Chemical Analysis Report

NW-DIST-2018-07-17-01

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-2018-06-18-09**
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

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Kerry Tate, Ph.D.
Dr. rer. nat. Bettina Steinbock
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 02-AUG-2018 12:02

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: JONES CREEK AT OLD CORRY ROAD **Collection Date/Time: 07/16/2018 11:05**

Field ID: 33020118 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2007864	EPA 180.1 Rev. 2.0	Turbidity	3.7		NTU	P348729	
2007868	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P348872	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.34	I	mg N/L	P348768	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.079		mg N/L	P348855	
	EPA 365.1 Rev. 2.0	Total-P	0.040		mg P/L	P348883	

Sample Location: BAYOU CHICO AT MANDALAY DRIVE **Collection Date/Time: 07/16/2018 10:40**

Field ID: 33020JD4 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2007865	EPA 180.1 Rev. 2.0	Turbidity	2.2		NTU	P348729	
2007869	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P348872	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.45		mg N/L	P348918	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.17		mg N/L	P348855	
	EPA 365.1 Rev. 2.0	Total-P	0.021		mg P/L	P348883	

Sample Location: BAYOU CHICO AT NAVY BLVD. BRIDGE **Collection Date/Time: 07/16/2018 13:55**

Field ID: 33020JE20 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2007866	EPA 180.1 Rev. 2.0	Turbidity	2.4		NTU	P348729	
2007870	EPA 350.1 Rev. 2.0	Ammonia-N	0.016		mg N/L	P348872	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.50		mg N/L	P348918	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.44		mg N/L	P348857	
	EPA 365.1 Rev. 2.0	Total-P	0.021		mg P/L	P348987	

Sample Location: BAYOU CHICO AT AT W ST. BRIDGE **Collection Date/Time: 07/16/2018 14:10**

Field ID: 33020JF1 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2007867	EPA 180.1 Rev. 2.0	Turbidity	2.9		NTU	P348729	
2007871	EPA 350.1 Rev. 2.0	Ammonia-N	0.042		mg N/L	P348711	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.36		mg N/L	P348839	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.78		mg N/L	P348668	
	EPA 365.1 Rev. 2.0	Total-P	0.035		mg P/L	P348924	

Sample Location: JACKSON CREEK AT OLD CORRY ROAD **Collection Date/Time: 07/16/2018 11:30**

Field ID: 33020221 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2007872	EPA 180.1 Rev. 2.0	Turbidity	5.6		NTU	P348729	
2007874	EPA 350.1 Rev. 2.0	Ammonia-N	0.041		mg N/L	P348711	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.71		mg N/L	P348839	
	EPA 353.2 Rev. 2.0	NO2NO3-N	2.6		mg N/L	P348668	
	EPA 365.1 Rev. 2.0	Total-P	0.068		mg P/L	P348882	

Sample Location: JACKSON CREEK AT NEW WARRINGTON ROAD **Collection Date/Time: 07/16/2018 11:55**

Field ID: 33020222 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2007873	EPA 180.1 Rev. 2.0	Turbidity	25		NTU	P348729	
2007875	EPA 350.1 Rev. 2.0	Ammonia-N	0.068		mg N/L	P348711	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.0		mg N/L	P348839	
	EPA 353.2 Rev. 2.0	NO2NO3-N	2.5		mg N/L	P348669	
	EPA 365.1 Rev. 2.0	Total-P	0.36		mg P/L	P348882	

Sample Location: PENSACOLA BAY AT SANDERS BEACH **Collection Date/Time: 07/16/2018 10:10**

Field ID: 33020J10 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2007876	EPA 180.1 Rev. 2.0	Turbidity	2.3	A	NTU	P348730	
2007877	EPA 350.1 Rev. 2.0	Ammonia-N	0.016		mg N/L	P348872	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.29	I	mg N/L	P348918	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.005	I	mg N/L	P348857	
	EPA 365.1 Rev. 2.0	Total-P	0.014		mg P/L	P348987	

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P348729

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P348730

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P348711

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P348872

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P348768

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P348839

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P348918

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P348668

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P348669

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: P348855

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P348857

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P348882

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P348883

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P348924

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P348987

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: P348711

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P348872

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P348768

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	96.9		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P348839

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: P348918

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: P348668

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: P348669

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P348855

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: P348857

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P348882

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P348883

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P348924

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P348987

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

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P348711

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2007763	Ammonia-N	100	98.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P348872

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2007868	Ammonia-N	104	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P348768

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2007810	Kjeldahl Nitrogen	99.0	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P348839

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2007890	Kjeldahl Nitrogen	90.4	99.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P348918

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2007869	Kjeldahl Nitrogen	104	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P348668

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2007791	NO2NO3-N	102	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P348669

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2007888	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P348855

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2007714	NO2NO3-N	97.9	98.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P348857

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2008436	NO2NO3-N	96.8	97.8	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P348882

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2007874	Total-P	98.0	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P348883

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2007714	Total-P	97.9	96.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P348924

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2008300	Total-P	98.3	96.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P348987

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2007870	Total-P	92.6	95.2	P/P	90 - 110

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P348729

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2007834	Turbidity	6.47	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P348730

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2007876	Turbidity	4.86	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P348711

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2007763	Ammonia-N	1.59	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P348872

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2007868	Ammonia-N	1.30	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P348768

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2007810	Kjeldahl Nitrogen	0.960	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P348839

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2007890	Kjeldahl Nitrogen	4.73	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P348918

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2007869	Kjeldahl Nitrogen	0.380	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P348668

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2007791	NO2NO3-N	0.976	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P348669

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2007888	NO2NO3-N	0.491	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P348855

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2007714	NO2NO3-N	0.499	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P348857

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2008436	NO2NO3-N	1.03	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P348882

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2007874	Total-P	1.98	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P348883

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2007714	Total-P	1.02	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P348924

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2008300	Total-P	2.17	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P348987

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2007870	Total-P	2.66	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 353.2 Rev. 2.0
Run ID: A85308
Included Lab Sample IDs: 2007871, 2007874, 2007875

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A85320
Included Lab Sample IDs: 2007871, 2007874, 2007875

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	104	101	P/P	90 - 110
Ammonia-N	99.4	104	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A85325
Included Lab Sample IDs: 2007864, 2007865, 2007866, 2007867, 2007872, 2007873, 2007876

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	97.5	98.0	P/P	95 - 105
Turbidity	98.0	97.5	P/P	95 - 105

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A85370
Included Lab Sample IDs: 2007868, 2007869, 2007870, 2007877

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A85375
Included Lab Sample IDs: 2007868, 2007869, 2007870, 2007877

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	104	102	P/P	90 - 110
Ammonia-N	105	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A85379
Included Lab Sample IDs: 2007868

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	93.4	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A85401
Included Lab Sample IDs: 2007874, 2007875

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	102	101	P/P	90 - 110
Total-P	102	102	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A85405
Included Lab Sample IDs: 2007871, 2007874, 2007875

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.6	92.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A85408
Included Lab Sample IDs: 2007868, 2007869

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.8	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A85424
Included Lab Sample IDs: 2007869, 2007870, 2007877

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	108	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A85425
Included Lab Sample IDs: 2007870, 2007871, 2007877

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	98.8	P/P	90 - 110
Total-P	100	100	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.
Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.
Where they are different, both control limits are provided.

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					6.47	
	Turbidity					4.86	
EPA 350.1 Rev. 2.0	Ammonia-N	102	100	98.6			1.59
	Ammonia-N	105	104	103			1.30
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	96.9	99.0	100			0.960
	Kjeldahl Nitrogen	103	90.4	99.0			4.73
	Kjeldahl Nitrogen	103	104	104			0.380
EPA 353.2 Rev. 2.0	NO2NO3-N	100	102	103			0.976
	NO2NO3-N	101	102	102			0.491
	NO2NO3-N	99.5	97.9	98.4			0.499
	NO2NO3-N	100	96.8	97.8			1.03
EPA 365.1 Rev. 2.0	Total-P	99.2	98.0	100			1.98
	Total-P	101	97.9	96.8			1.02
	Total-P	97.1	98.3	96.0			2.17
	Total-P	96.0	92.6	95.2			2.66

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2007864, 2007865, 2007866, 2007867, 2007872, 2007873, 2007876
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2007868, 2007869, 2007870, 2007871, 2007874, 2007875, 2007877
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2007868, 2007869, 2007870, 2007871, 2007874, 2007875, 2007877
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2007868, 2007869, 2007870, 2007871, 2007874, 2007875, 2007877
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2007868, 2007869, 2007870, 2007871, 2007874, 2007875, 2007877

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	07/17/2018			07/17/2018 16:55	Blanca Fach	2007864, 2007865, 2007866, 2007867, 2007872, 2007873, 2007876
EPA 350.1 Rev. 2.0	07/17/2018			07/18/2018 14:59	Ping Hua	2007871
	07/17/2018			07/18/2018 15:08	Ping Hua	2007874
	07/17/2018			07/18/2018 15:10	Ping Hua	2007875
	07/17/2018			07/20/2018 11:57	Ping Hua	2007868
	07/17/2018			07/20/2018 12:07	Ping Hua	2007869
	07/17/2018			07/20/2018 12:18	Ping Hua	2007870
	07/17/2018			07/20/2018 12:19	Ping Hua	2007877
EPA 351.2 Rev. 2.0	07/17/2018	07/19/2018 14:00	Adrian Shelby	07/20/2018 11:19	Joseph Suarez	2007868
	07/17/2018	07/20/2018 11:00	Adrian Shelby	07/23/2018 10:11	Joseph Suarez	2007871
	07/17/2018	07/20/2018 11:00	Adrian Shelby	07/23/2018 10:13	Joseph Suarez	2007874
	07/17/2018	07/20/2018 11:00	Adrian Shelby	07/23/2018 10:15	Joseph Suarez	2007875
	07/17/2018	07/23/2018 11:30	Adrian Shelby	07/24/2018 08:37	Joseph Suarez	2007869
	07/17/2018	07/23/2018 11:30	Adrian Shelby	07/24/2018 08:42	Joseph Suarez	2007870
	07/17/2018	07/23/2018 11:30	Adrian Shelby	07/24/2018 08:43	Joseph Suarez	2007877
EPA 353.2 Rev. 2.0	07/17/2018			07/18/2018 13:29	Lauren Bottorf	2007871
	07/17/2018			07/18/2018 13:33	Lauren Bottorf	2007874
	07/17/2018			07/18/2018 13:35	Lauren Bottorf	2007875
	07/17/2018			07/20/2018 11:23	Lauren Bottorf	2007868
	07/17/2018			07/20/2018 11:24	Lauren Bottorf	2007869
	07/17/2018			07/20/2018 11:31	Lauren Bottorf	2007870
	07/17/2018			07/20/2018 11:37	Lauren Bottorf	2007877
EPA 365.1 Rev. 2.0	07/17/2018	07/20/2018 13:40	Sima Feizi	07/23/2018 10:06	Beverly Y. Sanders	2007874
	07/17/2018	07/20/2018 13:40	Sima Feizi	07/23/2018 10:14	Beverly Y. Sanders	2007875
	07/17/2018	07/20/2018 13:40	Sima Feizi	07/23/2018 13:54	Beverly Y. Sanders	2007868
	07/17/2018	07/20/2018 13:40	Sima Feizi	07/23/2018 13:55	Beverly Y. Sanders	2007869
	07/17/2018	07/23/2018 12:25	Sima Feizi	07/24/2018 10:50	Beverly Y. Sanders	2007871
	07/17/2018	07/23/2018 12:25	Sima Feizi	07/24/2018 11:56	Beverly Y. Sanders	2007870
	07/17/2018	07/23/2018 12:25	Sima Feizi	07/24/2018 11:57	Beverly Y. Sanders	2007877