

Chemical Analysis Report

WQAP-2018-09-19-05

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

Event Description: **2017 SMP Kit Template 1**

Request ID: **RQ-2018-09-03-24**

Customer: **WQAP**

Project ID: **SMP**

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Certified by: Liang Lin, Environmental Administrator

Date Certified: 02-OCT-2018 16:17

A handwritten signature in black ink, appearing to read "Liang Lin", is shown 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: Buck Creek CM

Collection Date/Time: 09/18/2018 12:35

Field ID: G2SD0035

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2026445	EPA 180.1 Rev. 2.0	Turbidity	3.6	A	NTU	P352022	
	SM 2320 B-97	Total Alkalinity	118	A	mg CaCO3/L	P352058	
	SM 2540 D-97	TSS	3	U	mg/L	P352283	
	SM 4500 F-C-97	Fluoride	0.59		mg F/L	P352061	
2026447	EPA 350.1 Rev. 2.0	Ammonia-N	0.030		mg N/L	P352278	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.92		mg N/L	P352143	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.009	I	mg N/L	P352075	
	EPA 365.1 Rev. 2.0	Total-P	0.098		mg P/L	P351970	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P352126	
2026449	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.053		mg P/L	P351918	

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: Oyster Creek CM

Collection Date/Time: 09/18/2018 13:30

Field ID: G2SD0036

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2026446	EPA 180.1 Rev. 2.0	Turbidity	2.2		NTU	P352023	
	SM 2320 B-97	Total Alkalinity	118		mg CaCO3/L	P352058	
	SM 2540 D-97	TSS	4	I	mg/L	P352283	
	SM 4500 F-C-97	Fluoride	0.47		mg F/L	P352231	
2026448	EPA 350.1 Rev. 2.0	Ammonia-N	0.071		mg N/L	P352278	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.80		mg N/L	P352143	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.040		mg N/L	P352075	
	EPA 365.1 Rev. 2.0	Total-P	0.13		mg P/L	P351970	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P352198	
2026450	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.091		mg P/L	P351918	

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: Oyster Creek CM

Collection Date/Time: 09/18/2018 14:00

Field ID: BLANK_09182018

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2026451	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P352023	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P352057	
	SM 2540 D-97	TSS	2	U	mg/L	P352454	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P352233	
2026452	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P352275	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P352068	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P352209	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P352040	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P352197	
2026453	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P351917	

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: P352022

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P352023

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P352275

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P352278

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P352068

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P352143

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P352075

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P352209

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P351970

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P352040

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P351917

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P351918

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

Reference Method: SM 2320 B-97
Batch ID: P352057

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO ₃ /L

Reference Method: SM 2320 B-97
Batch ID: P352058

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO ₃ /L

Reference Method: SM 2540 D-97
Batch ID: P352283

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P352454

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P352061

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P352231

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P352233

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P352126

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

Reference Method: SM 5310 B-00
Batch ID: P352197

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

Reference Method: SM 5310 B-00
Batch ID: P352198

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P352275

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P352278

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P352068

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	99.7		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P352143

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P352075

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: P352209

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: P351970

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: P352040

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P351917

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P351918

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

Reference Method: SM 2320 B-97
Batch ID: P352057

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	98 - 107

Reference Method: SM 2320 B-97
Batch ID: P352058

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

Reference Method: SM 4500 F-C-97
Batch ID: P352061

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.7		P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P352231

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.1		P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P352233

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.6		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P352126

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	93.2		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P352197

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

Reference Method: SM 5310 B-00
Batch ID: P352198

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.5		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P352275

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2026411	Ammonia-N	98.5	96.1	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P352278

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2026420	Ammonia-N	109	106	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P352068

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2026560	Kjeldahl Nitrogen	98.2	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P352143

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2026071	Kjeldahl Nitrogen	103	99.3	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P352075

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2026070	NO2NO3-N	104	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P352209

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2026376	NO2NO3-N	102	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P351970

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2026419	Total-P	91.5	93.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P352040

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2026411	Total-P	99.0	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P351917

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2026382	O-Phosphate-P	95.4	95.6	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P351918

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2026423	O-Phosphate-P	97.2	96.3	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P352061

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2024657	Fluoride	98.2	98.9	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P352231

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2026446	Fluoride	94.4	95.2	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P352233

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2026507	Fluoride	93.9	95.7	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P352126

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2025777	Organic Carbon	92.7	93.6	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P352197

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2026378	Organic Carbon	97.0	97.6	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P352198

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2026448	Organic Carbon	94.8	97.2	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P352022

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2026445	Turbidity	5.84	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P352023

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2026507	Turbidity	1.88	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P352275

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2026411	Ammonia-N	1.87	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P352278

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2026420	Ammonia-N	2.78	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P352068

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2026560	Kjeldahl Nitrogen	1.81	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P352143

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2026071	Kjeldahl Nitrogen	3.50	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P352075

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2026070	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P352209

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2026376	NO2NO3-N	0.971	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P351970

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2026419	Total-P	2.24	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P352040

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2026411	Total-P	1.35	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P351917

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2026382	O-Phosphate-P	0.209	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P351918

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2026423	O-Phosphate-P	0.930	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P352057

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2026507	Total Alkalinity	0.527	Sample	P	0 - 1.6

Reference Method: SM 2320 B-97
Batch ID: P352058

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2026445	Total Alkalinity	0.684	Sample	P	0 - 1.6

Reference Method: SM 4500 F-C-97
Batch ID: P352061

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2024657	Fluoride	0.473	Spike	P	0 - 3.5

Reference Method: SM 4500 F-C-97
Batch ID: P352231

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2026446	Fluoride	0.467	Spike	P	0 - 3.5

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
Batch ID: P352233

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2026507	Fluoride	0.972	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P352126

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2025777	Organic Carbon	0.778	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P352197

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2026378	Organic Carbon	0.536	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P352198

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2026448	Organic Carbon	1.84	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: A86590

Included Lab Sample IDs: 2026449, 2026450, 2026453

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A86621

Included Lab Sample IDs: 2026445, 2026446, 2026451

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	102	103	P/P	95 - 105
Turbidity	103	103	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A86627

Included Lab Sample IDs: 2026448

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

Reference Method: SM 2320 B-97

Run ID: A86635

Included Lab Sample IDs: 2026445, 2026446, 2026451

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.1	103	P/P	90 - 110
Total Alkalinity	99.8	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A86635

Included Lab Sample IDs: 2026445

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A86639

Included Lab Sample IDs: 2026447, 2026448

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A86653

Included Lab Sample IDs: 2026447

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

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00
Run ID: A86661
Included Lab Sample IDs: 2026447

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.6	99.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A86677
Included Lab Sample IDs: 2026452

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.9	98.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A86698
Included Lab Sample IDs: 2026447, 2026448

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.9	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A86701
Included Lab Sample IDs: 2026452

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

Reference Method: SM 5310 B-00
Run ID: A86702
Included Lab Sample IDs: 2026448, 2026452

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.8	95.8	P/P	90 - 110
Organic Carbon	95.6	94.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A86710
Included Lab Sample IDs: 2026452

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

Reference Method: SM 4500 F-C-97
Run ID: A86715
Included Lab Sample IDs: 2026446, 2026451

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.0	97.7	P/P	90 - 110
Fluoride	98.1	98.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A86725
Included Lab Sample IDs: 2026447, 2026448, 2026452

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A86725

Included Lab Sample IDs: 2026447, 2026448, 2026452

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	105	106	P/P	90 - 110
Ammonia-N	107	109	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					5.84	
	Turbidity					1.88	
EPA 350.1 Rev. 2.0	Ammonia-N	97.6	98.5	96.1			1.87
	Ammonia-N	107	109	106			2.78
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.7	98.2	101			1.81
	Kjeldahl Nitrogen	106	103	99.3			3.50
EPA 353.2 Rev. 2.0	NO2NO3-N	102	104	104			0.0
	NO2NO3-N	102	102	104			0.971
EPA 365.1 Rev. 2.0	Total-P	101	91.5	93.6			2.24
	Total-P	99.6	99.0	101			1.35
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	95.4	95.6			0.209
	O-Phosphate-P	98.1	97.2	96.3			0.930
SM 2320 B-97	Total Alkalinity	103				0.527	
	Total Alkalinity	102				0.684	
SM 4500 F-C-97	Fluoride	99.7	98.2	98.9			0.473
	Fluoride	96.1	94.4	95.2			0.467
	Fluoride	95.6	93.9	95.7			0.972
SM 5310 B-00	Organic Carbon	93.2	92.7	93.6			0.778
	Organic Carbon	97.6	97.0	97.6			0.536
	Organic Carbon	97.5	94.8	97.2			1.84

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2026445, 2026446, 2026451
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2026447, 2026448, 2026452
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2026447, 2026448, 2026452
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2026447, 2026448, 2026452
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2026447, 2026448, 2026452
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2026449, 2026450, 2026453
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2026445, 2026446, 2026451
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2026445, 2026446, 2026451
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2026445, 2026446, 2026451
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2026447, 2026448, 2026452

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	09/19/2018			09/19/2018 14:56	Megan Treadwell	2026445, 2026446, 2026451
EPA 350.1 Rev. 2.0	09/19/2018			09/24/2018 12:17	Ping Hua	2026452
	09/19/2018			09/24/2018 14:16	Ping Hua	2026447
	09/19/2018			09/24/2018 14:18	Ping Hua	2026448
EPA 351.2 Rev. 2.0	09/19/2018	09/21/2018 09:50	Adrian Shelby	09/24/2018 13:09	Joseph Suarez	2026452
	09/19/2018	09/24/2018 11:40	Adrian Shelby	09/25/2018 09:39	Joseph Suarez	2026447
	09/19/2018	09/24/2018 11:40	Adrian Shelby	09/25/2018 09:41	Joseph Suarez	2026448
EPA 353.2 Rev. 2.0	09/19/2018			09/21/2018 12:27	Lauren Bottorf	2026447
	09/19/2018			09/21/2018 12:28	Lauren Bottorf	2026448
	09/19/2018			09/25/2018 13:12	Lauren Bottorf	2026452
EPA 365.1 Rev. 2.0	09/19/2018	09/20/2018 13:10	Sima Feizi	09/21/2018 09:21	Beverly Y. Sanders	2026448
	09/19/2018	09/20/2018 13:10	Sima Feizi	09/21/2018 14:50	Beverly Y. Sanders	2026447
	09/19/2018	09/21/2018 12:45	Sima Feizi	09/25/2018 08:58	Beverly Y. Sanders	2026452
EPA 365.1 Rev. 2.0 dissolved	09/19/2018			09/19/2018 14:57	Julia Storbeck	2026453
	09/19/2018			09/19/2018 14:59	Julia Storbeck	2026449
	09/19/2018			09/19/2018 15:16	Julia Storbeck	2026450
SM 2320 B-97	09/19/2018			09/21/2018 00:37	Dale L. Simmons	2026451
	09/19/2018			09/21/2018 03:35	Dale L. Simmons	2026445
	09/19/2018			09/21/2018 04:45	Dale L. Simmons	2026446
SM 2540 D-97	09/19/2018			09/21/2018 16:15	Yijie Li	2026445, 2026446, 2026451
SM 4500 F-C-97	09/19/2018			09/21/2018 02:16	Dale L. Simmons	2026445
	09/19/2018			09/25/2018 17:46	Dale L. Simmons	2026446
	09/19/2018			09/25/2018 23:24	Dale L. Simmons	2026451
SM 5310 B-00	09/19/2018			09/22/2018 11:03	Megan Treadwell	2026447
	09/19/2018			09/24/2018 23:25	Megan Treadwell	2026452
	09/19/2018			09/25/2018 03:56	Megan Treadwell	2026448