Chemical Analysis Report

SO-DIST-2017-06-28-01

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-2017-06-19-06**
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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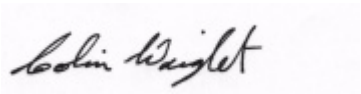
Certified by: Colin Wright, Program Administrator

Date Certified: 14-JUL-2017 16:48



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: ENRE9 Harney River **Collection Date/Time: 06/26/2017 13:25**

Field ID: G5SD062617-1 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1909413	EPA 180.1 Rev. 2.0	Turbidity	6.0	A	NTU	P327667	
	SM 2320 B-97	Total Alkalinity	194		mg CaCO3/L	P327900	
	SM 2540 D-97	TSS	5	I	mg/L	P328286	RPD
	SM 4500 F-C-97	Fluoride	1.1		mg F/L	P327901	
1909420	EPA 350.1 Rev. 2.0	Ammonia-N	0.020		mg N/L	P327783	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.61		mg N/L	P327769	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.013		mg N/L	P327775	
	EPA 365.1 Rev. 2.0	Total-P	0.030		mg P/L	P327796	
	SM 5310 B-00	Organic Carbon	9.2		mg C/L	P328073	
1909427	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.012		mg P/L	P327640	

Sample Location: ENRE14 Harney River **Collection Date/Time: 06/26/2017 13:30**

Field ID: G5SD062617-2 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1909414	EPA 180.1 Rev. 2.0	Turbidity	5.1		NTU	P327667	
	SM 2320 B-97	Total Alkalinity	219		mg CaCO3/L	P327900	
	SM 2540 D-97	TSS	4	I	mg/L	P328286	RPD
	SM 4500 F-C-97	Fluoride	0.88		mg F/L	P327901	
1909421	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P327783	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.67		mg N/L	P327769	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.011		mg N/L	P327775	
	EPA 365.1 Rev. 2.0	Total-P	0.024		mg P/L	P327796	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P328073	
1909428	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.009	I	mg P/L	P327640	

Sample Location: ENRE9 Lostmans Bay **Collection Date/Time: 06/26/2017 14:10**

Field ID: G5SD062617-3 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1909415	EPA 180.1 Rev. 2.0	Turbidity	9.0		NTU	P327667	
	SM 2320 B-97	Total Alkalinity	135		mg CaCO3/L	P327900	
	SM 2540 D-97	TSS	8	I	mg/L	P328286	RPD
	SM 4500 F-C-97	Fluoride	0.36		mg F/L	P327901	
1909422	EPA 350.1 Rev. 2.0	Ammonia-N	0.019		mg N/L	P327783	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.83		mg N/L	P327769	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.052		mg N/L	P327775	
	EPA 365.1 Rev. 2.0	Total-P	0.022		mg P/L	P327796	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P328073	
1909429	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P327640	

Sample Location: ENRE12 Lostmans Bay **Collection Date/Time: 06/26/2017 14:20**

Field ID: G5SD062617-4 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1909416	EPA 180.1 Rev. 2.0	Turbidity	8.8		NTU	P327667	
	SM 2320 B-97	Total Alkalinity	135	A	mg CaCO3/L	P327900	
	SM 2540 D-97	TSS	9	I	mg/L	P328286	RPD
	SM 4500 F-C-97	Fluoride	0.33		mg F/L	P327901	
1909423	EPA 350.1 Rev. 2.0	Ammonia-N	0.022		mg N/L	P327783	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.97		mg N/L	P328181	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.049		mg N/L	P327776	
	EPA 365.1 Rev. 2.0	Total-P	0.028		mg P/L	P327796	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P328073	
1909430	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P327640	

Sample Location: 8066-ENRE10 **Collection Date/Time: 06/26/2017 15:15**

Field ID: G5SD062617-5 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1909417	EPA 180.1 Rev. 2.0	Turbidity	3.9		NTU	P327667	
	SM 2320 B-97	Total Alkalinity	136		mg CaCO3/L	P327900	
	SM 2540 D-97	TSS	5	I	mg/L	P328286	RPD
	SM 4500 F-C-97	Fluoride	0.94		mg F/L	P327901	
1909424	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P327783	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.35		mg N/L	P327769	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P327776	
	EPA 365.1 Rev. 2.0	Total-P	0.024		mg P/L	P327796	
	SM 5310 B-00	Organic Carbon	6.5		mg C/L	P328073	
1909431	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P327640	

Sample Location: 8066-ENRE10 dup **Collection Date/Time: 06/26/2017 15:20**

Field ID: G5SD062617-6 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1909418	EPA 180.1 Rev. 2.0	Turbidity	4.0		NTU	P327667	
	SM 2320 B-97	Total Alkalinity	137		mg CaCO3/L	P327900	
	SM 2540 D-97	TSS	4	I	mg/L	P328286	RPD
	SM 4500 F-C-97	Fluoride	0.93		mg F/L	P327901	
1909425	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P327783	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.33		mg N/L	P327769	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P327776	
	EPA 365.1 Rev. 2.0	Total-P	0.024		mg P/L	P327796	
	SM 5310 B-00	Organic Carbon	6.3		mg C/L	P328073	
1909432	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P327640	

Sample Location: 8070-North **Collection Date/Time: 06/26/2017 12:40**

Field ID: G5SD062617-7 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes

Field ID: G5SD062617-7 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1909419	EPA 180.1 Rev. 2.0	Turbidity	4.0		NTU	P327667	
	SM 2320 B-97	Total Alkalinity	119		mg CaCO3/L	P327900	
	SM 2540 D-97	TSS	4	I	mg/L	P328286	RPD
	SM 4500 F-C-97	Fluoride	1.3		mg F/L	P327901	
1909426	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P327783	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.26	I	mg N/L	P328181	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P327776	
	EPA 365.1 Rev. 2.0	Total-P	0.018		mg P/L	P327796	
	SM 5310 B-00	Organic Carbon	2.4		mg C/L	P328073	
1909433	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P327640	

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P327667

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P327783

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327769

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P328181

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327775

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327776

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P327796

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327640

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

Reference Method: SM 2320 B-97
Batch ID: P327900

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

Reference Method: SM 2540 D-97
Batch ID: P328286

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P327901

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P328073

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: P327783

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327769

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P328181

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P328181

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327775

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: P327776

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: P327796

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327640

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

Reference Method: SM 2320 B-97
Batch ID: P327900

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

Reference Method: SM 4500 F-C-97
Batch ID: P327901

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.5		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P328073

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	100		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P327783

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

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P327783

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1909106	Ammonia-N	100	98.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327769

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1909123	Kjeldahl Nitrogen	94.8	96.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P328181

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1909540	Kjeldahl Nitrogen	91.8	95.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327775

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1909105	NO2NO3-N	103	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327776

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1909423	NO2NO3-N	104	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P327796

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1909420	Total-P	93.6	97.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327640

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1909433	O-Phosphate-P	96.1	95.8	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P327901

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1909416	Fluoride	97.0	99.7	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P328073

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1909348	Organic Carbon	91.6	96.8	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P327667

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1909413	Turbidity	5.04	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P327783

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1909106	Ammonia-N	1.82	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327769

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1909123	Kjeldahl Nitrogen	1.36	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P328181

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1909540	Kjeldahl Nitrogen	3.73	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327775

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1909105	NO2NO3-N	0.469	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327776

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1909423	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P327796

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1909420	Total-P	4.18	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327640

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1909433	O-Phosphate-P	0.297	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2320 B-97
Batch ID: P327900

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1909416	Total Alkalinity	0.106	Sample	P	0 - 4.8

Reference Method: SM 2540 D-97
Batch ID: P328286

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1909347	TSS	10.2	Sample	F	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P327901

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1909416	Fluoride	1.97	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P328073

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1909348	Organic Carbon	4.28	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: A77396
Included Lab Sample IDs: 1909427, 1909428, 1909429, 1909430, 1909431, 1909432, 1909433

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

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A77411
Included Lab Sample IDs: 1909413, 1909414, 1909415, 1909416, 1909417, 1909418, 1909419

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.5	99.0	P/P	95 - 105

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A77451
Included Lab Sample IDs: 1909420, 1909421, 1909422, 1909423, 1909424, 1909425, 1909426

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.0	99.5	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A77451
Included Lab Sample IDs: 1909420, 1909421, 1909422, 1909423, 1909424, 1909425, 1909426

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A77454
Included Lab Sample IDs: 1909420, 1909421, 1909422, 1909423, 1909424, 1909425, 1909426

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

Reference Method: SM 2320 B-97
Run ID: A77507
Included Lab Sample IDs: 1909413, 1909414, 1909415, 1909416, 1909417, 1909418, 1909419

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	105	P/P	90 - 110
Total Alkalinity	105	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A77507
Included Lab Sample IDs: 1909413, 1909414, 1909415, 1909416, 1909417, 1909418, 1909419

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	98.0	P/P	90 - 110
Fluoride	98.0	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A77511
Included Lab Sample IDs: 1909420, 1909421, 1909422

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.7	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A77523
Included Lab Sample IDs: 1909420, 1909421, 1909422, 1909423, 1909424, 1909425, 1909426

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.0	99.2	P/P	90 - 110
Total-P	99.2	99.0	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A77560
Included Lab Sample IDs: 1909420, 1909421, 1909422, 1909423, 1909424, 1909425, 1909426

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.0	96.2	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A77590
Included Lab Sample IDs: 1909424, 1909425

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	94.4	93.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A77637
Included Lab Sample IDs: 1909423, 1909426

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	91.1	95.3	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					5.04	
EPA 350.1 Rev. 2.0	Ammonia-N	98.5	100	98.0			1.82
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	97.0	94.8	96.8			1.36
	Kjeldahl Nitrogen	101	91.8	95.6			3.73
EPA 353.2 Rev. 2.0	NO2NO3-N	102	103	103			0.469
	NO2NO3-N	102	104	104			0.0
EPA 365.1 Rev. 2.0	Total-P	97.1	93.6	97.7			4.18
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.5	96.1	95.8			0.297
SM 2320 B-97	Total Alkalinity	103				0.106	
SM 2540 D-97	TSS					10.2	
SM 4500 F-C-97	Fluoride	97.5	97.0	99.7			1.97
SM 5310 B-00	Organic Carbon	100	91.6	96.8			4.28

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1909413, 1909414, 1909415, 1909416, 1909417, 1909418, 1909419
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1909420, 1909421, 1909422, 1909423, 1909424, 1909425, 1909426
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1909420, 1909421, 1909422, 1909423, 1909424, 1909425, 1909426
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1909420, 1909421, 1909422, 1909423, 1909424, 1909425, 1909426
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1909420, 1909421, 1909422, 1909423, 1909424, 1909425, 1909426
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1909427, 1909428, 1909429, 1909430, 1909431, 1909432, 1909433
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1909413, 1909414, 1909415, 1909416, 1909417, 1909418, 1909419
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1909413, 1909414, 1909415, 1909416, 1909417, 1909418, 1909419

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1909413, 1909414, 1909415, 1909416, 1909417, 1909418, 1909419
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1909420, 1909421, 1909422, 1909423, 1909424, 1909425, 1909426

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	06/28/2017			06/28/2017 12:06	DeAsia Armster	1909413, 1909414, 1909415, 1909416, 1909417, 1909418, 1909419
EPA 350.1 Rev. 2.0	06/28/2017			06/29/2017	Sofia Elnemr	1909420, 1909421, 1909422, 1909423, 1909424, 1909425, 1909426
EPA 351.2 Rev. 2.0	06/28/2017	06/30/2017	Adrian Shelby	07/05/2017	Joseph Suarez	1909420, 1909421, 1909422
	06/28/2017	06/30/2017	Adrian Shelby	07/07/2017	Joseph Suarez	1909424, 1909425
	06/28/2017	07/10/2017	Adrian Shelby	07/11/2017	Joseph Suarez	1909423, 1909426
EPA 353.2 Rev. 2.0	06/28/2017			06/30/2017	Beverly Y. Sanders	1909420, 1909421, 1909422, 1909423, 1909424, 1909425, 1909426
EPA 365.1 Rev. 2.0	06/28/2017	06/30/2017	Vijayalakshmi Reddy	07/05/2017	Lipi Saha	1909420, 1909421, 1909422, 1909423, 1909424, 1909425, 1909426
EPA 365.1 Rev. 2.0 dissolved	06/28/2017			06/28/2017 11:55	Lipi Saha	1909433
	06/28/2017			06/28/2017 11:58	Lipi Saha	1909427
	06/28/2017			06/28/2017 11:59	Lipi Saha	1909428
	06/28/2017			06/28/2017 12:00	Lipi Saha	1909429, 1909430
	06/28/2017			06/28/2017 12:01	Lipi Saha	1909431
	06/28/2017			06/28/2017 12:06	Lipi Saha	1909432
SM 2320 B-97	06/28/2017			06/29/2017	Dale L. Simmons	1909415, 1909416
	06/28/2017			06/30/2017	Dale L. Simmons	1909413, 1909414, 1909417, 1909418, 1909419
SM 2540 D-97	06/28/2017			06/30/2017	Yijie Li	1909413, 1909414, 1909415, 1909416, 1909417, 1909418, 1909419
SM 4500 F-C-97	06/28/2017			06/29/2017	Dale L. Simmons	1909413, 1909414, 1909415, 1909416, 1909417, 1909418, 1909419
SM 5310 B-00	06/28/2017			07/06/2017	Ping Hua	1909420, 1909421, 1909422, 1909423, 1909424, 1909425, 1909426