Chemical Analysis Report

SO-DIST-2016-06-22-02

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

Event Description: **SMP: L-28 Tieback & Marco Island South**
Request ID: **RQ-2016-06-20-15**
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
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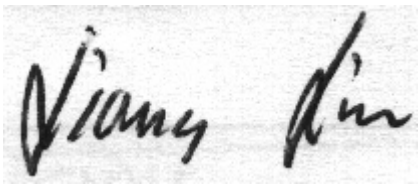
Certified by: Liang Lin, Environmental Administrator

Date Certified: 19-JUL-2016 14:34



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: L-28 TIEBACK @ I75 **Collection Date/Time: 06/21/2016 15:15**

Field ID: G1SD062116-4 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1810153	EPA 180.1 Rev. 2.0	Turbidity	3.4	A	NTU	P306705	
	EPA 300.0 Rev. 2.1	Chloride	25		mg Cl/L	P307237	
		Sulfate	8.1		mg SO4/L	P307239	
	SM 2120 B	Color (true)	110		PCU	P307076	
	SM 2320 B-97	Total Alkalinity	203		mg CaCO3/L	P307280	
	SM 2540 C-97	TDS	305		mg/L	P307301	
	SM 2540 D-97	TSS	5	I	mg/L	P307305	
	SM 4500 F-C-97	Fluoride	0.22		mg F/L	P307285	
1810155	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P307086	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P306815	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P307130	
	EPA 365.1 Rev. 2.0	Total-P	0.064		mg P/L	P306803	
	SM 5310 B-00	Organic Carbon	19		mg C/L	P307063	
1810157	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.023		mg P/L	P306678	

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: L-28 TIEBACK @ I75 DUP **Collection Date/Time: 06/21/2016 15:20**

Field ID: G1SD062116-4 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1810154	EPA 180.1 Rev. 2.0	Turbidity	3.5		NTU	P306705	
	EPA 300.0 Rev. 2.1	Chloride	25		mg Cl/L	P307237	
		Sulfate	8.3		mg SO4/L	P307239	
	SM 2120 B	Color (true)	110		PCU	P307076	
	SM 2320 B-97	Total Alkalinity	201		mg CaCO3/L	P307280	
	SM 2540 C-97	TDS	296		mg/L	P307301	
	SM 2540 D-97	TSS	6	I	mg/L	P307305	
	SM 4500 F-C-97	Fluoride	0.22		mg F/L	P307285	
1810156	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P307086	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P306815	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P307130	
	EPA 365.1 Rev. 2.0	Total-P	0.071		mg P/L	P306803	
	SM 5310 B-00	Organic Carbon	19		mg C/L	P307063	
1810158	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.023		mg P/L	P306678	

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: 3278P @ #4 SOUTH OF GOODLAND **Collection Date/Time: 06/21/2016 13:30**

Field ID: G1SD062116-6 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1810159	EPA 180.1 Rev. 2.0	Turbidity	12		NTU	P306705	
	SM 2320 B-97	Total Alkalinity	144		mg CaCO3/L	P307280	
	SM 2540 D-97	TSS	12		mg/L	P307308	

Field ID: G1SD062116-6 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1810159	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P308103	
1810161	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P307086	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.58		mg N/L	P307868	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P307816	
	EPA 365.1 Rev. 2.0	Total-P	0.048		mg P/L	P307925	
	SM 5310 B-00	Organic Carbon	4.5		mg C/L	P307063	
1810163	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P306678	

Ref. Method and Comment:
SM 2540 D-97: Laboratory conductivity, 52800 umhos/cm.

Sample Location: 3278P @ #4 SOUTH OF GOODLAND DUP **Collection Date/Time: 06/21/2016 13:35**

Field ID: G1SD062116-6 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1810160	EPA 180.1 Rev. 2.0	Turbidity	12		NTU	P306705	
	SM 2320 B-97	Total Alkalinity	143		mg CaCO3/L	P307280	
	SM 2540 D-97	TSS	13	A	mg/L	P307308	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P308103	
1810162	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P307086	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.56		mg N/L	P307868	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P307816	
	EPA 365.1 Rev. 2.0	Total-P	0.045		mg P/L	P307925	
	SM 5310 B-00	Organic Carbon	4.4		mg C/L	P307063	
1810164	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P306678	

Ref. Method and Comment:
SM 2540 D-97: Laboratory conductivity, 52900 umhos/cm.

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P306705

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307237

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307239

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Quality Assurance Report
Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P307086

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306815

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P307868

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P307130

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P307816

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306803

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P307925

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P306678

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

Reference Method: SM 2120 B
Batch ID: P307076

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report
Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P307280

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

Reference Method: SM 2540 C-97
Batch ID: P307301

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P307305

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P307308

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P307285

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P308103

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P307063

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: P307237

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	99.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307239

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307239

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	93.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P307086

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	93.3		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306815

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P307868

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P307130

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P307816

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306803

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	96.8		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P307925

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	94.7		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P306678

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P307280

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P307285

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.9		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P308103

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.5		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P307063

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	101		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307237

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1810202	Chloride	99.8		P	90 - 110
1810671	Chloride	96.0		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307239

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1810202	Sulfate	97.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P307086

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1810161	Ammonia-N	92.9	94.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306815

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1810304	Kjeldahl Nitrogen	95.6	91.8	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P307868

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1814259	Kjeldahl Nitrogen	99.3	95.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P307130

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1810694	NO2NO3-N	97.0	98.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P307816

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1813991	NO2NO3-N	92.7	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306803

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1810114	Total-P	97.6	98.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P307925

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1815121	Total-P	98.3	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P306678

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1810119	O-Phosphate-P	96.2	99.2	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P307285

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1810299	Fluoride	99.0	99.0	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P308103

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1810159	Fluoride	94.5	94.5	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P307063

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1810144	Organic Carbon	96.2	97.3	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P306705

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810153	Turbidity	6.13	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307237

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810202	Chloride	0.542	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307239

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810202	Sulfate	2.98	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P307086

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810161	Ammonia-N	1.14	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306815

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810304	Kjeldahl Nitrogen	2.10	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P307868

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1814259	Kjeldahl Nitrogen	3.65	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P307130

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810694	NO2NO3-N	1.53	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P307816

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1813991	NO2NO3-N	7.52	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306803

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810114	Total-P	0.408	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P307925

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1815121	Total-P	2.32	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P306678

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810119	O-Phosphate-P	2.52	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P307076

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810141	Color (true)	2.82	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P307280

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810299	Total Alkalinity	0.168	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P307301

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810079	TDS	3.38	Sample	P	0 - 10

Reference Method: SM 2540 D-97
Batch ID: P307308

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810160	TSS	3.08	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P307285

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810299	Fluoride	0.0	Spike	P	0 - 3.0

Quality Assurance Report
Precision

Reference Method: SM 4500 F-C-97
Batch ID: P308103

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810159	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P307063

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810144	Organic Carbon	0.816	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: A70171
Included Lab Sample IDs: 1810157, 1810158, 1810163, 1810164

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.0	99.6	P/P	90 - 110
O-Phosphate-P	99.6	98.2	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A70179
Included Lab Sample IDs: 1810153, 1810154, 1810159, 1810160

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

Reference Method: SM 2120 B
Run ID: A70182
Included Lab Sample IDs: 1810153, 1810154

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A70236
Included Lab Sample IDs: 1810155, 1810156

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.0	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A70260
Included Lab Sample IDs: 1810155, 1810156

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.1	98.4	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: SM 5310 B-00
Run ID: A70299
Included Lab Sample IDs: 1810155, 1810156, 1810161, 1810162

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	102	95.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A70306
Included Lab Sample IDs: 1810155, 1810156, 1810161, 1810162

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	94.8	93.5	P/P	90 - 110
Ammonia-N	96.1	94.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A70307
Included Lab Sample IDs: 1810155, 1810156

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A70313
Included Lab Sample IDs: 1810153, 1810154

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.9	102	P/P	90 - 110
Sulfate	95.2	101	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A70372
Included Lab Sample IDs: 1810153, 1810154, 1810159, 1810160

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	103	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A70372
Included Lab Sample IDs: 1810153, 1810154

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	99.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A70523
Included Lab Sample IDs: 1810161, 1810162

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.0	98.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A70574
Included Lab Sample IDs: 1810161, 1810162

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A70574
Included Lab Sample IDs: 1810161, 1810162

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	102	99.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A70575
Included Lab Sample IDs: 1810161, 1810162

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.0	97.5	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A70597
Included Lab Sample IDs: 1810159, 1810160

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.1	99.5	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.
Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.
Where they are different, both control limits are provided.

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					6.13	
EPA 300.0 Rev. 2.1	Chloride	99.3	99.8	96.0		0.542	
	Sulfate	93.4	97.7			2.98	
EPA 350.1 Rev. 2.0	Ammonia-N	93.3	92.9	94.1			1.14
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	95.6	91.8			2.10
	Kjeldahl Nitrogen	100	99.3	95.0			3.65
EPA 353.2 Rev. 2.0	NO2NO3-N	99.0	97.0	98.5			1.53
	NO2NO3-N	99.0	92.7	102			7.52
EPA 365.1 Rev. 2.0	Total-P	96.8	97.6	98.0			0.408
	Total-P	94.7	98.3	101			2.32
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	96.2	99.2			2.52
SM 2120 B	Color (true)					2.82	
SM 2320 B-97	Total Alkalinity	103				0.168	
SM 2540 C-97	TDS					3.38	
SM 2540 D-97	TSS					3.08	
SM 4500 F-C-97	Fluoride	98.9	99.0	99.0			0.0
	Fluoride	98.5	94.5	94.5			0.0
SM 5310 B-00	Organic Carbon	101	96.2	97.3			0.816

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1810153, 1810154, 1810159, 1810160

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1810153, 1810154
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1810153, 1810154
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1810155, 1810156, 1810161, 1810162
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1810155, 1810156, 1810161, 1810162
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1810155, 1810156, 1810161, 1810162
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1810155, 1810156, 1810161, 1810162
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1810157, 1810158, 1810163, 1810164
SM 2120 B / E31780	True Color measured at 450 nm	1810153, 1810154
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1810153, 1810154, 1810159, 1810160
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1810153, 1810154
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1810153, 1810154, 1810159, 1810160
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1810153, 1810154, 1810159, 1810160
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1810155, 1810156, 1810161, 1810162

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	06/22/2016			06/22/2016 15:56	Sima Feizi	1810153, 1810154, 1810159, 1810160
EPA 300.0 Rev. 2.1	06/22/2016			07/01/2016	Ping Hua	1810153, 1810154
EPA 350.1 Rev. 2.0	06/22/2016			06/29/2016	Diana M. Turner	1810155, 1810156, 1810161, 1810162
EPA 351.2 Rev. 2.0	06/22/2016	06/24/2016	Sofia Elnemr	06/27/2016	Christopher Armour	1810155, 1810156
	06/22/2016	07/14/2016	Sofia Elnemr	07/15/2016	Christopher Armour	1810161, 1810162
EPA 353.2 Rev. 2.0	06/22/2016			06/29/2016	Beverly Y. Sanders	1810155, 1810156
	06/22/2016			07/13/2016	Beverly Y. Sanders	1810161, 1810162
EPA 365.1 Rev. 2.0	06/22/2016	06/24/2016	Vijayalakshmi Reddy	06/27/2016	Lipi Saha	1810155, 1810156
	06/22/2016	07/14/2016	Vijayalakshmi Reddy	07/15/2016	Lipi Saha	1810161, 1810162
EPA 365.1 Rev. 2.0 dissolved	06/22/2016			06/22/2016 14:50	Julia Storbeck	1810157
	06/22/2016			06/22/2016 14:51	Julia Storbeck	1810158
	06/22/2016			06/22/2016 14:56	Julia Storbeck	1810163
	06/22/2016			06/22/2016 14:57	Julia Storbeck	1810164
SM 2120 B	06/22/2016			06/22/2016 17:57	Chrisoulla Rakowski	1810153
	06/22/2016			06/22/2016 17:58	Chrisoulla Rakowski	1810154
SM 2320 B-97	06/22/2016			07/02/2016	Dale L. Simmons	1810153, 1810154, 1810159, 1810160
SM 2540 C-97	06/22/2016			06/24/2016	Yijie Li	1810153, 1810154
SM 2540 D-97	06/22/2016			06/24/2016	Yijie Li	1810153, 1810154, 1810159, 1810160
SM 4500 F-C-97	06/22/2016			07/02/2016	Dale L. Simmons	1810153, 1810154
	06/22/2016			07/14/2016	Dale L. Simmons	1810159, 1810160
SM 5310 B-00	06/22/2016			06/29/2016	Diana M. Turner	1810155, 1810156, 1810161, 1810162