

Chemical Analysis Report

CEN-DIST-2019-04-10-01

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

Event Description: **Louise / Shaw / Spring Garden Lk**
Request ID: **RQ-2019-04-15-36**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
3319 Maguire Blvd., Suite 232
Orlando, FL 32803-3767
Attn: Mike Linger

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: Colin Wright, Program Administrator

Date Certified: 26-APR-2019 10:10



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 by the Florida Department of Health Environmental Laboratory Certification Program 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: Lake Louise @ Center of South Lobe

Collection Date/Time: 04/09/2019 10:39

Field ID: G2CE0065

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2077064	EPA 180.1 Rev. 2.0	Turbidity	1.5		NTU	P361924	
	EPA 300.0 Rev. 2.1	Chloride	19		mg Cl/L	P362269	
		Sulfate	18		mg SO4/L	P362272	
	SM 2120 B	Color (true)	40	A	PCU	P361956	
	SM 2320 B-97	Total Alkalinity	13		mg CaCO3/L	P362274	
	SM 2540 C-97	TDS	88		mg/L	P362518	
	SM 2540 D-97	TSS	2	I	mg/L	P362235	
	SM 4500 F-C-97	Fluoride	0.099	I	mg F/L	P362277	
2077067	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P362402	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.75		mg N/L	P362341	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P362417	
	EPA 365.1 Rev. 2.0	Total-P	0.021		mg P/L	P362247	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P362107	
2077070	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P361932	

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: Shaw Lake @ Center of North Lobe

Collection Date/Time: 04/09/2019 11:12

Field ID: G2CE0127

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2077065	EPA 180.1 Rev. 2.0	Turbidity	0.65		NTU	P361924	
	EPA 300.0 Rev. 2.1	Chloride	15		mg Cl/L	P362297	
		Sulfate	1.6		mg SO4/L	P362300	
	SM 2120 B	Color (true)	740		PCU	P361956	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P362274	
	SM 2540 C-97	TDS	118		mg/L	P362518	
	SM 2540 D-97	TSS	2	U	mg/L	P362235	
	SM 4500 F-C-97	Fluoride	0.044	I	mg F/L	P362277	
2077068	EPA 350.1 Rev. 2.0	Ammonia-N	0.026		mg N/L	P362402	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.6		mg N/L	P362422	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.008	I	mg N/L	P362417	
	EPA 365.1 Rev. 2.0	Total-P	0.021		mg P/L	P362247	
	SM 5310 B-00	Organic Carbon	45		mg C/L	P362107	
2077071	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P361933	

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: Spring Garden Lake @ 800m N of Center

Collection Date/Time: 04/09/2019 12:02

Field ID: G2CE0117

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2077066	EPA 180.1 Rev. 2.0	Turbidity	6.8	A	NTU	P361924	
	EPA 300.0 Rev. 2.1	Chloride	300		mg Cl/L	P362297	
		Sulfate	50		mg SO4/L	P362300	
	SM 2120 B	Color (true)	21		PCU	P361956	
	SM 2320 B-97	Total Alkalinity	89		mg CaCO3/L	P362274	
	SM 2540 C-97	TDS	572		mg/L	P362518	
	SM 2540 D-97	TSS	16		mg/L	P362235	
	SM 4500 F-C-97	Fluoride	0.091	I	mg F/L	P362277	
2077069	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P362402	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.94	J	mg N/L	P362422	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P362417	
	EPA 365.1 Rev. 2.0	Total-P	0.088		mg P/L	P362247	
	SM 5310 B-00	Organic Carbon	6.4		mg C/L	P362107	
2077072	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P361933	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Refer to the narrative for an explanation of QC Codes.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P361924

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362269

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362272

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362297

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362300

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P362402

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362341

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362422

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P362417

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362247

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P361932

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P361933

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

Reference Method: SM 2120 B
Batch ID: P361956

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P362274

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

Reference Method: SM 2540 C-97
Batch ID: P362518

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P362235

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P362277

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P362107

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: P362269

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362272

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	108		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362297

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362300

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P362402

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362341

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362422

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P362417

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	98.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362247

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P361932

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P361933

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

Reference Method: SM 2120 B
Batch ID: P361956

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	103		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P362274

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	98 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P362277

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.1		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P362107

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.6		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362269

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2076818	Chloride	107		P	90 - 110
2077011	Chloride	106		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362272

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2076818	Sulfate	107		P	90 - 110
2077011	Sulfate	107		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362297

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2077065	Chloride	98.6		P	90 - 110
2077229	Chloride	99.0		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362300

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2077065	Sulfate	102		P	90 - 110
2077229	Sulfate	100		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P362402

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2076828	Ammonia-N	100	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362341

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2077008	Kjeldahl Nitrogen	106	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362422

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2077069	Kjeldahl Nitrogen	113	112	F/F	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P362417

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2077067	NO2NO3-N	99.5	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362247

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362247

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2077178	Total-P	93.4	92.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P361932

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2076992	O-Phosphate-P	97.4	99.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P361933

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2077072	O-Phosphate-P	94.5	95.4	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P362277

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2077321	Fluoride	99.0	99.5	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P362107

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2076905	Organic Carbon	99.3	102	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P361924

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2077066	Turbidity	16.4	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362269

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2076818	Chloride	0.626	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362272

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2076818	Sulfate	0.398	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362297

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2077229	Chloride	1.60	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362300

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2077229	Sulfate	1.18	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P362402

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2076828	Ammonia-N	0.660	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362341

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2077008	Kjeldahl Nitrogen	2.06	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362422

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2077069	Kjeldahl Nitrogen	0.332	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P362417

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2077067	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362247

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2077178	Total-P	0.668	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P361932

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2076992	O-Phosphate-P	2.43	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P361933

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2077072	O-Phosphate-P	0.948	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P361956

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2077064	Color (true)	0.753	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P362274

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2077321	Total Alkalinity	2.79	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
Batch ID: P362518

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2076979	TDS	5.48	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P362277

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2077321	Fluoride	0.487	Spike	P	0 - 2.5

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P362107

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2076905	Organic Carbon	1.37	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.
Replicate spike precision may be reported when sample results are below quantifiable levels.

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A90588

Included Lab Sample IDs: 2077064, 2077065, 2077066

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	99.5	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A90589

Included Lab Sample IDs: 2077070, 2077071, 2077072

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	96.7	96.0	P/P	90 - 110
O-Phosphate-P	97.7	97.2	P/P	90 - 110
O-Phosphate-P	99.8	99.6	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A90600

Included Lab Sample IDs: 2077064, 2077065, 2077066

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	102	P/P	90 - 115
Color (true)	104	103	P/P	85 - 115

Reference Method: SM 5310 B-00

Run ID: A90701

Included Lab Sample IDs: 2077067, 2077068, 2077069

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.2	94.6	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A90759

Included Lab Sample IDs: 2077064, 2077065, 2077066

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	99.7	P/P	90 - 110
Total Alkalinity	99.7	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A90759

Included Lab Sample IDs: 2077064, 2077065, 2077066

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	99.5	P/P	90 - 110
Fluoride	98.5	100	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A90760

Included Lab Sample IDs: 2077064, 2077065, 2077066

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	102	P/P	90 - 110
Chloride	101	105	P/P	90 - 110
Sulfate	101	102	P/P	90 - 110
Sulfate	102	106	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A90796

Included Lab Sample IDs: 2077069

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	104	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A90798

Included Lab Sample IDs: 2077067, 2077068

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A90813

Included Lab Sample IDs: 2077067, 2077068, 2077069

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A90815

Included Lab Sample IDs: 2077067, 2077068, 2077069

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: A90860

Included Lab Sample IDs: 2077067

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.9	97.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A90881

Included Lab Sample IDs: 2077068, 2077069

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	98.6	P/P	90 - 110
Kjeldahl Nitrogen	98.6	101	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					16.4	
EPA 300.0 Rev. 2.1	Chloride	106	107	106		0.626	
	Chloride	101	99.0	98.6		1.60	
	Sulfate	108	107	107		0.398	
	Sulfate	102	100	102		1.18	
EPA 350.1 Rev. 2.0	Ammonia-N	102	100	101			0.660
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104	106	103			2.06
	Kjeldahl Nitrogen	98.4	113	112			0.332
EPA 353.2 Rev. 2.0	NO2NO3-N	98.5	99.5	99.5			0.0
EPA 365.1 Rev. 2.0	Total-P	102	93.4	92.8			0.668
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	97.4	99.8			2.43
	O-Phosphate-P	105	94.5	95.4			0.948
SM 2120 B	Color (true)	103				0.753	
SM 2320 B-97	Total Alkalinity	101				2.79	
SM 2540 C-97	TDS					5.48	
SM 4500 F-C-97	Fluoride	96.1	99.0	99.5			0.487
SM 5310 B-00	Organic Carbon	99.6	99.3	102			1.37

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2077064, 2077065, 2077066
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2077064, 2077065, 2077066
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2077064, 2077065, 2077066
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2077067, 2077068, 2077069
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2077067, 2077068, 2077069
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2077067, 2077068, 2077069
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2077067, 2077068, 2077069
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2077070, 2077071, 2077072
SM 2120 B / E31780	True Color measured at 450 nm	2077064, 2077065, 2077066
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2077064, 2077065, 2077066
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2077064, 2077065, 2077066
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2077064, 2077065, 2077066
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2077064, 2077065, 2077066
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2077067, 2077068, 2077069

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	04/10/2019			04/10/2019 17:05	Adrian Shelby	2077064, 2077065, 2077066
EPA 300.0 Rev. 2.1	04/10/2019			04/16/2019 12:07	Julia Storbeck	2077064
	04/10/2019			04/16/2019 15:30	Lipi Saha	2077065
	04/10/2019			04/16/2019 16:43	Lipi Saha	2077066
EPA 350.1 Rev. 2.0	04/10/2019			04/17/2019 11:37	Ping Hua	2077067
	04/10/2019			04/17/2019 11:38	Ping Hua	2077068
	04/10/2019			04/17/2019 11:40	Ping Hua	2077069
EPA 351.2 Rev. 2.0	04/10/2019	04/17/2019 12:45	Adrian Shelby	04/18/2019 15:21	Joseph Suarez	2077067
	04/10/2019	04/18/2019 12:15	Adrian Shelby	04/22/2019 10:48	Joseph Suarez	2077068
	04/10/2019	04/18/2019 12:15	Adrian Shelby	04/22/2019 10:53	Joseph Suarez	2077069
EPA 353.2 Rev. 2.0	04/10/2019			04/18/2019 10:44	Beverly Y. Sanders	2077067
	04/10/2019			04/18/2019 10:52	Beverly Y. Sanders	2077068
	04/10/2019			04/18/2019 10:53	Beverly Y. Sanders	2077069
EPA 365.1 Rev. 2.0	04/10/2019	04/16/2019 13:55	Sima Feizi	04/17/2019 15:34	Rosalyn Ballman	2077069
	04/10/2019	04/16/2019 13:55	Sima Feizi	04/17/2019 20:29	Rosalyn Ballman	2077067
	04/10/2019	04/16/2019 13:55	Sima Feizi	04/17/2019 20:30	Rosalyn Ballman	2077068
EPA 365.1 Rev. 2.0 dissolved	04/10/2019			04/10/2019 17:29	Jhamieka S. Greenwood	2077072
	04/10/2019			04/10/2019 18:16	Jhamieka S. Greenwood	2077071
	04/10/2019			04/10/2019 18:48	Jhamieka S. Greenwood	2077070
SM 2120 B	04/10/2019			04/10/2019 16:16	Mariam Hanna	2077064
	04/10/2019			04/10/2019 16:18	Mariam Hanna	2077066
	04/10/2019			04/10/2019 16:40	Mariam Hanna	2077065
SM 2320 B-97	04/10/2019			04/16/2019 03:38	Samantha Davila	2077064
	04/10/2019			04/16/2019 03:47	Samantha Davila	2077065
	04/10/2019			04/16/2019 07:32	Samantha Davila	2077066
SM 2540 C-97	04/10/2019			04/11/2019 16:14	Yijie Li	2077064, 2077065, 2077066
SM 2540 D-97	04/10/2019			04/11/2019 16:14	Yijie Li	2077064, 2077065, 2077066
SM 4500 F-C-97	04/10/2019			04/16/2019 03:38	Samantha Davila	2077064
	04/10/2019			04/16/2019 03:47	Samantha Davila	2077065
	04/10/2019			04/16/2019 07:32	Samantha Davila	2077066
SM 5310 B-00	04/10/2019			04/13/2019 09:07	Julia Storbeck	2077067
	04/10/2019			04/13/2019 09:20	Julia Storbeck	2077068
	04/10/2019			04/13/2019 09:32	Julia Storbeck	2077069