

Chemical Analysis Report

NW-DIST-2018-03-20-01

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

Event Description: **Bayou Chico BMAP/Blank**
Request ID: **RQ-2018-02-12-31**
Customer: **NW-DIST**
Project ID: **BMAP**

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

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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 11-APR-2018 13:49



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: Pensacola Bay at Sanders Beach

Collection Date/Time: 03/19/2018 11:10

Field ID: A

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1975811	EPA 180.1 Rev. 2.0	Turbidity	1.8		NTU	P341853	
1975813	EPA 350.1 Rev. 2.0	Ammonia-N	0.041		mg N/L	P342300	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.32	I	mg N/L	P341910	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.088		mg N/L	P341907	
	EPA 365.1 Rev. 2.0	Total-P	0.016		mg P/L	P342030	

Sample Location: Field Blank

Collection Date/Time: 03/19/2018 11:25

Field ID: FB

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1975812	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P341853	
1975814	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P342302	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P341912	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P341994	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P341937	

Sample Location: Bayou Chico at Mandalay Park

Collection Date/Time: 03/19/2018 11:55

Field ID: B

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1975799	EPA 180.1 Rev. 2.0	Turbidity	2.0		NTU	P341852	
1975803	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P342300	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.8		mg N/L	P341910	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.16		mg N/L	P341907	
	EPA 365.1 Rev. 2.0	Total-P	0.019		mg P/L	P341921	

Sample Location: Jones Creek at Old Corry Road

Collection Date/Time: 03/19/2018 12:30

Field ID: C

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1975800	EPA 180.1 Rev. 2.0	Turbidity	3.2		NTU	P341852	
1975804	EPA 350.1 Rev. 2.0	Ammonia-N	0.040		mg N/L	P342299	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.36		mg N/L	P343005	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.13		mg N/L	P341907	
	EPA 365.1 Rev. 2.0	Total-P	0.020		mg P/L	P341921	

Sample Location: Jackson Creek at Old Corry Road

Collection Date/Time: 03/19/2018 13:10

Field ID: D

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1975807	EPA 180.1 Rev. 2.0	Turbidity	2.1		NTU	P341853	
1975809	EPA 350.1 Rev. 2.0	Ammonia-N	0.020		mg N/L	P342302	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.14	I	mg N/L	P341912	
	EPA 353.2 Rev. 2.0	NO2NO3-N	2.8		mg N/L	P341993	
	EPA 365.1 Rev. 2.0	Total-P	0.022		mg P/L	P341936	

Sample Location: Jackson Creek at New Warrington Road

Collection Date/Time: 03/19/2018 13:25

Field ID: E

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1975808	EPA 180.1 Rev. 2.0	Turbidity	2.6		NTU	P341853	
1975810	EPA 350.1 Rev. 2.0	Ammonia-N	0.019		mg N/L	P342302	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.18	I	mg N/L	P341912	
	EPA 353.2 Rev. 2.0	NO2NO3-N	2.8		mg N/L	P341993	
	EPA 365.1 Rev. 2.0	Total-P	0.022		mg P/L	P341937	

Sample Location: Bayou Chico at Navy Blvd Bridge

Collection Date/Time: 03/19/2018 15:35

Field ID: F

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1975801	EPA 180.1 Rev. 2.0	Turbidity	2.6		NTU	P341852	
1975805	EPA 350.1 Rev. 2.0	Ammonia-N	0.026		mg N/L	P342300	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.78		mg N/L	P341910	
	EPA 353.2 Rev. 2.0	NO2NO3-N	1.3		mg N/L	P341907	
	EPA 365.1 Rev. 2.0	Total-P	0.019		mg P/L	P341921	

Sample Location: Bayou Chico at W Street

Collection Date/Time: 03/19/2018 16:05

Field ID: G

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1975802	EPA 180.1 Rev. 2.0	Turbidity	5.3	A	NTU	P341853	
1975806	EPA 350.1 Rev. 2.0	Ammonia-N	0.061		mg N/L	P342302	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.23		mg N/L	P341916	
	EPA 353.2 Rev. 2.0	NO2NO3-N	1.3		mg N/L	P341993	
	EPA 365.1 Rev. 2.0	Total-P	0.037		mg P/L	P341936	

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P341852

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P341853

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P342299

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P342300

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P342302

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P341910

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P341912

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P341916

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P343005

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P341907

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P341993

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P341994

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: P341921

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P341936

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P341937

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P342030

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: P342299

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P342300

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P342302

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.4		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P341910

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P341912

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P341912

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P341916

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P343005

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P341907

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P341993

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: P341994

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P341921

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P341936

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: P341937

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	97.0		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P342030

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P342299

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1975184	Ammonia-N	99.2	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P342300

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1975803	Ammonia-N	101	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P342302

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1975809	Ammonia-N	97.3	98.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P341910

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1975813	Kjeldahl Nitrogen	100	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P341912

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1975810	Kjeldahl Nitrogen	96.2	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P341916

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1975394	Kjeldahl Nitrogen	98.5	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P343005

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1981339	Kjeldahl Nitrogen	94.7	92.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P341907

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P341907

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1975490	NO2NO3-N	104	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P341993

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1975738	NO2NO3-N	103	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P341994

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1975827	NO2NO3-N	104	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P341921

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1975409	Total-P	94.0	90.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P341936

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1975738	Total-P	101	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P341937

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1975810	Total-P	98.1	95.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P342030

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1975914	Total-P	100	99.0	P/P	90 - 110

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P341852

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1975734	Turbidity	6.64	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P341853

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1975802	Turbidity	1.32	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P342299

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1975184	Ammonia-N	0.934	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P342300

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1975803	Ammonia-N	0.383	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P342302

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1975809	Ammonia-N	0.513	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P341910

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1975813	Kjeldahl Nitrogen	1.45	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P341912

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1975810	Kjeldahl Nitrogen	4.58	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P341916

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1975394	Kjeldahl Nitrogen	3.18	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P343005

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1981339	Kjeldahl Nitrogen	1.32	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P341907

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1975490	NO2NO3-N	0.962	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P341993

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1975738	NO2NO3-N	0.593	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P341994

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1975827	NO2NO3-N	0.482	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P341921

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1975409	Total-P	3.71	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P341936

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1975738	Total-P	3.77	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P341937

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1975810	Total-P	2.31	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P342030

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1975914	Total-P	1.06	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

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A82739

Included Lab Sample IDs: 1975799, 1975800, 1975801, 1975802, 1975807, 1975808, 1975811, 1975812

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	99.0	P/P	95 - 105
Turbidity	99.0	100	P/P	95 - 105

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A82753

Included Lab Sample IDs: 1975803, 1975804, 1975805, 1975813

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	102	P/P	90 - 110
NO2NO3-N	99.5	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A82782

Included Lab Sample IDs: 1975806, 1975809, 1975810, 1975814

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A82796

Included Lab Sample IDs: 1975806, 1975809, 1975810, 1975814

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.0	96.6	P/P	90 - 110
Kjeldahl Nitrogen	97.2	98.6	P/P	90 - 110
Kjeldahl Nitrogen	97.5	97.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A82803

Included Lab Sample IDs: 1975803, 1975805, 1975813

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.1	97.5	P/P	90 - 110
Kjeldahl Nitrogen	97.5	99.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A82807

Included Lab Sample IDs: 1975803, 1975804, 1975805, 1975806, 1975809, 1975810, 1975814

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.8	98.8	P/P	90 - 110
Total-P	99.0	98.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A82879

Included Lab Sample IDs: 1975813

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A82889

Included Lab Sample IDs: 1975803, 1975804, 1975805, 1975806, 1975809, 1975810, 1975813, 1975814

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	99.3	P/P	90 - 110
Ammonia-N	100	101	P/P	90 - 110
Ammonia-N	101	100	P/P	90 - 110
Ammonia-N	99.3	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A83142

Included Lab Sample IDs: 1975804

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	105	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity				6.64	
	Turbidity				1.32	
EPA 350.1 Rev. 2.0	Ammonia-N	99.5	99.2	100		0.934
	Ammonia-N	96.9	101	102		0.383
	Ammonia-N	97.4	97.3	98.0		0.513
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.0	100	102		1.45
	Kjeldahl Nitrogen	99.6	96.2	101		4.58
	Kjeldahl Nitrogen	99.4	98.5	102		3.18
	Kjeldahl Nitrogen	99.8	94.7	92.2		1.32
EPA 353.2 Rev. 2.0	NO2NO3-N	104	104	104		0.962
	NO2NO3-N	100	103	102		0.593
	NO2NO3-N	102	104	104		0.482
EPA 365.1 Rev. 2.0	Total-P	104	94.0	90.4		3.71
	Total-P	106	101	105		3.77
	Total-P	97.0	98.1	95.8		2.31
	Total-P	105	100	99.0		1.06

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1975799, 1975800, 1975801, 1975802, 1975807, 1975808, 1975811, 1975812
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1975803, 1975804, 1975805, 1975806, 1975809, 1975810, 1975813, 1975814
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1975803, 1975804, 1975805, 1975806, 1975809, 1975810, 1975813, 1975814
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1975803, 1975804, 1975805, 1975806, 1975809, 1975810, 1975813, 1975814

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1975803, 1975804, 1975805, 1975806, 1975809, 1975810, 1975813, 1975814

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	03/20/2018			03/20/2018 15:18	DeAsia Armster	1975799, 1975800, 1975801, 1975802, 1975807, 1975808, 1975811, 1975812
EPA 350.1 Rev. 2.0	03/20/2018			03/27/2018	Ping Hua	1975803, 1975804, 1975805, 1975806, 1975809, 1975810, 1975813, 1975814
EPA 351.2 Rev. 2.0	03/20/2018	03/21/2018	Adrian Shelby	03/22/2018	Joseph Suarez	1975806, 1975809, 1975810, 1975814
	03/20/2018	03/21/2018	Adrian Shelby	03/23/2018	Joseph Suarez	1975803, 1975805, 1975813
	03/20/2018	04/09/2018	Adrian Shelby	04/10/2018	Joseph Suarez	1975804
EPA 353.2 Rev. 2.0	03/20/2018			03/21/2018	Beverly Y. Sanders	1975803, 1975804, 1975805, 1975813
	03/20/2018			03/22/2018	Beverly Y. Sanders	1975806, 1975809, 1975810, 1975814
EPA 365.1 Rev. 2.0	03/20/2018	03/21/2018	Sima Feizi	03/22/2018	Lipi Saha	1975803, 1975804, 1975805, 1975806, 1975809, 1975810, 1975814
	03/20/2018	03/22/2018	Sima Feizi	03/23/2018	Lipi Saha	1975813