Chemical Analysis Report

NW-DIST-2019-05-14-01

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-2019-04-08-10**
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: 30-MAY-2019 14:12

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: Pensacola Bay at Sanders Beach **Collection Date/Time: 05/13/2019 10:25**

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

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2085739	EPA 180.1 Rev. 2.0	Turbidity	1.4		NTU	P363955	
2085740	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P364280	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.18	I	mg N/L	P364339	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.006	I	mg N/L	P363976	
	EPA 365.1 Rev. 2.0	Total-P	0.013		mg P/L	P364184	

Sample Location: Bayou Chico at Mandalay Drive **Collection Date/Time: 05/13/2019 10:50**

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

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2085727	EPA 180.1 Rev. 2.0	Turbidity	3.3	A	NTU	P363955	
2085730	EPA 350.1 Rev. 2.0	Ammonia-N	0.033		mg N/L	P364148	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.40		mg N/L	P364229	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.27		mg N/L	P363976	
	EPA 365.1 Rev. 2.0	Total-P	0.024		mg P/L	P364184	

Sample Location: Jackson Creek @ Old Corry Road **Collection Date/Time: 05/13/2019 11:45**

Field ID: 33020221 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2085733	EPA 180.1 Rev. 2.0	Turbidity	2.0		NTU	P363955	
2085736	EPA 350.1 Rev. 2.0	Ammonia-N	0.021		mg N/L	P364151	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.21		mg N/L	P364233	
	EPA 353.2 Rev. 2.0	NO2NO3-N	2.4		mg N/L	P364212	
	EPA 365.1 Rev. 2.0	Total-P	0.020		mg P/L	P364106	

Sample Location: Jackson Creek at New Warrington Road **Collection Date/Time: 05/13/2019 12:05**

Field ID: 33020222 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2085734	EPA 180.1 Rev. 2.0	Turbidity	1.4		NTU	P363955	
2085737	EPA 350.1 Rev. 2.0	Ammonia-N	0.024		mg N/L	P364151	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.17	I	mg N/L	P364233	
	EPA 353.2 Rev. 2.0	NO2NO3-N	1.5		mg N/L	P364212	
	EPA 365.1 Rev. 2.0	Total-P	0.020		mg P/L	P364106	

Sample Location: Jones Creek Upstream of New Warrington Rd **Collection Date/Time: 05/13/2019 13:00**

Field ID: 33020117 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2085735	EPA 180.1 Rev. 2.0	Turbidity	3.1		NTU	P363955	
2085738	EPA 350.1 Rev. 2.0	Ammonia-N	0.023		mg N/L	P364151	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.49		mg N/L	P364233	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.052		mg N/L	P364212	
	EPA 365.1 Rev. 2.0	Total-P	0.018		mg P/L	P364106	

Sample Location: Bayou Chico at Navy Blvd. Bridge **Collection Date/Time: 05/13/2019 13:30**

Field ID: 3302JE20 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2085728	EPA 180.1 Rev. 2.0	Turbidity	2.8		NTU	P363955	
2085731	EPA 350.1 Rev. 2.0	Ammonia-N	0.051		mg N/L	P364148	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.35	I	mg N/L	P364229	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.53		mg N/L	P363976	
	EPA 365.1 Rev. 2.0	Total-P	0.025		mg P/L	P364184	

Sample Location: Bayou Chico at at W St. Bridge **Collection Date/Time: 05/13/2019 13:50**

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

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2085729	EPA 180.1 Rev. 2.0	Turbidity	3.8		NTU	P363955	
2085732	EPA 350.1 Rev. 2.0	Ammonia-N	0.085		mg N/L	P364151	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.61		mg N/L	P364465	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.66		mg N/L	P364211	
	EPA 365.1 Rev. 2.0	Total-P	0.059		mg P/L	P364184	

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P363955

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364148

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364151

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364280

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364229

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364233

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364339

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364465

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P363976

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: P364211

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364212

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364106

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364184

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: P364148

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: P364151

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: P364280

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364229

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364233

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: P364339

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364465

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: P363976

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: P364211

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 353.2 Rev. 2.0
Batch ID: P364212

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364106

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	95.6		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364184

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	97.2		P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364148

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2085542	Ammonia-N	100	103	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364151

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2085627	Ammonia-N	106	106	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364280

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2085740	Ammonia-N	101	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364229

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2085542	Kjeldahl Nitrogen	103	98.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364233

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2085736	Kjeldahl Nitrogen	103	108	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364339

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2085741	Kjeldahl Nitrogen	103	106	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364465

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2086168	Kjeldahl Nitrogen	101	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P363976

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2085282	NO2NO3-N	102	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364211

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2085598	NO2NO3-N	102	100	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364212

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2085767	NO2NO3-N	102	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364106

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2085802	Total-P	96.7	95.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364184

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2085576	Total-P	91.3	93.9	P/P	90 - 110

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P363955

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2085727	Turbidity	3.65	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364148

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2085542	Ammonia-N	2.00	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364151

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2085627	Ammonia-N	0.0567	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364280

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2085740	Ammonia-N	0.939	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364229

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2085542	Kjeldahl Nitrogen	3.77	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364233

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2085736	Kjeldahl Nitrogen	3.89	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364339

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2085741	Kjeldahl Nitrogen	2.52	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364465

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2086168	Kjeldahl Nitrogen	0.687	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P363976

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2085282	NO2NO3-N	0.456	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364211

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2085598	NO2NO3-N	1.94	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364212

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2085767	NO2NO3-N	0.494	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364106

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2085802	Total-P	0.810	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364184

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2085576	Total-P	2.77	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 180.1 Rev. 2.0
Run ID: A91434
Included Lab Sample IDs: 2085727, 2085728, 2085729, 2085733, 2085734, 2085735, 2085739

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.5	100	P/P	95 - 105

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A91438
Included Lab Sample IDs: 2085730, 2085731, 2085740

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A91506
Included Lab Sample IDs: 2085730, 2085731, 2085732, 2085736, 2085737, 2085738

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	103	104	P/P	90 - 110
Ammonia-N	105	106	P/P	90 - 110
Ammonia-N	106	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A91529
Included Lab Sample IDs: 2085732, 2085736, 2085737, 2085738

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A91557
Included Lab Sample IDs: 2085736, 2085737, 2085738

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	99.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A91558
Included Lab Sample IDs: 2085740

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A91560
Included Lab Sample IDs: 2085730, 2085731, 2085736, 2085737, 2085738

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	102	97.3	P/P	90 - 110
Kjeldahl Nitrogen	96.4	106	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A91572
Included Lab Sample IDs: 2085730, 2085731, 2085732, 2085740

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A91618
Included Lab Sample IDs: 2085740

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A91693
Included Lab Sample IDs: 2085732

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	104	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					3.65	
EPA 350.1 Rev. 2.0	Ammonia-N	102	100	103			2.00
	Ammonia-N	103	106	106			0.0567
	Ammonia-N	101	101	103			0.939
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	96.7	103	98.3			3.77
	Kjeldahl Nitrogen	108	103	108			3.89
	Kjeldahl Nitrogen	102	103	106			2.52
	Kjeldahl Nitrogen	107	101	102			0.687
EPA 353.2 Rev. 2.0	NO2NO3-N	99.5	102	101			0.456
	NO2NO3-N	100	102	100			1.94
	NO2NO3-N	101	102	101			0.494
EPA 365.1 Rev. 2.0	Total-P	95.6	96.7	95.9			0.810
	Total-P	97.2	91.3	93.9			2.77

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2085727, 2085728, 2085729, 2085733, 2085734, 2085735, 2085739
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2085730, 2085731, 2085732, 2085736, 2085737, 2085738, 2085740
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2085730, 2085731, 2085732, 2085736, 2085737, 2085738, 2085740
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2085730, 2085731, 2085732, 2085736, 2085737, 2085738, 2085740
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2085730, 2085731, 2085732, 2085736, 2085737, 2085738, 2085740

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	05/14/2019			05/14/2019 16:44	Sima Feizi	2085727, 2085728, 2085729, 2085733, 2085734, 2085735, 2085739
EPA 350.1 Rev. 2.0	05/14/2019			05/16/2019 10:25	Ping Hua	2085730
	05/14/2019			05/16/2019 10:26	Ping Hua	2085731
	05/14/2019			05/16/2019 11:46	Ping Hua	2085732
	05/14/2019			05/16/2019 11:54	Ping Hua	2085736
	05/14/2019			05/16/2019 11:55	Ping Hua	2085737
	05/14/2019			05/16/2019 11:57	Ping Hua	2085738
	05/14/2019			05/17/2019 10:42	Ping Hua	2085740
EPA 351.2 Rev. 2.0	05/14/2019	05/20/2019 10:15	Jhamieka S. Greenwood	05/21/2019 10:27	Joseph Suarez	2085730
	05/14/2019	05/20/2019 10:15	Jhamieka S. Greenwood	05/21/2019 10:28	Joseph Suarez	2085731
	05/14/2019	05/20/2019 11:40	Jhamieka S. Greenwood	05/21/2019 11:34	Joseph Suarez	2085736
	05/14/2019	05/20/2019 11:40	Jhamieka S. Greenwood	05/21/2019 11:39	Joseph Suarez	2085737
	05/14/2019	05/20/2019 11:40	Jhamieka S. Greenwood	05/21/2019 11:40	Joseph Suarez	2085738
	05/14/2019	05/21/2019 12:30	Adrian Shelby	05/23/2019 10:26	Joseph Suarez	2085740
	05/14/2019	05/23/2019 13:15	Adrian Shelby	05/28/2019 13:39	Joseph Suarez	2085732
EPA 353.2 Rev. 2.0	05/14/2019			05/15/2019 09:28	Beverly Y. Sanders	2085730
	05/14/2019			05/15/2019 09:29	Beverly Y. Sanders	2085731
	05/14/2019			05/15/2019 09:30	Beverly Y. Sanders	2085740
	05/14/2019			05/20/2019 12:16	Beverly Y. Sanders	2085732
	05/14/2019			05/20/2019 12:26	Beverly Y. Sanders	2085736
	05/14/2019			05/20/2019 12:27	Beverly Y. Sanders	2085737
	05/14/2019			05/20/2019 12:29	Beverly Y. Sanders	2085738
EPA 365.1 Rev. 2.0	05/14/2019	05/17/2019 09:23	Adrian Shelby	05/20/2019 18:54	Rosalyn Ballman	2085736
	05/14/2019	05/17/2019 09:23	Adrian Shelby	05/20/2019 18:55	Rosalyn Ballman	2085737
	05/14/2019	05/17/2019 09:23	Adrian Shelby	05/20/2019 18:56	Rosalyn Ballman	2085738
	05/14/2019	05/20/2019 08:30	Joseph Suarez	05/21/2019 17:57	Rosalyn Ballman	2085730
	05/14/2019	05/20/2019 08:30	Joseph Suarez	05/21/2019 17:58	Rosalyn Ballman	2085731
	05/14/2019	05/20/2019 08:30	Joseph Suarez	05/21/2019 17:59	Rosalyn Ballman	2085732
	05/14/2019	05/20/2019 08:30	Joseph Suarez	05/21/2019 18:00	Rosalyn Ballman	2085740