Chemical Analysis Report

CEN-DIST-2019-07-26-01

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

Event Description: **Hidden / Deaton / Okahumpka**
Request ID: **RQ-2019-07-22-38**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
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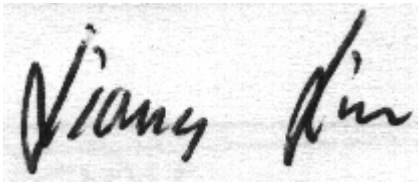
Certified by: Liang Lin, Environmental Administrator

Date Certified: 13-AUG-2019 15:16



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 OKAHUMPKA AT CENTER **Collection Date/Time: 07/25/2019 11:42**

Field ID: G4CE0159 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2106251	EPA 180.1 Rev. 2.0	Turbidity	1.3		NTU	P368027	
	EPA 300.0 Rev. 2.1	Chloride	34		mg Cl/L	P368187	
		Sulfate	0.21	I	mg SO4/L	P368189	
	SM 2120 B	Color (true)	18		PCU	P368033	
	SM 2320 B-97	Total Alkalinity	52		mg CaCO3/L	P368375	
	SM 2540 C-97	TDS	148		mg/L	P368473	
	SM 2540 D-97	TSS	2	U	mg/L	P368226	
	SM 4500 F-C-97	Fluoride	0.30		mg F/L	P368378	
2106254	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P368536	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.95		mg N/L	P368154	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P368131	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P368139	
	SM 5310 B-00	Organic Carbon	16		mg C/L	P368107	
2106257	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P368016	

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 DEATON @ CENTER **Collection Date/Time: 07/25/2019 12:11**

Field ID: G4CE0160 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2106252	EPA 180.1 Rev. 2.0	Turbidity	2.4		NTU	P368027	
	EPA 300.0 Rev. 2.1	Chloride	30	A	mg Cl/L	P368400	
		Sulfate	1.9	A	mg SO4/L	P368402	
	SM 2120 B	Color (true)	37		PCU	P368033	
	SM 2320 B-97	Total Alkalinity	33		mg CaCO3/L	P368375	
	SM 2540 C-97	TDS	128		mg/L	P368473	
	SM 2540 D-97	TSS	4	I	mg/L	P368226	
	SM 4500 F-C-97	Fluoride	0.13		mg F/L	P368378	
2106255	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P368536	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P368154	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P368132	
	EPA 365.1 Rev. 2.0	Total-P	0.045		mg P/L	P368140	
	SM 5310 B-00	Organic Carbon	18		mg C/L	P368107	
2106258	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P368016	

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: HIDDEN LAKE @ CENTER **Collection Date/Time: 07/25/2019 12:42**

Field ID: G4CE0158 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2106253	EPA 180.1 Rev. 2.0	Turbidity	7.2		NTU	P368027	
	EPA 300.0 Rev. 2.1	Chloride	20		mg Cl/L	P368400	
		Sulfate	0.98		mg SO4/L	P368402	
	SM 2120 B	Color (true)	45	A	PCU	P368033	
	SM 2320 B-97	Total Alkalinity	128		mg CaCO3/L	P368375	
	SM 2540 C-97	TDS	216	A	mg/L	P368474	
	SM 2540 D-97	TSS	7	IA	mg/L	P368227	
	SM 4500 F-C-97	Fluoride	0.14		mg F/L	P368378	
2106256	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P368679	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P368154	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P368132	
	EPA 365.1 Rev. 2.0	Total-P	0.016		mg P/L	P368140	
	SM 5310 B-00	Organic Carbon	18		mg C/L	P368107	
2106259	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P368016	

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: P368027

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P368187

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P368189

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P368400

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P368402

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P368536

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P368679

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P368154

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P368131

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P368132

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P368139

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P368140

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P368016

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

Reference Method: SM 2120 B
Batch ID: P368033

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P368375

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

Reference Method: SM 2540 C-97
Batch ID: P368473

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P368474

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P368226

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report
Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P368227

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P368378

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P368107

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: P368187

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P368189

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P368400

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	95.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P368402

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P368536

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P368679

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P368154

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P368131

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: P368132

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P368139

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	99.4		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P368140

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	90.6		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P368016

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

Reference Method: SM 2120 B
Batch ID: P368033

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

Reference Method: SM 2320 B-97
Batch ID: P368375

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	98 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P368378

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.2		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P368107

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

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P368187

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2106075	Chloride	96.7		P	90 - 110
2106164	Chloride	98.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P368189

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2106075	Sulfate	101		P	90 - 110
2106164	Sulfate	103		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P368400

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2106252	Chloride	95.1		P	90 - 110
2106349	Chloride	97.0		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P368402

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2106252	Sulfate	99.5		P	90 - 110
2106349	Sulfate	101		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P368536

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2106212	Ammonia-N	105	106	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P368679

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2106256	Ammonia-N	101	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P368154

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2106228	Kjeldahl Nitrogen	107	98.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P368131

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2106165	NO2NO3-N	97.0	97.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P368132

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P368132

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2106255	NO2NO3-N	100	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P368139

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2106254	Total-P	101	97.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P368140

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2106271	Total-P	96.6	97.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P368016

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2106258	O-Phosphate-P	93.6	95.0	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P368378

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2106631	Fluoride	98.4	98.4	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P368107

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2106255	Organic Carbon	110	96.6	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P368027

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2106211	Turbidity	0.404	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P368187

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2106164	Chloride	0.869	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P368189

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2106164	Sulfate	1.46	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P368400

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2106252	Chloride	1.13	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P368402

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2106252	Sulfate	1.59	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P368536

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2106212	Ammonia-N	0.525	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P368679

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2106256	Ammonia-N	0.273	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P368154

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2106228	Kjeldahl Nitrogen	6.32	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P368131

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2106165	NO2NO3-N	0.501	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P368132

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2106255	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P368139

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2106254	Total-P	3.32	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P368140

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2106271	Total-P	0.321	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P368016

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2106258	O-Phosphate-P	1.48	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P368033

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2106253	Color (true)	0.674	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P368375

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2106631	Total Alkalinity	0.0102	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
Batch ID: P368473

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2106237	TDS	1.16	Sample	P	0 - 10

Quality Assurance Report
Precision

Reference Method: SM 2540 C-97
Batch ID: P368474

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2106253	TDS	2.31	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P368378

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2106631	Fluoride	0.0	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P368107

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2106255	Organic Carbon	6.62	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: A93063
Included Lab Sample IDs: 2106257, 2106258, 2106259

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.4	98.9	P/P	90 - 110
O-Phosphate-P	98.7	98.4	P/P	90 - 110
O-Phosphate-P	98.9	95.6	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A93065
Included Lab Sample IDs: 2106251, 2106252, 2106253

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

Reference Method: SM 2120 B
Run ID: A93066
Included Lab Sample IDs: 2106251, 2106252, 2106253

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

Reference Method: SM 5310 B-00
Run ID: A93112
Included Lab Sample IDs: 2106254, 2106255, 2106256

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	100	100	P/P	90 - 110
Organic Carbon	100	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A93127
Included Lab Sample IDs: 2106254, 2106255, 2106256

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A93147
Included Lab Sample IDs: 2106251, 2106252, 2106253

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	95.3	96.6	P/P	90 - 110
Chloride	98.7	99.2	P/P	90 - 110
Sulfate	103	103	P/P	90 - 110
Sulfate	99.2	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A93156
Included Lab Sample IDs: 2106254, 2106255, 2106256

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.4	95.0	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A93186
Included Lab Sample IDs: 2106254, 2106255, 2106256

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.2	98.5	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A93228
Included Lab Sample IDs: 2106251, 2106252, 2106253

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	104	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A93228
Included Lab Sample IDs: 2106251, 2106252, 2106253

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A93303
Included Lab Sample IDs: 2106254, 2106255

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	104	107	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A93358
Included Lab Sample IDs: 2106256

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	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		Precision		
					LCS	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					0.404	
EPA 300.0 Rev. 2.1	Chloride	98.8	98.2	96.7		0.869	
	Chloride	95.9	95.1	97.0		1.13	
	Sulfate	102	103	101		1.46	
	Sulfate	99.9	99.5	101		1.59	
EPA 350.1 Rev. 2.0	Ammonia-N	101	105	106			0.525
	Ammonia-N	101	101	101			0.273
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.2	107	98.0			6.32
EPA 353.2 Rev. 2.0	NO2NO3-N	99.5	97.0	97.6			0.501
	NO2NO3-N	100	100	100			0.0
EPA 365.1 Rev. 2.0	Total-P	99.4	101	97.2			3.32
	Total-P	90.6	96.6	97.0			0.321
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.2	93.6	95.0			1.48
SM 2120 B	Color (true)	103				0.674	
SM 2320 B-97	Total Alkalinity	103				0.0102	
SM 2540 C-97	TDS					1.16	
	TDS					2.31	
SM 4500 F-C-97	Fluoride	98.2	98.4	98.4			0.0
SM 5310 B-00	Organic Carbon	102	110	96.6			6.62

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2106251, 2106252, 2106253
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2106251, 2106252, 2106253
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2106251, 2106252, 2106253
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2106254, 2106255, 2106256
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2106254, 2106255, 2106256
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2106254, 2106255, 2106256
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2106254, 2106255, 2106256
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2106257, 2106258, 2106259
SM 2120 B / E31780	True Color measured at 450 nm	2106251, 2106252, 2106253
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2106251, 2106252, 2106253
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2106251, 2106252, 2106253
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2106251, 2106252, 2106253
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2106251, 2106252, 2106253
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2106254, 2106255, 2106256

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	07/26/2019			07/26/2019 15:55	Adrian Shelby	2106251, 2106252, 2106253
EPA 300.0 Rev. 2.1	07/26/2019			07/31/2019 03:26	Jhamieka S. Greenwood	2106251
	07/26/2019			07/31/2019 12:23	Jhamieka S. Greenwood	2106252
	07/26/2019			07/31/2019 13:35	Jhamieka S. Greenwood	2106253
EPA 350.1 Rev. 2.0	07/26/2019			08/06/2019 19:09	Virginia P. Brown	2106254
	07/26/2019			08/06/2019 19:11	Virginia P. Brown	2106255
	07/26/2019			08/07/2019 13:30	Ping Hua	2106256
EPA 351.2 Rev. 2.0	07/26/2019	07/30/2019 11:45	Adrian Shelby	07/31/2019 10:00	Joseph Suarez	2106254
	07/26/2019	07/30/2019 11:45	Adrian Shelby	07/31/2019 10:02	Joseph Suarez	2106255
	07/26/2019	07/30/2019 11:45	Adrian Shelby	07/31/2019 10:03	Joseph Suarez	2106256
EPA 353.2 Rev. 2.0	07/26/2019			07/30/2019 10:55	Beverly Y. Sanders	2106254
	07/26/2019			07/30/2019 11:02	Beverly Y. Sanders	2106255
	07/26/2019			07/30/2019 11:08	Beverly Y. Sanders	2106256
EPA 365.1 Rev. 2.0	07/26/2019	07/30/2019 12:01	Vijayalakshmi Reddy	08/01/2019 09:50	Lipi Saha	2106254
	07/26/2019	07/30/2019 12:01	Vijayalakshmi Reddy	08/01/2019 09:54	Lipi Saha	2106255
	07/26/2019	07/30/2019 12:01	Vijayalakshmi Reddy	08/01/2019 09:55	Lipi Saha	2106256
EPA 365.1 Rev. 2.0 dissolved	07/26/2019			07/26/2019 15:35	Jhamieka S. Greenwood	2106258
	07/26/2019			07/26/2019 15:53	Jhamieka S. Greenwood	2106257
	07/26/2019			07/26/2019 16:01	Jhamieka S. Greenwood	2106259
SM 2120 B	07/26/2019			07/26/2019 17:17	Madeline Funaro	2106251
	07/26/2019			07/26/2019 17:18	Madeline Funaro	2106252
	07/26/2019			07/26/2019 17:20	Madeline Funaro	2106253
SM 2320 B-97	07/26/2019			08/02/2019 03:49	Dale L. Simmons	2106251
	07/26/2019			08/02/2019 04:01	Dale L. Simmons	2106252
	07/26/2019			08/02/2019 04:13	Dale L. Simmons	2106253
SM 2540 C-97	07/26/2019			07/30/2019 14:45	Sima Feizi	2106251, 2106252, 2106253
SM 2540 D-97	07/26/2019			07/30/2019 14:45	Sima Feizi	2106251, 2106252, 2106253
SM 4500 F-C-97	07/26/2019			08/02/2019 03:49	Dale L. Simmons	2106251
	07/26/2019			08/02/2019 04:01	Dale L. Simmons	2106252
	07/26/2019			08/02/2019 04:13	Dale L. Simmons	2106253
SM 5310 B-00	07/26/2019			07/29/2019 14:01	Madeline Funaro	2106255
	07/26/2019			07/29/2019 15:02	Madeline Funaro	2106256
	07/26/2019			07/29/2019 19:03	Madeline Funaro	2106254