

Chemical Analysis Report

NE-DIST-2019-03-15-01

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

Event Description: **UEC 2019**
Request ID: **RQ-2019-03-11-14**
Customer: **NE-DIST**
Project ID: **SMP**

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Certified by: Colin Wright, Program Administrator

Date Certified: 04-APR-2019 13:59

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed on a light gray rectangular background.

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: Palm Coast Canal 0.6mi down from road

Collection Date/Time: 03/14/2019 10:45

Field ID: G5NE0026

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2070405	EPA 180.1 Rev. 2.0	Turbidity	3.5		NTU	P360516	
	EPA 300.0 Rev. 2.1	Chloride	39		mg Cl/L	P361008	
		Sulfate	11		mg SO4/L	P361013	
	SM 2120 B	Color (true)	130		PCU	P360521	
	SM 2320 B-97	Total Alkalinity	116		mg CaCO3/L	P360980	RPD
	SM 2540 C-97	TDS	230		mg/L	P361034	
	SM 2540 D-97	TSS	4	I	mg/L	P361026	
	SM 4500 F-C-97	Fluoride	0.090	I	mg F/L	P360993	
2070408	EPA 350.1 Rev. 2.0	Ammonia-N	0.15		mg N/L	P360675	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.76		mg N/L	P360873	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.060		mg N/L	P360782	
	EPA 365.1 Rev. 2.0	Total-P	0.14		mg P/L	P360841	
	SM 5310 B-00	Organic Carbon	17		mg C/L	P360906	
2070411	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.072		mg P/L	P360528	

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: Palm Coast Canal 0.6mi down from road

Collection Date/Time: 03/14/2019 10:50

Field ID: G5NE0026 DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2070406	EPA 180.1 Rev. 2.0	Turbidity	3.6		NTU	P360517	
	EPA 300.0 Rev. 2.1	Chloride	41		mg Cl/L	P361008	
		Sulfate	11		mg SO4/L	P361013	
	SM 2120 B	Color (true)	130		PCU	P360521	
	SM 2320 B-97	Total Alkalinity	117		mg CaCO3/L	P360980	RPD
	SM 2540 C-97	TDS	242		mg/L	P361034	
	SM 2540 D-97	TSS	5	I	mg/L	P361026	
	SM 4500 F-C-97	Fluoride	0.088	I	mg F/L	P360993	
2070409	EPA 350.1 Rev. 2.0	Ammonia-N	0.15		mg N/L	P360675	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.79		mg N/L	P360873	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.059		mg N/L	P360782	
	EPA 365.1 Rev. 2.0	Total-P	0.15		mg P/L	P360841	
	SM 5310 B-00	Organic Carbon	17		mg C/L	P360906	
2070412	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.072		mg P/L	P360528	

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: CRACKER BR. @ CR 204

Collection Date/Time: 03/14/2019 09:50

Field ID: 27010060

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2070407	EPA 180.1 Rev. 2.0	Turbidity	3.2		NTU	P360517	
	EPA 300.0 Rev. 2.1	Chloride	46		mg Cl/L	P361008	
		Sulfate	15		mg SO4/L	P361013	
		Color (true)	180		PCU	P360521	
	SM 2320 B-97	Total Alkalinity	51		mg CaCO3/L	P360980	RPD
	SM 2540 C-97	TDS	197	A	mg/L	P361034	
	SM 2540 D-97	TSS	3	IA	mg/L	P361026	
	SM 4500 F-C-97	Fluoride	0.077	I	mg F/L	P360993	
2070410	EPA 350.1 Rev. 2.0	Ammonia-N	0.028		mg N/L	P360675	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.47		mg N/L	P360873	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.027		mg N/L	P360782	
	EPA 365.1 Rev. 2.0	Total-P	0.098		mg P/L	P360841	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P360906	
2070413	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.073		mg P/L	P360528	

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: MOSES CR AT US 1

Collection Date/Time: 03/14/2019 09:20

Field ID: 27010050

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2070399	EPA 180.1 Rev. 2.0	Turbidity	4.6		NTU	P360516	
	EPA 300.0 Rev. 2.1	Chloride	54		mg Cl/L	P361008	
		Sulfate	6.5		mg SO4/L	P361013	
		Color (true)	380		PCU	P360521	
	SM 2320 B-97	Total Alkalinity	79		mg CaCO3/L	P360980	RPD
	SM 2540 C-97	TDS	264		mg/L	P361033	
	SM 2540 D-97	TSS	6	I	mg/L	P361025	
	SM 4500 F-C-97	Fluoride	0.11		mg F/L	P360993	
2070400	EPA 350.1 Rev. 2.0	Ammonia-N	0.043		mg N/L	P360675	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P360873	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.041		mg N/L	P360781	
	EPA 365.1 Rev. 2.0	Total-P	0.090		mg P/L	P360841	
	SM 5310 B-00	Organic Carbon	35		mg C/L	P360906	
2070401	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.054		mg P/L	P360528	
2070426	EPA 200.7 Rev. 4.4	Barium	20.9		ug/L	P360716	
		Calcium	37.9		mg/L	P360716	
		Iron	1.36E+03		ug/L	P360716	
		Magnesium	4.80		mg/L	P360716	
	EPA 200.8 Rev. 5.4	Potassium	0.60	I	mg/L	P360716	
		Sodium	32.0		mg/L	P360716	
		Zinc	5.0	U	ug/L	P360716	
		Aluminum	327		ug/L	P360716	
		Antimony	0.076	I	ug/L	P360716	
		Arsenic	0.97		ug/L	P360716	
		Boron**	24.8		ug/L	P360716	
		Cadmium	0.020	U	ug/L	P360716	
		Chromium	0.73	I	ug/L	P360716	
		Copper	0.43	I	ug/L	P360716	
		Lead	0.44		ug/L	P360716	
		Nickel	0.55	I	ug/L	P360716	
		Selenium	0.21	I	ug/L	P360716	
		Silver	0.010	U	ug/L	P360716	
		Thallium	0.10	U	ug/L	P360716	

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: LAKE VEDRA AT SOLANA RD

Collection Date/Time: 03/14/2019 13:50

Field ID: fb 03142019

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2070414	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P360517	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P361008	
		Sulfate	0.20	U	mg SO4/L	P361013	
		Color (true)	2.5	U	PCU	P360521	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P360980	RPD
	SM 2540 C-97	TDS	15	U	mg/L	P361033	
	SM 2540 D-97	TSS	2	U	mg/L	P361025	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P360993	
2070415	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P360675	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P360873	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.007	I	mg N/L	P360782	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P360841	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P360906	
2070416	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P360528	
2070428	EPA 200.7 Rev. 4.4	Barium	1.0	U	ug/L	P360716	
		Calcium	0.075	U	mg/L	P360716	
		Iron	30	U	ug/L	P360716	
		Magnesium	0.040	U	mg/L	P360716	
		Potassium	0.30	U	mg/L	P360716	
		Sodium	0.50	U	mg/L	P360716	
		Zinc	5.0	U	ug/L	P360716	
	EPA 200.8 Rev. 5.4	Aluminum	5.0	U	ug/L	P360716	
		Antimony	0.050	U	ug/L	P360716	
		Arsenic	0.050	U	ug/L	P360716	
		Boron**	2.0	U	ug/L	P360716	
		Cadmium	0.020	U	ug/L	P360716	
		Chromium	0.40	U	ug/L	P360716	
		Copper	0.40	U	ug/L	P360716	
		Lead	0.20	U	ug/L	P360716	
		Nickel	0.50	U	ug/L	P360716	
		Selenium	0.20	U	ug/L	P360716	
		Silver	0.010	U	ug/L	P360716	
		Thallium	0.10	U	ug/L	P360716	

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.

EPA 350.1 Rev. 2.0: The result was confirmed on 03/19/2019.

EPA 353.2 Rev. 2.0: The result was confirmed on 03/20/2019.

Sample Location: LAKE VEDRA AT SOLANA RD

Collection Date/Time: 03/14/2019 13:45

Field ID: 27010180

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2070402	EPA 180.1 Rev. 2.0	Turbidity	7.9		NTU	P360516	
	EPA 300.0 Rev. 2.1	Chloride	130		mg Cl/L	P361008	
		Sulfate	95		mg SO4/L	P361013	
		Color (true)	55		PCU	P360521	
	SM 2320 B-97	Total Alkalinity	137		mg CaCO3/L	P360980	RPD
	SM 2540 C-97	TDS	462		mg/L	P361033	
	SM 2540 D-97	TSS	11		mg/L	P361025	
	SM 4500 F-C-97	Fluoride	0.28		mg F/L	P360993	
2070403	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P360675	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.7		mg N/L	P360873	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P360782	
	EPA 365.1 Rev. 2.0	Total-P	0.36		mg P/L	P360841	
	SM 5310 B-00	Organic Carbon	17		mg C/L	P360906	
2070404	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.20		mg P/L	P360528	
2070427	EPA 200.7 Rev. 4.4	Barium	12.3		ug/L	P360716	
		Calcium	67.5		mg/L	P360716	
		Iron	33	I	ug/L	P360716	
		Magnesium	20.3		mg/L	P360716	
		Potassium	8.6		mg/L	P360716	
		Sodium	81.7		mg/L	P360716	
		Zinc	5.0	U	ug/L	P360716	
	EPA 200.8 Rev. 5.4	Aluminum	83		ug/L	P360716	
		Antimony	0.20		ug/L	P360716	
		Arsenic	8.76		ug/L	P360716	
		Boron**	73.5		ug/L	P360716	
		Cadmium	0.020	U	ug/L	P360716	
		Chromium	0.86	I	ug/L	P360716	
		Copper	4.20		ug/L	P360716	
		Lead	0.20	U	ug/L	P360716	
		Nickel	0.51	I	ug/L	P360716	
		Selenium	0.20	U	ug/L	P360716	
		Silver	0.010	U	ug/L	P360716	
		Thallium	0.10	U	ug/L	P360716	

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: P360516

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P360517

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P360716

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: P360716

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: P361008

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P361013

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: P360675

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P360873

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P360781

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P360782

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P360841

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P360528

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

Reference Method: SM 2120 B
Batch ID: P360521

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P360980

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

Reference Method: SM 2540 C-97
Batch ID: P361033

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 C-97
Batch ID: P361034

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P361025

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P361026

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P360993

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P360906

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: P360716

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	101		P	85 - 115
Calcium	102		P	85 - 115
Iron	106		P	85 - 115
Magnesium	102		P	85 - 115
Potassium	105		P	85 - 115
Sodium	101		P	85 - 115
Zinc	99.6		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P360716

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	91.9		P	85 - 115
Antimony	93.6		P	85 - 115
Arsenic	95.9		P	85 - 115
Boron	92.7		P	85 - 115
Cadmium	93.0		P	85 - 115
Chromium	89.2		P	85 - 115
Copper	97.2		P	85 - 115
Lead	91.1		P	85 - 115
Nickel	101		P	85 - 115
Selenium	93.5		P	85 - 115
Silver	98.9		P	85 - 115
Thallium	93.4		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P361008

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P361013

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P360675

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: P360873

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P360781

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: P360782

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: P360841

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P360528

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	95.3		P	90 - 110

Reference Method: SM 2120 B
Batch ID: P360521

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

Reference Method: SM 2320 B-97
Batch ID: P360980

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P360993

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.2		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P360906

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.0		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P360716

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2070603	Barium	101	99.9	P/P	80 - 120
2070603	Calcium	102		P	80 - 120
2070603	Iron	105	107	P/P	80 - 120
2070603	Magnesium	100		P	80 - 120
2070603	Potassium	105	105	P/P	80 - 120
2070603	Sodium	101		P	80 - 120
2070603	Zinc	99.4	98.0	P/P	80 - 120
2070729	Barium	99.2		P	80 - 120
2070729	Calcium	102		P	80 - 120
2070729	Iron	105		P	80 - 120
2070729	Magnesium	102		P	80 - 120
2070729	Potassium	107		P	80 - 120
2070729	Sodium	102		P	80 - 120
2070729	Zinc	101		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P360716

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2070603	Aluminum	92.1	91.9	P/P	80 - 120
2070603	Antimony	93.2	93.1	P/P	80 - 120
2070603	Arsenic	95.8	96.1	P/P	80 - 120
2070603	Boron	93.7	93.0	P/P	80 - 120
2070603	Cadmium	94.5	94.9	P/P	80 - 120
2070603	Chromium	89.1	88.9	P/P	80 - 120
2070603	Copper	97.1	95.8	P/P	80 - 120
2070603	Lead	92.6	92.6	P/P	80 - 120
2070603	Nickel	95.9	95.1	P/P	80 - 120
2070603	Selenium	92.7	92.5	P/P	80 - 120
2070603	Silver	99.3	100	P/P	80 - 120
2070603	Thallium	96.7	97.6	P/P	80 - 120
2070729	Aluminum	90.6		P	80 - 120
2070729	Antimony	93.0		P	80 - 120
2070729	Arsenic	97.3		P	80 - 120
2070729	Boron	94.1		P	80 - 120
2070729	Cadmium	93.8		P	80 - 120
2070729	Chromium	88.2		P	80 - 120
2070729	Copper	94.5		P	80 - 120
2070729	Lead	91.6		P	80 - 120
2070729	Nickel	94.6		P	80 - 120
2070729	Selenium	95.4		P	80 - 120
2070729	Silver	98.8		P	80 - 120
2070729	Thallium	95.0		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P361008

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2070128	Chloride	105		P	90 - 110
2070399	Chloride	102		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P361013

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2070399	Sulfate	107		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P360675

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2070392	Ammonia-N	102	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P360873

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2070392	Kjeldahl Nitrogen	95.2	98.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P360781

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2070210	NO2NO3-N	100	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P360782

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2070403	NO2NO3-N	97.5	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P360841

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2070443	Total-P	99.0	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P360528

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2070413	O-Phosphate-P	93.8	95.5	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P360993

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2070482	Fluoride	96.6	96.0	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P360906

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2070129	Organic Carbon	96.8	96.9	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P360516

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2070391	Turbidity	0.264	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P360517

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2070477	Turbidity	10.1	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P360716

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2070603	Barium	0.822	Spike	P	0 - 20
2070603	Calcium	0.514	Spike	P	0 - 20
2070603	Iron	1.64	Spike	P	0 - 20
2070603	Magnesium	0.204	Spike	P	0 - 20
2070603	Potassium	0.122	Spike	P	0 - 20
2070603	Sodium	0.926	Spike	P	0 - 20
2070603	Zinc	1.31	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P360716

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2070603	Aluminum	0.224	Spike	P	0 - 20
2070603	Antimony	0.0840	Spike	P	0 - 20
2070603	Arsenic	0.220	Spike	P	0 - 20
2070603	Boron	0.691	Spike	P	0 - 20
2070603	Cadmium	0.450	Spike	P	0 - 20
2070603	Chromium	0.286	Spike	P	0 - 20
2070603	Copper	1.06	Spike	P	0 - 20
2070603	Lead	0.0137	Spike	P	0 - 20
2070603	Nickel	0.913	Spike	P	0 - 20
2070603	Selenium	0.256	Spike	P	0 - 20
2070603	Silver	0.778	Spike	P	0 - 20
2070603	Thallium	0.950	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P361008

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2070128	Chloride	1.03	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P361013

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2070128	Sulfate	1.27	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P360675

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2070392	Ammonia-N	0.00690	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P360873

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2070392	Kjeldahl Nitrogen	1.96	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P360781

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2070210	NO2NO3-N	2.46	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P360782

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2070403	NO2NO3-N	2.53	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P360841

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2070443	Total-P	1.69	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P360528

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2070413	O-Phosphate-P	1.02	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P360521

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2070435	Color (true)	1.00	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
Batch ID: P360980

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2070482	Total Alkalinity	3.01	Sample	F	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P361033

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2070303	TDS	4.08	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P361034

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2070407	TDS	4.06	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P360993

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2070482	Fluoride	0.514	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P360906

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2070129	Organic Carbon	0.0813	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: SM 2120 B

Run ID: A90043

Included Lab Sample IDs: 2070399, 2070402, 2070405, 2070406, 2070407, 2070414

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	102	P/P	85 - 115
Color (true)	101	103	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A90044

Included Lab Sample IDs: 2070399, 2070402, 2070405, 2070406, 2070407, 2070414

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: EPA 365.1 Rev. 2.0 dissolved

Run ID: A90045

Included Lab Sample IDs: 2070401, 2070404, 2070411, 2070412, 2070413, 2070416

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.9	96.6	P/P	90 - 110
O-Phosphate-P	98.0	97.9	P/P	90 - 110
O-Phosphate-P	98.9	98.5	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A90071

Included Lab Sample IDs: 2070399, 2070402, 2070405, 2070406, 2070407, 2070414

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	102	94.0	P/P	90 - 110
Chloride	103	103	P/P	90 - 110
Chloride	94.0	103	P/P	90 - 110
Sulfate	103	94.7	P/P	90 - 110
Sulfate	103	104	P/P	90 - 110
Sulfate	94.7	103	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A90097

Included Lab Sample IDs: 2070400, 2070403, 2070408, 2070409, 2070410, 2070415

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A90128

Included Lab Sample IDs: 2070400, 2070403, 2070408, 2070409, 2070410, 2070415

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A90140

Included Lab Sample IDs: 2070426, 2070427, 2070428

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	101	102	P/P	90 - 110
Calcium	101	99.5	P/P	90 - 110
Iron	101	100	P/P	90 - 110
Magnesium	100	99.6	P/P	90 - 110
Potassium	99.6	99.2	P/P	90 - 110
Sodium	103	101	P/P	90 - 110
Zinc	100	101	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A90170

Included Lab Sample IDs: 2070426, 2070427, 2070428

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	93.9	97.6	P/P	90 - 110
Aluminum	95.1	93.9	P/P	90 - 110
Antimony	93.7	93.9	P/P	90 - 110
Antimony	93.9	93.7	P/P	90 - 110
Arsenic	95.2	96.3	P/P	90 - 110
Arsenic	96.3	96.2	P/P	90 - 110
Boron	93.2	95.0	P/P	90 - 110
Boron	95.0	95.4	P/P	90 - 110
Cadmium	95.0	95.1	P/P	90 - 110
Cadmium	95.1	95.1	P/P	90 - 110
Chromium	95.4	95.4	P/P	90 - 110
Chromium	95.4	93.8	P/P	90 - 110
Lead	94.0	94.2	P/P	90 - 110
Lead	94.2	93.6	P/P	90 - 110
Selenium	91.9	94.4	P/P	90 - 110
Selenium	93.3	91.9	P/P	90 - 110
Silver	100	101	P/P	90 - 110
Silver	101	101	P/P	90 - 110
Thallium	90.7	91.9	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A90186

Included Lab Sample IDs: 2070400, 2070403, 2070408, 2070409, 2070410, 2070415

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.4	95.7	P/P	90 - 110
Organic Carbon	95.7	96.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A90199

Included Lab Sample IDs: 2070400, 2070403, 2070408, 2070409, 2070410

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A90201

Included Lab Sample IDs: 2070415

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A90207

Included Lab Sample IDs: 2070426, 2070427, 2070428

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Copper	93.3	93.4	P/P	90 - 110
Copper	93.5	93.3	P/P	90 - 110
Nickel	93.6	93.7	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A90218

Included Lab Sample IDs: 2070399, 2070402, 2070405, 2070406, 2070407, 2070414

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

Reference Method: SM 4500 F-C-97

Run ID: A90218

Included Lab Sample IDs: 2070399, 2070402, 2070405, 2070406, 2070407, 2070414

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A90221

Included Lab Sample IDs: 2070400, 2070403, 2070408, 2070409, 2070410, 2070415

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A90224

Included Lab Sample IDs: 2070426, 2070427

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Nickel	97.3	97.9	P/P	90 - 110
Thallium	94.0	94.9	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					0.264	
	Turbidity					10.1	
EPA 200.7 Rev. 4.4	Barium	101	101	99.9	99.2		0.822
	Calcium	102	102	102			0.514
	Iron	106	105	107	105		1.64
	Magnesium	102	100	102			0.204
	Potassium	105	105	105	107		0.122
	Sodium	101	101	102			0.926
	Zinc	99.6	99.4	98.0	101		1.31
EPA 200.8 Rev. 5.4	Aluminum	91.9	92.1	91.9	90.6		0.224
	Antimony	93.6	93.2	93.1	93.0		0.0840
	Arsenic	95.9	95.8	96.1	97.3		0.220
	Boron	92.7	93.7	93.0	94.1		0.691
	Cadmium	93.0	94.5	94.9	93.8		0.450
	Chromium	89.2	89.1	88.9	88.2		0.286
	Copper	97.2	97.1	95.8	94.5		1.06
	Lead	91.1	92.6	92.6	91.6		0.0137
	Nickel	101	95.9	95.1	94.6		0.913
	Selenium	93.5	92.7	92.5	95.4		0.256
	Silver	98.9	99.3	100	98.8		0.778
	Thallium	93.4	96.7	97.6	95.0		0.950
EPA 300.0 Rev. 2.1	Chloride	106	105	102		1.03	
	Sulfate	106	107			1.27	
EPA 350.1 Rev. 2.0	Ammonia-N	101	102	102			0.0069
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	95.2	98.2			1.96
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	99.5	100	103			2.46
	NO ₂ NO ₃ -N	99.5	97.5	100			2.53
EPA 365.1 Rev. 2.0	Total-P	101	99.0	101			1.69
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	95.3	93.8	95.5			1.02
SM 2120 B	Color (true)	101				1.00	
SM 2320 B-97	Total Alkalinity	101				3.01	
SM 2540 C-97	TDS					4.08	
	TDS					4.06	
SM 4500 F-C-97	Fluoride	98.2	96.6	96.0			0.514
SM 5310 B-00	Organic Carbon	95.0	96.8	96.9			0.0813

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2070399, 2070402, 2070405, 2070406, 2070407, 2070414
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2070426, 2070427, 2070428
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2070426, 2070427, 2070428
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2070399, 2070402, 2070405, 2070406, 2070407, 2070414
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2070399, 2070402, 2070405, 2070406, 2070407, 2070414
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2070400, 2070403, 2070408, 2070409, 2070410, 2070415
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2070400, 2070403, 2070408, 2070409, 2070410, 2070415
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2070400, 2070403, 2070408, 2070409, 2070410, 2070415

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2070400, 2070403, 2070408, 2070409, 2070410, 2070415
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2070401, 2070404, 2070411, 2070412, 2070413, 2070416
SM 2120 B / E31780	True Color measured at 450 nm	2070399, 2070402, 2070405, 2070406, 2070407, 2070414
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2070399, 2070402, 2070405, 2070406, 2070407, 2070414
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2070399, 2070402, 2070405, 2070406, 2070407, 2070414
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2070399, 2070402, 2070405, 2070406, 2070407, 2070414
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2070399, 2070402, 2070405, 2070406, 2070407, 2070414
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2070400, 2070403, 2070408, 2070409, 2070410, 2070415

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	03/15/2019			03/15/2019 15:25	Adrian Shelby	2070399, 2070402, 2070405, 2070406, 2070407, 2070414
EPA 200.7 Rev. 4.4	03/15/2019	03/19/2019 18:00	Elliott D. Healy	03/20/2019 20:23	Vijayalakshmi Reddy	2070428
	03/15/2019	03/19/2019 18:00	Elliott D. Healy	03/20/2019 20:53	Vijayalakshmi Reddy	2070426
	03/15/2019	03/19/2019 18:00	Elliott D. Healy	03/20/2019 20:58	Vijayalakshmi Reddy	2070427
EPA 200.8 Rev. 5.4	03/15/2019	03/19/2019 18:00	Elliott D. Healy	03/21/2019 23:32	Robert K Palmer	2070428
	03/15/2019	03/19/2019 18:00	Elliott D. Healy	03/22/2019 01:17	Robert K Palmer	2070426
	03/15/2019	03/19/2019 18:00	Elliott D. Healy	03/22/2019 01:26	Robert K Palmer	2070427
	03/15/2019	03/19/2019 18:00	Elliott D. Healy	03/22/2019 17:18	Robert K Palmer	2070428
	03/15/2019	03/19/2019 18:00	Elliott D. Healy	03/22/2019 18:26	Robert K Palmer	2070426
	03/15/2019	03/19/2019 18:00	Elliott D. Healy	03/22/2019 18:33	Robert K Palmer	2070427
	03/15/2019	03/19/2019 18:00	Elliott D. Healy	03/25/2019 18:05	Robert K Palmer	2070426
	03/15/2019	03/19/2019 18:00	Elliott D. Healy	03/25/2019 18:12	Robert K Palmer	2070427
EPA 300.0 Rev. 2.1	03/15/2019			03/22/2019 05:45	Lipi Saha	2070399
	03/15/2019			03/22/2019 08:34	Lipi Saha	2070402
	03/15/2019			03/22/2019 08:46	Lipi Saha	2070405
	03/15/2019			03/22/2019 08:58	Lipi Saha	2070406
	03/15/2019			03/22/2019 09:10	Lipi Saha	2070407
	03/15/2019			03/22/2019 09:46	Lipi Saha	2070414
EPA 350.1 Rev. 2.0	03/15/2019			03/19/2019 12:40	Ping Hua	2070400
	03/15/2019			03/19/2019 12:42	Ping Hua	2070403
	03/15/2019			03/19/2019 12:43	Ping Hua	2070408
	03/15/2019			03/19/2019 12:45	Ping Hua	2070409
	03/15/2019			03/19/2019 12:46	Ping Hua	2070410
	03/15/2019			03/19/2019 12:54	Ping Hua	2070415
EPA 351.2 Rev. 2.0	03/15/2019	03/21/2019 11:45	Adrian Shelby	03/22/2019 13:44	Joseph Suarez	2070400
	03/15/2019	03/21/2019 11:45	Adrian Shelby	03/22/2019 13:45	Joseph Suarez	2070403
	03/15/2019	03/21/2019 11:45	Adrian Shelby	03/22/2019 13:47	Joseph Suarez	2070408
	03/15/2019	03/21/2019 11:45	Adrian Shelby	03/22/2019 13:48	Joseph Suarez	2070409
	03/15/2019	03/21/2019 11:45	Adrian Shelby	03/22/2019 13:50	Joseph Suarez	2070410
	03/15/2019	03/21/2019 11:45	Adrian Shelby	03/22/2019 13:51	Joseph Suarez	2070415
EPA 353.2 Rev. 2.0	03/15/2019			03/20/2019 12:32	Lauren Lees	2070400
	03/15/2019			03/20/2019 12:39	Lauren Lees	2070403
	03/15/2019			03/20/2019 12:45	Lauren Lees	2070408
	03/15/2019			03/20/2019 12:46	Lauren Lees	2070409
	03/15/2019			03/20/2019 12:47	Lauren Lees	2070410
	03/15/2019			03/20/2019 12:49	Lauren Lees	2070415
EPA 365.1 Rev. 2.0	03/15/2019	03/21/2019 12:46	Joseph Suarez	03/22/2019 15:09	Rosalyn Ballman	2070400
	03/15/2019	03/21/2019 12:46	Joseph Suarez	03/22/2019 15:13	Rosalyn Ballman	2070403
	03/15/2019	03/21/2019 12:46	Joseph Suarez	03/22/2019 15:14	Rosalyn Ballman	2070408

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	03/15/2019	03/21/2019 12:46	Joseph Suarez	03/22/2019 15:15	Rosalyn Ballman	2070409
	03/15/2019	03/21/2019 12:46	Joseph Suarez	03/22/2019 15:16	Rosalyn Ballman	2070410
	03/15/2019	03/21/2019 12:46	Joseph Suarez	03/22/2019 16:52	Rosalyn Ballman	2070415
EPA 365.1 Rev. 2.0 dissolved	03/15/2019			03/15/2019 15:15	Jhamieka S. Greenwood	2070413
	03/15/2019			03/15/2019 15:39	Jhamieka S. Greenwood	2070416
	03/15/2019			03/15/2019 15:41	Jhamieka S. Greenwood	2070411
	03/15/2019			03/15/2019 15:42	Jhamieka S. Greenwood	2070412
	03/15/2019			03/15/2019 15:46	Jhamieka S. Greenwood	2070401
	03/15/2019			03/15/2019 15:54	Jhamieka S. Greenwood	2070404
	03/15/2019			03/15/2019 16:14	Blanca Fach	2070402
SM 2120 B	03/15/2019			03/15/2019 16:15	Blanca Fach	2070405, 2070406
	03/15/2019			03/15/2019 16:17	Blanca Fach	2070414
	03/15/2019			03/15/2019 16:41	Blanca Fach	2070399, 2070407
SM 2320 B-97	03/15/2019			03/25/2019 07:27	Dale L. Simmons	2070399
	03/15/2019			03/25/2019 07:40	Dale L. Simmons	2070402
	03/15/2019			03/25/2019 07:53	Dale L. Simmons	2070405
	03/15/2019			03/25/2019 08:06	Dale L. Simmons	2070406
	03/15/2019			03/25/2019 08:18	Dale L. Simmons	2070407
	03/15/2019			03/25/2019 08:32	Dale L. Simmons	2070414
SM 2540 C-97	03/15/2019			03/20/2019 15:26	Yijie Li	2070399, 2070402, 2070405, 2070406, 2070407, 2070414
SM 2540 D-97	03/15/2019			03/20/2019 15:26	Yijie Li	2070399, 2070402, 2070405, 2070406, 2070407, 2070414
SM 4500 F-C-97	03/15/2019			03/25/2019 07:27	Dale L. Simmons	2070399
	03/15/2019			03/25/2019 07:40	Dale L. Simmons	2070402
	03/15/2019			03/25/2019 07:53	Dale L. Simmons	2070405
	03/15/2019			03/25/2019 08:06	Dale L. Simmons	2070406
	03/15/2019			03/25/2019 08:18	Dale L. Simmons	2070407
	03/15/2019			03/25/2019 08:32	Dale L. Simmons	2070414
SM 5310 B-00	03/15/2019			03/22/2019 03:47	Julia Storbeck	2070400
	03/15/2019			03/22/2019 04:03	Julia Storbeck	2070403
	03/15/2019			03/22/2019 04:19	Julia Storbeck	2070408
	03/15/2019			03/22/2019 04:33	Julia Storbeck	2070409
	03/15/2019			03/22/2019 04:47	Julia Storbeck	2070410
	03/15/2019			03/22/2019 05:43	Julia Storbeck	2070415