

Chemical Analysis Report

NW-DIST-2016-02-17-04

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-2016-01-11-04**

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: Liang Lin, Environmental Administrator

Date Certified: 08-MAR-2016 16:32

A handwritten signature in black ink, appearing to read "Liang Lin", is written over a light gray, textured 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 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: Sander's Beach

Collection Date/Time: 02/16/2016 11:45

Field ID: F

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1772062	EPA 180.1 Rev. 2.0	Turbidity	2.2	A	NTU	P298796	
1772071	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P299257	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.29	I	mg N/L	P299035	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.085		mg N/L	P299097	
	EPA 365.1 Rev. 2.0	Total-P	0.010		mg P/L	P299049	MS

Sample Location: Field Blank

Collection Date/Time: 02/16/2016 12:00

Field ID: Field Blank

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1772063	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P298796	
1772072	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P299254	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P299036	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P299267	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P299241	

Ref. Method and Comment:

EPA 350.1 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

EPA 365.1 Rev. 2.0: Total-P: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: Mandalay Drive

Collection Date/Time: 02/16/2016 12:15

Field ID: E

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1772064	EPA 180.1 Rev. 2.0	Turbidity	5.0		NTU	P298796	
1772073	EPA 350.1 Rev. 2.0	Ammonia-N	0.031		mg N/L	P299257	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.38	I	mg N/L	P299035	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.21		mg N/L	P299097	
	EPA 365.1 Rev. 2.0	Total-P	0.025		mg P/L	P299049	MS

Sample Location: Jones @ Old Curry

Collection Date/Time: 02/16/2016 12:40

Field ID: D

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1772065	EPA 180.1 Rev. 2.0	Turbidity	6.0		NTU	P298796	
1772074	EPA 350.1 Rev. 2.0	Ammonia-N	0.068		mg N/L	P299254	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.54		mg N/L	P299036	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.12		mg N/L	P299267	
	EPA 365.1 Rev. 2.0	Total-P	0.036		mg P/L	P299050	

Ref. Method and Comment:

EPA 350.1 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: Jackson @ Old Corry

Collection Date/Time: 02/16/2016 13:00

Field ID: A

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1772066	EPA 180.1 Rev. 2.0	Turbidity	3.2		NTU	P298796	
1772075	EPA 350.1 Rev. 2.0	Ammonia-N	0.019		mg N/L	P299255	

Field ID: A

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1772075	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.22		mg N/L	P299036	
	EPA 353.2 Rev. 2.0	NO2NO3-N	2.7		mg N/L	P299267	
	EPA 365.1 Rev. 2.0	Total-P	0.020		mg P/L	P299050	

Sample Location: Jackson @ New Warrington

Collection Date/Time: 02/16/2016 13:15

Field ID: G

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1772067	EPA 180.1 Rev. 2.0	Turbidity	3.9		NTU	P298796	
1772076	EPA 350.1 Rev. 2.0	Ammonia-N	0.022		mg N/L	P299255	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.24		mg N/L	P299036	
	EPA 353.2 Rev. 2.0	NO2NO3-N	2.5		mg N/L	P299267	
	EPA 365.1 Rev. 2.0	Total-P	0.024		mg P/L	P299050	

Sample Location: Bayou Chico @ Navy Blvd.

Collection Date/Time: 02/16/2016 14:20

Field ID: C

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1772068	EPA 180.1 Rev. 2.0	Turbidity	3.6		NTU	P298796	
1772077	EPA 350.1 Rev. 2.0	Ammonia-N	0.016		mg N/L	P299258	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.30	I	mg N/L	P299035	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.59		mg N/L	P299097	
	EPA 365.1 Rev. 2.0	Total-P	0.020		mg P/L	P299049	MS

Sample Location: Bayou Chico @ "W". St.

Collection Date/Time: 02/16/2016 14:40

Field ID: B

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1772069	EPA 180.1 Rev. 2.0	Turbidity	5.7		NTU	P298796	
1772078	EPA 350.1 Rev. 2.0	Ammonia-N	0.072		mg N/L	P299255	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.49		mg N/L	P299036	
	EPA 353.2 Rev. 2.0	NO2NO3-N	1.1		mg N/L	P299267	
	EPA 365.1 Rev. 2.0	Total-P	0.062		mg P/L	P299050	

Sample Location: Bayou Chico @ "W". St. (Duplicate)

Collection Date/Time: 02/16/2016 15:05

Field ID: B-Duplicate

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1772070	EPA 180.1 Rev. 2.0	Turbidity	5.8		NTU	P298796	
1772079	EPA 350.1 Rev. 2.0	Ammonia-N	0.077		mg N/L	P299255	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.42		mg N/L	P299036	
	EPA 353.2 Rev. 2.0	NO2NO3-N	1.1		mg N/L	P299267	
	EPA 365.1 Rev. 2.0	Total-P	0.060		mg P/L	P299050	

**Quality Assurance Report
 Method Blank Results**

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P298796

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P299254

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P299255

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P299257

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P299258

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P299035

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P299036

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P299097

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P299267

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: P299049

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P299050

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P299241

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: P299254

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P299255

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	96.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P299257

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P299258

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P299035

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	95.2		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P299036

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: P299036

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P299097

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: P299267

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: P299049

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	97.7		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P299050

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P299241

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P299255

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1772076	Ammonia-N	95.8	98.1	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P299257

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1771901	Ammonia-N	100	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P299258

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

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P299258

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1772077	Ammonia-N	98.1	98.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P299035

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1771903	Kjeldahl Nitrogen	96.3	98.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P299036

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1772074	Kjeldahl Nitrogen	100	97.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P299097

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1772071	NO2NO3-N	100	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P299267

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1772074	NO2NO3-N	99.0	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P299049

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1771903	Total-P	92.1	89.2	P/F	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P299050

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1772013	Total-P	102	102	P/P	90 - 110

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P298796

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1772062	Turbidity	10.1	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P299254

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1772002	Ammonia-N	0.541	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P299255

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1772076	Ammonia-N	1.66	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P299257

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1771901	Ammonia-N	0.249	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P299258

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1772077	Ammonia-N	0.195	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P299035

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1771903	Kjeldahl Nitrogen	2.15	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P299036

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1772074	Kjeldahl Nitrogen	1.54	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P299097

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1772071	NO2NO3-N	0.349	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P299267

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1772074	NO2NO3-N	0.627	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P299049

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1771903	Total-P	3.23	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P299050

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1772013	Total-P	0.0655	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P299241

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1772933	Total-P	1.43	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: A67661
Included Lab Sample IDs: 1772062, 1772063, 1772064, 1772065, 1772066, 1772067, 1772068, 1772069, 1772070

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: A67764
Included Lab Sample IDs: 1772071, 1772073, 1772077

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	104	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A67774
Included Lab Sample IDs: 1772078, 1772079

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.6	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A67786
Included Lab Sample IDs: 1772071, 1772073, 1772074, 1772075, 1772076, 1772077

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.2	97.2	P/P	90 - 110
Total-P	97.2	99.0	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A67805

Included Lab Sample IDs: 1772071, 1772072, 1772073, 1772074, 1772075, 1772076, 1772077, 1772078, 1772079

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.4	97.9	P/P	90 - 110
Kjeldahl Nitrogen	98.3	97.5	P/P	90 - 110
Kjeldahl Nitrogen	99.2	97.4	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A67833

Included Lab Sample IDs: 1772071, 1772072, 1772073, 1772074, 1772075, 1772076, 1772077, 1772078, 1772079

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.1	99.5	P/P	90 - 110
Ammonia-N	99.2	99.8	P/P	90 - 110
Ammonia-N	99.5	99.4	P/P	90 - 110
Ammonia-N	99.8	98.7	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A67836

Included Lab Sample IDs: 1772072, 1772074, 1772075, 1772076, 1772078, 1772079

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 365.1 Rev. 2.0

Run ID: A67866

Included Lab Sample IDs: 1772072

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.5	99.0	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				10.1	
EPA 350.1 Rev. 2.0	Ammonia-N	97.4				0.541
	Ammonia-N	96.2	95.8	98.1		1.66
	Ammonia-N	98.1	100	100		0.249
	Ammonia-N	98.6	98.1	98.3		0.195
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	95.2	96.3	98.6		2.15
	Kjeldahl Nitrogen	98.5	100	97.8		1.54
EPA 353.2 Rev. 2.0	NO2NO3-N	102	100	101		0.349
	NO2NO3-N	102	99.0	100		0.627
EPA 365.1 Rev. 2.0	Total-P	97.7	92.1	89.2		3.23
	Total-P	101	102	102		0.0655
	Total-P	99.4				1.43

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1772062, 1772063, 1772064, 1772065, 1772066, 1772067, 1772068, 1772069, 1772070
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1772071, 1772072, 1772073, 1772074, 1772075, 1772076, 1772077, 1772078, 1772079
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1772071, 1772072, 1772073, 1772074, 1772075, 1772076, 1772077, 1772078, 1772079
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1772071, 1772072, 1772073, 1772074, 1772075, 1772076, 1772077, 1772078, 1772079
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1772071, 1772072, 1772073, 1772074, 1772075, 1772076, 1772077, 1772078, 1772079

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	02/17/2016			02/17/2016 16:45	Sima Feizi	1772062, 1772063, 1772064, 1772065, 1772066, 1772067, 1772068, 1772069, 1772070
EPA 350.1 Rev. 2.0	02/17/2016			02/24/2016	Diana M. Turner	1772071, 1772072, 1772073, 1772074, 1772075, 1772076, 1772077, 1772078, 1772079
EPA 351.2 Rev. 2.0	02/17/2016	02/23/2016	Christopher Armour	02/24/2016	Bryan A. Werth	1772071, 1772072, 1772073, 1772074, 1772075, 1772076, 1772077, 1772078, 1772079
EPA 353.2 Rev. 2.0	02/17/2016			02/23/2016	Peter D. Kaus	1772071, 1772073, 1772077
	02/17/2016			02/25/2016	Peter D. Kaus	1772072, 1772074, 1772075, 1772076, 1772078, 1772079
EPA 365.1 Rev. 2.0	02/17/2016	02/23/2016	Christopher Armour	02/23/2016	Lipi Saha	1772078, 1772079
	02/17/2016	02/23/2016	Christopher Armour	02/24/2016	Lipi Saha	1772071, 1772073, 1772074, 1772075, 1772076, 1772077
	02/17/2016	02/25/2016	Christopher Armour	02/26/2016	Lipi Saha	1772072