

Chemical Analysis Report

CEN-DIST-2019-03-27-03

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

Event Description: **Panther X3**
Request ID: **RQ-2019-03-25-31**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
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Date Certified: 15-APR-2019 10:56



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: PANTHER LAKE @ CENTER OF CENTRAL LOBE

Collection Date/Time: 03/26/2019 09:48

Field ID: G4CE0156

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2072893	EPA 180.1 Rev. 2.0	Turbidity	1.2		NTU	P361145	
	EPA 300.0 Rev. 2.1	Chloride	29		mg Cl/L	P361501	
		Sulfate	24		mg SO4/L	P361504	
	SM 2120 B	Color (true)	22		PCU	P361152	
	SM 2320 B-97	Total Alkalinity	23		mg CaCO3/L	P361652	
	SM 2540 C-97	TDS	113		mg/L	P361740	
	SM 2540 D-97	TSS	2	I	mg/L	P361786	
	SM 4500 F-C-97	Fluoride	0.059	I	mg F/L	P361656	
2072896	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P361459	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.62		mg N/L	P361283	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.005	I	mg N/L	P361293	
	EPA 365.1 Rev. 2.0	Total-P	0.014		mg P/L	P361336	
	SM 5310 B-00	Organic Carbon	8.7		mg C/L	P361236	
2072899	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P361163	

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: PANTHER LAKE @ CENTER OF WEST LOBE Collection Date/Time: 03/26/2019 10:02

Field ID: G4CE0164

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2072894	EPA 180.1 Rev. 2.0	Turbidity	1.5		NTU	P361145	
	EPA 300.0 Rev. 2.1	Chloride	28	A	mg Cl/L	P361502	
		Sulfate	23	A	mg SO4/L	P361505	
	SM 2120 B	Color (true)	27		PCU	P361152	
	SM 2320 B-97	Total Alkalinity	23		mg CaCO3/L	P361652	
	SM 2540 C-97	TDS	107		mg/L	P361741	
	SM 2540 D-97	TSS	2	I	mg/L	P361787	
	SM 4500 F-C-97	Fluoride	0.058	I	mg F/L	P361656	
2072897	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P361459	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.58		mg N/L	P361283	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P361293	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P361336	
	SM 5310 B-00	Organic Carbon	8.9		mg C/L	P361236	
2072900	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P361163	

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: PANTHER LAKE @ CENTER OF EAST LOBE

Collection Date/Time: 03/26/2019 10:46

Field ID: G4CE0165

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2072895	EPA 180.1 Rev. 2.0	Turbidity	1.7		NTU	P361145	
	EPA 300.0 Rev. 2.1	Chloride	33		mg Cl/L	P361502	
		Sulfate	25		mg SO4/L	P361505	
	SM 2120 B	Color (true)	44		PCU	P361152	
	SM 2320 B-97	Total Alkalinity	27	A	mg CaCO3/L	P361652	
	SM 2540 C-97	TDS	129	A	mg/L	P361741	
	SM 2540 D-97	TSS	2	IA	mg/L	P361787	
	SM 4500 F-C-97	Fluoride	0.059	I	mg F/L	P361656	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P361459	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.66		mg N/L	P361283	MS
2072898	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P361293	
	EPA 365.1 Rev. 2.0	Total-P	0.019		mg P/L	P361336	
	SM 5310 B-00	Organic Carbon	9.5		mg C/L	P361236	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	U	mg P/L	P361163	
	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: P361145

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P361501

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P361502

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P361504

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P361505

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P361459

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P361283

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P361293

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P361336

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: P361163

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

Reference Method: SM 2120 B
Batch ID: P361152

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P361652

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

Reference Method: SM 2540 C-97
Batch ID: P361740

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P361741

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P361786

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P361787

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P361656

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P361236

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: P361501

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

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P361502

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	99.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P361504

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

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P361505

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

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P361459

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.9		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P361283

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P361293

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

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P361336

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P361163

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2120 B
Batch ID: P361152

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.9		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P361652

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.2		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P361656

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.3		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P361236

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.4		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P361501

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2072574	Chloride	99.1		P	90 - 110
2072792	Chloride	98.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P361502

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2072894	Chloride	97.5		P	90 - 110
2073030	Chloride	99.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P361504

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2072574	Sulfate	101		P	90 - 110
2072792	Sulfate	97.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P361505

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2072894	Sulfate	97.9		P	90 - 110
2073030	Sulfate	101		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P361459

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2072831	Ammonia-N	99.8	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P361283

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2072813	Kjeldahl Nitrogen	94.0	88.4	P/F	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P361293

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2072812	NO2NO3-N	98.5	98.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P361336

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2072896	Total-P	103	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P361163

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 dissolved
Batch ID: P361163

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2072825	O-Phosphate-P	97.8	99.1	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P361656

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2072895	Fluoride	98.0	98.5	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P361236

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2072812	Organic Carbon	97.2	97.4	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P361145

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2072848	Turbidity	1.09	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P361501

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2072792	Chloride	0.638	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P361502

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2072894	Chloride	0.311	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P361504

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2072792	Sulfate	0.389	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P361505

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2072894	Sulfate	0.690	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P361459

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2072831	Ammonia-N	1.24	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P361283

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2072813	Kjeldahl Nitrogen	3.30	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P361293

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2072812	NO2NO3-N	0.0	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P361336

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2072896	Total-P	2.74	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P361163

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2072825	O-Phosphate-P	1.32	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P361152

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2072820	Color (true)	2.56	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P361652

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2072895	Total Alkalinity	0.172	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P361740

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2072833	TDS	5.58	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P361741

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2072895	TDS	3.10	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P361656

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2072895	Fluoride	0.522	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P361236

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2072812	Organic Carbon	0.133	Spike	P	0 - 20

Quality Assurance Report

Precision

* 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: A90277

Included Lab Sample IDs: 2072893, 2072894, 2072895

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

Reference Method: SM 2120 B

Run ID: A90278

Included Lab Sample IDs: 2072893, 2072894, 2072895

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.3	101	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A90279

Included Lab Sample IDs: 2072899, 2072900, 2072901

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.6	99.1	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A90314

Included Lab Sample IDs: 2072896, 2072897, 2072898

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.6	96.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A90326

Included Lab Sample IDs: 2072896, 2072897, 2072898

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	97.5	97.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A90368

Included Lab Sample IDs: 2072896, 2072897, 2072898

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.3	100	P/P	90 - 110
Kjeldahl Nitrogen	96.9	96.3	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A90396

Included Lab Sample IDs: 2072896, 2072897, 2072898

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A90397

Included Lab Sample IDs: 2072896, 2072897, 2072898

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A90412

Included Lab Sample IDs: 2072893, 2072894, 2072895

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	102	P/P	90 - 110
Chloride	102	101	P/P	90 - 110
Sulfate	102	103	P/P	90 - 110
Sulfate	103	102	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A90475

Included Lab Sample IDs: 2072893, 2072894, 2072895

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	98.9	P/P	90 - 110
Total Alkalinity	98.7	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A90475

Included Lab Sample IDs: 2072893, 2072894, 2072895

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	100	P/P	90 - 110
Fluoride	100	100	P/P	90 - 110
Fluoride	100	99.5	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	
						SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					1.09	
EPA 300.0 Rev. 2.1	Chloride	97.6	98.2	99.1		0.638	
	Chloride	99.9	97.5	99.2		0.311	
	Sulfate	99.5	97.3	101		0.389	
	Sulfate	102	97.9	101		0.690	
EPA 350.1 Rev. 2.0	Ammonia-N	99.9	99.8	101			1.24
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	107	94.0	88.4			3.30
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	98.0	98.5	98.5			0.0
EPA 365.1 Rev. 2.0	Total-P	102	103	100			2.74
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.2	97.8	99.1			1.32
SM 2120 B	Color (true)	99.9				2.56	
SM 2320 B-97	Total Alkalinity	99.2				0.172	
SM 2540 C-97	TDS					5.58	
	TDS					3.10	
SM 4500 F-C-97	Fluoride	98.3	98.0	98.5			0.522
SM 5310 B-00	Organic Carbon	99.4	97.2	97.4			0.133

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2072893, 2072894, 2072895
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2072893, 2072894, 2072895
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2072893, 2072894, 2072895
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2072896, 2072897, 2072898
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2072896, 2072897, 2072898
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2072896, 2072897, 2072898
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2072896, 2072897, 2072898
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2072899, 2072900, 2072901
SM 2120 B / E31780	True Color measured at 450 nm	2072893, 2072894, 2072895
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2072893, 2072894, 2072895
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2072893, 2072894, 2072895
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2072893, 2072894, 2072895
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2072893, 2072894, 2072895
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2072896, 2072897, 2072898

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	03/27/2019			03/27/2019 15:19	Adrian Shelby	2072893, 2072894, 2072895
EPA 300.0 Rev. 2.1	03/27/2019			04/02/2019 20:30	Lipi Saha	2072893
	03/27/2019			04/02/2019 22:07	Lipi Saha	2072894
	03/27/2019			04/02/2019 22:55	Lipi Saha	2072895
EPA 350.1 Rev. 2.0	03/27/2019			04/02/2019 11:12	Ping Hua	2072896
	03/27/2019			04/02/2019 11:13	Ping Hua	2072897
	03/27/2019			04/02/2019 11:15	Ping Hua	2072898
EPA 351.2 Rev. 2.0	03/27/2019	03/29/2019 13:30	Jhamieka S. Greenwood	04/02/2019 09:52	Joseph Suarez	2072896
	03/27/2019	03/29/2019 13:30	Jhamieka S. Greenwood	04/02/2019 09:57	Joseph Suarez	2072897
	03/27/2019	03/29/2019 13:30	Jhamieka S. Greenwood	04/02/2019 09:59	Joseph Suarez	2072898
EPA 353.2 Rev. 2.0	03/27/2019			03/29/2019 11:50	Virginia P. Brown	2072896
	03/27/2019			03/29/2019 11:51	Virginia P. Brown	2072897
	03/27/2019			03/29/2019 11:52	Virginia P. Brown	2072898
EPA 365.1 Rev. 2.0	03/27/2019	04/01/2019 14:50	Sima Feizi	04/02/2019 18:07	Rosalyn Ballman	2072896
	03/27/2019	04/01/2019 14:50	Sima Feizi	04/02/2019 18:08	Rosalyn Ballman	2072897
	03/27/2019	04/01/2019 14:50	Sima Feizi	04/02/2019 18:09	Rosalyn Ballman	2072898
EPA 365.1 Rev. 2.0 dissolved	03/27/2019			03/27/2019 18:18	Jhamieka S. Greenwood	2072899
	03/27/2019			03/27/2019 18:19	Jhamieka S. Greenwood	2072900
	03/27/2019			03/27/2019 18:20	Jhamieka S. Greenwood	2072901
SM 2120 B	03/27/2019			03/27/2019 15:09	Mariam Hanna	2072893
	03/27/2019			03/27/2019 15:10	Mariam Hanna	2072894, 2072895
SM 2320 B-97	03/27/2019			04/04/2019 13:11	Dale L. Simmons	2072895
	03/27/2019			04/04/2019 16:18	Dale L. Simmons	2072893
	03/27/2019			04/04/2019 16:57	Dale L. Simmons	2072894
SM 2540 C-97	03/27/2019			03/29/2019 15:26	Yijie Li	2072893, 2072894, 2072895
SM 2540 D-97	03/27/2019			03/29/2019 15:26	Yijie Li	2072893, 2072894, 2072895
SM 4500 F-C-97	03/27/2019			04/04/2019 12:33	Dale L. Simmons	2072895
	03/27/2019			04/04/2019 16:18	Dale L. Simmons	2072893
	03/27/2019			04/04/2019 16:57	Dale L. Simmons	2072894
SM 5310 B-00	03/27/2019			03/28/2019 17:45	Julia Storbeck	2072896
	03/27/2019			03/28/2019 17:57	Julia Storbeck	2072897
	03/27/2019			03/28/2019 18:10	Julia Storbeck	2072898