

Chemical Analysis Report

SO-DIST-2019-08-01-02

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

Event Description: **Keys Extra Sites**
Request ID: **RQ-2019-07-29-43**
Customer: **SO-DIST**
Project ID: **SMP**

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FLDEP South District Office
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Fort Myers, FL 33901-3381
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Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator

Date Certified: 15-AUG-2019 18:15



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 by the Florida Department of Health Environmental Laboratory Certification Program 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: 8073 @ENRG1 DredgersKey

Collection Date/Time: 07/31/2019 08:35

Field ID: G5SD0066

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2107941	EPA 180.1 Rev. 2.0	Turbidity	0.80		NTU	P368331	
	EPA 300.0	Bromide	79		mg Br/L	P368846	
	SM 2320 B-97	Total Alkalinity	113		mg CaCO3/L	P368819	
	SM 2540 D-97	TSS	5	I	mg/L	P368547	
	SM 4500 F-C-97	Fluoride	1.3		mg F/L	P368829	
2107947	EPA 350.1 Rev. 2.0	Ammonia-N	0.016		mg N/L	P368804	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.31	I	mg N/L	P368454	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P368492	
	EPA 365.1 Rev. 2.0	Total-P	0.007	I	mg P/L	P368442	MS
	SM 5310 B-00	Organic Carbon	2.1		mg C/L	P368427	
2107953	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P368393	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: 8073 @ENRG1 Dredgers#2

Collection Date/Time: 07/31/2019 08:40

Field ID: G5SD0096

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2107942	EPA 180.1 Rev. 2.0	Turbidity	0.80		NTU	P368331	
	EPA 300.0	Bromide	80		mg Br/L	P368846	
	SM 2320 B-97	Total Alkalinity	112		mg CaCO3/L	P368819	
	SM 2540 D-97	TSS	4	I	mg/L	P368547	
	SM 4500 F-C-97	Fluoride	1.3		mg F/L	P368829	
2107948	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P368804	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.30	I	mg N/L	P368454	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P368493	
	EPA 365.1 Rev. 2.0	Total-P	0.008	I	mg P/L	P368442	MS
	SM 5310 B-00	Organic Carbon	2.1		mg C/L	P368427	
2107954	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P368393	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: 8073 @ENRG2 Bayside #1

Collection Date/Time: 07/31/2019 09:10

Field ID: G5SD0065

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2107943	EPA 180.1 Rev. 2.0	Turbidity	1.2	A	NTU	P368331	
	EPA 300.0	Bromide	78		mg Br/L	P368847	
	SM 2320 B-97	Total Alkalinity	118		mg CaCO3/L	P368819	
	SM 2540 D-97	TSS	8	I	mg/L	P368547	
	SM 4500 F-C-97	Fluoride	1.3		mg F/L	P368829	
2107949	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P368804	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.26	I	mg N/L	P368454	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P368493	
	EPA 365.1 Rev. 2.0	Total-P	0.007	I	mg P/L	P368442	MS
	SM 5310 B-00	Organic Carbon	1.7	I	mg C/L	P368427	
2107955	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P368393	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: 8073 @ENRG2 Bayside #2

Collection Date/Time: 07/31/2019 09:25

Field ID: G5SD0082

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2107944	EPA 180.1 Rev. 2.0	Turbidity	1.1		NTU	P368332	
	EPA 300.0	Bromide	78		mg Br/L	P368847	
	SM 2320 B-97	Total Alkalinity	118		mg CaCO3/L	P368819	
	SM 2540 D-97	TSS	6	I	mg/L	P368548	
	SM 4500 F-C-97	Fluoride	1.3		mg F/L	P368829	
2107950	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P368809	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.20	I	mg N/L	P368454	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P368493	
	EPA 365.1 Rev. 2.0	Total-P	0.007	I	mg P/L	P368442	MS
	SM 5310 B-00	Organic Carbon	1.7	I	mg C/L	P368427	
2107956	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P368395	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: 68 Resample

Collection Date/Time: 07/31/2019 12:30

Field ID: G5SD0113

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2107945	EPA 180.1 Rev. 2.0	Turbidity	0.25		NTU	P368332	
	EPA 300.0	Bromide	72		mg Br/L	P368847	
	SM 2320 B-97	Total Alkalinity	118		mg CaCO3/L	P368819	
	SM 2540 D-97	TSS	7	IA	mg/L	P368548	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P368829	
2107951	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P368809	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.18	I	mg N/L	P368454	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P368493	
	EPA 365.1 Rev. 2.0	Total-P	0.005	I	mg P/L	P368442	MS
	SM 5310 B-00	Organic Carbon	1.1	I	mg C/L	P368485	
2107957	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P368395	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: 8079 @ENRG6 Out@Reef#1

Collection Date/Time: 07/31/2019 13:00

Field ID: G5SD0068

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2107946	EPA 180.1 Rev. 2.0	Turbidity	0.40		NTU	P368332	
	EPA 300.0	Bromide	76		mg Br/L	P368847	
	SM 2320 B-97	Total Alkalinity	121		mg CaCO3/L	P368819	
	SM 2540 D-97	TSS	3	U	mg/L	P368548	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P368829	
2107952	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P368809	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.16	I	mg N/L	P368454	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P368493	
	EPA 365.1 Rev. 2.0	Total-P	0.005	I	mg P/L	P368442	MS
	SM 5310 B-00	Organic Carbon	1.0	I	mg C/L	P368485	
2107958	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P368395	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P368331

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P368332

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0
Batch ID: P368846

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 300.0
Batch ID: P368847

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P368804

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P368809

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P368454

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P368492

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P368493

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: P368442

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P368393

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P368395

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

Reference Method: SM 2320 B-97
Batch ID: P368819

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO ₃ /L

Reference Method: SM 2540 D-97
Batch ID: P368547

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P368548

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P368829

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P368427

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

Reference Method: SM 5310 B-00
Batch ID: P368485

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0
Batch ID: P368846

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

Reference Method: EPA 300.0
Batch ID: P368847

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P368804

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P368809

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P368454

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P368492

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: P368493

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P368442

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P368393

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P368395

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

Reference Method: SM 2320 B-97
Batch ID: P368819

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	98 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P368829

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

Reference Method: SM 5310 B-00
Batch ID: P368427

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

Reference Method: SM 5310 B-00
Batch ID: P368485

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	102		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0
Batch ID: P368846

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2107773	Bromide	96.6	98.0	P/P	90 - 110
2107774	Bromide	95.4		P	90 - 110

Reference Method: EPA 300.0
Batch ID: P368847

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2108329	Bromide	96.5		P	90 - 110
2108778	Bromide	97.8	97.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P368804

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2107889	Ammonia-N	99.9	96.9	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P368809

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2107950	Ammonia-N	104	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P368454

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2107891	Kjeldahl Nitrogen	97.6	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P368492

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2107768	NO2NO3-N	97.7	98.7	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P368493

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2107948	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P368442

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2107891	Total-P	90.0	89.4	F/F	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P368393

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2107895	O-Phosphate-P	94.7	96.8	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P368395

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2108083	O-Phosphate-P	95.4	96.4	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P368829

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2108971	Fluoride	94.5	97.4	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P368427

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2107782	Organic Carbon	99.1	100	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P368485

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2108082	Organic Carbon	102	103	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P368331

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2107943	Turbidity	0.844	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P368332

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2108079	Turbidity	0.248	Sample	P	0 - 20

Reference Method: EPA 300.0
Batch ID: P368846

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2107773	Bromide	1.32	Spike	P	0 - 20

Reference Method: EPA 300.0
Batch ID: P368847

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2108778	Bromide	0.780	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P368804

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2107889	Ammonia-N	2.83	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P368809

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2107950	Ammonia-N	0.781	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P368454

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2107891	Kjeldahl Nitrogen	4.82	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P368492

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2107768	NO2NO3-N	0.979	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P368493

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2107948	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P368442

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2107891	Total-P	0.641	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P368393

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2107895	O-Phosphate-P	2.19	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P368395

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2108083	O-Phosphate-P	1.04	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P368819

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2108971	Total Alkalinity	0.0218	Sample	P	0 - 2.8

Reference Method: SM 4500 F-C-97
Batch ID: P368829

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2108971	Fluoride	1.95	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P368427

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2107782	Organic Carbon	0.706	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P368485

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2108082	Organic Carbon	0.212	Spike	P	0 - 20

Quality Assurance Report

Precision

* 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: A93206

Included Lab Sample IDs: 2107941, 2107942, 2107943, 2107944, 2107945, 2107946

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	100	P/P	95 - 105
Turbidity	101	100	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A93232

Included Lab Sample IDs: 2107953, 2107954, 2107955, 2107956, 2107957, 2107958

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.3	98.5	P/P	90 - 110
O-Phosphate-P	98.3	97.3	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A93248

Included Lab Sample IDs: 2107947, 2107948, 2107949, 2107950

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.1	98.8	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A93280

Included Lab Sample IDs: 2107951, 2107952

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A93284

Included Lab Sample IDs: 2107947, 2107948, 2107949, 2107950, 2107951, 2107952

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A93319

Included Lab Sample IDs: 2107947, 2107948, 2107949, 2107950, 2107951, 2107952

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.5	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A93320

Included Lab Sample IDs: 2107947, 2107948, 2107949, 2107950, 2107951, 2107952

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	104	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A93406

Included Lab Sample IDs: 2107947, 2107948, 2107949, 2107950, 2107951, 2107952

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A93406

Included Lab Sample IDs: 2107947, 2107948, 2107949, 2107950, 2107951, 2107952

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	98.9	P/P	90 - 110
Ammonia-N	98.7	100	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A93413

Included Lab Sample IDs: 2107941, 2107942, 2107943, 2107944, 2107945, 2107946

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

Reference Method: SM 4500 F-C-97

Run ID: A93413

Included Lab Sample IDs: 2107941, 2107942, 2107943, 2107944, 2107945, 2107946

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

Reference Method: EPA 300.0

Run ID: A93422

Included Lab Sample IDs: 2107941, 2107942, 2107943, 2107944, 2107945, 2107946

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	103	105	P/P	90 - 110
Bromide	105	103	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 SMP	MS
			LCS				
EPA 180.1 Rev. 2.0	Turbidity					0.844	
	Turbidity					0.248	
EPA 300.0	Bromide	97.3	96.6	98.0	95.4		1.32
	Bromide	103	97.8	97.0	96.5		0.780
EPA 350.1 Rev. 2.0	Ammonia-N	97.8	99.9	96.9			2.83
	Ammonia-N	97.1	104	104			0.781
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	106	97.6	103			4.82
EPA 353.2 Rev. 2.0	NO2NO3-N	99.0	97.7	98.7			0.979
	NO2NO3-N	99.5	102	102			0.0
EPA 365.1 Rev. 2.0	Total-P	106	90.0	89.4			0.641
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	94.7	96.8			2.19
	O-Phosphate-P	99.5	95.4	96.4			1.04
SM 2320 B-97	Total Alkalinity	104				0.0218	
SM 4500 F-C-97	Fluoride	97.5	94.5	97.4			1.95
SM 5310 B-00	Organic Carbon	101	99.1	100			0.706
	Organic Carbon	102	102	103			0.212

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2107941, 2107942, 2107943, 2107944, 2107945, 2107946
EPA 300.0 / E31780	Bromide in aqueous matrices	2107941, 2107942, 2107943, 2107944, 2107945, 2107946
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2107947, 2107948, 2107949, 2107950, 2107951, 2107952
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2107947, 2107948, 2107949, 2107950, 2107951, 2107952
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2107947, 2107948, 2107949, 2107950, 2107951, 2107952
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2107947, 2107948, 2107949, 2107950, 2107951, 2107952
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2107953, 2107954, 2107955, 2107956, 2107957, 2107958
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2107941, 2107942, 2107943, 2107944, 2107945, 2107946
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2107941, 2107942, 2107943, 2107944, 2107945, 2107946
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2107941, 2107942, 2107943, 2107944, 2107945, 2107946
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2107947, 2107948, 2107949, 2107950, 2107951, 2107952

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	08/01/2019			08/01/2019 16:42	Adrian Shelby	2107941, 2107942, 2107943, 2107944, 2107945, 2107946
EPA 300.0	08/01/2019			08/09/2019 07:19	Jhamieka S. Greenwood	2107941
	08/01/2019			08/09/2019 07:37	Jhamieka S. Greenwood	2107942
	08/01/2019			08/09/2019 10:27	Jhamieka S. Greenwood	2107943
	08/01/2019			08/09/2019 10:45	Jhamieka S. Greenwood	2107944
	08/01/2019			08/09/2019 11:02	Jhamieka S. Greenwood	2107945
	08/01/2019			08/09/2019 11:19	Jhamieka S. Greenwood	2107946
EPA 350.1 Rev. 2.0	08/01/2019			08/10/2019 12:02	Ping Hua	2107947
	08/01/2019			08/10/2019 12:03	Ping Hua	2107948
	08/01/2019			08/10/2019 12:05	Ping Hua	2107949
	08/01/2019			08/10/2019 14:16	Ping Hua	2107950
	08/01/2019			08/10/2019 14:20	Ping Hua	2107951
	08/01/2019			08/10/2019 14:22	Ping Hua	2107952
EPA 351.2 Rev. 2.0	08/01/2019	08/05/2019 13:30	Adrian Shelby	08/07/2019 10:14	Joseph Suarez	2107947
	08/01/2019	08/05/2019 13:30	Adrian Shelby	08/07/2019 10:16	Joseph Suarez	2107948
	08/01/2019	08/05/2019 13:30	Adrian Shelby	08/07/2019 10:17	Joseph Suarez	2107949
	08/01/2019	08/05/2019 13:30	Adrian Shelby	08/07/2019 10:19	Joseph Suarez	2107950
	08/01/2019	08/05/2019 13:30	Adrian Shelby	08/07/2019 10:20	Joseph Suarez	2107951
	08/01/2019	08/05/2019 13:30	Adrian Shelby	08/07/2019 10:22	Joseph Suarez	2107952
EPA 353.2 Rev. 2.0	08/01/2019			08/06/2019 09:20	Beverly Y. Sanders	2107947
	08/01/2019			08/06/2019 09:27	Beverly Y. Sanders	2107948
	08/01/2019			08/06/2019 09:33	Beverly Y. Sanders	2107949
	08/01/2019			08/06/2019 09:34	Beverly Y. Sanders	2107950
	08/01/2019			08/06/2019 09:35	Beverly Y. Sanders	2107951
	08/01/2019			08/06/2019 09:36	Beverly Y. Sanders	2107952
EPA 365.1 Rev. 2.0	08/01/2019	08/05/2019 12:54	Vijayalakshmi Reddy	08/06/2019 11:53	Lipi Saha	2107947
	08/01/2019	08/05/2019 12:54	Vijayalakshmi Reddy	08/06/2019 11:54	Lipi Saha	2107948
	08/01/2019	08/05/2019 12:54	Vijayalakshmi Reddy	08/06/2019 11:55	Lipi Saha	2107949
	08/01/2019	08/05/2019 12:54	Vijayalakshmi Reddy	08/06/2019 11:56	Lipi Saha	2107950
	08/01/2019	08/05/2019 12:54	Vijayalakshmi Reddy	08/06/2019 11:57	Lipi Saha	2107951
	08/01/2019	08/05/2019 12:54	Vijayalakshmi Reddy	08/06/2019 11:58	Lipi Saha	2107952
EPA 365.1 Rev. 2.0 dissolved	08/01/2019			08/01/2019 15:34	Jhamieka S. Greenwood	2107953
	08/01/2019			08/01/2019 15:35	Jhamieka S. Greenwood	2107954
	08/01/2019			08/01/2019 15:36	Jhamieka S. Greenwood	2107955
	08/01/2019			08/01/2019 15:51	Jhamieka S. Greenwood	2107956
	08/01/2019			08/01/2019 15:52	Jhamieka S. Greenwood	2107957
	08/01/2019			08/01/2019 15:53	Jhamieka S. Greenwood	2107958
SM 2320 B-97	08/01/2019			08/10/2019 09:19	Dale L. Simmons	2107941
	08/01/2019			08/10/2019 09:31	Dale L. Simmons	2107942

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2320 B-97	08/01/2019			08/10/2019 09:43	Dale L. Simmons	2107943
	08/01/2019			08/10/2019 09:56	Dale L. Simmons	2107944
	08/01/2019			08/10/2019 10:07	Dale L. Simmons	2107945
	08/01/2019			08/10/2019 10:19	Dale L. Simmons	2107946
SM 2540 D-97	08/01/2019			08/05/2019 14:05	Sima Feizi	2107941, 2107942, 2107943, 2107944, 2107945, 2107946
SM 4500 F-C-97	08/01/2019			08/10/2019 06:08	Dale L. Simmons	2107941
	08/01/2019			08/10/2019 06:12	Dale L. Simmons	2107942
	08/01/2019			08/10/2019 06:16	Dale L. Simmons	2107943
	08/01/2019			08/10/2019 06:20	Dale L. Simmons	2107944
	08/01/2019			08/10/2019 06:24	Dale L. Simmons	2107945
SM 5310 B-00	08/01/2019			08/10/2019 06:29	Dale L. Simmons	2107946
	08/01/2019			08/03/2019 03:23	Madeline Funaro	2107947
	08/01/2019			08/03/2019 03:36	Madeline Funaro	2107948
	08/01/2019			08/03/2019 04:00	Madeline Funaro	2107949
	08/01/2019			08/03/2019 04:12	Madeline Funaro	2107950
	08/01/2019			08/06/2019 03:42	Madeline Funaro	2107951
	08/01/2019			08/06/2019 03:56	Madeline Funaro	2107952