Chemical Analysis Report

NW-DIST-2020-03-10-02

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-2020-02-10-26**
Customer: **NW-DIST**
Project ID: **BMAP**

Send Reports to:
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160 Government Center
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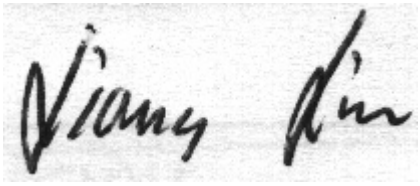
Date Certified: 30-MAR-2020 16:26



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: Equipment Blank **Collection Date/Time: 03/09/2020 10:45**

Field ID: BMAP_EB Matrix: W-EQPMT-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2163545	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P380402	
2163547	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P380886	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P380925	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P380845	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P380734	

Sample Location: Pensacola Bay at Sanders Beach **Collection Date/Time: 03/09/2020 10:20**

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

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2163546	EPA 180.1 Rev. 2.0	Turbidity	5.1		NTU	P380402	
2163548	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P381040	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.24	I	mg N/L	P380525	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.042		mg N/L	P381310	
	EPA 365.1 Rev. 2.0	Total-P	0.019		mg P/L	P380732	

Sample Location: Bayou Chico at Mandalay Drive **Collection Date/Time: 03/09/2020 10:55**

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

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2163533	EPA 180.1 Rev. 2.0	Turbidity	3.5	A	NTU	P380402	
2163536	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P381035	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.25	I	mg N/L	P380525	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.27		mg N/L	P381125	
	EPA 365.1 Rev. 2.0	Total-P	0.020		mg P/L	P380732	

Sample Location: Jackson Creek @ Old Corry Road **Collection Date/Time: 03/09/2020 11:25**

Field ID: 33020221 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2163539	EPA 180.1 Rev. 2.0	Turbidity	0.85		NTU	P380402	
2163542	EPA 350.1 Rev. 2.0	Ammonia-N	0.013		mg N/L	P380883	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.13	I	mg N/L	P380925	
	EPA 353.2 Rev. 2.0	NO2NO3-N	2.9		mg N/L	P380845	
	EPA 365.1 Rev. 2.0	Total-P	0.013		mg P/L	P380734	

Sample Location: Jackson Creek at New Warrington Road **Collection Date/Time: 03/09/2020 11:45**

Field ID: 33020222 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2163540	EPA 180.1 Rev. 2.0	Turbidity	1.0		NTU	P380402	
2163543	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P380883	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.14	I	mg N/L	P380925	
	EPA 353.2 Rev. 2.0	NO2NO3-N	3.1		mg N/L	P380845	
	EPA 365.1 Rev. 2.0	Total-P	0.016		mg P/L	P380734	

Sample Location: Jones Creek Upstream of New Warrington Rd **Collection Date/Time: 03/09/2020 12:05**

Field ID: 33020117 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2163541	EPA 180.1 Rev. 2.0	Turbidity	2.7		NTU	P380402	
2163544	EPA 350.1 Rev. 2.0	Ammonia-N	0.035		mg N/L	P380886	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.42		mg N/L	P380925	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.049		mg N/L	P380845	
	EPA 365.1 Rev. 2.0	Total-P	0.011		mg P/L	P380734	

Sample Location: Bayou Chico at Navy Blvd. Bridge **Collection Date/Time: 03/09/2020 14:00**

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

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2163534	EPA 180.1 Rev. 2.0	Turbidity	4.2		NTU	P380402	
2163537	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P381035	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.24	I	mg N/L	P380525	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.39		mg N/L	P381125	
	EPA 365.1 Rev. 2.0	Total-P	0.020		mg P/L	P380732	

Sample Location: Bayou Chico at W St. Bridge **Collection Date/Time: 03/09/2020 14:15**

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

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2163535	EPA 180.1 Rev. 2.0	Turbidity	5.6		NTU	P380402	
2163538	EPA 350.1 Rev. 2.0	Ammonia-N	0.020		mg N/L	P381035	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.44		mg N/L	P380525	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.86		mg N/L	P381310	
	EPA 365.1 Rev. 2.0	Total-P	0.072		mg P/L	P380896	

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P380402

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P380883

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P380886

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381035

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381040

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P380525

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P380925

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P380845

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381125

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: P381310

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P380732

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P380734

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P380896

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: P380883

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P380886

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381035

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: P381040

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P380525

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	91.9		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P380925

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	96.3		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P380845

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381125

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381310

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: P380732

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	107		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P380734

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P380896

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: P380883

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2163479	Ammonia-N	99.0	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P380886

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2163656	Ammonia-N	98.7	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381035

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2163107	Ammonia-N	100	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381040

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2163928	Ammonia-N	98.7	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P380525

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2163538	Kjeldahl Nitrogen	99.4	98.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P380925

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2163542	Kjeldahl Nitrogen	98.7	98.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P380845

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2163479	NO2NO3-N	101	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381125

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2162319	NO2NO3-N	99.0		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381310

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2163548	NO2NO3-N	100	101	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P380732

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2162475	Total-P	95.8	98.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P380734

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2163542	Total-P	106	108	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P380896

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2163538	Total-P	103	102	P/P	90 - 110

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P380402

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163533	Turbidity	0.0	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P380883

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163479	Ammonia-N	2.73	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P380886

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163656	Ammonia-N	2.11	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381035

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163107	Ammonia-N	0.301	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381040

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163928	Ammonia-N	0.980	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P380525

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163538	Kjeldahl Nitrogen	1.15	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P380925

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163542	Kjeldahl Nitrogen	0.658	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P380845

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163479	NO2NO3-N	0.0	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381125

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2162319	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381310

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163548	NO2NO3-N	0.411	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P380732

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2162475	Total-P	2.94	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P380734

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163542	Total-P	1.91	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P380896

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163538	Total-P	0.564	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.

Quality Assurance Report
Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A98117
Included Lab Sample IDs: 2163533, 2163534, 2163535, 2163539, 2163540, 2163541, 2163545, 2163546

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A98216
Included Lab Sample IDs: 2163542, 2163543, 2163544, 2163547

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	103	104	P/P	90 - 110
NO2NO3-N	104	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A98226
Included Lab Sample IDs: 2163536, 2163537, 2163538, 2163548

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	91.7	94.3	P/P	90 - 110
Kjeldahl Nitrogen	94.3	94.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A98268
Included Lab Sample IDs: 2163536, 2163537, 2163542, 2163543, 2163544, 2163547, 2163548

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.2	99.2	P/P	90 - 110
Total-P	99.2	99.0	P/P	90 - 110
Total-P	99.5	98.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A98271
Included Lab Sample IDs: 2163536, 2163537

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: A98276
Included Lab Sample IDs: 2163542, 2163543, 2163544, 2163547

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	101	P/P	90 - 110
Ammonia-N	102	103	P/P	90 - 110
Ammonia-N	103	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A98327
Included Lab Sample IDs: 2163538

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A98337
Included Lab Sample IDs: 2163536, 2163537, 2163538, 2163548

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	102	P/P	90 - 110
Ammonia-N	101	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A98369
Included Lab Sample IDs: 2163542, 2163543, 2163544, 2163547

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.0	98.9	P/P	90 - 110
Kjeldahl Nitrogen	98.9	95.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A98444
Included Lab Sample IDs: 2163538, 2163548

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	101	P/P	90 - 110
NO2NO3-N	102	101	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					0.0	
EPA 350.1 Rev. 2.0	Ammonia-N	99.8	99.0	102			2.73
	Ammonia-N	100	98.7	101			2.11
	Ammonia-N	99.4	100	101			0.301
	Ammonia-N	99.9	98.7	100			0.980
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	91.9	99.4	98.1			1.15
	Kjeldahl Nitrogen	96.3	98.7	98.0			0.658
EPA 353.2 Rev. 2.0	NO2NO3-N	102	101	101			0.0
	NO2NO3-N	102	99.0				0.0
	NO2NO3-N	100	100	101			0.411
EPA 365.1 Rev. 2.0	Total-P	107	95.8	98.9			2.94
	Total-P	108	106	108			1.91
	Total-P	101	103	102			0.564

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2163533, 2163534, 2163535, 2163539, 2163540, 2163541, 2163545, 2163546
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2163536, 2163537, 2163538, 2163542, 2163543, 2163544, 2163547, 2163548
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2163536, 2163537, 2163538, 2163542, 2163543, 2163544, 2163547, 2163548
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2163536, 2163537, 2163538, 2163542, 2163543, 2163544, 2163547, 2163548
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2163536, 2163537, 2163538, 2163542, 2163543, 2163544, 2163547, 2163548

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	03/10/2020			03/10/2020 16:49	Blanca Fach	2163533, 2163534, 2163535, 2163539, 2163540, 2163541, 2163545, 2163546
EPA 350.1 Rev. 2.0	03/10/2020			03/18/2020 12:10	Ping Hua	2163542
	03/10/2020			03/18/2020 12:12	Ping Hua	2163543
	03/10/2020			03/18/2020 13:12	Ping Hua	2163544
	03/10/2020			03/18/2020 13:30	Ping Hua	2163547
	03/10/2020			03/20/2020 11:02	Ping Hua	2163536
	03/10/2020			03/20/2020 11:04	Ping Hua	2163537
	03/10/2020			03/20/2020 11:05	Ping Hua	2163538
	03/10/2020			03/20/2020 13:40	Ping Hua	2163548
EPA 351.2 Rev. 2.0	03/10/2020	03/12/2020 12:05	Sima Feizi	03/13/2020 11:09	Jhamieka S. Greenwood	2163538
	03/10/2020	03/12/2020 12:05	Sima Feizi	03/13/2020 11:25	Jhamieka S. Greenwood	2163536
	03/10/2020	03/12/2020 12:05	Sima Feizi	03/13/2020 11:26	Jhamieka S. Greenwood	2163537
	03/10/2020	03/12/2020 12:05	Sima Feizi	03/13/2020 11:28	Jhamieka S. Greenwood	2163548
	03/10/2020	03/19/2020 11:35	Sima Feizi	03/23/2020 08:01	Jhamieka S. Greenwood	2163542
	03/10/2020	03/19/2020 11:35	Sima Feizi	03/23/2020 08:18	Jhamieka S. Greenwood	2163543
	03/10/2020	03/19/2020 11:35	Sima Feizi	03/23/2020 08:20	Jhamieka S. Greenwood	2163544
	03/10/2020	03/19/2020 11:35	Sima Feizi	03/23/2020 08:22	Jhamieka S. Greenwood	2163547
EPA 353.2 Rev. 2.0	03/10/2020			03/16/2020 10:56	Beverly Y. Sanders	2163547
	03/10/2020			03/16/2020 12:30	Beverly Y. Sanders	2163542
	03/10/2020			03/16/2020 12:31	Beverly Y. Sanders	2163543
	03/10/2020			03/16/2020 12:32	Beverly Y. Sanders	2163544
	03/10/2020			03/18/2020 09:24	Beverly Y. Sanders	2163536
	03/10/2020			03/18/2020 09:25	Beverly Y. Sanders	2163537
	03/10/2020			03/26/2020 08:10	Beverly Y. Sanders	2163548
	03/10/2020			03/26/2020 08:52	Beverly Y. Sanders	2163538
EPA 365.1 Rev. 2.0	03/10/2020	03/16/2020 14:28	Yen Ta	03/17/2020 16:40	Benjamin T. Nordmann	2163536
	03/10/2020	03/16/2020 14:28	Yen Ta	03/17/2020 16:41	Benjamin T. Nordmann	2163537
	03/10/2020	03/16/2020 14:28	Yen Ta	03/17/2020 16:51	Benjamin T. Nordmann	2163548
	03/10/2020	03/16/2020 14:28	Yen Ta	03/17/2020 17:09	Benjamin T. Nordmann	2163542, 2163547
	03/10/2020	03/16/2020 14:28	Yen Ta	03/17/2020 17:10	Benjamin T. Nordmann	2163543
	03/10/2020	03/16/2020 14:28	Yen Ta	03/17/2020 17:11	Benjamin T. Nordmann	2163544
	03/10/2020	03/18/2020 13:30	Yen Ta	03/20/2020 10:08	Benjamin T. Nordmann	2163538