

Chemical Analysis Report

NW-DIST-2017-06-20-01

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

Event Description: **Bayou Chico BMAP**
Request ID: **RQ-2017-05-15-18**
Customer: **NW-DIST**
Project ID: **BMAP**

Send Reports to:
FL Dept. of Environmental Protection
160 Government Center
Suite 308
Pensacola, FL 32502-5794
Attn: Cheryl Bunch

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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 05-JUL-2017 11:47



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: Jackson Creek at Old Corry Road

Collection Date/Time: 06/19/2017 13:00

Field ID: D

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1907458	EPA 180.1 Rev. 2.0	Turbidity	2.8		NTU	P327195	
1907461	EPA 350.1 Rev. 2.0	Ammonia-N	0.024		mg N/L	P327288	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.17	IJ	mg N/L	P327190	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	2.2		mg N/L	P327302	
	EPA 365.1 Rev. 2.0	Total-P	0.021		mg P/L	P327314	

Ref. Method and Comment:

EPA 351.2 Rev. 2.0: Refer to the narrative for an explanation of QC Codes.

Sample Location: Jackson Creek at New Warrington Road

Collection Date/Time: 06/19/2017 13:20

Field ID: E

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1907464	EPA 180.1 Rev. 2.0	Turbidity	3.4		NTU	P327195	
1907465	EPA 350.1 Rev. 2.0	Ammonia-N	0.024		mg N/L	P327288	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.21		mg N/L	P327190	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	2.1		mg N/L	P327302	
	EPA 365.1 Rev. 2.0	Total-P	0.030		mg P/L	P327314	

Sample Location: Bayou Chico at Navy Blvd Bridge

Collection Date/Time: 06/19/2017 14:40

Field ID: F

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1907459	EPA 180.1 Rev. 2.0	Turbidity	5.2		NTU	P327195	
1907462	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P327287	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.48		mg N/L	P327276	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.80		mg N/L	P327385	
	EPA 365.1 Rev. 2.0	Total-P	0.049		mg P/L	P327315	

Sample Location: Bayou Chico at Street

Collection Date/Time: 06/19/2017 15:10

Field ID: G

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1907460	EPA 180.1 Rev. 2.0	Turbidity	5.8		NTU	P327195	
1907463	EPA 350.1 Rev. 2.0	Ammonia-N	0.034		mg N/L	P327288	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.32		mg N/L	P327190	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.93		mg N/L	P327302	
	EPA 365.1 Rev. 2.0	Total-P	0.043		mg P/L	P327314	

Sample Location: PENASACOLA BAY AT SANDERS BEACH

Collection Date/Time: 06/19/2017 11:15

Field ID: A

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1907593	EPA 180.1 Rev. 2.0	Turbidity	2.6	A	NTU	P327217	
1907596	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P327290	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.39	I	mg N/L	P327276	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P327385	

Field ID: A

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1907596	EPA 365.1 Rev. 2.0	Total-P	0.018		mg P/L	P327315	

Sample Location: BAY CHICO AT MANDALAY PARK

Collection Date/Time: 06/19/2017 11:45

Field ID: B

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1907594	EPA 180.1 Rev. 2.0	Turbidity	2.9		NTU	P327217	
1907597	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P327291	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.55		mg N/L	P327276	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.23		mg N/L	P327385	
	EPA 365.1 Rev. 2.0	Total-P	0.034		mg P/L	P327315	

Sample Location: JONES CREEK AT OLD CORRY ROAD

Collection Date/Time: 06/19/2017 12:25

Field ID: C

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1907595	EPA 180.1 Rev. 2.0	Turbidity	2.3		NTU	P327217	
1907598	EPA 350.1 Rev. 2.0	Ammonia-N	0.025		mg N/L	P327289	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.62		mg N/L	P327533	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.060		mg N/L	P327303	
	EPA 365.1 Rev. 2.0	Total-P	0.022		mg P/L	P327316	

Sample Location: Field Blank

Collection Date/Time: 06/19/2017 12:40

Field ID: FB

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1907591	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P327217	
1907592	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P327289	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P327533	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P327302	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P327314	

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P327195

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P327217

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P327287

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P327288

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P327289

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P327290

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P327291

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327190

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327276

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327533

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327302

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: P327303

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P327385

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

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P327314

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

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P327315

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

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P327316

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P327287

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

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P327288

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

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P327289

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P327290

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P327290

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P327291

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327190

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327276

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327533

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327302

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327303

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327385

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	108		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P327314

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P327315

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P327316

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P327287

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1907308	Ammonia-N	102	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P327288

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1907380	Ammonia-N	101	98.7	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P327289

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1907598	Ammonia-N	102	99.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P327290

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1907596	Ammonia-N	97.6	96.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P327291

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1907597	Ammonia-N	102	99.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327190

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1907461	Kjeldahl Nitrogen	89.4	99.3	F/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327276

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327276

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1907597	Kjeldahl Nitrogen	98.1	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327533

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906968	Kjeldahl Nitrogen	102	97.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327302

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1907474	NO2NO3-N	103	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327303

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1907598	NO2NO3-N	100	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327385

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1907428	NO2NO3-N	108	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P327314

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1907461	Total-P	96.8	98.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P327315

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1907428	Total-P	90.7	90.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P327316

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1907644	Total-P	103	98.4	P/P	90 - 110

Quality Assurance Report Precision

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P327195

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1907491	Turbidity	13.3	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P327217

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1907593	Turbidity	4.21	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P327287

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1907308	Ammonia-N	0.433	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P327288

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1907380	Ammonia-N	1.23	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P327289

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1907598	Ammonia-N	1.45	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P327290

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1907596	Ammonia-N	1.60	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P327291

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1907597	Ammonia-N	1.66	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327190

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1907461	Kjeldahl Nitrogen	9.15	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327276

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1907597	Kjeldahl Nitrogen	3.10	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327533

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906968	Kjeldahl Nitrogen	2.45	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327302

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1907474	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327303

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1907598	NO2NO3-N	0.763	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327385

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1907428	NO2NO3-N	0.930	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P327314

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1907461	Total-P	1.20	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P327315

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1907428	Total-P	0.596	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P327316

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1907644	Total-P	3.49	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: A77223

Included Lab Sample IDs: 1907458, 1907459, 1907460, 1907464

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A77228

Included Lab Sample IDs: 1907591, 1907593, 1907594, 1907595

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A77259

Included Lab Sample IDs: 1907461, 1907462, 1907463, 1907465, 1907592, 1907596, 1907597, 1907598

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	99.5	P/P	90 - 110
Ammonia-N	99.3	99.7	P/P	90 - 110
Ammonia-N	99.5	99.5	P/P	90 - 110
Ammonia-N	99.5	98.1	P/P	90 - 110
Ammonia-N	99.7	101	P/P	90 - 110
Ammonia-N	99.7	99.7	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A77262

Included Lab Sample IDs: 1907461, 1907463, 1907465, 1907592, 1907598

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A77292

Included Lab Sample IDs: 1907461, 1907463, 1907465

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	94.9	93.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A77296

Included Lab Sample IDs: 1907462, 1907596, 1907597

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A77305

Included Lab Sample IDs: 1907461, 1907463, 1907465

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.8	99.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A77308

Included Lab Sample IDs: 1907462, 1907592, 1907596, 1907597, 1907598

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	99.5	P/P	90 - 110
Total-P	99.5	99.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A77342

Included Lab Sample IDs: 1907462, 1907596, 1907597

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	102	P/P	90 - 110
Kjeldahl Nitrogen	102	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A77467

Included Lab Sample IDs: 1907592, 1907598

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	106	105	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				13.3	
	Turbidity				4.21	
EPA 350.1 Rev. 2.0	Ammonia-N	104	102 101			0.433
	Ammonia-N	104	101 98.7			1.23
	Ammonia-N	98.6	102 99.6			1.45
	Ammonia-N	99.4	97.6 96.0			1.60
	Ammonia-N	99.0	102 99.9			1.66
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	97.6	89.4 99.3			9.15
	Kjeldahl Nitrogen	103	98.1 102			3.10
	Kjeldahl Nitrogen	103	102 97.9			2.45
EPA 353.2 Rev. 2.0	NO2NO3-N	103	103 103			0.0
	NO2NO3-N	104	100 101			0.763
	NO2NO3-N	108	108 107			0.930
EPA 365.1 Rev. 2.0	Total-P	101	96.8 98.0			1.20
	Total-P	99.4	90.7 90.2			0.596
	Total-P	102	103 98.4			3.49

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1907458, 1907459, 1907460, 1907464, 1907591, 1907593, 1907594, 1907595
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1907461, 1907462, 1907463, 1907465, 1907592, 1907596, 1907597, 1907598
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1907461, 1907462, 1907463, 1907465, 1907592, 1907596, 1907597, 1907598
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1907461, 1907462, 1907463, 1907465, 1907592, 1907596, 1907597, 1907598
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1907461, 1907462, 1907463, 1907465, 1907592, 1907596, 1907597, 1907598

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	06/20/2017			06/20/2017 16:32	DeAsia Armster	1907458, 1907459, 1907460, 1907464
	06/21/2017			06/21/2017 10:54	DeAsia Armster	1907591, 1907593, 1907594, 1907595
EPA 350.1 Rev. 2.0	06/20/2017			06/21/2017	Sofia Elnemr	1907461, 1907462, 1907463, 1907465
	06/21/2017			06/21/2017	Sofia Elnemr	1907592, 1907596, 1907597, 1907598
EPA 351.2 Rev. 2.0	06/20/2017	06/21/2017	Adrian Shelby	06/22/2017	Tanya Welborn	1907461, 1907463, 1907465
	06/20/2017	06/22/2017	Adrian Shelby	06/26/2017	Joseph Suarez	1907462
	06/21/2017	06/22/2017	Adrian Shelby	06/26/2017	Joseph Suarez	1907596, 1907597
	06/21/2017	06/27/2017	Adrian Shelby	06/30/2017	Joseph Suarez	1907592, 1907598
EPA 353.2 Rev. 2.0	06/20/2017			06/22/2017	Beverly Y. Sanders	1907461, 1907463, 1907465
	06/20/2017			06/23/2017	Beverly Y. Sanders	1907462
	06/21/2017			06/22/2017	Beverly Y. Sanders	1907592, 1907598
	06/21/2017			06/23/2017	Beverly Y. Sanders	1907596, 1907597
EPA 365.1 Rev. 2.0	06/20/2017	06/22/2017	Adrian Shelby	06/23/2017	Lipi Saha	1907461, 1907462, 1907463, 1907465
	06/21/2017	06/22/2017	Adrian Shelby	06/23/2017	Lipi Saha	1907592, 1907596, 1907597, 1907598