Chemical Analysis Report

CEN-DIST-2019-02-14-02

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

Event Description: **Belle / Gordon / Van**
Request ID: **RQ-2019-02-11-39**
Customer: **CEN-DIST**
Project ID: **SMP**

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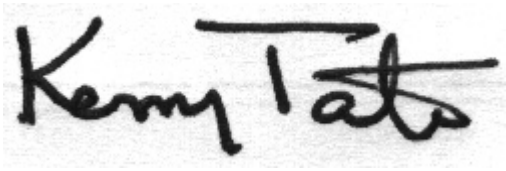
Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 05-MAR-2019 12:48



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 Van @ NW Corner of W Lobe **Collection Date/Time: 02/13/2019 10:25**

Field ID: G4CE0100 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2062599	EPA 180.1 Rev. 2.0	Turbidity	2.5		NTU	P358971	
	EPA 300.0 Rev. 2.1	Chloride	28	A	mg Cl/L	P359564	
		Sulfate	26	A	mg SO4/L	P359566	
	SM 2120 B	Color (true)	95		PCU	P358961	
	SM 2320 B-97	Total Alkalinity	15		mg CaCO3/L	P359109	
	SM 2540 C-97	TDS	122		mg/L	P359202	
	SM 2540 D-97	TSS	2	U	mg/L	P359124	
	SM 4500 F-C-97	Fluoride	0.28		mg F/L	P359111	
2062602	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P359267	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.81		mg N/L	P359022	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P359147	
	EPA 365.1 Rev. 2.0	Total-P	0.061		mg P/L	P359004	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P359402	
2062605	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.020		mg P/L	P358963	

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 Gordon @ Center **Collection Date/Time: 02/13/2019 12:30**

Field ID: G3CE0020 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2062600	EPA 180.1 Rev. 2.0	Turbidity	0.65		NTU	P358972	
	EPA 300.0 Rev. 2.1	Chloride	10		mg Cl/L	P359564	
		Sulfate	5.8		mg SO4/L	P359566	
	SM 2120 B	Color (true)	12		PCU	P358961	
	SM 2320 B-97	Total Alkalinity	46		mg CaCO3/L	P359109	
	SM 2540 C-97	TDS	76		mg/L	P359202	
	SM 2540 D-97	TSS	2	U	mg/L	P359124	
	SM 4500 F-C-97	Fluoride	0.084	I	mg F/L	P359111	
2062603	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P359267	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.46		mg N/L	P359022	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	I	mg N/L	P359147	
	EPA 365.1 Rev. 2.0	Total-P	0.020		mg P/L	P359004	
	SM 5310 B-00	Organic Carbon	4.1		mg C/L	P359402	
2062606	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P358963	

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 Belle @ Center of W Lobe **Collection Date/Time: 02/13/2019 13:28**

Field ID: G3CE0019 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2062601	EPA 180.1 Rev. 2.0	Turbidity	1.0		NTU	P358972	
	EPA 300.0 Rev. 2.1	Chloride	36		mg Cl/L	P359564	
		Sulfate	38		mg SO4/L	P359566	
	SM 2120 B	Color (true)	13	A	PCU	P358962	
	SM 2320 B-97	Total Alkalinity	36	A	mg CaCO3/L	P359109	
	SM 2540 C-97	TDS	158		mg/L	P359202	
	SM 2540 D-97	TSS	2	U	mg/L	P359124	
	SM 4500 F-C-97	Fluoride	0.12		mg F/L	P359111	
2062604	EPA 350.1 Rev. 2.0	Ammonia-N	0.017		mg N/L	P359342	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.63		mg N/L	P359022	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.15		mg N/L	P359147	
	EPA 365.1 Rev. 2.0	Total-P	0.027		mg P/L	P359005	
	SM 5310 B-00	Organic Carbon	5.3		mg C/L	P359402	
2062607	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P358966	

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: P358971

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P358972

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P359564

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P359566

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P359267

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P359342

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P359022

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359147

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P359004

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: P359005

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P358963

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P358966

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

Reference Method: SM 2120 B
Batch ID: P358961

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P358962

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P359109

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

Reference Method: SM 2540 C-97
Batch ID: P359202

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P359124

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P359111

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report
Method Blank Results

Reference Method: SM 5310 B-00
Batch ID: P359402

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: P359564

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P359566

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P359267

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P359342

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.1		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P359022

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359147

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P359004

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P359005

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: P358963

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: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P358966

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.5		P	90 - 110

Reference Method: SM 2120 B
Batch ID: P358961

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

Reference Method: SM 2120 B
Batch ID: P358962

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

Reference Method: SM 2320 B-97
Batch ID: P359109

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

Reference Method: SM 4500 F-C-97
Batch ID: P359111

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.8		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P359402

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.4		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P359564

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2062599	Chloride	99.0		P	90 - 110
2062701	Chloride	99.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P359566

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2062599	Sulfate	98.6		P	90 - 110
2062701	Sulfate	98.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P359267

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2062498	Ammonia-N	99.3	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P359342

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2062945	Ammonia-N	98.6	99.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P359022

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2062507	Kjeldahl Nitrogen	101	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359147

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2062501	NO2NO3-N	99.0	99.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P359004

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2062507	Total-P	106	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P359005

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2062643	Total-P	103	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P358963

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2062606	O-Phosphate-P	95.1	96.9	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P358966

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2062607	O-Phosphate-P	94.6	96.4	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P359111

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2062601	Fluoride	100	99.2	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P359402

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2062486	Organic Carbon	95.2	94.0	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P358971

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2062546	Turbidity	8.08	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P358972

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2062615	Turbidity	3.44	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P359564

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2062599	Chloride	0.402	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P359566

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2062599	Sulfate	0.514	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P359267

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2062498	Ammonia-N	0.499	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P359342

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2062945	Ammonia-N	1.14	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P359022

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2062507	Kjeldahl Nitrogen	0.491	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359147

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2062501	NO2NO3-N	0.0	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P359004

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2062507	Total-P	3.22	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P359005

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2062643	Total-P	0.581	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P358963

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2062606	O-Phosphate-P	1.88	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P358966

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2062607	O-Phosphate-P	1.88	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P358961

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2062503	Color (true)	1.37	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P358962

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2062601	Color (true)	1.03	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P359109

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2062601	Total Alkalinity	0.559	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P359202

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2062509	TDS	0.942	Sample	P	0 - 10

Quality Assurance Report
Precision

Reference Method: SM 4500 F-C-97
Batch ID: P359111

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2062601	Fluoride	0.933	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P359402

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2062486	Organic Carbon	0.858	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: A89426
Included Lab Sample IDs: 2062605, 2062606, 2062607

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.0	98.0	P/P	90 - 110
O-Phosphate-P	99.0	99.0	P/P	90 - 110
O-Phosphate-P	99.3	99.0	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A89427
Included Lab Sample IDs: 2062599, 2062600, 2062601

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	101	P/P	90 - 115
Color (true)	101	104	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A89430
Included Lab Sample IDs: 2062599, 2062600, 2062601

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	101	P/P	95 - 105
Turbidity	101	100	P/P	95 - 105

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A89481
Included Lab Sample IDs: 2062602, 2062603, 2062604

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.5	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A89483
Included Lab Sample IDs: 2062602

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	102	99.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A89484
Included Lab Sample IDs: 2062603, 2062604

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	99.8	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A89489
Included Lab Sample IDs: 2062599, 2062600, 2062601

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	100	P/P	90 - 110
Total Alkalinity	99.7	102	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: SM 4500 F-C-97
Run ID: A89489
Included Lab Sample IDs: 2062599, 2062600, 2062601

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A89498
Included Lab Sample IDs: 2062602, 2062603, 2062604

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A89542
Included Lab Sample IDs: 2062602, 2062603

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A89577
Included Lab Sample IDs: 2062604

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	99.1	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A89596
Included Lab Sample IDs: 2062602, 2062603, 2062604

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.6	93.4	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A89674
Included Lab Sample IDs: 2062599, 2062600, 2062601

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	103	103	P/P	90 - 110
Sulfate	103	104	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	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					8.08	
	Turbidity					3.44	
EPA 300.0 Rev. 2.1	Chloride	102	99.0	99.7		0.402	
	Sulfate	101	98.6	98.4		0.514	
EPA 350.1 Rev. 2.0	Ammonia-N	106	99.3	100			0.499
	Ammonia-N	99.1	98.6	99.9			1.14
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	109	101	102			0.491
EPA 353.2 Rev. 2.0	NO2NO3-N	99.0	99.0	99.0			0.0
EPA 365.1 Rev. 2.0	Total-P	105	106	102			3.22
	Total-P	102	103	102			0.581
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.2	95.1	96.9			1.88
	O-Phosphate-P	98.5	94.6	96.4			1.88
SM 2120 B	Color (true)	101				1.37	
	Color (true)	101				1.03	
SM 2320 B-97	Total Alkalinity	102				0.559	
SM 2540 C-97	TDS					0.942	
SM 4500 F-C-97	Fluoride	99.8	100	99.2			0.933
SM 5310 B-00	Organic Carbon	98.4	95.2	94.0			0.858

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2062599, 2062600, 2062601
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2062599, 2062600, 2062601
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2062599, 2062600, 2062601
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2062602, 2062603, 2062604
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2062602, 2062603, 2062604
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2062602, 2062603, 2062604
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2062602, 2062603, 2062604
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2062605, 2062606, 2062607
SM 2120 B / E31780	True Color measured at 450 nm	2062599, 2062600, 2062601
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2062599, 2062600, 2062601
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2062599, 2062600, 2062601
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2062599, 2062600, 2062601
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2062599, 2062600, 2062601
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2062602, 2062603, 2062604

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	02/14/2019			02/14/2019 17:36	Adrian Shelby	2062599, 2062600, 2062601
EPA 300.0 Rev. 2.1	02/14/2019			02/26/2019 04:26	Lipi Saha	2062599
	02/14/2019			02/26/2019 06:09	Lipi Saha	2062600
	02/14/2019			02/26/2019 06:24	Lipi Saha	2062601
EPA 350.1 Rev. 2.0	02/14/2019			02/20/2019 13:12	Ping Hua	2062602
	02/14/2019			02/20/2019 13:13	Ping Hua	2062603
	02/14/2019			02/21/2019 11:05	Ping Hua	2062604
EPA 351.2 Rev. 2.0	02/14/2019	02/15/2019 12:45	Adrian Shelby	02/18/2019 13:52	Joseph Suarez	2062602
	02/14/2019	02/15/2019 12:45	Adrian Shelby	02/18/2019 13:54	Joseph Suarez	2062603
	02/14/2019	02/15/2019 12:45	Adrian Shelby	02/18/2019 13:55	Joseph Suarez	2062604
EPA 353.2 Rev. 2.0	02/14/2019			02/19/2019 11:10	Beverly Y. Sanders	2062602
	02/14/2019			02/19/2019 11:11	Beverly Y. Sanders	2062603
	02/14/2019			02/19/2019 11:13	Beverly Y. Sanders	2062604
EPA 365.1 Rev. 2.0	02/14/2019	02/15/2019 13:25	Sima Feizi	02/18/2019 15:09	Rosalyn Ballman	2062602
	02/14/2019	02/15/2019 13:25	Sima Feizi	02/18/2019 16:26	Rosalyn Ballman	2062603
	02/14/2019	02/15/2019 13:25	Sima Feizi	02/18/2019 16:28	Rosalyn Ballman	2062604
EPA 365.1 Rev. 2.0 dissolved	02/14/2019			02/14/2019 14:57	Jhamieka S. Greenwood	2062606
	02/14/2019			02/14/2019 15:10	Jhamieka S. Greenwood	2062607
	02/14/2019			02/14/2019 15:41	Jhamieka S. Greenwood	2062605
SM 2120 B	02/14/2019			02/14/2019 16:13	Chelsea Hernandez	2062599, 2062600
	02/14/2019			02/14/2019 16:18	Chelsea Hernandez	2062601
SM 2320 B-97	02/14/2019			02/19/2019 02:48	Dale L. Simmons	2062601
	02/14/2019			02/19/2019 05:53	Dale L. Simmons	2062599
	02/14/2019			02/19/2019 06:05	Dale L. Simmons	2062600
SM 2540 C-97	02/14/2019			02/15/2019 17:10	Mariam Hanna	2062599, 2062600, 2062601
SM 2540 D-97	02/14/2019			02/15/2019 16:00	Mariam Hanna	2062599, 2062600, 2062601
SM 4500 F-C-97	02/14/2019			02/19/2019 02:39	Dale L. Simmons	2062601
	02/14/2019			02/19/2019 05:53	Dale L. Simmons	2062599
	02/14/2019			02/19/2019 06:05	Dale L. Simmons	2062600
SM 5310 B-00	02/14/2019			02/20/2019 11:44	Julia Storbeck	2062602
	02/14/2019			02/20/2019 11:58	Julia Storbeck	2062603
	02/14/2019			02/21/2019 12:14	Julia Storbeck	2062604