

Chemical Analysis Report

WQAP-2016-09-26-01

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

Event Description: **Killearn Chain of Lakes Outlet, Alford Arm Tributary and Soapstone Branch**
Request ID: **RQ-2016-09-26-22**
Customer: **WQAP**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
2600 Blair Stone Rd
MS #3560
Tallahassee, FL 32399-2400
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Date Certified: 20-OCT-2016 13:57



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: Killers Chain of Lakes Outlet @ Velda Dairy Rd Collection Date/Time: 09/26/2016 08:40

Field ID: G1WA0015-09262016

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1834461	EPA 180.1 Rev. 2.0	Turbidity	5.8	A	NTU	P311921	
	EPA 300.0 Rev. 2.1	Chloride	5.3		mg Cl/L	P312302	
	SM 2120 B	Color (true)	49		PCU	P311929	
	SM 2320 B-97	Total Alkalinity	25		mg CaCO3/L	P312094	
	SM 2540 C-97	TDS	37		mg/L	P312416	
	SM 2540 D-97	TSS	5	I	mg/L	P312362	
	SM 4500 F-C-97	Fluoride	0.062	I	mg F/L	P312095	
1834465	EPA 350.1 Rev. 2.0	Ammonia-N	0.076		mg N/L	P312116	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.39		mg N/L	P312214	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.035		mg N/L	P312233	
	EPA 365.1 Rev. 2.0	Total-P	0.13		mg P/L	P312526	
	SM 5310 B-00	Organic Carbon	4.6		mg C/L	P312194	
1834469	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.038		mg P/L	P311915	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Lake Arrowhead @ boat dock @ Turtle Creek Collection Date/Time: 09/26/2016 09:10

Field ID: G1WA0004-09262016

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1834462	EPA 180.1 Rev. 2.0	Turbidity	8.2		NTU	P311921	
	EPA 300.0 Rev. 2.1	Chloride	2.8		mg Cl/L	P312302	
	SM 2120 B	Color (true)	13	A	PCU	P311929	
	SM 2320 B-97	Total Alkalinity	27		mg CaCO3/L	P312094	
	SM 2540 C-97	TDS	38		mg/L	P312416	
	SM 2540 D-97	TSS	8	I	mg/L	P312362	
	SM 4500 F-C-97	Fluoride	0.050	I	mg F/L	P312095	
1834466	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P312116	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.98		mg N/L	P312388	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P312233	
	EPA 365.1 Rev. 2.0	Total-P	0.062		mg P/L	P312526	
	SM 5310 B-00	Organic Carbon	7.4		mg C/L	P312194	
1834470	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P311915	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Munson Slough @ CR2204

Collection Date/Time: 09/26/2016 11:15

Field ID: G1WA0035-09262016

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1834463	EPA 180.1 Rev. 2.0	Turbidity	2.9		NTU	P311921	
	EPA 300.0 Rev. 2.1	Chloride	2.0		mg Cl/L	P312302	
	SM 2120 B	Color (true)	130		PCU	P311929	
	SM 2320 B-97	Total Alkalinity	26		mg CaCO3/L	P312094	
	SM 2540 C-97	TDS	49		mg/L	P312416	

Field ID: G1WA0035-09262016

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1834463	SM 2540 D-97	TSS	2	I	mg/L	P312362	
	SM 4500 F-C-97	Fluoride	0.057	I	mg F/L	P312095	
1834467	EPA 350.1 Rev. 2.0	Ammonia-N	0.049		mg N/L	P312116	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.57		mg N/L	P312388	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.11		mg N/L	P312233	
	EPA 365.1 Rev. 2.0	Total-P	0.26		mg P/L	P312526	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P312194	
1834471	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.19		mg P/L	P311915	

Ref. Method and Comment:
 SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Eight Mile Pond Middle Collection Date/Time: 09/26/2016 10:15

Field ID: G1WA0024-09262016

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1834464	EPA 180.1 Rev. 2.0	Turbidity	2.7		NTU	P311921	
	EPA 300.0 Rev. 2.1	Chloride	2.0		mg Cl/L	P312302	
	SM 2120 B	Color (true)	130		PCU	P311929	
	SM 2320 B-97	Total Alkalinity	26		mg CaCO3/L	P312094	
	SM 2540 C-97	TDS	62		mg/L	P312416	
	SM 2540 D-97	TSS	2	I	mg/L	P312362	
	SM 4500 F-C-97	Fluoride	0.058	I	mg F/L	P312095	
1834468	EPA 350.1 Rev. 2.0	Ammonia-N	0.052		mg N/L	P312116	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.66		mg N/L	P312388	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.11		mg N/L	P312233	
	EPA 365.1 Rev. 2.0	Total-P	0.26		mg P/L	P312526	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P312194	
1834472	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.20		mg P/L	P311915	

Ref. Method and Comment:
 SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P311921

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P312302

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P312116

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P312214

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P312388

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P312233

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P312526

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P311915

Component	Result	Code	Units
O-Phosphate-P	0.004	U	mg P/L

Reference Method: SM 2120 B
Batch ID: P311929

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P312094

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO3/L

Reference Method: SM 2540 C-97
Batch ID: P312416

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P312362

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P312095

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P312194

Component	Result	Code	Units
Organic Carbon	0.50	U	mg C/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P312302

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P312116

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P312214

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P312388

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P312233

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P312526

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P312526

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	96.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P311915

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.7		P	90 - 110

Reference Method: SM 2320 B-97
Batch ID: P312094

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P312095

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.1		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P312194

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.4		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P312302

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1835460	Chloride	101		P	90 - 110
1835461	Chloride	103		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P312116

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1834306	Ammonia-N	104	107	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P312214

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1834306	Kjeldahl Nitrogen	94.2	97.6	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P312388

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1834466	Kjeldahl Nitrogen	102	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P312233

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1834253	NO2NO3-N	102	99.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P312526

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1834466	Total-P	101	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P311915

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1834469	O-Phosphate-P	98.4	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P312095

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1834799	Fluoride	96.8	98.4	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P312194

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1834287	Organic Carbon	99.4	97.6	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P311921

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1834461	Turbidity	0.0	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P312302

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1835460	Chloride	0.107	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P312116

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1834306	Ammonia-N	2.72	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P312214

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1834306	Kjeldahl Nitrogen	2.44	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P312388

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1834466	Kjeldahl Nitrogen	0.392	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P312233

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1834253	NO2NO3-N	1.89	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P312526

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1834466	Total-P	2.33	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P311915

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1834469	O-Phosphate-P	1.17	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P311929

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1834462	Color (true)	7.72	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P312094

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1834799	Total Alkalinity	0.384	Sample	P	0 - 4.8

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
Batch ID: P312416

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1834483	TDS	1.32	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P312095

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1834799	Fluoride	1.47	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P312194

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1834287	Organic Carbon	0.964	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 365.1 Rev. 2.0 dissolved
Run ID: A71862
Included Lab Sample IDs: 1834469, 1834470, 1834471, 1834472

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.7	98.2	P/P	90 - 110
O-Phosphate-P	99.3	99.7	P/P	90 - 110
O-Phosphate-P	99.7	98.7	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A71863
Included Lab Sample IDs: 1834461, 1834462, 1834463, 1834464

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

Reference Method: SM 2120 B
Run ID: A71864
Included Lab Sample IDs: 1834461, 1834462, 1834463, 1834464

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	100	P/P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A71882
Included Lab Sample IDs: 1834461, 1834462, 1834463, 1834464

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A71882

Included Lab Sample IDs: 1834461, 1834462, 1834463, 1834464

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	103	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A71907

Included Lab Sample IDs: 1834461, 1834462, 1834463, 1834464

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

Reference Method: SM 4500 F-C-97

Run ID: A71907

Included Lab Sample IDs: 1834461, 1834462, 1834463, 1834464

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A71914

Included Lab Sample IDs: 1834465, 1834466, 1834467, 1834468

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

Reference Method: SM 5310 B-00

Run ID: A71942

Included Lab Sample IDs: 1834465, 1834466, 1834467, 1834468

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A71950

Included Lab Sample IDs: 1834465, 1834466, 1834467, 1834468

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A72047

Included Lab Sample IDs: 1834465

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	94.0	94.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A72075

Included Lab Sample IDs: 1834466, 1834467, 1834468

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.2	98.7	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A72075

Included Lab Sample IDs: 1834466, 1834467, 1834468

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.4	95.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A72084

Included Lab Sample IDs: 1834465, 1834466, 1834467, 1834468

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	102	103	P/P	90 - 110
Total-P	103	102	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				0.0	
EPA 300.0 Rev. 2.1	Chloride	101	101 103		0.107	
EPA 350.1 Rev. 2.0	Ammonia-N	106	104 107			2.72
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	91.7	94.2 97.6			2.44
	Kjeldahl Nitrogen	104	102 101			0.392
EPA 353.2 Rev. 2.0	NO2NO3-N	103	102 99.4			1.89
EPA 365.1 Rev. 2.0	Total-P	96.5	101 104			2.33
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.7	98.4 100			1.17
SM 2120 B	Color (true)				7.72	
SM 2320 B-97	Total Alkalinity	103			0.384	
SM 2540 C-97	TDS				1.32	
SM 4500 F-C-97	Fluoride	98.1	96.8 98.4			1.47
SM 5310 B-00	Organic Carbon	98.4	99.4 97.6			0.964

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1834461, 1834462, 1834463, 1834464
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1834461, 1834462, 1834463, 1834464
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1834465, 1834466, 1834467, 1834468
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1834465, 1834466, 1834467, 1834468
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1834465, 1834466, 1834467, 1834468
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1834465, 1834466, 1834467, 1834468
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1834469, 1834470, 1834471, 1834472
SM 2120 B / E31780	True Color measured at 450 nm	1834461, 1834462, 1834463, 1834464

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1834461, 1834462, 1834463, 1834464
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1834461, 1834462, 1834463, 1834464
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1834461, 1834462, 1834463, 1834464
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1834461, 1834462, 1834463, 1834464
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1834465, 1834466, 1834467, 1834468

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	09/26/2016			09/27/2016 15:28	Sima Feizi	1834461, 1834462, 1834463, 1834464
EPA 300.0 Rev. 2.1	09/26/2016			10/02/2016	Ping Hua	1834461, 1834462, 1834463, 1834464
EPA 350.1 Rev. 2.0	09/26/2016			09/28/2016	Sofia Elnemr	1834465, 1834466, 1834467, 1834468
EPA 351.2 Rev. 2.0	09/26/2016	09/30/2016	Adrian Shelby	10/06/2016	Christopher Armour	1834465
	09/26/2016	10/04/2016	Adrian Shelby	10/06/2016	Christopher Armour	1834466, 1834467, 1834468
EPA 353.2 Rev. 2.0	09/26/2016			09/30/2016	Beverly Y. Sanders	1834465, 1834466, 1834467, 1834468
EPA 365.1 Rev. 2.0	09/26/2016	10/05/2016	Vijayalakshmi Reddy	10/07/2016	Lipi Saha	1834465, 1834466, 1834467, 1834468
EPA 365.1 Rev. 2.0 dissolved	09/26/2016			09/27/2016 14:31	Julia Storbeck	1834469
	09/26/2016			09/27/2016 15:03	Julia Storbeck	1834470
	09/26/2016			09/27/2016 15:08	Julia Storbeck	1834471
	09/26/2016			09/27/2016 15:09	Julia Storbeck	1834472
SM 2120 B	09/26/2016			09/27/2016 15:46	Julie Michelle Frank	1834461
	09/26/2016			09/27/2016 15:48	Julie Michelle Frank	1834462, 1834463
	09/26/2016			09/27/2016 15:49	Julie Michelle Frank	1834464
SM 2320 B-97	09/26/2016			09/29/2016	Dale L. Simmons	1834461, 1834462, 1834463, 1834464
SM 2540 C-97	09/26/2016			09/30/2016	Yijie Li	1834461, 1834462, 1834463, 1834464
SM 2540 D-97	09/26/2016			09/30/2016	Yijie Li	1834461, 1834462, 1834463, 1834464
SM 4500 F-C-97	09/26/2016			09/29/2016	Dale L. Simmons	1834461, 1834462, 1834463, 1834464
SM 5310 B-00	09/26/2016			09/29/2016	Julie Michelle Frank	1834465, 1834466, 1834467, 1834468