

Chemical Analysis Report

CEN-DIST-2019-04-12-02

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

Event Description: **Park / Gem / Ann / Asher**
Request ID: **RQ-2019-04-08-37**
Customer: **CEN-DIST**
Project ID: **SMP**

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Date Certified: 30-APR-2019 19:24



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 Gem at Center

Collection Date/Time: 04/11/2019 10:36

Field ID: G2CE0204

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2077861	EPA 180.1 Rev. 2.0	Turbidity	4.0		NTU	P362075	
	EPA 300.0 Rev. 2.1	Chloride	12		mg Cl/L	P362382	
		Sulfate	12		mg SO4/L	P362384	
	SM 2120 B	Color (true)	18		PCU	P362066	
	SM 2320 B-97	Total Alkalinity	80	A	mg CaCO3/L	P362570	
	SM 2540 C-97	TDS	124		mg/L	P362665	
	SM 2540 D-97	TSS	5	I	mg/L	P362656	
	SM 4500 F-C-97	Fluoride	0.059	I	mg F/L	P362575	
2077865	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P362710	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.66		mg N/L	P362584	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P362497	
	EPA 365.1 Rev. 2.0	Total-P	0.049		mg P/L	P362432	
	SM 5310 B-00	Organic Carbon	6.6		mg C/L	P362398	
2077869	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P362058	

Ref. Method and Comment:

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

Sample Location: Lake Park @ Center

Collection Date/Time: 04/11/2019 10:48

Field ID: G2CE0009

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2077862	EPA 180.1 Rev. 2.0	Turbidity	1.5		NTU	P362075	
	EPA 300.0 Rev. 2.1	Chloride	14		mg Cl/L	P362382	
		Sulfate	11		mg SO4/L	P362384	
	SM 2120 B	Color (true)	15		PCU	P362066	
	SM 2320 B-97	Total Alkalinity	66		mg CaCO3/L	P362570	
	SM 2540 C-97	TDS	113		mg/L	P362665	
	SM 2540 D-97	TSS	2	I	mg/L	P362656	
	SM 4500 F-C-97	Fluoride	0.064	I	mg F/L	P362575	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P362710	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.57		mg N/L	P362584	
2077866	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P362498	
	EPA 365.1 Rev. 2.0	Total-P	0.024		mg P/L	P362432	
	SM 5310 B-00	Organic Carbon	6.5		mg C/L	P362315	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	U	mg P/L	P362058	
	dissolved						
2077870	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	U	mg P/L	P362058	

Ref. Method and Comment:

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

Sample Location: Lake Park at Center

Collection Date/Time: 04/11/2019 10:50

Field ID: G2CE0009_DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2077873	EPA 180.1 Rev. 2.0	Turbidity	1.5		NTU	P362075	
	EPA 300.0 Rev. 2.1	Chloride	14		mg Cl/L	P362382	
		Sulfate	11		mg SO4/L	P362384	
	SM 2120 B	Color (true)	15	A	PCU	P362068	
	SM 2320 B-97	Total Alkalinity	67		mg CaCO3/L	P362571	
	SM 2540 C-97	TDS	110		mg/L	P362665	
	SM 2540 D-97	TSS	2	I	mg/L	P362656	
	SM 4500 F-C-97	Fluoride	0.065	I	mg F/L	P362576	MS
	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P362710	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.58		mg N/L	P362584	
2077875	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P362498	
	EPA 365.1 Rev. 2.0	Total-P	0.024		mg P/L	P362432	
	SM 5310 B-00	Organic Carbon	6.5		mg C/L	P362315	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	U	mg P/L	P362058	
	dissolved						

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: Field Blank

Collection Date/Time: 04/11/2019 11:00

Field ID: FB_04112019

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2077874	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P362075	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P362382	
		Sulfate	0.20	U	mg SO4/L	P362384	
	SM 2120 B	Color (true)	2.5	U	PCU	P362067	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P362571	
	SM 2540 C-97	TDS	15	U	mg/L	P362663	
	SM 2540 D-97	TSS	2	U	mg/L	P362654	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P362576	MS
2077876	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P362710	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P362584	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P362498	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P362433	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P362398	
2077878	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P362058	

Ref. Method and Comment:

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

Sample Location: Lake Asher @ Center of Lake

Collection Date/Time: 04/11/2019 11:41

Field ID: G2CE0130

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2077863	EPA 180.1 Rev. 2.0	Turbidity	5.7		NTU	P362075	
	EPA 300.0 Rev. 2.1	Chloride	29		mg Cl/L	P362382	
		Sulfate	9.4		mg SO4/L	P362384	
	SM 2120 B	Color (true)	48		PCU	P362066	
	SM 2320 B-97	Total Alkalinity	32	A	mg CaCO3/L	P362571	
	SM 2540 C-97	TDS	110		mg/L	P362665	
	SM 2540 D-97	TSS	6	I	mg/L	P362656	
	SM 4500 F-C-97	Fluoride	0.035	UJ	mg F/L	P362576	MS
	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P362710	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P362584	
2077867	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P362498	
	EPA 365.1 Rev. 2.0	Total-P	0.080		mg P/L	P362433	
	SM 5310 B-00	Organic Carbon	10		mg C/L	P362398	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	U	mg P/L	P362058	
	dissolved						

Ref. Method and Comment:

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

SM 4500 F-C-97: Refer to the narrative for an explanation of QC Codes.

Sample Location: Lake Ann @ Center

Collection Date/Time: 04/11/2019 12:48

Field ID: G2CE0097

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2077864	EPA 180.1 Rev. 2.0	Turbidity	5.4		NTU	P362075	
	EPA 300.0 Rev. 2.1	Chloride	21		mg Cl/L	P362382	
		Sulfate	16		mg SO4/L	P362384	
	SM 2120 B	Color (true)	32	A	PCU	P362067	
	SM 2320 B-97	Total Alkalinity	25		mg CaCO3/L	P362571	
	SM 2540 C-97	TDS	104		mg/L	P362665	
	SM 2540 D-97	TSS	7	I	mg/L	P362656	
	SM 4500 F-C-97	Fluoride	0.041	I	mg F/L	P362576	MS
	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P362710	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.85		mg N/L	P362584	
2077868	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P362498	
	EPA 365.1 Rev. 2.0	Total-P	0.022		mg P/L	P362433	
	SM 5310 B-00	Organic Carbon	9.8		mg C/L	P362398	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	U	mg P/L	P362058	
	dissolved						

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: P362075

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362382

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362384

Component	Result	Code	Units
Sulfate	0.20	U	mg SO ₄ /L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P362710

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362584

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P362497

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P362498

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362432

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362433

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 dissolved
Batch ID: P362058

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

Reference Method: SM 2120 B
Batch ID: P362066

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P362067

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P362068

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P362570

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

Reference Method: SM 2320 B-97
Batch ID: P362571

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

Reference Method: SM 2540 C-97
Batch ID: P362663

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P362665

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P362654

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P362656

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P362575

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P362576

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P362315

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

Reference Method: SM 5310 B-00
Batch ID: P362398

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: P362382

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362384

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P362710

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.2		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362584

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P362497

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P362498

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362432

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362433

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362058

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2120 B
Batch ID: P362066

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

Reference Method: SM 2120 B
Batch ID: P362067

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

Reference Method: SM 2120 B
Batch ID: P362068

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

Reference Method: SM 2320 B-97
Batch ID: P362570

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.0		P	98 - 106

Reference Method: SM 2320 B-97
Batch ID: P362571

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.6		P	98 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P362575

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.8		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P362576

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.8		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P362315

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	101		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P362398

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	100		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362382

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2077771	Chloride	101		P	90 - 110
2077863	Chloride	103		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362384

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2077771	Sulfate	101		P	90 - 110
2077863	Sulfate	103		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P362710

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2077865	Ammonia-N	106	108	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362584

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2077854	Kjeldahl Nitrogen	107	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P362497

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2077774	NO2NO3-N	98.0	99.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P362498

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2077866	NO2NO3-N	101	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362432

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2077854	Total-P	95.5	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362433

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2078142	Total-P	101	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362058

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2077872	O-Phosphate-P	91.2	92.1	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P362575

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2077861	Fluoride	98.5	100	P/P	89 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P362576

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2077863	Fluoride	107	105	F/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P362315

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2077772	Organic Carbon	103	103	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P362398

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2078142	Organic Carbon	98.1	99.0	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P362075

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2077884	Turbidity	0.217	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362382

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2077771	Chloride	0.0731	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362384

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2077771	Sulfate	0.463	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P362710

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2077865	Ammonia-N	1.94	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362584

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2077854	Kjeldahl Nitrogen	1.60	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P362497

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2077774	NO2NO3-N	0.573	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P362498

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2077866	NO2NO3-N	0.496	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362432

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2077854	Total-P	5.09	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362433

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2078142	Total-P	0.872	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362058

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2077872	O-Phosphate-P	0.982	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P362066

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2077813	Color (true)	0.566	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P362067

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2077864	Color (true)	1.26	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P362068

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2077873	Color (true)	4.99	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P362570

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2077861	Total Alkalinity	0.219	Sample	P	0 - 2.8

Reference Method: SM 2320 B-97
Batch ID: P362571

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2077863	Total Alkalinity	0.283	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
Batch ID: P362663

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2077733	TDS	6.45	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
 Batch ID: P362665

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2077848	TDS	2.95	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
 Batch ID: P362575

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2077861	Fluoride	1.44	Spike	P	0 - 2.5

Reference Method: SM 4500 F-C-97
 Batch ID: P362576

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2077863	Fluoride	1.44	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
 Batch ID: P362315

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2077772	Organic Carbon	0.0	Spike	P	0 - 20

Reference Method: SM 5310 B-00
 Batch ID: P362398

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2078142	Organic Carbon	0.758	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: A90670

Included Lab Sample IDs: 2077869, 2077870, 2077871, 2077872, 2077877, 2077878

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	94.6	94.1	P/P	90 - 110
O-Phosphate-P	96.6	95.1	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A90677

Included Lab Sample IDs: 2077861, 2077862, 2077863, 2077864, 2077873, 2077874

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	101	P/P	90 - 115
Color (true)	101	101	P/P	90 - 115
Color (true)	101	102	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A90679

Included Lab Sample IDs: 2077861, 2077862, 2077863, 2077864, 2077873, 2077874

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A90760

Included Lab Sample IDs: 2077861, 2077862, 2077863, 2077864, 2077873, 2077874

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	102	103	P/P	90 - 110
Chloride	103	103	P/P	90 - 110
Sulfate	103	103	P/P	90 - 110
Sulfate	103	103	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A90771

Included Lab Sample IDs: 2077866, 2077875

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	106	109	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A90810

Included Lab Sample IDs: 2077865, 2077867, 2077868, 2077876

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A90845

Included Lab Sample IDs: 2077865, 2077866, 2077867, 2077868, 2077875, 2077876

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	99.5	P/P	90 - 110
NO2NO3-N	99.0	100	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A90847

Included Lab Sample IDs: 2077867

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	104	99.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A90865

Included Lab Sample IDs: 2077865, 2077866, 2077868, 2077875, 2077876

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	102	99.8	P/P	90 - 110
Total-P	99.8	101	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A90871

Included Lab Sample IDs: 2077861, 2077862, 2077863, 2077864, 2077873, 2077874

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	96.7	99.7	P/P	90 - 110
Total Alkalinity	98.4	96.7	P/P	90 - 110
Total Alkalinity	99.7	98.1	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A90871

Included Lab Sample IDs: 2077861, 2077862, 2077863, 2077864, 2077873, 2077874

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.6	99.5	P/P	90 - 110
Fluoride	99.0	98.6	P/P	90 - 110
Fluoride	99.5	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A90919

Included Lab Sample IDs: 2077865, 2077866, 2077867, 2077868, 2077875, 2077876

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	101	P/P	90 - 110
Kjeldahl Nitrogen	103	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A90946

Included Lab Sample IDs: 2077865, 2077866, 2077867, 2077868, 2077875, 2077876

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

* Pass/Fail determinations are made for each bracketing calibration verification check.

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 180.1 Rev. 2.0	Turbidity				0.217	
EPA 300.0 Rev. 2.1	Chloride	101	101	103	0.0731	
	Sulfate	101	101	103	0.463	
EPA 350.1 Rev. 2.0	Ammonia-N	98.2	106	108		1.94
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	108	107	105		1.60
EPA 353.2 Rev. 2.0	NO2NO3-N	99.5	98.0	99.0		0.573
	NO2NO3-N	100	101	100		0.496
EPA 365.1 Rev. 2.0	Total-P	100	95.5	101		5.09
	Total-P	101	101	100		0.872
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.6	91.2	92.1		0.982
SM 2120 B	Color (true)	101			0.566	
	Color (true)	103			1.26	
	Color (true)	100			4.99	
SM 2320 B-97	Total Alkalinity	98.0			0.219	
	Total Alkalinity	99.6			0.283	
SM 2540 C-97	TDS				6.45	
	TDS				2.95	
SM 4500 F-C-97	Fluoride	97.8	98.5	100		1.44
	Fluoride	97.8	107	105		1.44
SM 5310 B-00	Organic Carbon	101	103	103		0.0
	Organic Carbon	100	98.1	99.0		0.758

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2077861, 2077862, 2077863, 2077864, 2077873, 2077874
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2077861, 2077862, 2077863, 2077864, 2077873, 2077874
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2077861, 2077862, 2077863, 2077864, 2077873, 2077874
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2077865, 2077866, 2077867, 2077868, 2077875, 2077876
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2077865, 2077866, 2077867, 2077868, 2077875, 2077876
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2077865, 2077866, 2077867, 2077868, 2077875, 2077876
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2077865, 2077866, 2077867, 2077868, 2077875, 2077876
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2077869, 2077870, 2077871, 2077872, 2077877, 2077878
SM 2120 B / E31780	True Color measured at 450 nm	2077861, 2077862, 2077863, 2077864, 2077873, 2077874
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2077861, 2077862, 2077863, 2077864, 2077873, 2077874
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2077861, 2077862, 2077863, 2077864, 2077873, 2077874
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2077861, 2077862, 2077863, 2077864, 2077873, 2077874
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2077861, 2077862, 2077863, 2077864, 2077873, 2077874
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2077865, 2077866, 2077867, 2077868, 2077875, 2077876

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	04/12/2019			04/12/2019 16:21	Adrian Shelby	2077861, 2077862, 2077863, 2077864, 2077873, 2077874
EPA 300.0 Rev. 2.1	04/12/2019			04/17/2019 21:28	Lipi Saha	2077863
	04/12/2019			04/17/2019 23:41	Lipi Saha	2077861
	04/12/2019			04/17/2019 23:53	Lipi Saha	2077862
	04/12/2019			04/18/2019 00:05	Lipi Saha	2077873
	04/12/2019			04/18/2019 00:17	Lipi Saha	2077864
EPA 350.1 Rev. 2.0	04/12/2019			04/18/2019 00:30	Lipi Saha	2077874
	04/12/2019			04/22/2019 10:28	Ping Hua	2077876
	04/12/2019			04/22/2019 10:36	Ping Hua	2077865
	04/12/2019			04/22/2019 10:37	Ping Hua	2077866
	04/12/2019			04/22/2019 10:39	Ping Hua	2077875
EPA 351.2 Rev. 2.0	04/12/2019			04/22/2019 10:40	Ping Hua	2077867
	04/12/2019			04/22/2019 10:42	Ping Hua	2077868
	04/12/2019	04/22/2019 11:30	Adrian Shelby	04/23/2019 10:36	Joseph Suarez	2077865
	04/12/2019	04/22/2019 11:30	Adrian Shelby	04/23/2019 10:38	Joseph Suarez	2077866
	04/12/2019	04/22/2019 11:30	Adrian Shelby	04/23/2019 10:39	Joseph Suarez	2077867
EPA 353.2 Rev. 2.0	04/12/2019	04/22/2019 11:30	Adrian Shelby	04/23/2019 10:44	Joseph Suarez	2077868
	04/12/2019	04/22/2019 11:30	Adrian Shelby	04/23/2019 10:46	Joseph Suarez	2077875
	04/12/2019	04/22/2019 11:30	Adrian Shelby	04/23/2019 10:47	Joseph Suarez	2077876
	04/12/2019			04/19/2019 11:38	Beverly Y. Sanders	2077865
	04/12/2019			04/19/2019 11:45	Beverly Y. Sanders	2077866
EPA 365.1 Rev. 2.0	04/12/2019			04/19/2019 11:55	Beverly Y. Sanders	2077867
	04/12/2019			04/19/2019 11:56	Beverly Y. Sanders	2077868
	04/12/2019			04/19/2019 11:57	Beverly Y. Sanders	2077875
	04/12/2019			04/19/2019 11:58	Beverly Y. Sanders	2077876
	04/12/2019	04/18/2019 13:40	Sima Feizi	04/19/2019 13:41	Rosalyn Ballman	2077867
EPA 365.1 Rev. 2.0 dissolved	04/12/2019	04/18/2019 13:40	Sima Feizi	04/19/2019 18:25	Rosalyn Ballman	2077865
	04/12/2019	04/18/2019 13:40	Sima Feizi	04/19/2019 18:26	Rosalyn Ballman	2077866
	04/12/2019	04/18/2019 13:40	Sima Feizi	04/19/2019 18:34	Rosalyn Ballman	2077875
	04/12/2019	04/18/2019 13:40	Sima Feizi	04/19/2019 18:35	Rosalyn Ballman	2077868
	04/12/2019	04/18/2019 13:40	Sima Feizi	04/19/2019 18:36	Rosalyn Ballman	2077876
SM 2120 B	04/12/2019			04/12/2019 13:54	Jhamieka S. Greenwood	2077872
	04/12/2019			04/12/2019 14:14	Jhamieka S. Greenwood	2077878
	04/12/2019			04/12/2019 14:15	Jhamieka S. Greenwood	2077871
	04/12/2019			04/12/2019 14:16	Jhamieka S. Greenwood	2077870
	04/12/2019			04/12/2019 14:17	Jhamieka S. Greenwood	2077877
	04/12/2019			04/12/2019 14:18	Jhamieka S. Greenwood	2077869
	04/12/2019			04/12/2019 15:32	Blanca Fach	2077861, 2077862
	04/12/2019			04/12/2019 15:33	Blanca Fach	2077863

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2120 B	04/12/2019			04/12/2019 15:38	Blanca Fach	2077864
	04/12/2019			04/12/2019 15:39	Blanca Fach	2077874
	04/12/2019			04/12/2019 15:49	Blanca Fach	2077873
SM 2320 B-97	04/12/2019			04/18/2019 20:33	Samantha Davila	2077861
	04/12/2019			04/19/2019 00:53	Samantha Davila	2077862
	04/12/2019			04/19/2019 03:21	Samantha Davila	2077863
	04/12/2019			04/19/2019 03:42	Samantha Davila	2077864
	04/12/2019			04/19/2019 03:54	Samantha Davila	2077873
	04/12/2019			04/19/2019 04:08	Samantha Davila	2077874
SM 2540 C-97	04/12/2019			04/17/2019 15:19	Yijie Li	2077861, 2077862, 2077863, 2077864, 2077873, 2077874
SM 2540 D-97	04/12/2019			04/17/2019 15:19	Yijie Li	2077861, 2077862, 2077863, 2077864, 2077873, 2077874
SM 4500 F-C-97	04/12/2019			04/18/2019 20:23	Samantha Davila	2077861
	04/12/2019			04/19/2019 00:53	Samantha Davila	2077862
	04/12/2019			04/19/2019 03:11	Samantha Davila	2077863
	04/12/2019			04/19/2019 03:42	Samantha Davila	2077864
	04/12/2019			04/19/2019 03:54	Samantha Davila	2077873
	04/12/2019			04/19/2019 04:08	Samantha Davila	2077874
SM 5310 B-00	04/12/2019			04/17/2019 07:37	Julia Storbeck	2077866
	04/12/2019			04/17/2019 07:50	Julia Storbeck	2077875
	04/12/2019			04/17/2019 16:06	Julia Storbeck	2077865
	04/12/2019			04/17/2019 16:18	Julia Storbeck	2077867
	04/12/2019			04/17/2019 16:55	Julia Storbeck	2077868
	04/12/2019			04/17/2019 17:07	Julia Storbeck	2077876