

Chemical Analysis Report

SO-DIST-2019-04-04-02

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

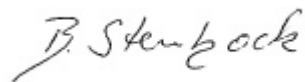
Event Description: **Nowhere**
Request ID: **RQ-2019-02-25-51**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
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Date Certified: 23-APR-2019 18:18



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#2 S of FtZachENRG3

Collection Date/Time: 04/03/2019 11:43

Field ID: G5SD0095

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2075367	EPA 180.1 Rev. 2.0	Turbidity	8.8		NTU	P361616	
	EPA 300.0	Bromide	62		mg Br/L	P361971	
	SM 2320 B-97	Total Alkalinity	154		mg CaCO3/L	P362101	
	SM 2540 D-97	TSS	11		mg/L	P361877	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P362102	
2075375	EPA 350.1 Rev. 2.0	Ammonia-N	0.029		mg N/L	P362112	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.51		mg N/L	P362006	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.013		mg N/L	P361990	
	EPA 365.1 Rev. 2.0	Total-P	0.030		mg P/L	P361833	
	SM 5310 B-00	Organic Carbon	6.4		mg C/L	P361615	
2075383	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.007	I	mg P/L	P361609	

Ref. Method and Comment:

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

SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: 8069 - ENRE13

Collection Date/Time: 04/03/2019 12:40

Field ID: G5SD0076

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2075368	EPA 180.1 Rev. 2.0	Turbidity	16		NTU	P361616	
	EPA 300.0	Bromide	63		mg Br/L	P361971	
	SM 2320 B-97	Total Alkalinity	152		mg CaCO3/L	P362101	
	SM 2540 D-97	TSS	21		mg/L	P361877	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P362102	
2075376	EPA 350.1 Rev. 2.0	Ammonia-N	0.020		mg N/L	P361960	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.58		mg N/L	P361908	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.014		mg N/L	P361990	
	EPA 365.1 Rev. 2.0	Total-P	0.030		mg P/L	P361833	
	SM 5310 B-00	Organic Carbon	5.1		mg C/L	P361727	
2075384	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P361609	

Ref. Method and Comment:

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

SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: 8070 ENRE 5 SITE 2

Collection Date/Time: 04/03/2019 13:20

Field ID: G5SD0101

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2075369	EPA 180.1 Rev. 2.0	Turbidity	5.5		NTU	P361616	
	EPA 300.0	Bromide	66		mg Br/L	P361971	
	SM 2320 B-97	Total Alkalinity	132		mg CaCO3/L	P362101	
	SM 2540 D-97	TSS	8	I	mg/L	P361877	
	SM 4500 F-C-97	Fluoride	1.3		mg F/L	P362102	
2075377	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P361960	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.42		mg N/L	P361908	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P361990	
	EPA 365.1 Rev. 2.0	Total-P	0.018		mg P/L	P361833	
	SM 5310 B-00	Organic Carbon	3.7		mg C/L	P361727	
2075385	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P361609	

Ref. Method and Comment:

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

SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: 8070 - North

Collection Date/Time: 04/03/2019 13:35

Field ID: G5SD0075

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2075370	EPA 180.1 Rev. 2.0	Turbidity	4.1		NTU	P361617	
	EPA 300.0	Bromide	65		mg Br/L	P361971	
	SM 2320 B-97	Total Alkalinity	140		mg CaCO3/L	P362101	
	SM 2540 D-97	TSS	6	I	mg/L	P361877	
	SM 4500 F-C-97	Fluoride	1.3		mg F/L	P362102	
2075378	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P361960	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.46		mg N/L	P361908	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P361990	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P361835	
	SM 5310 B-00	Organic Carbon	4.2		mg C/L	P361727	
2075386	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P361609	

Ref. Method and Comment:

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

SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: 8069 - ENRE5

Collection Date/Time: 04/03/2019 14:05

Field ID: G5SD0036

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2075371	EPA 180.1 Rev. 2.0	Turbidity	4.0		NTU	P361617	
	EPA 300.0	Bromide	68		mg Br/L	P361971	
	SM 2320 B-97	Total Alkalinity	128		mg CaCO3/L	P362101	
	SM 2540 D-97	TSS	6	I	mg/L	P361877	
	SM 4500 F-C-97	Fluoride	1.3		mg F/L	P362102	
2075379	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P361960	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.38	I	mg N/L	P361908	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P361990	
	EPA 365.1 Rev. 2.0	Total-P	0.025		mg P/L	P361835	
	SM 5310 B-00	Organic Carbon	3.2		mg C/L	P361727	
2075387	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P361609	

Ref. Method and Comment:

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

SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: WBID8068 @ENRE 5 S.Site

Collection Date/Time: 04/03/2019 14:35

Field ID: G5SD0100

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2075372	EPA 180.1 Rev. 2.0	Turbidity	5.4		NTU	P361617	
	EPA 300.0	Bromide	65		mg Br/L	P361971	
	SM 2320 B-97	Total Alkalinity	143		mg CaCO3/L	P362101	
	SM 2540 D-97	TSS	9	IA	mg/L	P361877	
	SM 4500 F-C-97	Fluoride	1.3		mg F/L	P362102	
2075380	EPA 350.1 Rev. 2.0	Ammonia-N	0.023		mg N/L	P361960	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.46		mg N/L	P361908	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P361990	
	EPA 365.1 Rev. 2.0	Total-P	0.024		mg P/L	P361835	
	SM 5310 B-00	Organic Carbon	4.6		mg C/L	P361727	
2075388	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P361609	

Ref. Method and Comment:

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

SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: 8068 @ ENRE5 - Middle

Collection Date/Time: 04/03/2019 14:50

Field ID: G5SD0037

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2075373	EPA 180.1 Rev. 2.0	Turbidity	4.1		NTU	P361617	
	EPA 300.0	Bromide	65		mg Br/L	P361971	
	SM 2320 B-97	Total Alkalinity	140		mg CaCO3/L	P362101	
	SM 2540 D-97	TSS	10		mg/L	P361878	
	SM 4500 F-C-97	Fluoride	1.3		mg F/L	P362102	
2075381	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P361960	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.47		mg N/L	P361909	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P362160	
	EPA 365.1 Rev. 2.0	Total-P	0.020		mg P/L	P361835	
	SM 5310 B-00	Organic Carbon	4.5		mg C/L	P361727	
2075389	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P361609	

Ref. Method and Comment:

SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: 8067 @ ENRE5

Collection Date/Time: 04/03/2019 15:25

Field ID: G5SD0038

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2075374	EPA 180.1 Rev. 2.0	Turbidity	6.0		NTU	P361617	
	EPA 300.0	Bromide	67		mg Br/L	P361971	
	SM 2320 B-97	Total Alkalinity	135		mg CaCO3/L	P362101	
	SM 2540 D-97	TSS	7	I	mg/L	P361878	
	SM 4500 F-C-97	Fluoride	1.3		mg F/L	P362102	
2075382	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P361960	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.56		mg N/L	P361909	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P362160	
	EPA 365.1 Rev. 2.0	Total-P	0.032		mg P/L	P361835	
	SM 5310 B-00	Organic Carbon	3.7		mg C/L	P361727	
2075390	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P361609	

Ref. Method and Comment:

SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P361616

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P361617

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0
Batch ID: P361971

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P361960

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P362112

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P361908

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P361909

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362006

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P361990

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P362160

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P361833

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P361835

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P361609

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

Reference Method: SM 2320 B-97
Batch ID: P362101

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

Reference Method: SM 2540 D-97
Batch ID: P361877

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P361878

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P362102

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P361615

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 5310 B-00
Batch ID: P361727

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: P361971

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

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P361960

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P362112

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.7		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P361908

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P361909

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	108		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P362006

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	107		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P361990

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

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P362160

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: P361833

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P361835

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P361609

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.7		P	90 - 110

Reference Method: SM 2320 B-97
Batch ID: P362101

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	100		P	98 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P362102

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.8		P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P361615

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

Reference Method: SM 5310 B-00
Batch ID: P361727

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: P361971

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2075727	Bromide	91.7	93.4	P/P	90 - 110
2075728	Bromide	92.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P361960

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2075376	Ammonia-N	101	103	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P362112

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2075285	Ammonia-N	104	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P361908

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2075376	Kjeldahl Nitrogen	98.8	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P361909

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2075475	Kjeldahl Nitrogen	98.2	98.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362006

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2075282	Kjeldahl Nitrogen	103	106	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P361990

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2075375	NO2NO3-N	102	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P362160

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2075381	NO2NO3-N	100	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P361833

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2075275	Total-P	96.4	94.4	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P361835

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2075378	Total-P	92.4	91.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P361609

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2075383	O-Phosphate-P	93.9	96.0	P/P	90 - 110

Reference Method: SM 5310 B-00
Batch ID: P361615

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2074683	Organic Carbon	100	99.5	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P361727

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2075376	Organic Carbon	100	102	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P361616

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2075115	Turbidity	6.93	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P361617

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2075539	Turbidity	0.533	Sample	P	0 - 20

Reference Method: EPA 300.0
Batch ID: P361971

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2075727	Bromide	1.78	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P361960

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2075376	Ammonia-N	1.23	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P362112

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2075285	Ammonia-N	0.697	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P361908

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2075376	Kjeldahl Nitrogen	1.85	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P361909

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2075475	Kjeldahl Nitrogen	0.398	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362006

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2075282	Kjeldahl Nitrogen	2.17	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P361990

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2075375	NO2NO3-N	0.926	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P362160

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2075381	NO2NO3-N	1.98	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P361833

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2075275	Total-P	1.90	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P361835

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2075378	Total-P	1.42	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P361609

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2075383	O-Phosphate-P	2.06	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P362101

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2074613	Total Alkalinity	0.509	Sample	P	0 - 2.8

Reference Method: SM 2540 D-97
Batch ID: P361878

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2075539	TSS	6.19	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P362102

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2075903	Fluoride	0.935	Spike	P	0 - 2.5

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P361615

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2074683	Organic Carbon	0.743	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P361727

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2075376	Organic Carbon	1.32	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: A90461

Included Lab Sample IDs: 2075383, 2075384, 2075385, 2075386, 2075387, 2075388, 2075389, 2075390

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.3	98.6	P/P	90 - 110
O-Phosphate-P	98.6	96.7	P/P	90 - 110
O-Phosphate-P	99.2	99.9	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A90463

Included Lab Sample IDs: 2075375

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A90465

Included Lab Sample IDs: 2075367, 2075368, 2075369, 2075370, 2075371, 2075372, 2075373, 2075374

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

Reference Method: SM 5310 B-00

Run ID: A90508

Included Lab Sample IDs: 2075376, 2075377, 2075378, 2075379, 2075380, 2075381, 2075382

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	102	103	P/P	90 - 110
Organic Carbon	103	102	P/P	90 - 110

Reference Method: EPA 300.0

Run ID: A90561

Included Lab Sample IDs: 2075367, 2075368, 2075369, 2075370, 2075371, 2075372, 2075373, 2075374

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	91.4	93.6	P/P	90 - 110
Bromide	93.6	91.4	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A90603

Included Lab Sample IDs: 2075376, 2075377, 2075378, 2075379, 2075380, 2075381, 2075382

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A90628

Included Lab Sample IDs: 2075375, 2075376, 2075377, 2075378, 2075379, 2075380

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	98.5	98.0	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A90637

Included Lab Sample IDs: 2075375, 2075376, 2075377, 2075378, 2075379, 2075380, 2075381, 2075382

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.0	99.2	P/P	90 - 110
Total-P	99.0	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A90659

Included Lab Sample IDs: 2075376, 2075377, 2075378, 2075379, 2075380

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.5	99.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A90660

Included Lab Sample IDs: 2075381, 2075382

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.7	94.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A90681

Included Lab Sample IDs: 2075375

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.6	102	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A90692

Included Lab Sample IDs: 2075367, 2075368, 2075369, 2075370, 2075371, 2075372, 2075373, 2075374

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	99.4	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A90692

Included Lab Sample IDs: 2075367, 2075368, 2075369, 2075370, 2075371, 2075372, 2075373, 2075374

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A90707

Included Lab Sample IDs: 2075375

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	103	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A90761

Included Lab Sample IDs: 2075381, 2075382

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	98.0	98.0	P/P	90 - 110

Quality Assurance Report

Calibration Verification

* 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					6.93	
	Turbidity					0.533	
EPA 300.0	Bromide	94.7	91.7	93.4	92.9		1.78
EPA 350.1 Rev. 2.0	Ammonia-N	99.7	101	103			1.23
	Ammonia-N	99.7	104	103			0.697
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	98.8	101			1.85
	Kjeldahl Nitrogen	108	98.2	98.6			0.398
	Kjeldahl Nitrogen	107	103	106			2.17
EPA 353.2 Rev. 2.0	NO2NO3-N	100	102	101			0.926
	NO2NO3-N	100	100	102			1.98
EPA 365.1 Rev. 2.0	Total-P	106	96.4	94.4			1.90
	Total-P	105	92.4	91.1			1.42
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.7	93.9	96.0			2.06
SM 2320 B-97	Total Alkalinity	100				0.509	
SM 2540 D-97	TSS					6.19	
SM 4500 F-C-97	Fluoride	98.8					0.935
SM 5310 B-00	Organic Carbon	102	100	99.5			0.743
	Organic Carbon	102	100	102			1.32

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2075367, 2075368, 2075369, 2075370, 2075371, 2075372, 2075373, 2075374
EPA 300.0 / E31780	Bromide in aqueous matrices	2075367, 2075368, 2075369, 2075370, 2075371, 2075372, 2075373, 2075374
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2075375, 2075376, 2075377, 2075378, 2075379, 2075380, 2075381, 2075382
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2075375, 2075376, 2075377, 2075378, 2075379, 2075380, 2075381, 2075382
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2075375, 2075376, 2075377, 2075378, 2075379, 2075380, 2075381, 2075382
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2075375, 2075376, 2075377, 2075378, 2075379, 2075380, 2075381, 2075382
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2075383, 2075384, 2075385, 2075386, 2075387, 2075388, 2075389, 2075390
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2075367, 2075368, 2075369, 2075370, 2075371, 2075372, 2075373, 2075374
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2075367, 2075368, 2075369, 2075370, 2075371, 2075372, 2075373, 2075374
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2075367, 2075368, 2075369, 2075370, 2075371, 2075372, 2075373, 2075374
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2075375, 2075376, 2075377, 2075378, 2075379, 2075380, 2075381, 2075382

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	04/04/2019			04/04/2019 15:03	Adrian Shelby	2075367, 2075368, 2075369, 2075370, 2075371, 2075372, 2075373, 2075374
EPA 300.0	04/04/2019			04/10/2019 16:00	Lipi Saha	2075367
	04/04/2019			04/10/2019 16:18	Lipi Saha	2075368
	04/04/2019			04/10/2019 16:35	Lipi Saha	2075369
	04/04/2019			04/10/2019 16:52	Lipi Saha	2075370
	04/04/2019			04/10/2019 17:43	Lipi Saha	2075371
	04/04/2019			04/10/2019 18:00	Lipi Saha	2075372
	04/04/2019			04/10/2019 18:17	Lipi Saha	2075373
	04/04/2019			04/10/2019 18:34	Lipi Saha	2075374
EPA 350.1 Rev. 2.0	04/04/2019			04/10/2019 10:42	Ping Hua	2075376
	04/04/2019			04/10/2019 10:47	Ping Hua	2075377
	04/04/2019			04/10/2019 10:48	Ping Hua	2075378
	04/04/2019			04/10/2019 10:50	Ping Hua	2075379
	04/04/2019			04/10/2019 10:51	Ping Hua	2075380
	04/04/2019			04/10/2019 10:53	Ping Hua	2075381
	04/04/2019			04/10/2019 10:54	Ping Hua	2075382
	04/04/2019			04/12/2019 10:43	Ping Hua	2075375
EPA 351.2 Rev. 2.0	04/04/2019	04/10/2019 13:15	Adrian Shelby	04/12/2019 09:22	Joseph Suarez	2075376
	04/04/2019	04/10/2019 13:15	Adrian Shelby	04/12/2019 09:27	Joseph Suarez	2075377
	04/04/2019	04/10/2019 13:15	Adrian Shelby	04/12/2019 09:28	Joseph Suarez	2075378
	04/04/2019	04/10/2019 13:15	Adrian Shelby	04/12/2019 09:30	Joseph Suarez	2075379
	04/04/2019	04/10/2019 13:15	Adrian Shelby	04/12/2019 09:31	Joseph Suarez	2075380
	04/04/2019	04/10/2019 13:15	Adrian Shelby	04/12/2019 11:00	Joseph Suarez	2075381
	04/04/2019	04/10/2019 13:15	Adrian Shelby	04/12/2019 11:02	Joseph Suarez	2075382
	04/04/2019	04/11/2019 14:30	Adrian Shelby	04/12/2019 14:44	Joseph Suarez	2075375
EPA 353.2 Rev. 2.0	04/04/2019			04/11/2019 11:33	Beverly Y. Sanders	2075375
	04/04/2019			04/11/2019 11:44	Beverly Y. Sanders	2075376
	04/04/2019			04/11/2019 11:45	Beverly Y. Sanders	2075377
	04/04/2019			04/11/2019 11:46	Beverly Y. Sanders	2075378
	04/04/2019			04/11/2019 11:47	Beverly Y. Sanders	2075379
	04/04/2019			04/11/2019 11:48	Beverly Y. Sanders	2075380
	04/04/2019			04/15/2019 12:15	Lauren Lees	2075381
	04/04/2019			04/15/2019 12:24	Lauren Lees	2075382
EPA 365.1 Rev. 2.0	04/04/2019	04/09/2019 16:50	Sima Feizi	04/11/2019 14:00	Rosalyn Ballman	2075375
	04/04/2019	04/09/2019 16:50	Sima Feizi	04/11/2019 14:01	Rosalyn Ballman	2075376
	04/04/2019	04/09/2019 16:50	Sima Feizi	04/11/2019 14:02	Rosalyn Ballman	2075377
	04/04/2019	04/09/2019 16:50	Sima Feizi	04/11/2019 14:28	Rosalyn Ballman	2075378
	04/04/2019	04/09/2019 16:50	Sima Feizi	04/11/2019 14:29	Rosalyn Ballman	2075379
	04/04/2019	04/09/2019 16:50	Sima Feizi	04/11/2019 14:30	Rosalyn Ballman	2075380

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 365.1 Rev. 2.0	04/04/2019	04/09/2019 16:50	Sima Feizi	04/11/2019 14:31	Rosalyn Ballman	2075381
	04/04/2019	04/09/2019 16:50	Sima Feizi	04/11/2019 14:32	Rosalyn Ballman	2075382
EPA 365.1 Rev. 2.0 dissolved	04/04/2019			04/04/2019 15:09	Jhamieka S. Greenwood	2075383
	04/04/2019			04/04/2019 15:57	Jhamieka S. Greenwood	2075384
	04/04/2019			04/04/2019 15:58	Jhamieka S. Greenwood	2075385
	04/04/2019			04/04/2019 15:59	Jhamieka S. Greenwood	2075386
	04/04/2019			04/04/2019 16:00	Jhamieka S. Greenwood	2075387, 2075388
	04/04/2019			04/04/2019 16:01	Jhamieka S. Greenwood	2075389
	04/04/2019			04/04/2019 16:06	Jhamieka S. Greenwood	2075390
SM 2320 B-97	04/04/2019			04/13/2019 04:41	Dale L. Simmons	2075367
	04/04/2019			04/13/2019 04:52	Dale L. Simmons	2075368
	04/04/2019			04/13/2019 05:04	Dale L. Simmons	2075369
	04/04/2019			04/13/2019 05:16	Dale L. Simmons	2075370
	04/04/2019			04/13/2019 05:27	Dale L. Simmons	2075371
	04/04/2019			04/13/2019 05:39	Dale L. Simmons	2075372
	04/04/2019			04/13/2019 05:51	Dale L. Simmons	2075373
	04/04/2019			04/13/2019 06:03	Dale L. Simmons	2075374
SM 2540 D-97	04/04/2019			04/08/2019 17:04	Mariam Hanna	2075367, 2075368, 2075369, 2075370, 2075371, 2075372, 2075373, 2075374
SM 4500 F-C-97	04/04/2019			04/13/2019 01:56	Dale L. Simmons	2075367
	04/04/2019			04/13/2019 02:00	Dale L. Simmons	2075368
	04/04/2019			04/13/2019 02:04	Dale L. Simmons	2075369
	04/04/2019			04/13/2019 02:08	Dale L. Simmons	2075370
	04/04/2019			04/13/2019 02:12	Dale L. Simmons	2075371
	04/04/2019			04/13/2019 02:16	Dale L. Simmons	2075372
	04/04/2019			04/13/2019 02:20	Dale L. Simmons	2075373
	04/04/2019			04/13/2019 02:24	Dale L. Simmons	2075374
SM 5310 B-00	04/04/2019			04/05/2019 07:11	Julia Storbeck	2075375
	04/04/2019			04/06/2019 03:43	Julia Storbeck	2075376
	04/04/2019			04/06/2019 04:22	Julia Storbeck	2075377
	04/04/2019			04/06/2019 04:34	Julia Storbeck	2075378
	04/04/2019			04/06/2019 05:00	Julia Storbeck	2075379
	04/04/2019			04/06/2019 05:37	Julia Storbeck	2075380
	04/04/2019			04/06/2019 05:49	Julia Storbeck	2075381
	04/04/2019			04/06/2019 06:01	Julia Storbeck	2075382