Chemical Analysis Report

SO-DIST-2016-05-06-01

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

Event Description: **SMP: Group 4 Streams**
Request ID: **RQ-2016-05-02-37**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901
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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 02-JUN-2016 15:03

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: Placid June Canal @ End of Lake Groves Rd. **Collection Date/Time: 05/05/2016 10:35**

Field ID: SD050516-96 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1796487	EPA 180.1 Rev. 2.0	Turbidity	0.60		NTU	P303722	
	EPA 300.0 Rev. 2.1	Chloride	13		mg Cl/L	P304371	
		Sulfate	16		mg SO4/L	P304374	
	SM 2120 B	Color (true)	60		PCU	P303709	
	SM 2320 B-97	Total Alkalinity	2.2	I	mg CaCO3/L	P304330	
	SM 2540 C-97	TDS	95		mg/L	P304437	
	SM 2540 D-97	TSS	2	I	mg/L	P304393	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P304334	
1796491	EPA 350.1 Rev. 2.0	Ammonia-N	0.037		mg N/L	P304221	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.53		mg N/L	P304622	
	EPA 353.2 Rev. 2.0	NO2NO3-N	1.2		mg N/L	P304268	
	EPA 365.1 Rev. 2.0	Total-P	0.031		mg P/L	P304704	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P304874	
1796495	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.011		mg P/L	P303717	

Ref. Method and Comment:
SM 2540 C-97: The reported result is consistent with the laboratory conductivity, 109 umhos/cm.
SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.
EPA 353.2 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: Placid June Canal @ End of Lake Groves Rd. Dup **Collection Date/Time: 05/05/2016 10:40**

Field ID: SD050516-97 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1796488	EPA 180.1 Rev. 2.0	Turbidity	0.85		NTU	P303722	
	EPA 300.0 Rev. 2.1	Chloride	13		mg Cl/L	P304371	
		Sulfate	16		mg SO4/L	P304374	
	SM 2120 B	Color (true)	60	A	PCU	P303709	
	SM 2320 B-97	Total Alkalinity	2.0	I	mg CaCO3/L	P304330	
	SM 2540 C-97	TDS	83		mg/L	P304437	
	SM 2540 D-97	TSS	2	U	mg/L	P304393	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P304334	
1796492	EPA 350.1 Rev. 2.0	Ammonia-N	0.036		mg N/L	P304221	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.57		mg N/L	P304622	
	EPA 353.2 Rev. 2.0	NO2NO3-N	1.2		mg N/L	P304268	
	EPA 365.1 Rev. 2.0	Total-P	0.031		mg P/L	P304704	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P304874	
1796496	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.011		mg P/L	P303717	

Ref. Method and Comment:
SM 2540 C-97: The reported result is consistent with the laboratory conductivity, 109 umhos/cm.
SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.
EPA 353.2 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: LWO @ SR 66 **Collection Date/Time: 05/05/2016 12:05**

Field ID: SD050516-98 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1796489	EPA 180.1 Rev. 2.0	Turbidity	13		NTU	P303722	
	EPA 300.0 Rev. 2.1	Chloride	14	A	mg Cl/L	P304371	
		Sulfate	7.7	A	mg SO4/L	P304374	
	SM 2120 B	Color (true)	480		PCU	P303709	
	SM 2320 B-97	Total Alkalinity	3.3		mg CaCO3/L	P304330	
	SM 2540 C-97	TDS	110		mg/L	P304437	
	SM 2540 D-97	TSS	4	I	mg/L	P304393	
	SM 4500 F-C-97	Fluoride	0.046	I	mg F/L	P304334	
1796493	EPA 350.1 Rev. 2.0	Ammonia-N	0.075		mg N/L	P304221	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P304622	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.10		mg N/L	P304268	
	EPA 365.1 Rev. 2.0	Total-P	0.22		mg P/L	P304704	
	SM 5310 B-00	Organic Carbon	34		mg C/L	P304874	
1796497	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.15		mg P/L	P303717	

Ref. Method and Comment:
SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.
EPA 353.2 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: Fence Line Drain @ Blue Head Ranch SE **Collection Date/Time: 05/05/2016 09:20**

Field ID: SD050516-99 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1796490	EPA 180.1 Rev. 2.0	Turbidity	7.0	A	NTU	P303723	
	EPA 300.0 Rev. 2.1	Chloride	25	A	mg Cl/L	P304372	
		Sulfate	9.1	A	mg SO4/L	P304375	
	SM 2120 B	Color (true)	240		PCU	P303709	
	SM 2320 B-97	Total Alkalinity	26	A	mg CaCO3/L	P304330	
	SM 2540 C-97	TDS	140	A	mg/L	P304437	
	SM 2540 D-97	TSS	6	I	mg/L	P304393	
	SM 4500 F-C-97	Fluoride	0.11		mg F/L	P304334	
1796494	EPA 350.1 Rev. 2.0	Ammonia-N	0.047		mg N/L	P304221	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.5		mg N/L	P304623	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.006	I	mg N/L	P304268	
	EPA 365.1 Rev. 2.0	Total-P	0.12		mg P/L	P304704	
	SM 5310 B-00	Organic Carbon	25		mg C/L	P304874	
1796498	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.061		mg P/L	P303717	

Ref. Method and Comment:
SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.
EPA 351.2 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.
EPA 353.2 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P303722

Component	Result	Code	Units

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P303722

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P303723

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304371

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304372

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304374

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304375

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304221

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P304622

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P304623

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: P304268

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P304704

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P303717

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

Reference Method: SM 2120 B
Batch ID: P303709

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P304330

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

Reference Method: SM 2540 C-97
Batch ID: P304437

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P304393

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P304334

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P304874

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: P304371

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304372

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	97.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304374

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304375

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	96.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304221

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P304622

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P304623

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304268

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: P304704

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P303717

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

Reference Method: SM 2320 B-97
Batch ID: P304330

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

Reference Method: SM 4500 F-C-97
Batch ID: P304334

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.7		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P304874

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.9		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304371

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796390	Chloride	99.6		P	90 - 110
1796489	Chloride	98.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304372

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796490	Chloride	95.1		P	90 - 110
1796789	Chloride	97.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304374

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796390	Sulfate	94.9		P	90 - 110
1796489	Sulfate	97.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304375

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796490	Sulfate	94.1		P	90 - 110
1796789	Sulfate	96.3		P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304221

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796491	Ammonia-N	101	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P304622

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796444	Kjeldahl Nitrogen	99.6	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P304704

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796460	Total-P	101	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P303717

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796573	O-Phosphate-P	98.0	98.9	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P304334

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796490	Fluoride	98.5	98.5	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P304874

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796442	Organic Carbon	93.9	95.1	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P303722

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796435	Turbidity	2.85	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P303723

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796490	Turbidity	1.29	Sample	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304371

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796489	Chloride	0.251	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304372

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796490	Chloride	0.310	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304374

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796489	Sulfate	0.289	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304375

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796490	Sulfate	0.984	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304221

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796491	Ammonia-N	1.28	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P304622

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796444	Kjeldahl Nitrogen	2.42	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P304623

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796494	Kjeldahl Nitrogen	19.4	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304268

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796448	NO2NO3-N	0.634	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P304704

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796460	Total-P	4.45	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P303717

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796573	O-Phosphate-P	0.849	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P303709

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796488	Color (true)	2.38	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P304330

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796490	Total Alkalinity	0.279	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P304437

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796490	TDS	3.58	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P304334

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796490	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P304874

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796442	Organic Carbon	1.07	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: SM 2120 B
Run ID: A69317
Included Lab Sample IDs: 1796487, 1796488, 1796489, 1796490

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.5	99.7	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A69320
Included Lab Sample IDs: 1796495, 1796496, 1796497, 1796498

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

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A69321
Included Lab Sample IDs: 1796487, 1796488, 1796489, 1796490

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A69423
Included Lab Sample IDs: 1796487, 1796488, 1796489, 1796490

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	99.7	P/P	90 - 110
Chloride	101	101	P/P	90 - 110
Sulfate	101	100	P/P	90 - 110
Sulfate	98.5	98.7	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A69447
Included Lab Sample IDs: 1796491, 1796492, 1796493, 1796494

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A69466
Included Lab Sample IDs: 1796491, 1796492, 1796493, 1796494

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

Reference Method: SM 2320 B-97
Run ID: A69481
Included Lab Sample IDs: 1796487, 1796488, 1796489, 1796490

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	99.2	P/P	90 - 110
Total Alkalinity	99.4	102	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: SM 4500 F-C-97
Run ID: A69481
Included Lab Sample IDs: 1796487, 1796488, 1796489, 1796490

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	100	P/P	90 - 110
Fluoride	100	98.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A69607
Included Lab Sample IDs: 1796491, 1796492, 1796493, 1796494

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.4	94.0	P/P	90 - 110
Kjeldahl Nitrogen	98.4	93.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A69630
Included Lab Sample IDs: 1796491, 1796492

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

Reference Method: SM 5310 B-00
Run ID: A69651
Included Lab Sample IDs: 1796491, 1796492, 1796493, 1796494

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.8	97.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A69662
Included Lab Sample IDs: 1796493, 1796494

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	104	104	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					2.85	
	Turbidity					1.29	
EPA 300.0 Rev. 2.1	Chloride	99.8	98.5	99.6		0.251	
	Chloride	97.6	95.1	97.3		0.310	
	Sulfate	98.4	97.2	94.9		0.289	
	Sulfate	96.3	94.1	96.3		0.984	
EPA 350.1 Rev. 2.0	Ammonia-N	100	101	103			1.28
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	99.6	103			2.42
	Kjeldahl Nitrogen	103					19.4

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
EPA 353.2 Rev. 2.0	NO2NO3-N	104					0.634
EPA 365.1 Rev. 2.0	Total-P	98.4	101	106			4.45
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	98.0	98.9			0.849
SM 2120 B	Color (true)					2.38	
SM 2320 B-97	Total Alkalinity	101				0.279	
SM 2540 C-97	TDS					3.58	
SM 4500 F-C-97	Fluoride	98.7	98.5	98.5			0.0
SM 5310 B-00	Organic Carbon	96.9	93.9	95.1			1.07

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1796487, 1796488, 1796489, 1796490
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1796487, 1796488, 1796489, 1796490
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1796487, 1796488, 1796489, 1796490
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1796491, 1796492, 1796493, 1796494
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1796491, 1796492, 1796493, 1796494
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1796491, 1796492, 1796493, 1796494
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1796491, 1796492, 1796493, 1796494
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1796495, 1796496, 1796497, 1796498
SM 2120 B / E31780	True Color measured at 450 nm	1796487, 1796488, 1796489, 1796490
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1796487, 1796488, 1796489, 1796490
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1796487, 1796488, 1796489, 1796490
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1796487, 1796488, 1796489, 1796490
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1796487, 1796488, 1796489, 1796490
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1796491, 1796492, 1796493, 1796494

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	05/06/2016			05/06/2016 13:16	Sima Feizi	1796487, 1796488, 1796489, 1796490
EPA 300.0 Rev. 2.1	05/06/2016			05/13/2016	Elisa J Lutz	1796487, 1796489
	05/06/2016			05/14/2016	Elisa J Lutz	1796488, 1796490
EPA 350.1 Rev. 2.0	05/06/2016			05/12/2016	Diana M. Turner	1796491, 1796492, 1796493, 1796494
EPA 351.2 Rev. 2.0	05/06/2016	05/19/2016	Sofia Elnemr	05/20/2016	Christopher Armour	1796491, 1796492, 1796493, 1796494
EPA 353.2 Rev. 2.0	05/06/2016			05/13/2016	Peter D. Kaus	1796491, 1796492, 1796493, 1796494
EPA 365.1 Rev. 2.0	05/06/2016	05/20/2016	Lipi Saha	05/23/2016	Lipi Saha	1796491, 1796492
	05/06/2016	05/20/2016	Lipi Saha	05/24/2016	Lipi Saha	1796493, 1796494
EPA 365.1 Rev. 2.0 dissolved	05/06/2016			05/06/2016 14:00	Julia Storbeck	1796495
	05/06/2016			05/06/2016 14:01	Julia Storbeck	1796496
	05/06/2016			05/06/2016 14:02	Julia Storbeck	1796497
	05/06/2016			05/06/2016 14:03	Julia Storbeck	1796498
SM 2120 B	05/06/2016			05/06/2016 13:26	Rochelle Y Jackson	1796487
	05/06/2016			05/06/2016 13:27	Rochelle Y Jackson	1796488
	05/06/2016			05/06/2016 13:28	Rochelle Y Jackson	1796489
	05/06/2016			05/06/2016 13:29	Rochelle Y Jackson	1796490
SM 2320 B-97	05/06/2016			05/13/2016	Dale L. Simmons	1796490
	05/06/2016			05/14/2016	Dale L. Simmons	1796487, 1796488, 1796489
SM 2540 C-97	05/06/2016			05/11/2016	Yijie Li	1796487, 1796488, 1796489, 1796490
SM 2540 D-97	05/06/2016			05/11/2016	Yijie Li	1796487, 1796488, 1796489, 1796490
SM 4500 F-C-97	05/06/2016			05/13/2016	Dale L. Simmons	1796490
	05/06/2016			05/14/2016	Dale L. Simmons	1796487, 1796488, 1796489
SM 5310 B-00	05/06/2016			05/23/2016	Diana M. Turner	1796491, 1796492, 1796493, 1796494