

Chemical Analysis Report

NE-DIST-2018-04-25-01

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

Event Description: **Interlachen 2**
Request ID: **RQ-2018-04-02-22**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
8800 Baymeadows Way West
Jacksonville, FL 32256-7577
Attn: Jeremy Parrish

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Kerry Tate, Ph.D.
Dr. rer. nat. Bettina Steinbock
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Liang Lin, Environmental Administrator

Date Certified: 14-MAY-2018 14:19

A handwritten signature in black ink, appearing to read "Liang Lin", on a light-colored 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: Cowpen Lake Center

Collection Date/Time: 04/24/2018 13:25

Field ID: 20020053

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1987142	EPA 180.1 Rev. 2.0	Turbidity	0.70		NTU	P344063	
	EPA 300.0 Rev. 2.1	Chloride	9.0		mg Cl/L	P344281	
		Sulfate	3.8		mg SO4/L	P344285	
	SM 2120 B	Color (true)	12		PCU	P344047	
	SM 2320 B-97	Total Alkalinity	1.8	I	mg CaCO3/L	P344740	
	SM 2540 C-97	TDS	31		mg/L	P344547	
	SM 2540 D-97	TSS	2	I	mg/L	P344677	
	SM 4500 F-C-97	Fluoride	0.039	I	mg F/L	P344745	
1987147	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P344622	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.55		mg N/L	P344363	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P344123	
	EPA 365.1 Rev. 2.0	Total-P	0.010		mg P/L	P344137	
	SM 5310 B-00	Organic Carbon	5.5		mg C/L	P344443	
1987152	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P344050	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Chloride: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.

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

Sample Location: Lake Fanny Center

Collection Date/Time: 04/24/2018 12:00

Field ID: 20020100

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1987143	EPA 180.1 Rev. 2.0	Turbidity	1.2		NTU	P344063	
	EPA 300.0 Rev. 2.1	Chloride	12		mg Cl/L	P344281	
		Sulfate	8.4		mg SO4/L	P344285	
	SM 2120 B	Color (true)	42		PCU	P344047	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P344740	
	SM 2540 C-97	TDS	33		mg/L	P344547	
	SM 2540 D-97	TSS	2	I	mg/L	P344677	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P344745	
1987148	EPA 350.1 Rev. 2.0	Ammonia-N	0.055		mg N/L	P344620	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P344363	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.15		mg N/L	P344123	
	EPA 365.1 Rev. 2.0	Total-P	0.010		mg P/L	P344137	
	SM 5310 B-00	Organic Carbon	6.8		mg C/L	P344443	
1987153	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P344050	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Chloride: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.

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

Sample Location: Galilee Lake Center

Collection Date/Time: 04/24/2018 12:40

Field ID: G1NE0870

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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Field ID: G1NE0870

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1987144	EPA 180.1 Rev. 2.0	Turbidity	0.90		NTU	P344063	
	EPA 300.0 Rev. 2.1	Chloride	7.2		mg Cl/L	P344281	
		Sulfate	3.5		mg SO4/L	P344285	
	SM 2120 B	Color (true)	21		PCU	P344047	
	SM 2320 B-97	Total Alkalinity	1.6	I	mg CaCO3/L	P344740	
	SM 2540 C-97	TDS	32		mg/L	P344547	
	SM 2540 D-97	TSS	2	U	mg/L	P344677	
	SM 4500 F-C-97	Fluoride	0.036	I	mg F/L	P344745	
1987149	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P344620	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.57		mg N/L	P344363	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P344123	
	EPA 365.1 Rev. 2.0	Total-P	0.009		mg P/L	P344137	
	SM 5310 B-00	Organic Carbon	6.3		mg C/L	P344443	
1987154	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P344051	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Chloride: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.

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

Sample Location: Gillis Pond Center

Collection Date/Time: 04/24/2018 11:35

Field ID: G1NE0863

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1987145	EPA 180.1 Rev. 2.0	Turbidity	0.85		NTU	P344063	
	EPA 300.0 Rev. 2.1	Chloride	11		mg Cl/L	P344281	
		Sulfate	3.7		mg SO4/L	P344285	
	SM 2120 B	Color (true)	210		PCU	P344047	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P344740	
	SM 2540 C-97	TDS	44		mg/L	P344547	
	SM 2540 D-97	TSS	3	I	mg/L	P344677	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P344745	
1987150	EPA 350.1 Rev. 2.0	Ammonia-N	1.8		mg N/L	P344620	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.8		mg N/L	P344363	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.28		mg N/L	P344123	
	EPA 365.1 Rev. 2.0	Total-P	0.013		mg P/L	P344137	
	SM 5310 B-00	Organic Carbon	16		mg C/L	P344443	
1987155	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P344051	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Chloride: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.

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

Sample Location: South Bull Pond Center

Collection Date/Time: 04/24/2018 10:45

Field ID: G1NE0861

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1987146	EPA 180.1 Rev. 2.0	Turbidity	0.90		NTU	P344063	

Field ID: G1NE0861

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1987146	EPA 300.0 Rev. 2.1	Chloride	9.0		mg Cl/L	P344281	
		Sulfate	3.3		mg SO4/L	P344285	
	SM 2120 B	Color (true)	230		PCU	P344047	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P344740	
	SM 2540 C-97	TDS	54		mg/L	P344547	
	SM 2540 D-97	TSS	3	I	mg/L	P344677	
	SM 4500 F-C-97	Fluoride	0.042	I	mg F/L	P344745	
1987151	EPA 350.1 Rev. 2.0	Ammonia-N	0.11		mg N/L	P344620	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P344363	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.11		mg N/L	P344123	
	EPA 365.1 Rev. 2.0	Total-P	0.030		mg P/L	P344137	
	SM 5310 B-00	Organic Carbon	20		mg C/L	P344443	
1987156	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.011		mg P/L	P344051	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Chloride: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.

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: P344063

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P344281

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P344285

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P344620

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

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P344622

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P344363

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P344123

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P344137

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P344050

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P344051

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

Reference Method: SM 2120 B
Batch ID: P344047

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P344740

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

Reference Method: SM 2540 C-97
Batch ID: P344547

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P344677

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P344745

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P344443

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: P344281

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P344285

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	94.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P344620

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P344622

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P344363

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P344123

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	99.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P344137

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: P344137

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P344050

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P344051

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

Reference Method: SM 2320 B-97
Batch ID: P344740

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P344745

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.8		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P344443

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.8		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P344281

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1987142	Chloride	98.0		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P344285

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1987017	Sulfate	94.0		P	90 - 110
1987142	Sulfate	97.4		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P344620

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1987147	Ammonia-N	102	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P344622

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1985147	Ammonia-N	104	105	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P344363

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1987148	Kjeldahl Nitrogen	95.8	94.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P344123

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1987147	NO2NO3-N	102	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P344137

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1987085	Total-P	101	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P344050

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1986992	O-Phosphate-P	94.8	95.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P344051

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1987154	O-Phosphate-P	98.8	99.1	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P344745

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1988464	Fluoride	94.7	95.2	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P344443

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1986923	Organic Carbon	96.7	95.6	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P344063

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987088	Turbidity	9.66	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P344281

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987017	Chloride	0.798	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P344285

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987017	Sulfate	0.580	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P344620

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987147	Ammonia-N	0.403	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P344622

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1985147	Ammonia-N	0.143	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P344363

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987148	Kjeldahl Nitrogen	0.894	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P344123

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987147	NO2NO3-N	1.46	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P344137

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987085	Total-P	0.690	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P344050

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1986992	O-Phosphate-P	0.457	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P344051

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987154	O-Phosphate-P	0.303	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P344047

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987084	Color (true)	2.84	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P344740

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1988464	Total Alkalinity	0.260	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P344547

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987251	TDS	6.17	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P344745

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1988464	Fluoride	0.516	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P344443

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1986923	Organic Carbon	0.754	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 300.0 Rev. 2.1

Run ID: A83415

Included Lab Sample IDs: 1987142, 1987143, 1987144, 1987145, 1987146

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

Reference Method: SM 2120 B

Run ID: A83456

Included Lab Sample IDs: 1987142, 1987143, 1987144, 1987145, 1987146

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.9	97.8	P/P	90 - 115
Color (true)	99.2	100	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A83457

Included Lab Sample IDs: 1987152, 1987153, 1987154, 1987155, 1987156

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.9	98.9	P/P	90 - 110
O-Phosphate-P	99.2	99.9	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A83461

Included Lab Sample IDs: 1987142, 1987143, 1987144, 1987145, 1987146

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.5	98.5	P/P	95 - 105

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A83479

Included Lab Sample IDs: 1987147, 1987148, 1987149, 1987150, 1987151

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

Reference Method: SM 5310 B-00

Run ID: A83590

Included Lab Sample IDs: 1987147, 1987148, 1987149, 1987150, 1987151

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.7	98.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A83591

Included Lab Sample IDs: 1987147, 1987148, 1987149, 1987150, 1987151

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.0	105	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A83607

Included Lab Sample IDs: 1987147, 1987148, 1987149, 1987150, 1987151

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.8	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A83650

Included Lab Sample IDs: 1987147, 1987148, 1987149, 1987150, 1987151

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	103	102	P/P	90 - 110
Ammonia-N	104	103	P/P	90 - 110
Ammonia-N	104	104	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A83684

Included Lab Sample IDs: 1987142, 1987143, 1987144, 1987145, 1987146

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	99.1	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A83684

Included Lab Sample IDs: 1987142, 1987143, 1987144, 1987145, 1987146

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	96.7	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				9.66	
EPA 300.0 Rev. 2.1	Chloride	100	98.0		0.798	
	Sulfate	94.1	94.0 97.4		0.580	
EPA 350.1 Rev. 2.0	Ammonia-N	104	102 102			0.403
	Ammonia-N	105	104 105			0.143
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	107	95.8 94.1			0.894
EPA 353.2 Rev. 2.0	NO2NO3-N	99.5	102 104			1.46
EPA 365.1 Rev. 2.0	Total-P	104	101 100			0.690
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.0	94.8 95.4			0.457
	O-Phosphate-P	100	98.8 99.1			0.303
SM 2120 B	Color (true)				2.84	
SM 2320 B-97	Total Alkalinity	102			0.260	
SM 2540 C-97	TDS				6.17	
SM 4500 F-C-97	Fluoride	95.8	94.7 95.2			0.516
SM 5310 B-00	Organic Carbon	94.8	96.7 95.6			0.754

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1987142, 1987143, 1987144, 1987145, 1987146
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1987142, 1987143, 1987144, 1987145, 1987146
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1987142, 1987143, 1987144, 1987145, 1987146
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1987147, 1987148, 1987149, 1987150, 1987151
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1987147, 1987148, 1987149, 1987150, 1987151
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1987147, 1987148, 1987149, 1987150, 1987151
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1987147, 1987148, 1987149, 1987150, 1987151
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1987152, 1987153, 1987154, 1987155, 1987156
SM 2120 B / E31780	True Color measured at 450 nm	1987142, 1987143, 1987144, 1987145, 1987146
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1987142, 1987143, 1987144, 1987145, 1987146
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1987142, 1987143, 1987144, 1987145, 1987146
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1987142, 1987143, 1987144, 1987145, 1987146
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1987142, 1987143, 1987144, 1987145, 1987146
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1987147, 1987148, 1987149, 1987150, 1987151

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	04/25/2018			04/25/2018 16:22	William L. Brown IV	1987142, 1987143, 1987144, 1987145, 1987146
EPA 300.0 Rev. 2.1	04/25/2018			04/27/2018 21:13	Lipi Saha	1987142
	04/25/2018			04/28/2018 00:00	Lipi Saha	1987143
	04/25/2018			04/28/2018 00:12	Lipi Saha	1987144
	04/25/2018			04/28/2018 00:24	Lipi Saha	1987145
	04/25/2018			04/28/2018 00:36	Lipi Saha	1987146
EPA 350.1 Rev. 2.0	04/25/2018			05/03/2018 12:03	Ping Hua	1987148
	04/25/2018			05/03/2018 12:04	Ping Hua	1987149
	04/25/2018			05/03/2018 12:12	Ping Hua	1987150
	04/25/2018			05/03/2018 12:13	Ping Hua	1987151
	04/25/2018			05/03/2018 13:18	Ping Hua	1987147
EPA 351.2 Rev. 2.0	04/25/2018	05/01/2018 09:45	Adrian Shelby	05/02/2018 09:44	Joseph Suarez	1987147
	04/25/2018	05/01/2018 09:45	Adrian Shelby	05/02/2018 09:45	Joseph Suarez	1987148
	04/25/2018	05/01/2018 09:45	Adrian Shelby	05/02/2018 09:50	Joseph Suarez	1987149
	04/25/2018	05/01/2018 09:45	Adrian Shelby	05/02/2018 09:51	Joseph Suarez	1987150
	04/25/2018	05/01/2018 09:45	Adrian Shelby	05/02/2018 09:53	Joseph Suarez	1987151
EPA 353.2 Rev. 2.0	04/25/2018			04/26/2018 12:38	Lauren Bottorf	1987147
	04/25/2018			04/26/2018 12:45	Lauren Bottorf	1987148
	04/25/2018			04/26/2018 12:46	Lauren Bottorf	1987149
	04/25/2018			04/26/2018 12:47	Lauren Bottorf	1987150
	04/25/2018			04/26/2018 12:48	Lauren Bottorf	1987151
EPA 365.1 Rev. 2.0	04/25/2018	04/26/2018 12:50	Sima Feizi	05/01/2018 13:20	Beverly Y. Sanders	1987147
	04/25/2018	04/26/2018 12:50	Sima Feizi	05/01/2018 13:21	Beverly Y. Sanders	1987148, 1987149
	04/25/2018	04/26/2018 12:50	Sima Feizi	05/01/2018 13:22	Beverly Y. Sanders	1987150
	04/25/2018	04/26/2018 12:50	Sima Feizi	05/01/2018 13:23	Beverly Y. Sanders	1987151
EPA 365.1 Rev. 2.0 dissolved	04/25/2018			04/25/2018 14:41	Megan Treadwell	1987154
	04/25/2018			04/25/2018 15:04	Megan Treadwell	1987152
	04/25/2018			04/25/2018 15:05	Megan Treadwell	1987153
	04/25/2018			04/25/2018 15:06	Megan Treadwell	1987155
	04/25/2018			04/25/2018 15:07	Megan Treadwell	1987156
SM 2120 B	04/25/2018			04/25/2018 14:27	Tanya Welborn	1987142
	04/25/2018			04/25/2018 14:28	Tanya Welborn	1987143
	04/25/2018			04/25/2018 14:29	Tanya Welborn	1987144
	04/25/2018			04/25/2018 14:48	Tanya Welborn	1987145
	04/25/2018			04/25/2018 14:49	Tanya Welborn	1987146
SM 2320 B-97	04/25/2018			05/03/2018 21:21	Dale L. Simmons	1987142
	04/25/2018			05/03/2018 21:29	Dale L. Simmons	1987143
	04/25/2018			05/03/2018 21:40	Dale L. Simmons	1987144
	04/25/2018			05/03/2018 21:48	Dale L. Simmons	1987145

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2320 B-97	04/25/2018			05/03/2018 21:56	Dale L. Simmons	1987146
SM 2540 C-97	04/25/2018			04/27/2018 16:08	Yijie Li	1987142, 1987143, 1987144, 1987145, 1987146
SM 2540 D-97	04/25/2018			04/27/2018 16:08	Yijie Li	1987142, 1987143, 1987144, 1987145, 1987146
SM 4500 F-C-97	04/25/2018			05/03/2018 21:21	Dale L. Simmons	1987142
	04/25/2018			05/03/2018 21:29	Dale L. Simmons	1987143
	04/25/2018			05/03/2018 21:40	Dale L. Simmons	1987144
	04/25/2018			05/03/2018 21:48	Dale L. Simmons	1987145
	04/25/2018			05/03/2018 21:56	Dale L. Simmons	1987146
SM 5310 B-00	04/25/2018			04/30/2018 22:13	Megan Treadwell	1987147
	04/25/2018			04/30/2018 22:28	Megan Treadwell	1987148
	04/25/2018			04/30/2018 22:42	Megan Treadwell	1987149
	04/25/2018			04/30/2018 22:57	Megan Treadwell	1987150
	04/25/2018			04/30/2018 23:12	Megan Treadwell	1987151