Chemical Analysis Report

SO-DIST-2017-05-23-01

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

Event Description: **SMP: Bay of Florida**
Request ID: **RQ-2017-05-22-02**
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: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 13-JUN-2017 12:54

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: WBID 8067 **Collection Date/Time: 05/22/2017 13:45**

Field ID: G5SD052217-9 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1900842	EPA 180.1 Rev. 2.0	Turbidity	3.9		NTU	P325722	
	SM 2320 B-97	Total Alkalinity	133		mg CaCO3/L	P325954	
	SM 2540 D-97	TSS	4	I	mg/L	P326004	
	SM 4500 F-C-97	Fluoride	1.4		mg F/L	P325958	
1900847	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P325864	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.41		mg N/L	P325797	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.008	U	mg N/L	P325822	
	EPA 365.1 Rev. 2.0	Total-P	0.027		mg P/L	P325801	
	SM 5310 B-00	Organic Carbon	2.5		mg C/L	P326161	
1900852	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P325744	

Ref. Method and Comment:
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 353.2 Rev. 2.0: NO2NO3-N: The MDL was elevated due to sample matrix interference.

Sample Location: WBID 8066 **Collection Date/Time: 05/22/2017 13:10**

Field ID: G5SD052217-10 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1900843	EPA 180.1 Rev. 2.0	Turbidity	4.7		NTU	P325722	
	SM 2320 B-97	Total Alkalinity	131		mg CaCO3/L	P325954	
	SM 2540 D-97	TSS	6	I	mg/L	P326004	
	SM 4500 F-C-97	Fluoride	1.4		mg F/L	P325958	
1900848	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P325864	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.32	I	mg N/L	P325797	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.008	U	mg N/L	P325822	
	EPA 365.1 Rev. 2.0	Total-P	0.028		mg P/L	P325801	
	SM 5310 B-00	Organic Carbon	2.2		mg C/L	P326161	
1900853	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P325744	

Ref. Method and Comment:
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 353.2 Rev. 2.0: NO2NO3-N: The MDL was elevated due to sample matrix interference.

Sample Location: 8066- ENRE10 **Collection Date/Time: 05/22/2017 12:30**

Field ID: G5SD052217-11 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1900844	EPA 180.1 Rev. 2.0	Turbidity	2.8		NTU	P325722	
	SM 2320 B-97	Total Alkalinity	152		mg CaCO3/L	P325954	
	SM 2540 D-97	TSS	4	I	mg/L	P326004	
	SM 4500 F-C-97	Fluoride	1.4		mg F/L	P325958	
1900849	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P325864	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.43		mg N/L	P325797	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.008	U	mg N/L	P325823	
	EPA 365.1 Rev. 2.0	Total-P	0.037		mg P/L	P325801	
	SM 5310 B-00	Organic Carbon	4.2		mg C/L	P326193	

Field ID: G5SD052217-11 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1900854	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P325744	

Ref. Method and Comment:
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 353.2 Rev. 2.0: NO2NO3-N: The MDL was elevated due to sample matrix interference.

Sample Location: 8069- ENRE13 **Collection Date/Time: 05/22/2017 14:45**

Field ID: G5SD052217-3 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1900845	EPA 180.1 Rev. 2.0	Turbidity	4.4		NTU	P325722	
	SM 2320 B-97	Total Alkalinity	154		mg CaCO3/L	P325954	
	SM 2540 D-97	TSS	5	I	mg/L	P326004	
	SM 4500 F-C-97	Fluoride	1.4		mg F/L	P325958	
1900850	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P325864	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.6		mg N/L	P325797	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.008	U	mg N/L	P325823	
	EPA 365.1 Rev. 2.0	Total-P	0.036		mg P/L	P325801	
	SM 5310 B-00	Organic Carbon	4.4		mg C/L	P326193	
1900855	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.008	I	mg P/L	P325744	

Ref. Method and Comment:
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 353.2 Rev. 2.0: NO2NO3-N: The MDL was elevated due to sample matrix interference.

Sample Location: WBID 8068 **Collection Date/Time: 05/22/2017 13:00**

Field ID: G5SD052217-8 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1900846	EPA 180.1 Rev. 2.0	Turbidity	6.6		NTU	P325722	
	SM 2320 B-97	Total Alkalinity	160		mg CaCO3/L	P325954	
	SM 2540 D-97	TSS	9	IA	mg/L	P326004	
	SM 4500 F-C-97	Fluoride	1.4		mg F/L	P325958	
1900851	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P325864	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.59		mg N/L	P325867	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.008	U	mg N/L	P325823	
	EPA 365.1 Rev. 2.0	Total-P	0.038		mg P/L	P325801	
	SM 5310 B-00	Organic Carbon	5.1		mg C/L	P326193	
1900856	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.010		mg P/L	P325744	

Ref. Method and Comment:
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 353.2 Rev. 2.0: NO2NO3-N: The MDL was elevated due to sample matrix interference.

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P325722

Component	Result	Code	Units

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P325722

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P325864

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325797

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325867

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325822

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325823

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P325801

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P325744

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

Reference Method: SM 2320 B-97
Batch ID: P325954

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

Quality Assurance Report
Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P326004

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P325958

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P326161

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

Reference Method: SM 5310 B-00
Batch ID: P326193

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P325864

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: P325797

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	98.5		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325867

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325822

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325823

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: P325823

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P325801

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P325744

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

Reference Method: SM 2320 B-97
Batch ID: P325954

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P325958

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	94.8		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P326161

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.7		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P326193

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

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P325864

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1900759	Ammonia-N	101	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325797

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

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325797

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1900797	Kjeldahl Nitrogen	97.9	97.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325867

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1901198	Kjeldahl Nitrogen	96.6	94.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325822

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1900794	NO2NO3-N	102	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325823

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1900849	NO2NO3-N	100	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P325801

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1900761	Total-P	101	94.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P325744

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1900852	O-Phosphate-P	104	105	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P325958

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1901339	Fluoride	94.4	96.4	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P326161

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1900003	Organic Carbon	93.8	95.1	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P326193

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1900849	Organic Carbon	97.8	96.4	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P325722

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1900827	Turbidity	1.32	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P325864

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1900759	Ammonia-N	0.00250	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325797

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1900797	Kjeldahl Nitrogen	0.603	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325867

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1901198	Kjeldahl Nitrogen	1.62	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325822

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1900794	NO2NO3-N	2.17	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325823

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1900849	NO2NO3-N	0.995	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P325801

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1900761	Total-P	6.40	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P325744

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1900852	O-Phosphate-P	0.956	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2320 B-97
Batch ID: P325954

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1901339	Total Alkalinity	0.861	Sample	P	0 - 4.8

Reference Method: SM 4500 F-C-97
Batch ID: P325958

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1901339	Fluoride	1.00	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P326161

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1900003	Organic Carbon	1.18	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P326193

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1900849	Organic Carbon	1.25	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 180.1 Rev. 2.0
Run ID: A76632
Included Lab Sample IDs: 1900842, 1900843, 1900844, 1900845, 1900846

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.5	101	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A76634
Included Lab Sample IDs: 1900852, 1900853, 1900854, 1900855, 1900856

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	102	99.4	P/P	90 - 110
O-Phosphate-P	105	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A76667
Included Lab Sample IDs: 1900847, 1900848, 1900849, 1900850, 1900851

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A76667
Included Lab Sample IDs: 1900847, 1900848, 1900849, 1900850, 1900851

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	99.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A76683
Included Lab Sample IDs: 1900847, 1900848, 1900849, 1900850, 1900851

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A76710
Included Lab Sample IDs: 1900847, 1900848, 1900849, 1900850, 1900851

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A76727
Included Lab Sample IDs: 1900847, 1900848, 1900849, 1900850

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	105	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A76730
Included Lab Sample IDs: 1900842, 1900843, 1900844, 1900845, 1900846

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	106	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A76730
Included Lab Sample IDs: 1900842, 1900843, 1900844, 1900845, 1900846

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	94.3	95.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A76757
Included Lab Sample IDs: 1900851

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	106	103	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A76826
Included Lab Sample IDs: 1900847, 1900848

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.0	96.8	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: SM 5310 B-00
Run ID: A76846
Included Lab Sample IDs: 1900849, 1900850, 1900851

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.6	99.6	P/P	90 - 110

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

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					1.32	
EPA 350.1 Rev. 2.0	Ammonia-N	100	101	101			0.0025
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.5	97.9	97.2			0.603
	Kjeldahl Nitrogen	98.4	96.6	94.6			1.62
EPA 353.2 Rev. 2.0	NO2NO3-N	102	102	104			2.17
	NO2NO3-N	100	100	101			0.995
EPA 365.1 Rev. 2.0	Total-P	100	101	94.6			6.40
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	103	104	105			0.956
SM 2320 B-97	Total Alkalinity	104				0.861	
SM 4500 F-C-97	Fluoride	94.8	94.4	96.4			1.00
SM 5310 B-00	Organic Carbon	94.7	93.8	95.1			1.18
	Organic Carbon	97.2	97.8	96.4			1.25

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1900842, 1900843, 1900844, 1900845, 1900846
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1900847, 1900848, 1900849, 1900850, 1900851
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1900847, 1900848, 1900849, 1900850, 1900851
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1900847, 1900848, 1900849, 1900850, 1900851
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1900847, 1900848, 1900849, 1900850, 1900851
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1900852, 1900853, 1900854, 1900855, 1900856
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1900842, 1900843, 1900844, 1900845, 1900846
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1900842, 1900843, 1900844, 1900845, 1900846
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1900842, 1900843, 1900844, 1900845, 1900846
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1900847, 1900848, 1900849, 1900850, 1900851

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	05/23/2017			05/23/2017 15:59	Sima Feizi	1900842, 1900843, 1900844, 1900845, 1900846
EPA 350.1 Rev. 2.0	05/23/2017			05/25/2017	Julia Storbeck	1900847, 1900848, 1900849, 1900850, 1900851
EPA 351.2 Rev. 2.0	05/23/2017	05/25/2017	Adrian Shelby	05/26/2017	Joseph Suarez	1900847, 1900848, 1900849, 1900850
	05/23/2017	05/26/2017	Adrian Shelby	05/30/2017	Joseph Suarez	1900851
EPA 353.2 Rev. 2.0	05/23/2017			05/25/2017	Beverly Y. Sanders	1900847, 1900848, 1900849, 1900850, 1900851
EPA 365.1 Rev. 2.0	05/23/2017	05/25/2017	Adrian Shelby	05/26/2017	Lipi Saha	1900847, 1900848, 1900849, 1900850, 1900851
EPA 365.1 Rev. 2.0 dissolved	05/23/2017			05/23/2017 14:42	Anthony C. Onicha	1900852
	05/23/2017			05/23/2017 15:21	Anthony C. Onicha	1900853
	05/23/2017			05/23/2017 15:22	Anthony C. Onicha	1900854
	05/23/2017			05/23/2017 15:23	Anthony C. Onicha	1900855, 1900856
SM 2320 B-97	05/23/2017			05/27/2017	Dale L. Simmons	1900842, 1900843, 1900844, 1900845, 1900846
SM 2540 D-97	05/23/2017			05/24/2017	Yijie Li	1900842, 1900843, 1900844, 1900845, 1900846
SM 4500 F-C-97	05/23/2017			05/27/2017	Dale L. Simmons	1900842, 1900843, 1900844, 1900845, 1900846
SM 5310 B-00	05/23/2017			06/01/2017	Julie Michelle Frank	1900847, 1900848
	05/23/2017			06/03/2017	Julie Michelle Frank	1900849, 1900850, 1900851