

Chemical Analysis Report

CEN-DIST-2019-07-30-02

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

Event Description: **Ruth / Fox / Puzzle Drain + D&B**

Request ID: **RQ-2019-07-29-24**

Customer: **CEN-DIST**

Project ID: **SMP**

Send Reports to:

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

For additional information please contact

Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Kerry Tate, Ph.D.
Dr. rer. nat. Bettina Steinbock
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator

Date Certified: 23-AUG-2019 10:35



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 groups are included in this report: Metals and 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: Ruth Lake @ Center

Collection Date/Time: 07/29/2019 10:34

Field ID: G3CE0021

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2106975	EPA 180.1 Rev. 2.0	Turbidity	14	A	NTU	P368161	
	EPA 300.0 Rev. 2.1	Chloride	620		mg Cl/L	P368428	
		Sulfate	150		mg SO4/L	P368430	
	SM 2120 B	Color (true)	280		PCU	P368174	
	SM 2320 B-97	Total Alkalinity	51		mg CaCO3/L	P368560	
	SM 2540 C-97	TDS	1.43E+03		mg/L	P368580	
	SM 2540 D-97	TSS	7	I	mg/L	P368354	
	SM 4500 F-C-97	Fluoride	0.12		mg F/L	P368563	
2106977	EPA 350.1 Rev. 2.0	Ammonia-N	0.020		mg N/L	P368749	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.1		mg N/L	P368291	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P368206	
	EPA 365.1 Rev. 2.0	Total-P	0.070		mg P/L	P368214	
	SM 5310 B-00	Organic Carbon	28		mg C/L	P368263	
2106979	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.01	I	mg P/L	P368218	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.

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

Sample Location: Fox Lake @ Center of West Lobe

Collection Date/Time: 07/29/2019 11:44

Field ID: G3CE0022

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2106976	EPA 180.1 Rev. 2.0	Turbidity	2.2		NTU	P368161	
	EPA 300.0 Rev. 2.1	Chloride	210		mg Cl/L	P368428	
		Sulfate	27		mg SO4/L	P368430	
		Color (true)	310		PCU	P368174	
	SM 2320 B-97	Total Alkalinity	32		mg CaCO3/L	P368560	
	SM 2540 C-97	TDS	499		mg/L	P368580	
	SM 2540 D-97	TSS	2	U	mg/L	P368354	
	SM 4500 F-C-97	Fluoride	0.050	I	mg F/L	P368563	
2106978	EPA 350.1 Rev. 2.0	Ammonia-N	0.052		mg N/L	P368749	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P368291	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.053		mg N/L	P368206	
	EPA 365.1 Rev. 2.0	Total-P	0.049		mg P/L	P368214	
	SM 5310 B-00	Organic Carbon	26		mg C/L	P368263	
2106980	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.020		mg P/L	P368219	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.

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

Sample Location: Saint Johns River @ 300m DS of Hatbill Park Ramp

Collection Date/Time: 07/29/2019 10:47

Field ID: G3CE0006

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2106981	EPA 180.1 Rev. 2.0	Turbidity	16		NTU	P368161	
	EPA 300.0 Rev. 2.1	Chloride	610		mg Cl/L	P368428	
		Sulfate	140		mg SO4/L	P368430	
		Color (true)	220	A	PCU	P368176	
	SM 2320 B-97	Total Alkalinity	55		mg CaCO3/L	P368560	
	SM 2540 C-97	TDS	1.45E+03		mg/L	P368580	
	SM 2540 D-97	TSS	13		mg/L	P368354	
	SM 4500 F-C-97	Fluoride	0.098	I	mg F/L	P368563	
2106982	EPA 350.1 Rev. 2.0	Ammonia-N	0.095		mg N/L	P368749	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.1		mg N/L	P368291	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.009	I	mg N/L	P368207	
	EPA 365.1 Rev. 2.0	Total-P	0.072		mg P/L	P368214	
	SM 5310 B-00	Organic Carbon	29		mg C/L	P368263	
2106983	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.017		mg P/L	P368219	
2107004	EPA 200.7 Rev. 4.4	Barium	37.9		ug/L	P368250	
		Calcium	65.8		mg/L	P368250	
		Iron	2.59E+03		ug/L	P368250	
		Magnesium	42.2		mg/L	P368250	
		Potassium	10.4		mg/L	P368250	
		Sodium	363		mg/L	P368250	
		Zinc	5.0	U	ug/L	P368250	
	EPA 200.8 Rev. 5.4	Aluminum	85		ug/L	P368250	
		Antimony	0.11	I	ug/L	P368250	
		Arsenic	1.20		ug/L	P368250	
		Boron**	153		ug/L	P368250	
		Cadmium	0.020	U	ug/L	P368250	
		Chromium	0.40	U	ug/L	P368250	
		Copper	0.40	U	ug/L	P368250	
		Lead	0.71		ug/L	P368250	
		Nickel	0.50	U	ug/L	P368250	
		Selenium	0.20	U	ug/L	P368250	
		Silver	0.010	U	ug/L	P368250	
		Thallium	0.10	U	ug/L	P368250	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.

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

Sample Location: DS of Hatbill Park Ramp

Collection Date/Time: 07/29/2019 10:55

Field ID: G3CE0006_DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2106984	EPA 180.1 Rev. 2.0	Turbidity	15		NTU	P368161	
	EPA 300.0 Rev. 2.1	Chloride	610		mg Cl/L	P368428	
		Sulfate	130		mg SO4/L	P368430	
		Color (true)	210		PCU	P368176	
	SM 2320 B-97	Total Alkalinity	55		mg CaCO3/L	P368560	
	SM 2540 C-97	TDS	1.40E+03		mg/L	P368580	
	SM 2540 D-97	TSS	12		mg/L	P368354	
	SM 4500 F-C-97	Fluoride	0.097	I	mg F/L	P368563	
2106986	EPA 350.1 Rev. 2.0	Ammonia-N	0.092		mg N/L	P368749	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.0		mg N/L	P368367	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.009	I	mg N/L	P368207	
	EPA 365.1 Rev. 2.0	Total-P	0.075		mg P/L	P368214	
	SM 5310 B-00	Organic Carbon	29		mg C/L	P368263	
2106988	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.017		mg P/L	P368219	
2107005	EPA 200.7 Rev. 4.4	Barium	37.7		ug/L	P368250	
		Calcium	65.0		mg/L	P368250	
		Iron	2.48E+03		ug/L	P368250	
		Magnesium	41.6		mg/L	P368250	
		Potassium	10.3		mg/L	P368250	
		Sodium	342		mg/L	P368250	
		Zinc	5.0	U	ug/L	P368250	
	EPA 200.8 Rev. 5.4	Aluminum	76		ug/L	P368250	
		Antimony	0.11	I	ug/L	P368250	
		Arsenic	1.20		ug/L	P368250	
		Boron**	153		ug/L	P368250	
		Cadmium	0.020	U	ug/L	P368250	
		Chromium	0.40	U	ug/L	P368250	
		Copper	0.40	U	ug/L	P368250	
		Lead	0.66		ug/L	P368250	
		Nickel	0.50	U	ug/L	P368250	
		Selenium	0.22	I	ug/L	P368250	
		Silver	0.010	U	ug/L	P368250	
		Thallium	0.10	U	ug/L	P368250	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.

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

Sample Location: FB_07292019

Collection Date/Time: 07/29/2019 11:04

Field ID: FB_07292019

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2106985	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P368162	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P368428	
		Sulfate	0.20	U	mg SO4/L	P368430	
		Color (true)	2.5	U	PCU	P368174	
	SM 2120 B	Total Alkalinity	0.65	U	mg CaCO3/L	P368560	
	SM 2540 C-97	TDS	15	U	mg/L	P368580	
	SM 2540 D-97	TSS	2	U	mg/L	P368354	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P368563	
2106987	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P368749	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P368367	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P368207	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P368270	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P368263	
2106989	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P368219	
2107006	EPA 200.7 Rev. 4.4	Barium	1.0	U	ug/L	P368250	
		Calcium	0.075	U	mg/L	P368250	
		Iron	30	U	ug/L	P368250	
		Magnesium	0.040	U	mg/L	P368250	
		Potassium	0.30	U	mg/L	P368250	
		Sodium	0.50	U	mg/L	P368250	
		Zinc	5.0	U	ug/L	P368250	
		Aluminum	5.0	U	ug/L	P368250	
		Antimony	0.050	U	ug/L	P368250	
		Arsenic	0.050	U	ug/L	P368250	
		Boron**	2.0	U	ug/L	P368250	
		Cadmium	0.020	U	ug/L	P368250	
		Chromium	0.40	U	ug/L	P368250	
	EPA 200.8 Rev. 5.4	Copper	0.40	U	ug/L	P368250	
		Lead	0.20	U	ug/L	P368250	
		Nickel	0.50	U	ug/L	P368250	
		Selenium	0.20	U	ug/L	P368250	
		Silver	0.010	U	ug/L	P368250	
		Thallium	0.10	U	ug/L	P368250	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.

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: P368161

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P368162

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P368250

Component	Result	Code	Units
Barium	1.0	U	ug/L
Calcium	0.075	U	mg/L
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L
Potassium	0.30	U	mg/L
Sodium	0.50	U	mg/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P368250

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Boron	2.0	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Copper	0.40	U	ug/L
Lead	0.20	U	ug/L
Nickel	0.50	U	ug/L
Selenium	0.20	U	ug/L
Silver	0.010	U	ug/L
Thallium	0.10	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P368428

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P368430

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P368749

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P368291

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P368367

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P368206

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: P368207

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: P368214

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P368270

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P368218

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P368219

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 2120 B
Batch ID: P368174

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P368176

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P368560

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

Reference Method: SM 2540 C-97
Batch ID: P368580

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P368354

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P368563

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P368263

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P368250

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	99.3		P	85 - 115
Calcium	105		P	85 - 115
Iron	103		P	85 - 115
Magnesium	110		P	85 - 115
Potassium	107		P	85 - 115
Sodium	107		P	85 - 115
Zinc	97.3		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P368250

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	100		P	85 - 115
Antimony	95.8		P	85 - 115
Arsenic	99.7		P	85 - 115
Boron	103		P	85 - 115
Cadmium	98.8		P	85 - 115
Chromium	94.4		P	85 - 115
Copper	97.1		P	85 - 115
Lead	94.5		P	85 - 115
Nickel	96.4		P	85 - 115
Selenium	100		P	85 - 115
Silver	96.3		P	85 - 115
Thallium	97.3		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P368428

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	96.0		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P368430

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

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P368749

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	103		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P368291

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P368367

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P368206

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: P368207

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P368214

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	95.1		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P368270

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	96.4		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P368218

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P368219

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

Reference Method: SM 2120 B
Batch ID: P368174

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

Reference Method: SM 2120 B
Batch ID: P368176

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	105		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P368560

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	98 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P368563

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.9		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P368263

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.6		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P368250

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2106787	Barium	99.7	100	P/P	80 - 120
2106787	Calcium	104	104	P/P	80 - 120
2106787	Iron	103	103	P/P	80 - 120
2106787	Magnesium	108	108	P/P	80 - 120
2106787	Potassium	107	106	P/P	80 - 120
2106787	Sodium	101	102	P/P	80 - 120
2106787	Zinc	97.8	98.6	P/P	80 - 120
2107130	Barium	96.4		P	80 - 120
2107130	Calcium	99.0		P	80 - 120
2107130	Iron	101		P	80 - 120
2107130	Magnesium	103		P	80 - 120
2107130	Potassium	107		P	80 - 120
2107130	Sodium	107		P	80 - 120
2107130	Zinc	96.1		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P368250

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2106787	Aluminum	99.3	99.1	P/P	80 - 120
2106787	Antimony	96.1	94.8	P/P	80 - 120
2106787	Arsenic	101	100	P/P	80 - 120
2106787	Boron	102	101	P/P	80 - 120
2106787	Cadmium	100	99.6	P/P	80 - 120
2106787	Chromium	95.3	93.9	P/P	80 - 120
2106787	Copper	97.3	96.7	P/P	80 - 120
2106787	Lead	96.0	95.7	P/P	80 - 120
2106787	Nickel	96.0	96.5	P/P	80 - 120
2106787	Selenium	100	99.8	P/P	80 - 120
2106787	Silver	95.6	95.1	P/P	80 - 120
2106787	Thallium	99.7	100	P/P	80 - 120
2107130	Aluminum	101		P	80 - 120
2107130	Antimony	96.8		P	80 - 120
2107130	Arsenic	101		P	80 - 120
2107130	Boron	106		P	80 - 120
2107130	Cadmium	101		P	80 - 120
2107130	Chromium	93.4		P	80 - 120
2107130	Copper	96.7		P	80 - 120
2107130	Lead	94.6		P	80 - 120
2107130	Nickel	93.9		P	80 - 120
2107130	Selenium	102		P	80 - 120
2107130	Silver	96.2		P	80 - 120
2107130	Thallium	98.8		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P368428

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2106956	Chloride	96.2		P	90 - 110
2107024	Chloride	98.1		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P368430

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2107024	Sulfate	102		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P368749

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2106957	Ammonia-N	101	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P368291

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2106860	Kjeldahl Nitrogen	105	110	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P368367

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2107055	Kjeldahl Nitrogen	106	99.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P368206

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2106854	NO2NO3-N	98.5	97.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P368207

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2106962	NO2NO3-N	96.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P368214

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2106961	Total-P	93.1	97.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P368270

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2107055	Total-P	95.6	97.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P368218

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2106862	O-Phosphate-P	97.4	97.3	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P368219

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2106964	O-Phosphate-P	97.0	97.9	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P368563

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2107125	Fluoride	96.8	96.3	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P368263

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2106854	Organic Carbon	100	95.8	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P368161

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2106975	Turbidity	4.29	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P368162

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2107024	Turbidity	1.22	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P368250

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2106787	Barium	0.235	Spike	P	0 - 20
2106787	Calcium	0.241	Spike	P	0 - 20
2106787	Iron	0.178	Spike	P	0 - 20
2106787	Magnesium	0.315	Spike	P	0 - 20
2106787	Potassium	0.786	Spike	P	0 - 20
2106787	Sodium	0.547	Spike	P	0 - 20
2106787	Zinc	0.796	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P368250

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2106787	Aluminum	0.257	Spike	P	0 - 20
2106787	Antimony	1.38	Spike	P	0 - 20
2106787	Arsenic	0.771	Spike	P	0 - 20
2106787	Boron	0.695	Spike	P	0 - 20
2106787	Cadmium	0.439	Spike	P	0 - 20
2106787	Chromium	1.43	Spike	P	0 - 20
2106787	Copper	0.612	Spike	P	0 - 20
2106787	Lead	0.234	Spike	P	0 - 20
2106787	Nickel	0.494	Spike	P	0 - 20
2106787	Selenium	0.382	Spike	P	0 - 20
2106787	Silver	0.567	Spike	P	0 - 20
2106787	Thallium	0.434	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P368428

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2106956	Chloride	1.88	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P368430

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2106956	Sulfate	2.44	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P368749

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2106957	Ammonia-N	0.384	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P368291

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2106860	Kjeldahl Nitrogen	2.99	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P368367

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2107055	Kjeldahl Nitrogen	5.81	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P368206

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2106854	NO2NO3-N	0.565	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P368207

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2106962	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P368214

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2106961	Total-P	3.69	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P368270

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2107055	Total-P	1.65	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P368218

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2106862	O-Phosphate-P	0.0748	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P368219

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2106964	O-Phosphate-P	0.783	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P368174

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2107024	Color (true)	0.500	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P368176

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2106981	Color (true)	1.20	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P368560

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2107125	Total Alkalinity	0.400	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
Batch ID: P368580

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2106959	TDS	1.74	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P368563

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2107125	Fluoride	0.482	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P368263

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2106854	Organic Carbon	3.39	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: A93137

Included Lab Sample IDs: 2106975, 2106976, 2106981, 2106984, 2106985

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

Reference Method: SM 2120 B

Run ID: A93142

Included Lab Sample IDs: 2106975, 2106976, 2106981, 2106984, 2106985

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	104	P/P	90 - 115
Color (true)	103	105	P/P	90 - 115
Color (true)	105	103	P/P	90 - 115

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A93147

Included Lab Sample IDs: 2106975, 2106976, 2106981, 2106984, 2106985

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	96.1	96.7	P/P	90 - 110
Sulfate	101	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A93160

Included Lab Sample IDs: 2106977, 2106978, 2106982, 2106986, 2106987

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 365.1 Rev. 2.0 dissolved

Run ID: A93165

Included Lab Sample IDs: 2106979, 2106980, 2106983, 2106988, 2106989

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.9	95.6	P/P	90 - 110
O-Phosphate-P	99.2	98.9	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A93180

Included Lab Sample IDs: 2106977, 2106978, 2106982, 2106986, 2106987

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.0	97.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A93188

Included Lab Sample IDs: 2106977, 2106982, 2106986

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A93190

Included Lab Sample IDs: 2106978

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.2	97.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A93233

Included Lab Sample IDs: 2106987

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.0	98.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A93244

Included Lab Sample IDs: 2106977, 2106978, 2106982

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	107	98.8	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A93246

Included Lab Sample IDs: 2107004, 2107005, 2107006

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	100	101	P/P	95 - 105
Barium	101	101	P/P	90 - 110
Calcium	100	101	P/P	95 - 105
Calcium	99.9	99.8	P/P	90 - 110
Iron	101	101	P/P	95 - 105
Iron	101	101	P/P	90 - 110
Magnesium	101	103	P/P	95 - 105
Magnesium	102	101	P/P	90 - 110
Potassium	101	100	P/P	95 - 105
Potassium	102	101	P/P	90 - 110
Sodium	101	102	P/P	95 - 105
Sodium	103	102	P/P	90 - 110
Zinc	102	101	P/P	90 - 110
Zinc	99.9	101	P/P	95 - 105

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A93269

Included Lab Sample IDs: 2107005

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sodium	97.8	95.8	P/P	95 - 105

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A93275

Included Lab Sample IDs: 2106986, 2106987

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.4	99.1	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97

Run ID: A93315

Included Lab Sample IDs: 2106975, 2106976, 2106981, 2106984, 2106985

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	107	P/P	90 - 110
Total Alkalinity	104	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A93315

Included Lab Sample IDs: 2106975, 2106976, 2106981, 2106984, 2106985

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A93374

Included Lab Sample IDs: 2106977, 2106978, 2106982, 2106986, 2106987

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	104	103	P/P	90 - 110
Ammonia-N	105	106	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A93385

Included Lab Sample IDs: 2107004, 2107005, 2107006

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	103	101	P/P	90 - 110
Aluminum	103	102	P/P	90 - 110
Antimony	92.9	93.0	P/P	90 - 110
Antimony	93.8	94.0	P/P	90 - 110
Arsenic	99.4	99.2	P/P	90 - 110
Arsenic	100	99.3	P/P	90 - 110
Boron	104	103	P/P	90 - 110
Boron	105	101	P/P	90 - 110
Cadmium	98.3	98.5	P/P	90 - 110
Cadmium	99.4	99.4	P/P	90 - 110
Chromium	94.3	93.6	P/P	90 - 110
Chromium	96.0	95.3	P/P	90 - 110
Lead	96.5	95.7	P/P	90 - 110
Lead	97.4	96.2	P/P	90 - 110
Nickel	96.3	95.9	P/P	90 - 110
Nickel	98.4	97.4	P/P	90 - 110
Selenium	100	100	P/P	90 - 110
Selenium	101	99.9	P/P	90 - 110
Silver	94.4	94.3	P/P	90 - 110
Silver	95.5	94.3	P/P	90 - 110
Thallium	93.2	93.5	P/P	90 - 110
Thallium	95.5	93.8	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A93703

Included Lab Sample IDs: 2107004, 2107005, 2107006

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Copper	98.7	98.1	P/P	90 - 110
Copper	99.5	98.6	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 SMP	MS
			LCS				
EPA 180.1 Rev. 2.0	Turbidity					4.29	
	Turbidity					1.22	
EPA 200.7 Rev. 4.4	Barium	99.3	99.7	100	96.4		0.235
	Calcium	105	104	104	99.0		0.241
	Iron	103	103	103	101		0.178
	Magnesium	110	108	108	103		0.315
	Potassium	107	107	106	107		0.786
	Sodium	107	101	102	107		0.547
	Zinc	97.3	97.8	98.6	96.1		0.796
EPA 200.8 Rev. 5.4	Aluminum	100	99.3	99.1	101		0.257
	Antimony	95.8	96.1	94.8	96.8		1.38
	Arsenic	99.7	101	100	101		0.771
	Boron	103	102	101	106		0.695
	Cadmium	98.8	100	99.6	101		0.439
	Chromium	94.4	95.3	93.9	93.4		1.43
	Copper	97.1	97.3	96.7	96.7		0.612
	Lead	94.5	96.0	95.7	94.6		0.234
	Nickel	96.4	96.0	96.5	93.9		0.494
	Selenium	100	100	99.8	102		0.382
	Silver	96.3	95.6	95.1	96.2		0.567
	Thallium	97.3	99.7	100	98.8		0.434
EPA 300.0 Rev. 2.1	Chloride	96.0	96.2	98.1		1.88	
	Sulfate	99.2	102			2.44	
EPA 350.1 Rev. 2.0	Ammonia-N	103	101	102			0.384
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.1	105	110			2.99
	Kjeldahl Nitrogen	102	106	99.5			5.81
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	99.5	98.5	97.5			0.565
	NO ₂ NO ₃ -N	99.5	96.5				0.0
EPA 365.1 Rev. 2.0	Total-P	95.1	93.1	97.1			3.69
	Total-P	96.4	95.6	97.2			1.65
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	97.4	97.3			0.0748
	O-Phosphate-P	104	97.0	97.9			0.783
SM 2120 B	Color (true)	103				0.500	
	Color (true)	105				1.20	
SM 2320 B-97	Total Alkalinity	104				0.400	
SM 2540 C-97	TDS					1.74	
SM 4500 F-C-97	Fluoride	95.9	96.8	96.3			0.482
SM 5310 B-00	Organic Carbon	95.6	100	95.8			3.39

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2106975, 2106976, 2106981, 2106984, 2106985
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2107004, 2107005, 2107006
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2107004, 2107005, 2107006
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2106975, 2106976, 2106981, 2106984, 2106985
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2106975, 2106976, 2106981, 2106984, 2106985
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2106977, 2106978, 2106982, 2106986, 2106987

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2106977, 2106978, 2106982, 2106986, 2106987
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2106977, 2106978, 2106982, 2106986, 2106987
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2106977, 2106978, 2106982, 2106986, 2106987
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2106979, 2106980, 2106983, 2106988, 2106989
SM 2120 B / E31780	True Color measured at 450 nm	2106975, 2106976, 2106981, 2106984, 2106985
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2106975, 2106976, 2106981, 2106984, 2106985
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2106975, 2106976, 2106981, 2106984, 2106985
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2106975, 2106976, 2106981, 2106984, 2106985
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2106975, 2106976, 2106981, 2106984, 2106985
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2106977, 2106978, 2106982, 2106986, 2106987

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	07/30/2019			07/30/2019 17:05	Adrian Shelby	2106975, 2106976, 2106981, 2106984, 2106985
EPA 200.7 Rev. 4.4	07/30/2019	07/31/2019 18:00	Elliott D. Healy	08/02/2019 12:46	Betina Topolski	2107006
	07/30/2019	07/31/2019 18:00	Elliott D. Healy	08/02/2019 15:55	Betina Topolski	2107004
	07/30/2019	07/31/2019 18:00	Elliott D. Healy	08/02/2019 16:01	Betina Topolski	2107004
	07/30/2019	07/31/2019 18:00	Elliott D. Healy	08/02/2019 16:08	Betina Topolski	2107005
	07/30/2019	07/31/2019 18:00	Elliott D. Healy	08/05/2019 11:48	Betina Topolski	2107005
EPA 200.8 Rev. 5.4	07/30/2019	07/31/2019 18:00	Elliott D. Healy	08/08/2019 22:20	Robert K Palmer	2107006
	07/30/2019	07/31/2019 18:00	Elliott D. Healy	08/09/2019 02:34	Robert K Palmer	2107004
	07/30/2019	07/31/2019 18:00	Elliott D. Healy	08/09/2019 02:44	Robert K Palmer	2107005
	07/30/2019	07/31/2019 18:00	Elliott D. Healy	08/21/2019 17:45	Martin Acosta	2107006
	07/30/2019	07/31/2019 18:00	Elliott D. Healy	08/21/2019 21:53	Martin Acosta	2107004
	07/30/2019	07/31/2019 18:00	Elliott D. Healy	08/21/2019 22:03	Martin Acosta	2107005
EPA 300.0 Rev. 2.1	07/30/2019			08/02/2019 13:23	Jhamieka S. Greenwood	2106975
	07/30/2019			08/02/2019 13:35	Jhamieka S. Greenwood	2106976
	07/30/2019			08/02/2019 13:47	Jhamieka S. Greenwood	2106981
	07/30/2019			08/02/2019 13:59	Jhamieka S. Greenwood	2106984
	07/30/2019			08/02/2019 14:11	Jhamieka S. Greenwood	2106985
EPA 350.1 Rev. 2.0	07/30/2019			08/08/2019 13:31	Ping Hua	2106977
	07/30/2019			08/08/2019 13:32	Ping Hua	2106978
	07/30/2019			08/08/2019 13:34	Ping Hua	2106982
	07/30/2019			08/08/2019 13:35	Ping Hua	2106986
	07/30/2019			08/08/2019 15:03	Ping Hua	2106987
EPA 351.2 Rev. 2.0	07/30/2019	08/01/2019 18:00	Adrian Shelby	08/02/2019 17:37	Joseph Suarez	2106977
	07/30/2019	08/01/2019 18:00	Adrian Shelby	08/02/2019 17:39	Joseph Suarez	2106978
	07/30/2019	08/01/2019 18:00	Adrian Shelby	08/02/2019 17:40	Joseph Suarez	2106982
	07/30/2019	08/02/2019 12:30	Adrian Shelby	08/05/2019 14:32	Joseph Suarez	2106986
	07/30/2019	08/02/2019 12:30	Adrian Shelby	08/05/2019 14:34	Joseph Suarez	2106987
EPA 353.2 Rev. 2.0	07/30/2019			07/31/2019 10:31	Beverly Y. Sanders	2106977
	07/30/2019			07/31/2019 10:33	Beverly Y. Sanders	2106978
	07/30/2019			07/31/2019 10:47	Beverly Y. Sanders	2106982
	07/30/2019			07/31/2019 10:48	Beverly Y. Sanders	2106986
	07/30/2019			07/31/2019 10:49	Beverly Y. Sanders	2106987
EPA 365.1 Rev. 2.0	07/30/2019	07/31/2019 12:24	Vijayalakshmi Reddy	08/01/2019 12:03	Lipi Saha	2106977
	07/30/2019	07/31/2019 12:24	Vijayalakshmi Reddy	08/01/2019 12:05	Lipi Saha	2106982
	07/30/2019	07/31/2019 12:24	Vijayalakshmi Reddy	08/01/2019 12:06	Lipi Saha	2106986
	07/30/2019	07/31/2019 12:24	Vijayalakshmi Reddy	08/01/2019 12:39	Lipi Saha	2106978
	07/30/2019	08/01/2019 11:17	Vijayalakshmi Reddy	08/02/2019 13:44	Lipi Saha	2106987
EPA 365.1 Rev. 2.0 dissolved	07/30/2019			07/30/2019 17:48	Jhamieka S. Greenwood	2106989
	07/30/2019			07/30/2019 17:50	Jhamieka S. Greenwood	2106983

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 365.1 Rev. 2.0 dissolved	07/30/2019			07/30/2019 17:51	Jhamieka S. Greenwood	2106988
	07/30/2019			07/30/2019 17:53	Jhamieka S. Greenwood	2106980
	07/30/2019			07/30/2019 18:15	Jhamieka S. Greenwood	2106979
SM 2120 B	07/30/2019			07/30/2019 18:02	Madeline Funaro	2106985
	07/30/2019			07/30/2019 18:24	Madeline Funaro	2106975, 2106976
	07/30/2019			07/30/2019 18:34	Madeline Funaro	2106981
SM 2320 B-97	07/30/2019			07/30/2019 18:35	Madeline Funaro	2106984
	07/30/2019			08/06/2019 08:26	Dale L. Simmons	2106976
	07/30/2019			08/06/2019 09:22	Dale L. Simmons	2106985
	07/30/2019			08/06/2019 10:39	Dale L. Simmons	2106975
	07/30/2019			08/06/2019 10:53	Dale L. Simmons	2106981
	07/30/2019			08/06/2019 11:05	Dale L. Simmons	2106984
SM 2540 C-97	07/30/2019			07/31/2019 17:30	Blanca Fach	2106975, 2106976, 2106981, 2106984, 2106985
SM 2540 D-97	07/30/2019			07/31/2019 16:50	Blanca Fach	2106975, 2106976, 2106981, 2106984, 2106985
SM 4500 F-C-97	07/30/2019			08/06/2019 08:26	Dale L. Simmons	2106976
	07/30/2019			08/06/2019 09:22	Dale L. Simmons	2106985
	07/30/2019			08/06/2019 10:39	Dale L. Simmons	2106975
	07/30/2019			08/06/2019 10:53	Dale L. Simmons	2106981
	07/30/2019			08/06/2019 11:05	Dale L. Simmons	2106984
	07/30/2019			08/01/2019 00:48	Lauren Lees	2106977
SM 5310 B-00	07/30/2019			08/01/2019 01:00	Lauren Lees	2106978
	07/30/2019			08/01/2019 01:12	Lauren Lees	2106982
	07/30/2019			08/01/2019 01:25	Lauren Lees	2106986
	07/30/2019			08/01/2019 01:37	Lauren Lees	2106987