1835486, 1835487, 1835488
SM 2540 C-97	09/28/2016			09/30/2016	Yijie Li	1835486, 1835487
	09/28/2016			10/03/2016	Yijie Li	1835488
SM 2540 D-97	09/28/2016			09/30/2016	Yijie Li	1835486, 1835487
	09/28/2016			10/03/2016	Yijie Li	1835488
SM 4500 F-C-97	09/28/2016			10/03/2016	Dale L. Simmons	1835486, 1835487, 1835488
SM 5310 B-00	09/28/2016			10/05/2016	Julie Michelle Frank	1835489, 1835490, 1835491