

Chemical Analysis Report

NW-DIST-2018-04-27-02

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

Event Description: **ENR B**
Request ID: **RQ-2018-04-09-34**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
160 Government Center
Suite 208A
Pensacola, FL 32502-5794
Attn: Michael King

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Certified by: Liang Lin, Environmental Administrator

Date Certified: 14-MAY-2018 16:40

A handwritten signature in black ink, appearing to read "Liang Lin", on a light-colored background.

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: Destin Harbor across from AJ's Restaurant

Collection Date/Time: 04/26/2018 11:00

Field ID: G3NW0127

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1988298	EPA 180.1 Rev. 2.0	Turbidity	0.55		NTU	P344249	
	SM 2320 B-97	Total Alkalinity	88		mg CaCO3/L	P344833	
	SM 2540 D-97	TSS	3	I	mg/L	P344892	
	SM 4500 F-C-97	Fluoride	0.85		mg F/L	P344836	
1988299	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P344781	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.40	I	mg N/L	P344367	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P344381	
	EPA 365.1 Rev. 2.0	Total-P	0.009	I	mg P/L	P344411	
	SM 5310 B-00	Organic Carbon	2.5		mg C/L	P344689	
1988300	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P344391	

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: Choctawhatchee Bay Lower Section C Background

Collection Date/Time: 04/26/2018 11:35

Field ID: G3NW0089

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1988283	EPA 180.1 Rev. 2.0	Turbidity	0.50		NTU	P344248	
	SM 2320 B-97	Total Alkalinity	84		mg CaCO3/L	P344833	
	SM 2540 D-97	TSS	3	U	mg/L	P344892	
	SM 4500 F-C-97	Fluoride	0.79		mg F/L	P344836	
1988286	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P344780	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.28	I	mg N/L	P344365	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P344380	
	EPA 365.1 Rev. 2.0	Total-P	0.008	I	mg P/L	P344410	
	SM 5310 B-00	Organic Carbon	2.6		mg C/L	P344689	
1988289	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P344390	

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: LAKE EARL CENTER

Collection Date/Time: 04/26/2018 12:00

Field ID: G3NW0090

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1988292	EPA 180.1 Rev. 2.0	Turbidity	2.5	A	NTU	P344248	
	SM 2320 B-97	Total Alkalinity	86		mg CaCO3/L	P344833	
	SM 2540 D-97	TSS	5	I	mg/L	P344892	
	SM 4500 F-C-97	Fluoride	0.77		mg F/L	P344836	
1988294	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P344780	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.41		mg N/L	P344365	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.005	I	mg N/L	P344380	
	EPA 365.1 Rev. 2.0	Total-P	0.027		mg P/L	P344411	
	SM 5310 B-00	Organic Carbon	3.4		mg C/L	P344689	
1988296	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P344390	

Field ID: G3NW0090

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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: POQUITO BAYOU MIDDLE

Collection Date/Time: 04/26/2018 12:15

Field ID: G3NW0086

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1988284	EPA 180.1 Rev. 2.0	Turbidity	0.95		NTU	P344248	
	SM 2320 B-97	Total Alkalinity	76		mg CaCO3/L	P344833	
	SM 2540 D-97	TSS	3	U	mg/L	P344892	
	SM 4500 F-C-97	Fluoride	0.69		mg F/L	P344836	
1988287	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P344780	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.37	I	mg N/L	P344365	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.028		mg N/L	P344380	
	EPA 365.1 Rev. 2.0	Total-P	0.009	I	mg P/L	P344411	
	SM 5310 B-00	Organic Carbon	2.6		mg C/L	P344689	
1988290	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P344390	

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: Garnier Bayou at Paradise Point

Collection Date/Time: 04/26/2018 12:20

Field ID: G3NW0087

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1988293	EPA 180.1 Rev. 2.0	Turbidity	0.70		NTU	P344249	
	SM 2320 B-97	Total Alkalinity	81		mg CaCO3/L	P344833	
	SM 2540 D-97	TSS	3	U	mg/L	P344892	
	SM 4500 F-C-97	Fluoride	0.75		mg F/L	P344836	
1988295	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P344781	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.42		mg N/L	P344367	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.022		mg N/L	P344380	
	EPA 365.1 Rev. 2.0	Total-P	0.008	I	mg P/L	P344411	
	SM 5310 B-00	Organic Carbon	2.6		mg C/L	P344689	
1988297	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P344391	

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: Cinco Bayou West of Cinco Bridge

Collection Date/Time: 04/26/2018 12:30

Field ID: G3NW0088

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1988285	EPA 180.1 Rev. 2.0	Turbidity	0.70		NTU	P344248	
	SM 2320 B-97	Total Alkalinity	83		mg CaCO3/L	P344833	
	SM 2540 D-97	TSS	3	U	mg/L	P344892	
	SM 4500 F-C-97	Fluoride	0.78		mg F/L	P344836	
1988288	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P344780	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.36	I	mg N/L	P344365	

Field ID: G3NW0088

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1988288	EPA 353.2 Rev. 2.0	NO2NO3-N	0.012		mg N/L	P344380	
	EPA 365.1 Rev. 2.0	Total-P	0.013		mg P/L	P344411	
	SM 5310 B-00	Organic Carbon	2.5		mg C/L	P344689	
1988291	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P344390	

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: P344248

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P344249

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P344780

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

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P344781

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P344365

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P344367

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P344380

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: P344381

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P344410

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P344411

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P344390

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P344391

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

Reference Method: SM 2320 B-97
Batch ID: P344833

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

Reference Method: SM 2540 D-97
Batch ID: P344892

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P344836

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P344689

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: P344780

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P344781

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P344365

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P344367

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P344380

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P344381

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: P344410

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P344411

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P344390

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.0		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P344391

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.7		P	90 - 110

Reference Method: SM 2320 B-97
Batch ID: P344833

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	106		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P344836

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

Reference Method: SM 5310 B-00
Batch ID: P344689

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P344780

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1988158	Ammonia-N	103	104	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P344781

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1988295	Ammonia-N	102	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P344365

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1988286	Kjeldahl Nitrogen	101	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P344367

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1988295	Kjeldahl Nitrogen	92.1	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P344380

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P344380

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1988170	NO2NO3-N	98.4	98.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P344381

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1988299	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P344410

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1988158	Total-P	95.7	96.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P344411

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1988288	Total-P	96.0	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P344390

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1988159	O-Phosphate-P	95.0	97.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P344391

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1988297	O-Phosphate-P	97.3	98.3	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P344836

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1988252	Fluoride	94.9	96.8	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P344689

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1988158	Organic Carbon	101	99.5	P/P	85 - 115

Quality Assurance Report Precision

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P344248

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1988292	Turbidity	10.6	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P344249

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1988323	Turbidity	0.702	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P344780

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1988158	Ammonia-N	0.661	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P344781

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1988295	Ammonia-N	0.730	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P344365

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1988286	Kjeldahl Nitrogen	0.0443	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P344367

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1988295	Kjeldahl Nitrogen	6.92	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P344380

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1988170	NO2NO3-N	0.507	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P344381

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1988299	NO2NO3-N	0.980	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P344410

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1988158	Total-P	1.08	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P344411

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1988288	Total-P	3.55	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P344390

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1988159	O-Phosphate-P	2.19	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P344391

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1988297	O-Phosphate-P	1.02	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P344833

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1988252	Total Alkalinity	0.187	Sample	P	0 - 1.6

Reference Method: SM 4500 F-C-97
Batch ID: P344836

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1988252	Fluoride	1.46	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P344689

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1988158	Organic Carbon	1.03	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

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A83521

Included Lab Sample IDs: 1988283, 1988284, 1988285, 1988292, 1988293, 1988298

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A83568

Included Lab Sample IDs: 1988286, 1988287, 1988288, 1988294, 1988295, 1988299

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A83572

Included Lab Sample IDs: 1988289, 1988290, 1988291, 1988296, 1988297, 1988300

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.0	96.0	P/P	90 - 110
O-Phosphate-P	98.1	97.0	P/P	90 - 110
O-Phosphate-P	98.9	97.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A83611

Included Lab Sample IDs: 1988286, 1988287, 1988288, 1988294, 1988295, 1988299

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.9	95.6	P/P	90 - 110
Kjeldahl Nitrogen	98.9	98.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A83630

Included Lab Sample IDs: 1988286, 1988287, 1988288, 1988294, 1988295, 1988299

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

Reference Method: SM 5310 B-00

Run ID: A83673

Included Lab Sample IDs: 1988286, 1988287, 1988288, 1988294, 1988295, 1988299

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	104	105	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A83700

Included Lab Sample IDs: 1988286, 1988287, 1988288, 1988294, 1988295, 1988299

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

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97

Run ID: A83721

Included Lab Sample IDs: 1988283, 1988284, 1988285, 1988292, 1988293, 1988298

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	99.1	P/P	90 - 110
Total Alkalinity	99.3	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A83721

Included Lab Sample IDs: 1988283, 1988284, 1988285, 1988292, 1988293, 1988298

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	97.1	97.6	P/P	90 - 110
Fluoride	97.6	96.6	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.
Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity				10.6	
	Turbidity				0.702	
EPA 350.1 Rev. 2.0	Ammonia-N	103	103 104			0.661
	Ammonia-N	104	102 103			0.730
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	100	101 101			0.0443
	Kjeldahl Nitrogen	104	92.1 100			6.92
EPA 353.2 Rev. 2.0	NO2NO3-N	99.5	98.4 98.8			0.507
	NO2NO3-N	99.5	102 102			0.980
EPA 365.1 Rev. 2.0	Total-P	104	95.7 96.8			1.08
	Total-P	99.5	96.0 99.5			3.55
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.0	95.0 97.1			2.19
	O-Phosphate-P	98.7	97.3 98.3			1.02
SM 2320 B-97	Total Alkalinity	106			0.187	
SM 4500 F-C-97	Fluoride	94.5	94.9 96.8			1.46
SM 5310 B-00	Organic Carbon	102	101 99.5			1.03

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1988283, 1988284, 1988285, 1988292, 1988293, 1988298
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1988286, 1988287, 1988288, 1988294, 1988295, 1988299
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1988286, 1988287, 1988288, 1988294, 1988295, 1988299
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1988286, 1988287, 1988288, 1988294, 1988295, 1988299
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1988286, 1988287, 1988288, 1988294, 1988295, 1988299
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1988289, 1988290, 1988291, 1988296, 1988297, 1988300

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1988283, 1988284, 1988285, 1988292, 1988293, 1988298
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1988283, 1988284, 1988285, 1988292, 1988293, 1988298
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1988283, 1988284, 1988285, 1988292, 1988293, 1988298
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1988286, 1988287, 1988288, 1988294, 1988295, 1988299

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	04/27/2018			04/27/2018 15:46	William L. Brown IV	1988283, 1988284, 1988285, 1988292, 1988293, 1988298
EPA 350.1 Rev. 2.0	04/27/2018			05/04/2018 13:03	Ping Hua	1988286
	04/27/2018			05/04/2018 13:04	Ping Hua	1988287
	04/27/2018			05/04/2018 13:06	Ping Hua	1988288
	04/27/2018			05/04/2018 13:07	Ping Hua	1988294
	04/27/2018			05/04/2018 13:18	Ping Hua	1988295
	04/27/2018			05/04/2018 13:22	Ping Hua	1988299
EPA 351.2 Rev. 2.0	04/27/2018	05/01/2018 15:30	Adrian Shelby	05/02/2018 13:09	Joseph Suarez	1988286
	04/27/2018	05/01/2018 15:30	Adrian Shelby	05/02/2018 13:14	Joseph Suarez	1988287
	04/27/2018	05/01/2018 15:30	Adrian Shelby	05/02/2018 13:16	Joseph Suarez	1988288
	04/27/2018	05/01/2018 15:30	Adrian Shelby	05/02/2018 13:17	Joseph Suarez	1988294
	04/27/2018	05/01/2018 15:30	Adrian Shelby	05/02/2018 13:50	Joseph Suarez	1988295
	04/27/2018	05/01/2018 15:30	Adrian Shelby	05/02/2018 13:54	Joseph Suarez	1988299
EPA 353.2 Rev. 2.0	04/27/2018			05/01/2018 11:42	Lauren Bottorf	1988286
	04/27/2018			05/01/2018 11:43	Lauren Bottorf	1988287
	04/27/2018			05/01/2018 11:44	Lauren Bottorf	1988288
	04/27/2018			05/01/2018 11:45	Lauren Bottorf	1988294
	04/27/2018			05/01/2018 11:46	Lauren Bottorf	1988295
	04/27/2018			05/01/2018 11:56	Lauren Bottorf	1988299
EPA 365.1 Rev. 2.0	04/27/2018	05/01/2018 14:01	Sima Feizi	05/03/2018 12:48	Beverly Y. Sanders	1988286
	04/27/2018	05/01/2018 14:01	Sima Feizi	05/03/2018 12:56	Beverly Y. Sanders	1988287
	04/27/2018	05/01/2018 14:01	Sima Feizi	05/03/2018 12:57	Beverly Y. Sanders	1988288
	04/27/2018	05/01/2018 14:01	Sima Feizi	05/03/2018 12:58	Beverly Y. Sanders	1988294
	04/27/2018	05/01/2018 14:01	Sima Feizi	05/03/2018 12:59	Beverly Y. Sanders	1988295
	04/27/2018	05/01/2018 14:01	Sima Feizi	05/03/2018 13:00	Beverly Y. Sanders	1988299
EPA 365.1 Rev. 2.0 dissolved	04/27/2018			04/27/2018 16:49	Megan Treadwell	1988297
	04/27/2018			04/27/2018 17:28	Megan Treadwell	1988289
	04/27/2018			04/27/2018 17:29	Megan Treadwell	1988290, 1988291
	04/27/2018			04/27/2018 17:34	Megan Treadwell	1988296
	04/27/2018			04/27/2018 17:35	Megan Treadwell	1988300
SM 2320 B-97	04/27/2018			05/08/2018 02:08	Dale L. Simmons	1988283
	04/27/2018			05/08/2018 03:03	Dale L. Simmons	1988284
	04/27/2018			05/08/2018 03:13	Dale L. Simmons	1988285
	04/27/2018			05/08/2018 03:22	Dale L. Simmons	1988292
	04/27/2018			05/08/2018 03:32	Dale L. Simmons	1988293
	04/27/2018			05/08/2018 03:41	Dale L. Simmons	1988298
SM 2540 D-97	04/27/2018			05/02/2018 15:06	Yijie Li	1988283, 1988284, 1988285, 1988292, 1988293, 1988298
SM 4500 F-C-97	04/27/2018			05/07/2018 23:43	Dale L. Simmons	1988283

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 4500 F-C-97	04/27/2018			05/07/2018 23:47	Dale L. Simmons	1988284
	04/27/2018			05/07/2018 23:51	Dale L. Simmons	1988285
	04/27/2018			05/07/2018 23:54	Dale L. Simmons	1988292
	04/27/2018			05/07/2018 23:58	Dale L. Simmons	1988293
	04/27/2018			05/08/2018 00:30	Dale L. Simmons	1988298
SM 5310 B-00	04/27/2018			05/04/2018 05:55	Megan Treadwell	1988286
	04/27/2018			05/04/2018 06:07	Megan Treadwell	1988287
	04/27/2018			05/04/2018 06:22	Megan Treadwell	1988288
	04/27/2018			05/04/2018 06:48	Megan Treadwell	1988294
	04/27/2018			05/04/2018 07:01	Megan Treadwell	1988295
	04/27/2018			05/04/2018 07:13	Megan Treadwell	1988299