

Chemical Analysis Report

NW-DIST-2019-02-12-01

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

Event Description: **Bayou Chico BMAP/Blank**
Request ID: **RQ-2019-01-14-14**
Customer: **NW-DIST**
Project ID: **BMAP**

Send Reports to:
FL Dept. of Environmental Protection
160 Government Center
Suite 308
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Certified by: Colin Wright, Program Administrator

Date Certified: 27-FEB-2019 12:28

A handwritten signature in black ink, appearing to read "Colin Wright", is written over a light blue rectangular 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 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: 02/11/2019 10:55

Field ID: 33020J10

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2061709	EPA 180.1 Rev. 2.0	Turbidity	1.8		NTU	P358805	
2061711	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P358911	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.23	I	mg N/L	P358930	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.11		mg N/L	P359289	
	EPA 365.1 Rev. 2.0	Total-P	0.01	I	mg P/L	P358865	

Sample Location: Equipment Blank

Collection Date/Time: 02/11/2019 11:00

Field ID: BMAP_EB

Matrix: W-EQPMT-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2061710	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P358805	
2061712	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P359058	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P358838	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P359081	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P358861	

Sample Location: BAYOU CHICO AT MANDALAY DRIVE

Collection Date/Time: 02/11/2019 11:20

Field ID: 33020JD4

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2061697	EPA 180.1 Rev. 2.0	Turbidity	6.2		NTU	P358805	
2061700	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P358911	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.37	I	mg N/L	P358930	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.66		mg N/L	P359289	
	EPA 365.1 Rev. 2.0	Total-P	0.028		mg P/L	P358865	

Sample Location: JACKSON CREEK AT OLD CORRY ROAD

Collection Date/Time: 02/11/2019 11:50

Field ID: 33020221

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2061703	EPA 180.1 Rev. 2.0	Turbidity	1.9		NTU	P358805	
2061706	EPA 350.1 Rev. 2.0	Ammonia-N	0.017		mg N/L	P359057	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.14	I	mg N/L	P358838	
	EPA 353.2 Rev. 2.0	NO2NO3-N	2.5		mg N/L	P359081	
	EPA 365.1 Rev. 2.0	Total-P	0.020		mg P/L	P358861	

Sample Location: JACKSON CREEK AT NEW WARRINGTON ROAD

Collection Date/Time: 02/11/2019 12:15

Field ID: 33020222

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2061704	EPA 180.1 Rev. 2.0	Turbidity	2.3		NTU	P358805	
2061707	EPA 350.1 Rev. 2.0	Ammonia-N	0.016		mg N/L	P359057	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.14	I	mg N/L	P358838	
	EPA 353.2 Rev. 2.0	NO2NO3-N	2.6		mg N/L	P359081	
	EPA 365.1 Rev. 2.0	Total-P	0.027		mg P/L	P358861	

**Sample Location: JONES CREEK UPSTREAM OF NEW
WARRINGTON RD**

Collection Date/Time: 02/11/2019 13:25

Field ID: 33020117

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2061705	EPA 180.1 Rev. 2.0	Turbidity	3.8		NTU	P358805	
2061708	EPA 350.1 Rev. 2.0	Ammonia-N	0.059		mg N/L	P359058	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.37		mg N/L	P358838	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.11		mg N/L	P359081	
	EPA 365.1 Rev. 2.0	Total-P	0.013		mg P/L	P358861	

Sample Location: BAYOU CHICO AT W ST. BRIDGE

Collection Date/Time: 02/11/2019 14:30

Field ID: 33020JF1

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2061698	EPA 180.1 Rev. 2.0	Turbidity	4.2		NTU	P358805	
2061701	EPA 350.1 Rev. 2.0	Ammonia-N	0.059		mg N/L	P358911	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.42		mg N/L	P358930	
	EPA 353.2 Rev. 2.0	NO2NO3-N	1.3		mg N/L	P359356	
	EPA 365.1 Rev. 2.0	Total-P	0.039		mg P/L	P358957	

Sample Location: BAYOU CHICO AT NAVY BLVD BRIDGE

Collection Date/Time: 02/11/2019 14:10

Field ID: 3302JE20

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2061699	EPA 180.1 Rev. 2.0	Turbidity	2.3		NTU	P358805	
2061702	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P358911	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.28	I	mg N/L	P358930	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.95		mg N/L	P359289	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P358865	

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P358805

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P358911

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P359057

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P359058

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358838

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358930

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359081

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359289

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359356

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P358861

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P358865

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P358957

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: P358911

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	92.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P359057

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P359058

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358838

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	109		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358930

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359081

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: P359289

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	99.0		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359356

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	99.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P358861

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	109		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P358865

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P358957

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P358911

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2061085	Ammonia-N	96.9	99.4	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P359057

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2061706	Ammonia-N	100	99.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P359058

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2061730	Ammonia-N	99.3	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358838

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2061676	Kjeldahl Nitrogen	109	105	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358930

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2061711	Kjeldahl Nitrogen	106	108	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359081

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2061637	NO2NO3-N	99.6	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359289

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2061761	NO2NO3-N	101	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359356

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2062702	NO2NO3-N	97.5	97.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P358861

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2061707	Total-P	103	103	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P358865

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2061702	Total-P	104	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P358957

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2061981	Total-P	99.8	101	P/P	90 - 110

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P358805

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061724	Turbidity	3.03	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P358911

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061085	Ammonia-N	2.22	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P359057

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061706	Ammonia-N	0.173	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P359058

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061730	Ammonia-N	1.51	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358838

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061676	Kjeldahl Nitrogen	3.08	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358930

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061711	Kjeldahl Nitrogen	2.07	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359081

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061637	NO2NO3-N	0.404	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359289

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061761	NO2NO3-N	0.913	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359356

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2062702	NO2NO3-N	0.323	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P358861

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061707	Total-P	0.0231	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P358865

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061702	Total-P	3.25	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P358957

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061981	Total-P	0.990	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: A89377

Included Lab Sample IDs: 2061697, 2061698, 2061699, 2061703, 2061704, 2061705, 2061709, 2061710

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	101	102	P/P	95 - 105

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A89413

Included Lab Sample IDs: 2061700, 2061701, 2061702, 2061711

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A89420

Included Lab Sample IDs: 2061700, 2061702, 2061706, 2061707, 2061708, 2061711, 2061712

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	98.8	P/P	90 - 110
Total-P	99.2	99.5	P/P	90 - 110
Total-P	99.5	99.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A89421

Included Lab Sample IDs: 2061706, 2061707, 2061708, 2061712

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	104	P/P	90 - 110
Kjeldahl Nitrogen	98.4	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A89442

Included Lab Sample IDs: 2061700, 2061701, 2061702, 2061711

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	107	109	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A89467

Included Lab Sample IDs: 2061706, 2061707, 2061708, 2061712

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A89475

Included Lab Sample IDs: 2061706, 2061707, 2061708, 2061712

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.5	99.0	P/P	90 - 110
NO2NO3-N	99.5	99.5	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A89485

Included Lab Sample IDs: 2061701

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A89554

Included Lab Sample IDs: 2061700, 2061702, 2061711

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.0	99.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A89586

Included Lab Sample IDs: 2061701

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	99.5	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	MS
						SMP	
EPA 180.1 Rev. 2.0	Turbidity					3.03	
EPA 350.1 Rev. 2.0	Ammonia-N	92.5	96.9	99.4			2.22
	Ammonia-N	99.1	100	99.8			0.173
	Ammonia-N	99.6	99.3	101			1.51
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	109	109	105			3.08
	Kjeldahl Nitrogen	105	106	108			2.07
EPA 353.2 Rev. 2.0	NO2NO3-N	101	99.6	100			0.404
	NO2NO3-N	99.0	101	100			0.913
	NO2NO3-N	99.0	97.5	97.0			0.323
EPA 365.1 Rev. 2.0	Total-P	109	103	103			0.0231
	Total-P	106	104	101			3.25
	Total-P	101	99.8	101			0.990

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2061697, 2061698, 2061699, 2061703, 2061704, 2061705, 2061709, 2061710
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2061700, 2061701, 2061702, 2061706, 2061707, 2061708, 2061711, 2061712
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2061700, 2061701, 2061702, 2061706, 2061707, 2061708, 2061711, 2061712
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2061700, 2061701, 2061702, 2061706, 2061707, 2061708, 2061711, 2061712
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2061700, 2061701, 2061702, 2061706, 2061707, 2061708, 2061711, 2061712

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	02/12/2019			02/12/2019 16:03	Adrian Shelby	2061697, 2061698, 2061699, 2061703, 2061704, 2061705, 2061709, 2061710
EPA 350.1 Rev. 2.0	02/12/2019			02/13/2019 13:57	Ping Hua	2061700
	02/12/2019			02/13/2019 13:59	Ping Hua	2061701
	02/12/2019			02/13/2019 14:00	Ping Hua	2061702
	02/12/2019			02/13/2019 14:02	Ping Hua	2061711
	02/12/2019			02/15/2019 12:19	Ping Hua	2061706
	02/12/2019			02/15/2019 12:40	Ping Hua	2061707
	02/12/2019			02/15/2019 12:51	Ping Hua	2061712
	02/12/2019			02/15/2019 13:04	Ping Hua	2061708
EPA 351.2 Rev. 2.0	02/12/2019	02/13/2019 12:15	Adrian Shelby	02/14/2019 12:54	Joseph Suarez	2061706
	02/12/2019	02/13/2019 12:15	Adrian Shelby	02/14/2019 12:55	Joseph Suarez	2061707
	02/12/2019	02/13/2019 12:15	Adrian Shelby	02/14/2019 12:57	Joseph Suarez	2061708
	02/12/2019	02/13/2019 12:15	Adrian Shelby	02/14/2019 13:02	Joseph Suarez	2061712
	02/12/2019	02/14/2019 12:45	Adrian Shelby	02/15/2019 10:43	Joseph Suarez	2061700
	02/12/2019	02/14/2019 12:45	Adrian Shelby	02/15/2019 10:44	Joseph Suarez	2061701
	02/12/2019	02/14/2019 12:45	Adrian Shelby	02/15/2019 10:46	Joseph Suarez	2061702
	02/12/2019	02/14/2019 12:45	Adrian Shelby	02/15/2019 10:48	Joseph Suarez	2061711
EPA 353.2 Rev. 2.0	02/12/2019			02/18/2019 12:26	Beverly Y. Sanders	2061712
	02/12/2019			02/18/2019 13:01	Beverly Y. Sanders	2061706
	02/12/2019			02/18/2019 13:03	Beverly Y. Sanders	2061707
	02/12/2019			02/18/2019 13:04	Beverly Y. Sanders	2061708
	02/12/2019			02/21/2019 11:22	Beverly Y. Sanders	2061700
	02/12/2019			02/21/2019 11:23	Beverly Y. Sanders	2061702
	02/12/2019			02/21/2019 11:24	Beverly Y. Sanders	2061711
	02/12/2019			02/22/2019 10:00	Beverly Y. Sanders	2061701
EPA 365.1 Rev. 2.0	02/12/2019	02/13/2019 12:40	Sima Feizi	02/14/2019 13:09	Rosalyn Ballman	2061706
	02/12/2019	02/13/2019 12:40	Sima Feizi	02/14/2019 13:17	Rosalyn Ballman	2061707
	02/12/2019	02/13/2019 12:40	Sima Feizi	02/14/2019 13:18	Rosalyn Ballman	2061708
	02/12/2019	02/13/2019 12:40	Sima Feizi	02/14/2019 13:19	Rosalyn Ballman	2061712
	02/12/2019	02/13/2019 12:40	Sima Feizi	02/14/2019 13:53	Rosalyn Ballman	2061700
	02/12/2019	02/13/2019 12:40	Sima Feizi	02/14/2019 13:54	Rosalyn Ballman	2061702, 2061711
	02/12/2019	02/14/2019 13:40	Sima Feizi	02/18/2019 13:35	Rosalyn Ballman	2061701