

Chemical Analysis Report

WQAP-2017-08-31-03

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

Event Description: **Lakes-A-kits**
Request ID: **RQ-2017-08-28-14**
Customer: **WQAP**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
13051 N. Telecom Parkway
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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator

Date Certified: 21-SEP-2017 11:49



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: JAMES LAKE

Collection Date/Time: 08/30/2017 10:00

Field ID: G1SW0078

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1926828	EPA 180.1 Rev. 2.0	Turbidity	2.1		NTU	P331155	
	EPA 300.0 Rev. 2.1	Chloride	23		mg Cl/L	P331488	
		Sulfate	9.7		mg SO4/L	P331494	
	SM 2120 B	Color (true)	66	A	PCU	P331146	
	SM 2320 B-97	Total Alkalinity	20	Q	mg CaCO3/L	P331631	
	SM 2540 C-97	TDS	109		mg/L	P331663	
	SM 2540 D-97	TSS	2	I	mg/L	P331311	
	SM 4500 F-C-97	Fluoride	0.061	I	mg F/L	P331632	
1926833	EPA 350.1 Rev. 2.0	Ammonia-N	0.040		mg N/L	P331459	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.89		mg N/L	P331163	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.007	I	mg N/L	P331250	
	EPA 365.1 Rev. 2.0	Total-P	0.029		mg P/L	P331196	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P331406	
1926838	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P331138	

Ref. Method and Comment:

SM 2320 B-97: Sample analyzed after expiration date because of laboratory closure for Hurricane Irma.

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

SM 5310 B-00: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: CALM LAKE

Collection Date/Time: 08/30/2017 12:00

Field ID: G1SW0040

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1926829	EPA 180.1 Rev. 2.0	Turbidity	1.1		NTU	P331155	
	EPA 300.0 Rev. 2.1	Chloride	20		mg Cl/L	P331488	
		Sulfate	13		mg SO4/L	P331494	
	SM 2120 B	Color (true)	12		PCU	P331146	
	SM 2320 B-97	Total Alkalinity	13	Q	mg CaCO3/L	P331631	
	SM 2540 C-97	TDS	80		mg/L	P331663	
	SM 2540 D-97	TSS	2	UA	mg/L	P331311	
	SM 4500 F-C-97	Fluoride	0.062	I	mg F/L	P331632	
1926834	EPA 350.1 Rev. 2.0	Ammonia-N	0.010		mg N/L	P331459	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.50		mg N/L	P331163	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P331250	
	EPA 365.1 Rev. 2.0	Total-P	0.010		mg P/L	P331196	
	SM 5310 B-00	Organic Carbon	6.2		mg C/L	P331406	
1926839	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P331138	

Ref. Method and Comment:

SM 2320 B-97: Sample analyzed after expiration date because of laboratory closure for Hurricane Irma.

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

SM 5310 B-00: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: HORSE LAKE

Collection Date/Time: 08/30/2017 13:20

Field ID: G1SW0084

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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Field ID: G1SW0084

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1926830	EPA 180.1 Rev. 2.0	Turbidity	1.2		NTU	P331155	
	EPA 300.0 Rev. 2.1	Chloride	12		mg Cl/L	P331488	
		Sulfate	12		mg SO4/L	P331494	
	SM 2120 B	Color (true)	61		PCU	P331146	
	SM 2320 B-97	Total Alkalinity	16	Q	mg CaCO3/L	P331631	
	SM 2540 C-97	TDS	70		mg/L	P331663	
	SM 2540 D-97	TSS	2	U	mg/L	P331311	
	SM 4500 F-C-97	Fluoride	0.087	I	mg F/L	P331632	
1926835	EPA 350.1 Rev. 2.0	Ammonia-N	0.032		mg N/L	P331459	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.70		mg N/L	P331163	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.006	I	mg N/L	P331252	
	EPA 365.1 Rev. 2.0	Total-P	0.017		mg P/L	P331196	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P331406	
1926840	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P331138	

Ref. Method and Comment:

SM 2320 B-97: Sample analyzed after expiration date because of laboratory closure for Hurricane Irma.

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

SM 5310 B-00: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: WILLIAMS LAKE

Collection Date/Time: 08/30/2017 14:25

Field ID: G1SW0071

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1926831	EPA 180.1 Rev. 2.0	Turbidity	2.0		NTU	P331155	
	EPA 300.0 Rev. 2.1	Chloride	31		mg Cl/L	P331488	
		Sulfate	9.6		mg SO4/L	P331494	
	SM 2120 B	Color (true)	26	A	PCU	P331147	
	SM 2320 B-97	Total Alkalinity	15	Q	mg CaCO3/L	P331631	
	SM 2540 C-97	TDS	102		mg/L	P331663	
	SM 2540 D-97	TSS	3	I	mg/L	P331311	
	SM 4500 F-C-97	Fluoride	0.074	I	mg F/L	P331632	
1926836	EPA 350.1 Rev. 2.0	Ammonia-N	0.010		mg N/L	P331459	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.79		mg N/L	P331215	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P331252	
	EPA 365.1 Rev. 2.0	Total-P	0.020		mg P/L	P331196	
	SM 5310 B-00	Organic Carbon	10		mg C/L	P331406	
1926841	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P331138	

Ref. Method and Comment:

SM 2320 B-97: Sample analyzed after expiration date because of laboratory closure for Hurricane Irma.

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

SM 5310 B-00: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: COOPER LAKE

Collection Date/Time: 08/30/2017 11:45

Field ID: G1SW0082

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1926832	EPA 180.1 Rev. 2.0	Turbidity	4.5		NTU	P331155	

Field ID: G1SW0082

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1926832	EPA 300.0 Rev. 2.1	Chloride	30		mg Cl/L	P331488	
		Sulfate	9.4		mg SO4/L	P331494	
	SM 2120 B	Color (true)	57		PCU	P331147	
	SM 2320 B-97	Total Alkalinity	23	AQ	mg CaCO3/L	P331631	
	SM 2540 C-97	TDS	110		mg/L	P331663	
	SM 2540 D-97	TSS	4	I	mg/L	P331311	
	SM 4500 F-C-97	Fluoride	0.072	I	mg F/L	P331632	
1926837	EPA 350.1 Rev. 2.0	Ammonia-N	0.032		mg N/L	P331459	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P331215	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P331252	
	EPA 365.1 Rev. 2.0	Total-P	0.019		mg P/L	P331196	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P331406	
1926842	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P331139	

Ref. Method and Comment:
 SM 2320 B-97: Sample analyzed after expiration date because of laboratory closure for Hurricane Irma.
 SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
 SM 5310 B-00: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P331155

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P331488

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P331494

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P331459

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P331163

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P331215

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P331250

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P331252

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P331196

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P331138

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P331139

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

Reference Method: SM 2120 B
Batch ID: P331146

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P331147

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P331631

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

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 C-97
Batch ID: P331663

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P331311

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P331632

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P331406

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: P331488

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P331494

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	95.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P331459

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P331163

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P331215

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: P331215

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P331250

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	105		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P331252

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	105		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P331196

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	93.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P331138

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P331139

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

Reference Method: SM 2320 B-97
Batch ID: P331631

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.6		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P331632

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.4		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P331406

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.3		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P331488

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1926719	Chloride	103		P	90 - 110
1926721	Chloride	96.1		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P331494

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1926719	Sulfate	101		P	90 - 110
1926721	Sulfate	96.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P331459

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1926809	Ammonia-N	105	99.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P331163

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1926808	Kjeldahl Nitrogen	107	109	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P331215

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1926881	Kjeldahl Nitrogen	102	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P331250

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1926728	NO2NO3-N	101		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P331252

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1926836	NO2NO3-N	106	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P331196

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1926835	Total-P	90.7	92.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P331138

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1926810	O-Phosphate-P	96.6	97.8	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P331139

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1926871	O-Phosphate-P	97.1	95.8	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P331632

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1926832	Fluoride	97.9	98.5	P/P	91 - 105

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P331155

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1926805	Turbidity	3.82	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P331488

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1926719	Chloride	0.171	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P331494

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1926719	Sulfate	2.96	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P331459

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1926809	Ammonia-N	4.24	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P331163

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1926808	Kjeldahl Nitrogen	1.70	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P331215

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
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Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P331215

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1926881	Kjeldahl Nitrogen	0.273	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P331250

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1926728	NO2NO3-N	0.243	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P331252

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1926836	NO2NO3-N	0.943	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P331196

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1926835	Total-P	1.63	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P331138

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1926810	O-Phosphate-P	0.944	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P331139

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1926871	O-Phosphate-P	1.17	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P331146

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1926828	Color (true)	2.05	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P331147

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1926831	Color (true)	3.98	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
Batch ID: P331631

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1926832	Total Alkalinity	0.696	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P331663

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1926878	TDS	0.830	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P331632

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1926832	Fluoride	0.500	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P331406

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1926725	Organic Carbon	0.119	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: A78735
Included Lab Sample IDs: 1926838, 1926839, 1926840, 1926841, 1926842

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	102	104	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A78736
Included Lab Sample IDs: 1926828, 1926829, 1926830, 1926831, 1926832

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

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A78737
Included Lab Sample IDs: 1926828, 1926829, 1926830, 1926831, 1926832

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A78775

Included Lab Sample IDs: 1926833, 1926834, 1926835, 1926836, 1926837

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A78782

Included Lab Sample IDs: 1926833, 1926834, 1926835, 1926836, 1926837

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.5	96.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A78796

Included Lab Sample IDs: 1926833, 1926834, 1926835

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A78817

Included Lab Sample IDs: 1926836, 1926837

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.1	103	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A78834

Included Lab Sample IDs: 1926833, 1926834, 1926835, 1926836, 1926837

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.1	98.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A78858

Included Lab Sample IDs: 1926833, 1926834, 1926835, 1926836, 1926837

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.8	97.5	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A78862

Included Lab Sample IDs: 1926828, 1926829, 1926830, 1926831, 1926832

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.9	106	P/P	90 - 110
Sulfate	99.2	105	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A78909

Included Lab Sample IDs: 1926828, 1926829, 1926830, 1926831, 1926832

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

Reference Method: SM 2320 B-97

Run ID: A78909

Included Lab Sample IDs: 1926828, 1926829, 1926830, 1926831, 1926832

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	97.0	P/P	90 - 110
Total Alkalinity	97.0	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A78909

Included Lab Sample IDs: 1926828, 1926829, 1926830, 1926831, 1926832

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.0	98.5	P/P	90 - 110
Fluoride	98.5	97.5	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	MS
						SMP	
EPA 180.1 Rev. 2.0	Turbidity					3.82	
EPA 300.0 Rev. 2.1	Chloride	97.2	103	96.1		0.171	
	Sulfate	95.4	101	96.2		2.96	
EPA 350.1 Rev. 2.0	Ammonia-N	100	105	99.4			4.24
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	106	107	109			1.70
	Kjeldahl Nitrogen	100	102	102			0.273
EPA 353.2 Rev. 2.0	NO2NO3-N	105	101				0.243
	NO2NO3-N	105	106	106			0.943
EPA 365.1 Rev. 2.0	Total-P	93.5	90.7	92.2			1.63
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	105	96.6	97.8			0.944
	O-Phosphate-P	100	97.1	95.8			1.17
SM 2120 B	Color (true)					2.05	
	Color (true)					3.98	
SM 2320 B-97	Total Alkalinity	99.6				0.696	
SM 2540 C-97	TDS					0.830	
SM 4500 F-C-97	Fluoride	95.4	97.9	98.5			0.500
SM 5310 B-00	Organic Carbon	97.3					0.119

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1926828, 1926829, 1926830, 1926831, 1926832
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1926828, 1926829, 1926830, 1926831, 1926832
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1926828, 1926829, 1926830, 1926831, 1926832
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1926833, 1926834, 1926835, 1926836, 1926837

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1926833, 1926834, 1926835, 1926836, 1926837
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1926833, 1926834, 1926835, 1926836, 1926837
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1926833, 1926834, 1926835, 1926836, 1926837
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1926838, 1926839, 1926840, 1926841, 1926842
SM 2120 B / E31780	True Color measured at 450 nm	1926828, 1926829, 1926830, 1926831, 1926832
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1926828, 1926829, 1926830, 1926831, 1926832
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1926828, 1926829, 1926830, 1926831, 1926832
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1926828, 1926829, 1926830, 1926831, 1926832
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1926828, 1926829, 1926830, 1926831, 1926832
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1926833, 1926834, 1926835, 1926836, 1926837

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	08/31/2017			08/31/2017 15:53	DeAsia Armster	1926828, 1926829, 1926830, 1926831, 1926832
EPA 300.0 Rev. 2.1	08/31/2017			09/06/2017	Julia Storbeck	1926828, 1926829, 1926830
	08/31/2017			09/07/2017	Julia Storbeck	1926831, 1926832
EPA 350.1 Rev. 2.0	08/31/2017			09/06/2017	Sofia Elnemr	1926833, 1926834, 1926835, 1926836, 1926837
EPA 351.2 Rev. 2.0	08/31/2017	09/01/2017	Adrian Shelby	09/06/2017	Joseph Suarez	1926833, 1926834, 1926835
	08/31/2017	09/05/2017	Adrian Shelby	09/06/2017	Joseph Suarez	1926836, 1926837
EPA 353.2 Rev. 2.0	08/31/2017			09/05/2017	Beverly Y. Sanders	1926833, 1926834, 1926835, 1926836, 1926837
EPA 365.1 Rev. 2.0	08/31/2017	09/01/2017	Sima Feizi	09/05/2017	Lipi Saha	1926833, 1926834, 1926835, 1926836, 1926837
EPA 365.1 Rev. 2.0 dissolved	08/31/2017			08/31/2017 14:33	Megan Treadwell	1926838
	08/31/2017			08/31/2017 14:34	Megan Treadwell	1926839
	08/31/2017			08/31/2017 14:35	Megan Treadwell	1926840
	08/31/2017			08/31/2017 14:36	Megan Treadwell	1926841
	08/31/2017			08/31/2017 14:37	Megan Treadwell	1926842
SM 2120 B	08/31/2017			08/31/2017 15:40	Tanya Welborn	1926828, 1926829
	08/31/2017			08/31/2017 15:41	Tanya Welborn	1926830
	08/31/2017			08/31/2017 15:45	Tanya Welborn	1926831
	08/31/2017			08/31/2017 15:46	Tanya Welborn	1926832
SM 2320 B-97	08/31/2017			09/13/2017	Dale L. Simmons	1926828, 1926829, 1926830, 1926831, 1926832
SM 2540 C-97	08/31/2017			09/01/2017	DeAsia Armster	1926828, 1926829, 1926830, 1926831, 1926832
SM 2540 D-97	08/31/2017			09/01/2017	DeAsia Armster	1926828, 1926829, 1926830, 1926831, 1926832
SM 4500 F-C-97	08/31/2017			09/13/2017	Dale L. Simmons	1926828, 1926829, 1926830, 1926831, 1926832
SM 5310 B-00	08/31/2017			09/06/2017	Ping Hua	1926833, 1926834
	08/31/2017			09/07/2017	Ping Hua	1926835, 1926836, 1926837