

Chemical Analysis Report

SE-DIST-2019-11-08-01

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

Event Description: **SMP-Nice Lakes**
Request ID: **RQ-2019-10-28-17**
Customer: **SE-DIST**
Project ID: **SMP**

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Certified by: Colin Wright, Program Administrator

Date Certified: 04-DEC-2019 11:19

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed on a light blue 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: West Branch North Fork Lox @ JD Park

Collection Date/Time: 11/07/2019 12:15

Field ID: G2SE0020

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2134921	EPA 180.1 Rev. 2.0	Turbidity	0.60		NTU	P373948	
	EPA 300.0 Rev. 2.1	Chloride	42	A	mg Cl/L	P374326	
		Sulfate	1.6	A	mg SO4/L	P374328	
	SM 2120 B	Color (true)	220		PCU	P373951	
	SM 2320 B-97	Total Alkalinity	47		mg CaCO3/L	P374493	
	SM 2540 C-97	TDS	174	A	mg/L	P374416	
	SM 2540 D-97	TSS	2	UA	mg/L	P374418	
	SM 4500 F-C-97	Fluoride	0.039	I	mg F/L	P374497	
2134922	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P374261	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P374411	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P374239	
	EPA 365.1 Rev. 2.0	Total-P	0.033		mg P/L	P374425	
	SM 5310 B-00	Organic Carbon	31		mg C/L	P374270	
2134923	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P374008	

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: Warner Creek @ Jensen Beach Elementary

Collection Date/Time: 11/07/2019 13:45

Field ID: G2SE0051

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2134915	EPA 180.1 Rev. 2.0	Turbidity	6.7		NTU	P373947	
	EPA 300.0 Rev. 2.1	Chloride	45		mg Cl/L	P374255	
		Sulfate	8.2		mg SO4/L	P374258	
		Color (true)	140		PCU	P373951	
	SM 2320 B-97	Total Alkalinity	59		mg CaCO3/L	P374493	
	SM 2540 C-97	TDS	189		mg/L	P374415	RPD
	SM 2540 D-97	TSS	11		mg/L	P374417	
	SM 4500 F-C-97	Fluoride	0.038	I	mg F/L	P374497	
2134916	EPA 350.1 Rev. 2.0	Ammonia-N	0.052		mg N/L	P374261	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.97		mg N/L	P374411	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.12		mg N/L	P374239	
	EPA 365.1 Rev. 2.0	Total-P	0.022		mg P/L	P374957	
	SM 5310 B-00	Organic Carbon	23		mg C/L	P374270	
2134917	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P374006	
2134932	EPA 200.7 Rev. 4.4	Barium	7.5		ug/L	P374022	
		Calcium	28.1		mg/L	P374022	
		Iron	130		ug/L	P374022	
		Magnesium	2.52		mg/L	P374022	
		Potassium	1.6		mg/L	P374022	
		Sodium	27.3		mg/L	P374022	
		Zinc	5.0	U	ug/L	P374022	
	EPA 200.8 Rev. 5.4	Aluminum	187		ug/L	P374022	
		Antimony	0.066	I	ug/L	P374022	
		Arsenic	0.61		ug/L	P374022	
		Boron**	41.8		ug/L	P374022	
		Cadmium	0.020	U	ug/L	P374022	
		Chromium	0.99	I	ug/L	P374022	
		Copper	1.46		ug/L	P374022	
		Lead	0.21	I	ug/L	P374022	
		Nickel	0.50	U	ug/L	P374022	
		Selenium	0.20	U	ug/L	P374022	
		Silver	0.010	U	ug/L	P374022	
		Thallium	0.10	U	ug/L	P374022	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: Sample visibly different than its field duplicate.

EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low 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 visibly different than its field duplicate.

Sample Location: Henderson Pond @ Center

Collection Date/Time: 11/07/2019 14:15

Field ID: G2SE0050

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2134909	EPA 180.1 Rev. 2.0	Turbidity	1.5		NTU	P373947	
	EPA 300.0 Rev. 2.1	Chloride	36		mg Cl/L	P374255	
		Sulfate	2.1		mg SO4/L	P374258	
	SM 2120 B	Color (true)	110	A	PCU	P373950	
	SM 2320 B-97	Total Alkalinity	9.0		mg CaCO3/L	P374493	
	SM 2540 C-97	TDS	111		mg/L	P374415	RPD
	SM 2540 D-97	TSS	2	I	mg/L	P374417	
	SM 4500 F-C-97	Fluoride	0.049	I	mg F/L	P374497	
2134910	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P374261	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P374411	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P374238	
	EPA 365.1 Rev. 2.0	Total-P	0.014		mg P/L	P374957	
	SM 5310 B-00	Organic Carbon	19		mg C/L	P374199	
2134911	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P374006	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low 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 Eden

Collection Date/Time: 11/07/2019 14:45

Field ID: G2SE0014

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2134912	EPA 180.1 Rev. 2.0	Turbidity	0.60		NTU	P373947	
	EPA 300.0 Rev. 2.1	Chloride	41		mg Cl/L	P374255	
		Sulfate	3.3		mg SO4/L	P374258	
	SM 2120 B	Color (true)	160		PCU	P373950	
	SM 2320 B-97	Total Alkalinity	24	A	mg CaCO3/L	P374493	
	SM 2540 C-97	TDS	136	AJ	mg/L	P374415	RPD
	SM 2540 D-97	TSS	2	UA	mg/L	P374417	
	SM 4500 F-C-97	Fluoride	0.080	I	mg F/L	P374497	
2134913	EPA 350.1 Rev. 2.0	Ammonia-N	0.035		mg N/L	P374260	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P374411	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.027		mg N/L	P374239	
	EPA 365.1 Rev. 2.0	Total-P	0.030		mg P/L	P374957	
	SM 5310 B-00	Organic Carbon	21		mg C/L	P374270	
2134914	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.009	I	mg P/L	P374006	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

SM 2540 C-97: Refer to the Lab Analysis Report for an explanation of QC Codes.

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

Sample Location: Warner Creek @ Jensen Beach Elementary

Collection Date/Time: 11/07/2019 14:00

Field ID: G2SE0051_DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2134918	EPA 180.1 Rev. 2.0	Turbidity	1.9		NTU	P373948	
	EPA 300.0 Rev. 2.1	Chloride	45		mg Cl/L	P374255	
		Sulfate	8.2		mg SO4/L	P374258	
	SM 2120 B	Color (true)	130		PCU	P373950	
	SM 2320 B-97	Total Alkalinity	59		mg CaCO3/L	P374493	
	SM 2540 C-97	TDS	190		mg/L	P374415	RPD
	SM 2540 D-97	TSS	2	I	mg/L	P374417	
	SM 4500 F-C-97	Fluoride	0.037	I	mg F/L	P374497	
2134919	EPA 350.1 Rev. 2.0	Ammonia-N	0.052		mg N/L	P374261	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.97		mg N/L	P374411	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.12		mg N/L	P374238	
	EPA 365.1 Rev. 2.0	Total-P	0.020		mg P/L	P374957	
	SM 5310 B-00	Organic Carbon	22		mg C/L	P374199	
2134920	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P374006	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: Sample visibly different than its field duplicate.

EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low 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 visibly different than its field duplicate.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P373947

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P373948

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P374022

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: P374022

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: P374255

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P374258

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P374326

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P374328

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P374260

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P374261

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P374411

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P374238

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P374239

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P374425

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P374957

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P374006

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P374008

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

Reference Method: SM 2120 B
Batch ID: P373950

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P373951

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P374493

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

Reference Method: SM 2540 C-97
Batch ID: P374415

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P374416

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P374417

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P374418

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P374497

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P374199

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

Reference Method: SM 5310 B-00
Batch ID: P374270

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: P374022

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	99.4		P	85 - 115
Calcium	101		P	85 - 115
Iron	100		P	85 - 115
Magnesium	102		P	85 - 115
Potassium	104		P	85 - 115
Sodium	97.8		P	85 - 115
Zinc	97.4		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P374022

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	95.1		P	85 - 115
Antimony	98.7		P	85 - 115
Arsenic	100		P	85 - 115
Boron	97.3		P	85 - 115
Cadmium	93.7		P	85 - 115
Chromium	100		P	85 - 115
Copper	102		P	85 - 115
Lead	92.3		P	85 - 115
Nickel	99.1		P	85 - 115
Selenium	100		P	85 - 115
Silver	96.2		P	85 - 115
Thallium	100		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P374255

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P374258

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P374326

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P374328

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P374260

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P374261

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P374411

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P374238

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: P374239

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P374425

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P374957

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P374006

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	96.8		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P374008

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	96.7		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2120 B
Batch ID: P373950

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

Reference Method: SM 2120 B
Batch ID: P373951

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	100		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P374493

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	98 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P374497

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.2		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P374199

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

Reference Method: SM 5310 B-00
Batch ID: P374270

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	103		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P374022

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2134873	Barium	94.9	96.1	P/P	80 - 120
2134873	Calcium	97.9		P	80 - 120
2134873	Iron	95.9	96.9	P/P	80 - 120
2134873	Magnesium	96.8		P	80 - 120
2134873	Potassium	99.2	99.7	P/P	80 - 120
2134873	Sodium	98.6		P	80 - 120
2134873	Zinc	93.0	93.9	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P374022

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2134873	Aluminum	93.8	95.1	P/P	80 - 120
2134873	Antimony	103	102	P/P	80 - 120
2134873	Arsenic	99.6	98.6	P/P	80 - 120
2134873	Boron	101	97.5	P/P	80 - 120
2134873	Cadmium	98.8	98.2	P/P	80 - 120
2134873	Chromium	98.7	102	P/P	80 - 120
2134873	Copper	94.6	94.7	P/P	80 - 120
2134873	Lead	94.1	94.0	P/P	80 - 120
2134873	Nickel	92.1	93.5	P/P	80 - 120
2134873	Selenium	95.1	92.5	P/P	80 - 120
2134873	Silver	98.7	97.6	P/P	80 - 120
2134873	Thallium	104	106	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P374255

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2134063	Chloride	102		P	90 - 110
2134890	Chloride	103		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P374258

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2134063	Sulfate	100		P	90 - 110
2134890	Sulfate	102		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P374326

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2134921	Chloride	98.8		P	90 - 110
2135287	Chloride	98.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P374328

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2134921	Sulfate	99.1		P	90 - 110
2135287	Sulfate	97.1		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P374260

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2134856	Ammonia-N	100	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P374261

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2134972	Ammonia-N	96.8	96.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P374411

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2134916	Kjeldahl Nitrogen	98.6	94.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P374238

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2134050	NO2NO3-N	100	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P374239

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2134913	NO2NO3-N	97.8	98.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P374425

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2134922	Total-P	104	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P374957

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2134881	Total-P	103	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P374006

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2134911	O-Phosphate-P	93.5	93.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P374008

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2134975	O-Phosphate-P	99.4	99.5	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P374497

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2134912	Fluoride	97.7	97.1	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P374199

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2134837	Organic Carbon	101	102	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P374270

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2134974	Organic Carbon	103	104	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P373947

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2135085	Turbidity	4.77	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P373948

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2134945	Turbidity	6.64	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P374022

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2134873	Barium	1.29	Spike	P	0 - 20
2134873	Calcium	2.03	Spike	P	0 - 20
2134873	Iron	0.853	Spike	P	0 - 20
2134873	Magnesium	2.15	Spike	P	0 - 20
2134873	Potassium	0.400	Spike	P	0 - 20
2134873	Sodium	1.66	Spike	P	0 - 20
2134873	Zinc	0.925	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P374022

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2134873	Aluminum	1.35	Spike	P	0 - 20
2134873	Antimony	0.930	Spike	P	0 - 20
2134873	Arsenic	0.901	Spike	P	0 - 20
2134873	Boron	2.85	Spike	P	0 - 20
2134873	Cadmium	0.568	Spike	P	0 - 20
2134873	Chromium	2.89	Spike	P	0 - 20
2134873	Copper	0.100	Spike	P	0 - 20
2134873	Lead	0.130	Spike	P	0 - 20
2134873	Nickel	1.32	Spike	P	0 - 20
2134873	Selenium	2.77	Spike	P	0 - 20
2134873	Silver	1.14	Spike	P	0 - 20
2134873	Thallium	1.52	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P374255

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2134063	Chloride	1.46	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P374326

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2134921	Chloride	0.353	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P374328

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2134921	Sulfate	0.131	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P374260

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2134856	Ammonia-N	1.49	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P374261

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2134972	Ammonia-N	0.446	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P374411

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2134916	Kjeldahl Nitrogen	2.49	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P374238

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2134050	NO2NO3-N	0.499	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P374239

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2134913	NO2NO3-N	0.447	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P374425

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2134922	Total-P	2.68	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P374957

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2134881	Total-P	1.07	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P374006

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2134911	O-Phosphate-P	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P374008

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2134975	O-Phosphate-P	0.101	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P373950

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2134909	Color (true)	0.697	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P373951

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2134969	Color (true)	4.07	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P374493

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2134912	Total Alkalinity	2.22	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
Batch ID: P374415

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2134912	TDS	12.5	Sample	F	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P374416

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2134921	TDS	2.88	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
Batch ID: P374497

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2134912	Fluoride	0.495	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P374199

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2134837	Organic Carbon	0.221	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P374270

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2134974	Organic Carbon	0.465	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A95599

Included Lab Sample IDs: 2134909, 2134912, 2134915, 2134918, 2134921

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.0	99.0	P/P	95 - 105
Turbidity	99.0	99.5	P/P	95 - 105

Reference Method: SM 2120 B

Run ID: A95600

Included Lab Sample IDs: 2134909, 2134912, 2134915, 2134918, 2134921

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A95628

Included Lab Sample IDs: 2134911, 2134914, 2134917, 2134920, 2134923

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.6	98.4	P/P	90 - 110
O-Phosphate-P	99.9	98.5	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A95693

Included Lab Sample IDs: 2134932

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	101	101	P/P	90 - 110
Calcium	100	99.8	P/P	90 - 110
Iron	98.3	99.7	P/P	90 - 110
Magnesium	101	103	P/P	90 - 110
Potassium	95.3	96.0	P/P	90 - 110
Sodium	97.4	97.3	P/P	90 - 110
Zinc	102	102	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A95721

Included Lab Sample IDs: 2134910, 2134919

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	104	105	P/P	90 - 110
Organic Carbon	105	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A95734

Included Lab Sample IDs: 2134910, 2134913, 2134916, 2134919, 2134922

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	100	P/P	90 - 110
NO2NO3-N	100	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A95747

Included Lab Sample IDs: 2134910, 2134913, 2134916, 2134919, 2134922

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	99.3	P/P	90 - 110
Ammonia-N	99.8	102	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A95750

Included Lab Sample IDs: 2134913, 2134916, 2134922

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	105	108	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A95765

Included Lab Sample IDs: 2134909, 2134912, 2134915, 2134918, 2134921

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	102	P/P	90 - 110
Chloride	99.5	99.3	P/P	90 - 110
Sulfate	99.7	99.5	P/P	90 - 110
Sulfate	99.9	102	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A95843

Included Lab Sample IDs: 2134909, 2134912, 2134915, 2134918, 2134921

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.0	99.9	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A95843

Included Lab Sample IDs: 2134909, 2134912, 2134915, 2134918, 2134921

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A95851

Included Lab Sample IDs: 2134910, 2134913, 2134916, 2134919, 2134922

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.2	102	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A95873

Included Lab Sample IDs: 2134932

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	101	101	P/P	90 - 110
Antimony	100	100	P/P	90 - 110
Arsenic	102	102	P/P	90 - 110
Boron	103	103	P/P	90 - 110
Cadmium	101	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A95873

Included Lab Sample IDs: 2134932

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Copper	104	105	P/P	90 - 110
Lead	95.4	96.3	P/P	90 - 110
Nickel	102	104	P/P	90 - 110
Selenium	101	99.0	P/P	90 - 110
Silver	99.7	99.6	P/P	90 - 110
Thallium	97.7	96.8	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A95926

Included Lab Sample IDs: 2134932

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chromium	97.1	97.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A95931

Included Lab Sample IDs: 2134922

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	99.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A96060

Included Lab Sample IDs: 2134910, 2134913, 2134916, 2134919

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.5	100	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision	MS
						SMP	
EPA 180.1 Rev. 2.0	Turbidity					4.77	
	Turbidity					6.64	
EPA 200.7 Rev. 4.4	Barium	99.4	94.9	96.1			1.29
	Calcium	101	97.9				2.03
	Iron	100	95.9	96.9			0.853
	Magnesium	102	96.8				2.15
	Potassium	104	99.2	99.7			0.400
	Sodium	97.8	98.6				1.66
	Zinc	97.4	93.0	93.9			0.925
EPA 200.8 Rev. 5.4	Aluminum	95.1	93.8	95.1			1.35
	Antimony	98.7	103	102			0.930
	Arsenic	100	99.6	98.6			0.901
	Boron	97.3	101	97.5			2.85
	Cadmium	93.7	98.8	98.2			0.568
	Chromium	100	98.7	102			2.89
	Copper	102	94.6	94.7			0.100
	Lead	92.3	94.1	94.0			0.130
	Nickel	99.1	92.1	93.5			1.32
	Selenium	100	95.1	92.5			2.77
	Silver	96.2	98.7	97.6			1.14
	Thallium	100	104	106			1.52
EPA 300.0 Rev. 2.1	Chloride	103	102	103		1.46	
	Chloride	98.0	98.8	98.9		0.353	
	Sulfate	102	100	102			
	Sulfate	97.8	99.1	97.1		0.131	
EPA 350.1 Rev. 2.0	Ammonia-N	98.1	100	101			1.49
	Ammonia-N	99.5	96.8	96.2			0.446
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	110	98.6	94.2			2.49
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	99.5	100	100			0.499
	NO ₂ NO ₃ -N	100	97.8	98.3			0.447
EPA 365.1 Rev. 2.0	Total-P	102	104	101			2.68
	Total-P	100	103	105			1.07
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	96.8	93.5	93.5			0.0
	O-Phosphate-P	96.7	99.4	99.5			0.101
SM 2120 B	Color (true)	102				0.697	
	Color (true)	100				4.07	
SM 2320 B-97	Total Alkalinity	101				2.22	
SM 2540 C-97	TDS					12.5	
	TDS					2.88	
SM 4500 F-C-97	Fluoride	97.2	97.7	97.1			0.495
SM 5310 B-00	Organic Carbon	102	101	102			0.221
	Organic Carbon	103	103	104			0.465

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2134909, 2134912, 2134915, 2134918, 2134921
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2134932
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2134932
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2134909, 2134912, 2134915, 2134918, 2134921

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2134909, 2134912, 2134915, 2134918, 2134921
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2134910, 2134913, 2134916, 2134919, 2134922
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2134910, 2134913, 2134916, 2134919, 2134922
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2134910, 2134913, 2134916, 2134919, 2134922
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2134910, 2134913, 2134916, 2134919, 2134922
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2134911, 2134914, 2134917, 2134920, 2134923
SM 2120 B / E31780	True Color measured at 450 nm	2134909, 2134912, 2134915, 2134918, 2134921
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2134909, 2134912, 2134915, 2134918, 2134921
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2134909, 2134912, 2134915, 2134918, 2134921
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2134909, 2134912, 2134915, 2134918, 2134921
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2134909, 2134912, 2134915, 2134918, 2134921
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2134910, 2134913, 2134916, 2134919, 2134922

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	11/08/2019			11/08/2019 14:40	Samantha Davila	2134909, 2134912, 2134915, 2134918, 2134921
EPA 200.7 Rev. 4.4	11/08/2019	11/12/2019 13:00	Elliott D. Healy	11/13/2019 13:15	Betina Topolski	2134932
EPA 200.8 Rev. 5.4	11/08/2019	11/12/2019 13:00	Elliott D. Healy	11/21/2019 02:21	Justin Cutchin	2134932
	11/08/2019	11/12/2019 13:00	Elliott D. Healy	11/23/2019 01:00	Justin Cutchin	2134932
EPA 300.0 Rev. 2.1	11/08/2019			11/15/2019 08:00	Lipi Saha	2134909
	11/08/2019			11/15/2019 08:13	Lipi Saha	2134912
	11/08/2019			11/15/2019 08:25	Lipi Saha	2134915
	11/08/2019			11/15/2019 08:37	Lipi Saha	2134918
	11/08/2019			11/15/2019 14:42	Lipi Saha	2134921
EPA 350.1 Rev. 2.0	11/08/2019			11/14/2019 13:05	Ping Hua	2134910
	11/08/2019			11/14/2019 13:07	Ping Hua	2134919
	11/08/2019			11/14/2019 13:08	Ping Hua	2134916
	11/08/2019			11/14/2019 13:10	Ping Hua	2134922
	11/08/2019			11/14/2019 14:26	Ping Hua	2134913
EPA 351.2 Rev. 2.0	11/08/2019	11/19/2019 11:15	Sima Feizi	11/20/2019 12:50	Jhamieka S. Greenwood	2134916
	11/08/2019	11/19/2019 11:15	Sima Feizi	11/20/2019 12:56	Jhamieka S. Greenwood	2134910
	11/08/2019	11/19/2019 11:15	Sima Feizi	11/20/2019 12:58	Jhamieka S. Greenwood	2134913
	11/08/2019	11/19/2019 11:15	Sima Feizi	11/20/2019 12:59	Jhamieka S. Greenwood	2134919
	11/08/2019	11/19/2019 11:15	Sima Feizi	11/20/2019 13:01	Jhamieka S. Greenwood	2134922
EPA 353.2 Rev. 2.0	11/08/2019			11/14/2019 10:35	Beverly Y. Sanders	2134910
	11/08/2019			11/14/2019 10:36	Beverly Y. Sanders	2134919
	11/08/2019			11/14/2019 10:43	Beverly Y. Sanders	2134913
	11/08/2019			11/14/2019 10:49	Beverly Y. Sanders	2134916
	11/08/2019			11/14/2019 10:51	Beverly Y. Sanders	2134922
EPA 365.1 Rev. 2.0	11/08/2019	11/19/2019 12:09	Yen Ta	11/22/2019 13:34	Benjamin T. Nordmann	2134922
	11/08/2019	11/27/2019 13:48	Yen Ta	12/02/2019 15:51	Benjamin T. Nordmann	2134910
	11/08/2019	11/27/2019 13:48	Yen Ta	12/02/2019 15:52	Benjamin T. Nordmann	2134913
	11/08/2019	11/27/2019 13:48	Yen Ta	12/02/2019 15:53	Benjamin T. Nordmann	2134916
	11/08/2019	11/27/2019 13:48	Yen Ta	12/02/2019 15:54	Benjamin T. Nordmann	2134919
EPA 365.1 Rev. 2.0 dissolved	11/08/2019			11/08/2019 14:43	Virginia P. Brown	2134911
	11/08/2019			11/08/2019 15:08	Virginia P. Brown	2134914
	11/08/2019			11/08/2019 15:09	Virginia P. Brown	2134917
	11/08/2019			11/08/2019 15:10	Virginia P. Brown	2134920
	11/08/2019			11/08/2019 15:11	Virginia P. Brown	2134923
SM 2120 B	11/08/2019			11/08/2019 16:03	Madeline Funaro	2134909
	11/08/2019			11/08/2019 16:05	Madeline Funaro	2134918
	11/08/2019			11/08/2019 16:09	Madeline Funaro	2134915
	11/08/2019			11/08/2019 16:32	Madeline Funaro	2134912, 2134921
SM 2320 B-97	11/08/2019			11/15/2019 20:53	Dale L. Simmons	2134912

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2320 B-97	11/08/2019			11/15/2019 21:12	Dale L. Simmons	2134909
	11/08/2019			11/15/2019 21:24	Dale L. Simmons	2134915
	11/08/2019			11/15/2019 21:36	Dale L. Simmons	2134918
	11/08/2019			11/15/2019 21:48	Dale L. Simmons	2134921
SM 2540 C-97	11/08/2019			11/13/2019 11:56	Yijie Li	2134909, 2134912, 2134915, 2134918, 2134921
SM 2540 D-97	11/08/2019			11/13/2019 11:56	Yijie Li	2134909, 2134912, 2134915, 2134918, 2134921
SM 4500 F-C-97	11/08/2019			11/15/2019 20:44	Dale L. Simmons	2134912
	11/08/2019			11/15/2019 21:12	Dale L. Simmons	2134909
	11/08/2019			11/15/2019 21:24	Dale L. Simmons	2134915
	11/08/2019			11/15/2019 21:36	Dale L. Simmons	2134918
	11/08/2019			11/15/2019 21:48	Dale L. Simmons	2134921
SM 5310 B-00	11/08/2019			11/14/2019 04:00	Madeline Funaro	2134910
	11/08/2019			11/14/2019 04:36	Madeline Funaro	2134919
	11/08/2019			11/14/2019 17:23	Madeline Funaro	2134913
	11/08/2019			11/14/2019 17:37	Madeline Funaro	2134916
	11/08/2019			11/14/2019 17:49	Madeline Funaro	2134922