

Chemical Analysis Report

NE-DIST-2016-10-21-02

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

Event Description: **SUW 4**
Request ID: **RQ-2016-10-17-12**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
8800 Baymeadows Way
Suite 100
Jacksonville, FL 32256
Attn: Nicole Frederick

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Thekkekalathil Chandrasekhar, PhD, QA Officer
Phone (850) 245-8085

Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 17-NOV-2016 13:39



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 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: Suwannee @ Cone Bridge

Collection Date/Time: 10/20/2016 09:35

Field ID: G1NE023810182016

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1843293	EPA 180.1 Rev. 2.0	Turbidity	1.4		NTU	P313740	
	EPA 300.0 Rev. 2.1	Chloride	7.4		mg Cl/L	P314863	
		Sulfate	3.1		mg SO4/L	P314865	
	SM 2120 B	Color (true)	420		PCU	P313668	
	SM 2320 B-97	Total Alkalinity	7.7		mg CaCO3/L	P313765	
	SM 2540 C-97	TDS	117		mg/L	P314271	
	SM 2540 D-97	TSS	3	I	mg/L	P314161	
	SM 4500 F-C-97	Fluoride	0.13		mg F/L	P313766	MS
1843296	EPA 350.1 Rev. 2.0	Ammonia-N	0.026		mg N/L	P314646	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P314878	
	EPA 365.1 Rev. 2.0	Total-P	0.27		mg P/L	P314390	
	SM 5310 B-00	Organic Carbon	42		mg C/L	P313853	
1843299	EPA 353.2 Rev. 2.0 dissolved	NO2NO3-N	0.086		mg N/L	P314030	
1843302	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.25		mg P/L	P313670	
1843310	EPA 200.7 Rev. 4.4	Calcium	18.0		mg/L	P313828	
		Iron	480		ug/L	P313828	
		Magnesium	8.70		mg/L	P313828	
		Potassium	0.98	I	mg/L	P313828	
		Sodium	8.5		mg/L	P313828	
		Zinc	18	I	ug/L	P313828	
	EPA 200.8 Rev. 5.4	Arsenic	0.47		ug/L	P313828	
		Cadmium	0.020	I	ug/L	P313828	
		Chromium	0.47		ug/L	P313828	
		Copper	14.7		ug/L	P313828	
		Lead	0.39		ug/L	P313828	
		Nickel	3.28		ug/L	P313828	
		Silver	0.262		ug/L	P313828	

Ref. Method and Comment:

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

EPA 200.8 Rev. 5.4: The copper result was confirmed in the undigested sample on 11/08/2016.

Sample Location: Suwannee @ SR6

Collection Date/Time: 10/20/2016 13:30

Field ID: G1NE0460 10182016

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1843294	EPA 180.1 Rev. 2.0	Turbidity	1.1		NTU	P313740	
	EPA 300.0 Rev. 2.1	Chloride	7.0	A	mg Cl/L	P314862	
		Sulfate	0.73	A	mg SO4/L	P314864	
	SM 2120 B	Color (true)	440		PCU	P313668	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P313765	
	SM 2540 C-97	TDS	104		mg/L	P314271	
	SM 2540 D-97	TSS	2	I	mg/L	P314161	
	SM 4500 F-C-97	Fluoride	0.078	I	mg F/L	P313766	MS
1843297	EPA 350.1 Rev. 2.0	Ammonia-N	0.027		mg N/L	P314646	

Field ID: G1NE0460 10182016

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1843297	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P314878	
	EPA 365.1 Rev. 2.0	Total-P	0.23		mg P/L	P314390	
	SM 5310 B-00	Organic Carbon	48		mg C/L	P313853	
1843300	EPA 353.2 Rev. 2.0 dissolved	NO2NO3-N	0.040		mg N/L	P314030	
1843303	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.20		mg P/L	P313670	
1843311	EPA 200.7 Rev. 4.4	Calcium	3.08		mg/L	P313828	
		Iron	790		ug/L	P313828	
		Magnesium	1.68		mg/L	P313828	
		Potassium	0.58	I	mg/L	P313828	
		Sodium	4.9		mg/L	P313828	
		Zinc	5.0	U	ug/L	P313828	
	EPA 200.8 Rev. 5.4	Arsenic	0.65		ug/L	P313828	
		Cadmium	0.026	I	ug/L	P313828	
		Chromium	0.48		ug/L	P313828	
		Copper	0.21	I	ug/L	P313828	
		Lead	0.49		ug/L	P313828	
		Nickel	0.59		ug/L	P313828	
		Silver	0.0050	U	ug/L	P313828	

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: Suwannee @ Turner bt.rmp

Collection Date/Time: 10/20/2016 13:05

Field ID: G1NE0471 10182016

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1843295	EPA 180.1 Rev. 2.0	Turbidity	1.3		NTU	P313740	
	EPA 300.0 Rev. 2.1	Chloride	7.0		mg Cl/L	P314862	
		Sulfate	0.75		mg SO4/L	P314864	
	SM 2120 B	Color (true)	450		PCU	P313668	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P313765	
	SM 2540 C-97	TDS	115		mg/L	P314271	
	SM 2540 D-97	TSS	2	U	mg/L	P314161	
	SM 4500 F-C-97	Fluoride	0.078	I	mg F/L	P313766	MS
1843298	EPA 350.1 Rev. 2.0	Ammonia-N	0.047		mg N/L	P314646	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P314762	
	EPA 365.1 Rev. 2.0	Total-P	0.26		mg P/L	P314390	
	SM 5310 B-00	Organic Carbon	49		mg C/L	P313853	
1843301	EPA 353.2 Rev. 2.0 dissolved	NO2NO3-N	0.035		mg N/L	P314030	
1843304	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.21		mg P/L	P313670	
1843312	EPA 200.7 Rev. 4.4	Calcium	3.37		mg/L	P313828	
		Iron	910		ug/L	P313828	
		Magnesium	1.80		mg/L	P313828	
		Potassium	0.59	I	mg/L	P313828	
		Sodium	4.9		mg/L	P313828	

Field ID: G1NE0471 10182016

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1843312	EPA 200.7 Rev. 4.4	Zinc	5.0	U	ug/L	P313828	
	EPA 200.8 Rev. 5.4	Arsenic	0.67		ug/L	P313828	
		Cadmium	0.036	I	ug/L	P313828	
		Chromium	0.75		ug/L	P313828	
		Copper	0.36	I	ug/L	P313828	
		Lead	0.73		ug/L	P313828	
		Nickel	0.64		ug/L	P313828	
		Silver	0.0050	U	ug/L	P313828	

Ref. Method and Comment:

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

EPA 200.8 Rev. 5.4: The lead result was confirmed in the undigested sample on 11/08/2016.

Sample Location: Olustee @ 240

Collection Date/Time: 10/20/2016 13:15

Field ID: 21030073

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1843287	EPA 180.1 Rev. 2.0	Turbidity	1.8	A	NTU	P313740	
	EPA 300.0 Rev. 2.1	Chloride	8.3		mg Cl/L	P314695	
		Sulfate	0.53		mg SO4/L	P314700	
	SM 2120 B	Color (true)	650		PCU	P313668	
	SM 2320 B-97	Total Alkalinity	10		mg CaCO3/L	P313765	
	SM 2540 C-97	TDS	116		mg/L	P314271	
	SM 2540 D-97	TSS	4	I	mg/L	P314161	
	SM 4500 F-C-97	Fluoride	0.16		mg F/L	P313766	MS
	EPA 350.1 Rev. 2.0	Ammonia-N	0.017		mg N/L	P314646	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P314878	
1843289	EPA 353.2 Rev. 2.0	NO2NO3-N	0.10		mg N/L	P314029	
	EPA 365.1 Rev. 2.0	Total-P	0.48		mg P/L	P314389	
	SM 5310 B-00	Organic Carbon	44		mg C/L	P313853	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.50		mg P/L	P313670	
	dissolved						

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: Rocky CR. @ Woodpecker 135

Collection Date/Time: 10/20/2016 09:20

Field ID: G1NE0250 10182016

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1843288	EPA 180.1 Rev. 2.0	Turbidity	0.80		NTU	P313740	
	EPA 300.0 Rev. 2.1	Chloride	5.9		mg Cl/L	P314695	
		Sulfate	0.49	I	mg SO4/L	P314700	
	SM 2120 B	Color (true)	980		PCU	P313668	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P313765	
	SM 2540 C-97	TDS	171		mg/L	P314271	
	SM 2540 D-97	TSS	2	I	mg/L	P314161	
	SM 4500 F-C-97	Fluoride	0.14		mg F/L	P313766	MS
	EPA 350.1 Rev. 2.0	Ammonia-N	0.043		mg N/L	P314646	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.2		mg N/L	P314878	

Field ID: G1NE0250 10182016

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1843290	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P314029	
	EPA 365.1 Rev. 2.0	Total-P	0.29		mg P/L	P314390	
	SM 5310 B-00	Organic Carbon	92		mg C/L	P313853	
1843292	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.22		mg P/L	P313670	

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P313740

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
 Batch ID: P313828

Component	Result	Code	Units
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: P313828

Component	Result	Code	Units
Arsenic	0.050	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.050	U	ug/L
Copper	0.10	U	ug/L
Lead	0.050	U	ug/L
Nickel	0.050	U	ug/L
Silver	0.0050	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P314695

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P314700

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: P314862

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P314863

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P314864

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P314865

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P314646

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P314762

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P314878

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P314029

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

Reference Method: EPA 353.2 Rev. 2.0 dissolved
Batch ID: P314030

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P314389

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P314390

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P313670

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

Reference Method: SM 2120 B
Batch ID: P313668

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P313765

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

Reference Method: SM 2540 C-97
Batch ID: P314271

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P314161

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P313766

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P313853

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: P313828

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	105		P	85 - 115
Iron	108		P	85 - 115
Magnesium	108		P	85 - 115
Potassium	100		P	85 - 115
Sodium	101		P	85 - 115
Zinc	98.9		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P313828

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	97.8		P	85 - 115
Cadmium	101		P	85 - 115
Chromium	98.1		P	85 - 115
Copper	95.0		P	85 - 115
Lead	96.4		P	85 - 115
Nickel	96.5		P	85 - 115
Silver	97.7		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P314695

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P314700

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P314862

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P314863

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P314864

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	93.9		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P314865

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	94.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P314646

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P314762

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P314878

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P314029

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	104		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0 dissolved
Batch ID: P314030

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	106		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P314389

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P314390

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P313670

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P313765

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	106		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P313766

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.9		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P313853

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P313828

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1843195	Calcium	107		P	80 - 120
1843195	Iron	106		P	80 - 120
1843195	Magnesium	107		P	80 - 120
1843195	Potassium	101		P	80 - 120
1843195	Sodium	104		P	80 - 120
1843195	Zinc	101		P	80 - 120
1843639	Calcium	104		P	80 - 120
1843639	Iron	109	111	P/P	80 - 120
1843639	Magnesium	108	111	P/P	80 - 120
1843639	Potassium	103	104	P/P	80 - 120
1843639	Sodium	103		P	80 - 120
1843639	Zinc	102	100	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P313828

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1843195	Arsenic	99.0		P	80 - 120
1843195	Cadmium	100		P	80 - 120
1843195	Chromium	97.2		P	80 - 120
1843195	Copper	94.8		P	80 - 120
1843195	Lead	96.6		P	80 - 120
1843195	Nickel	96.6		P	80 - 120
1843195	Silver	98.7		P	80 - 120
1843639	Arsenic	98.3	97.9	P/P	80 - 120
1843639	Cadmium	100	102	P/P	80 - 120
1843639	Chromium	95.7	95.6	P/P	80 - 120
1843639	Copper	90.9	90.5	P/P	80 - 120
1843639	Lead	96.6	95.6	P/P	80 - 120
1843639	Nickel	94.8	94.9	P/P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P313828

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1843639	Silver	97.7	96.8	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P314695

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1843198	Chloride	99.9		P	90 - 110
1843287	Chloride	100		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P314700

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1843198	Sulfate	99.8		P	90 - 110
1843287	Sulfate	100		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P314862

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1843294	Chloride	95.9		P	90 - 110
1843295	Chloride	96.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P314863

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1843293	Chloride	97.3		P	90 - 110
1847287	Chloride	99.7	97.9	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P314864

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1843294	Sulfate	93.4		P	90 - 110
1843295	Sulfate	93.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P314865

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1843293	Sulfate	93.5		P	90 - 110
1847287	Sulfate	93.6	92.7	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P314646

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1843208	Ammonia-N	98.5	98.5	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P314762

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1841109	Kjeldahl Nitrogen	94.3	93.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P314878

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1843207	Kjeldahl Nitrogen	99.9	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P314029

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1843205	NO2NO3-N	105	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0 dissolved
Batch ID: P314030

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1843353	NO2NO3-N	102	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P314389

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1843203	Total-P	102	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P314390

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1843353	Total-P	101	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P313670

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1843214	O-Phosphate-P	99.8	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P313766

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1843319	Fluoride	105	106	F/F	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P313853

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1843193	Organic Carbon	98.3	99.7	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P313740

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1843287	Turbidity	4.40	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P313828

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1843639	Calcium	0.434	Spike	P	0 - 20
1843639	Iron	1.94	Spike	P	0 - 20
1843639	Magnesium	2.36	Spike	P	0 - 20
1843639	Potassium	1.22	Spike	P	0 - 20
1843639	Sodium	0.621	Spike	P	0 - 20
1843639	Zinc	1.30	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P313828

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1843639	Arsenic	0.383	Spike	P	0 - 20
1843639	Cadmium	1.26	Spike	P	0 - 20
1843639	Chromium	0.0458	Spike	P	0 - 20
1843639	Copper	0.533	Spike	P	0 - 20
1843639	Lead	1.04	Spike	P	0 - 20
1843639	Nickel	0.0847	Spike	P	0 - 20
1843639	Silver	0.875	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P314695

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1843198	Chloride	0.0807	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P314700

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1843198	Sulfate	0.148	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P314862

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1843294	Chloride	0.500	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P314863

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1847287	Chloride	1.65	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P314864

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1843294	Sulfate	1.88	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P314865

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1847287	Sulfate	0.848	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P314646

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1843208	Ammonia-N	0.0266	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P314762

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1841109	Kjeldahl Nitrogen	0.440	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P314878

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1843207	Kjeldahl Nitrogen	1.68	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P314029

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1843205	NO2NO3-N	0.426	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0 dissolved
Batch ID: P314030

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1843353	NO2NO3-N	0.971	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P314389

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1843203	Total-P	1.90	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P314390

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1843353	Total-P	4.87	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P313670

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1843214	O-Phosphate-P	0.699	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P313668

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1843318	Color (true)	5.14	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P313765

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1843319	Total Alkalinity	0.646	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P314271

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1843202	TDS	0.922	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P313766

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1843319	Fluoride	0.979	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P313853

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1843193	Organic Carbon	1.27	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: SM 2120 B

Run ID: A72372

Included Lab Sample IDs: 1843287, 1843288, 1843293, 1843294, 1843295

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	107	105	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A72374

Included Lab Sample IDs: 1843291, 1843292, 1843302, 1843303, 1843304

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.2	97.4	P/P	90 - 110
O-Phosphate-P	97.4	96.0	P/P	90 - 110
O-Phosphate-P	97.6	97.2	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A72389

Included Lab Sample IDs: 1843287, 1843288, 1843293, 1843294, 1843295

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

Reference Method: SM 2320 B-97

Run ID: A72402

Included Lab Sample IDs: 1843287, 1843288, 1843293, 1843294, 1843295

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	107	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A72402

Included Lab Sample IDs: 1843287, 1843288, 1843293, 1843294, 1843295

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.6	100	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A72424

Included Lab Sample IDs: 1843289, 1843290, 1843296, 1843297, 1843298

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

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A72447

Included Lab Sample IDs: 1843310, 1843311, 1843312

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A72447

Included Lab Sample IDs: 1843310, 1843311, 1843312

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	102	103	P/P	90 - 110
Calcium	103	102	P/P	90 - 110
Iron	103	104	P/P	90 - 110
Iron	104	103	P/P	90 - 110
Magnesium	103	104	P/P	90 - 110
Magnesium	104	104	P/P	90 - 110
Potassium	100	101	P/P	90 - 110
Potassium	101	101	P/P	90 - 110
Sodium	101	101	P/P	90 - 110
Sodium	101	102	P/P	90 - 110
Zinc	100	102	P/P	90 - 110
Zinc	102	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A72468

Included Lab Sample IDs: 1843289, 1843290

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0 dissolved

Run ID: A72468

Included Lab Sample IDs: 1843299, 1843300, 1843301

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	102	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A72507

Included Lab Sample IDs: 1843310, 1843311, 1843312

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	98.2	97.1	P/P	90 - 110
Cadmium	97.9	97.9	P/P	90 - 110
Chromium	96.4	96.6	P/P	90 - 110
Copper	95.3	95.0	P/P	90 - 110
Lead	94.8	95.0	P/P	90 - 110
Nickel	97.6	96.3	P/P	90 - 110
Silver	97.7	95.9	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A72589

Included Lab Sample IDs: 1843287, 1843288

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	100	P/P	90 - 110
Chloride	103	101	P/P	90 - 110
Sulfate	101	99.5	P/P	90 - 110
Sulfate	99.7	100	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A72612

Included Lab Sample IDs: 1843289, 1843290, 1843296, 1843297, 1843298

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	102	104	P/P	90 - 110
Total-P	104	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A72636

Included Lab Sample IDs: 1843289, 1843290, 1843296, 1843297, 1843298

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.5	97.5	P/P	90 - 110
Ammonia-N	98.7	97.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A72704

Included Lab Sample IDs: 1843298

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	102	99.2	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A72715

Included Lab Sample IDs: 1843293, 1843294, 1843295

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	99.6	P/P	90 - 110
Chloride	99.9	101	P/P	90 - 110
Sulfate	96.4	97.6	P/P	90 - 110
Sulfate	99.6	96.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A72747

Included Lab Sample IDs: 1843289, 1843290, 1843296, 1843297

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

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

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

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery		LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity						4.40	
EPA 200.7 Rev. 4.4	Calcium	105		107	104			0.434
	Iron	108		106	109	111		1.94
	Magnesium	108		107	108	111		2.36
	Potassium	100		101	103	104		1.22
	Sodium	101		104	103			0.621

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			Precision	
			LCS	SMP	MS		
EPA 200.7 Rev. 4.4	Zinc	98.9	101	102	100		1.30
EPA 200.8 Rev. 5.4	Arsenic	97.8	99.0	98.3	97.9		0.383
	Cadmium	101	100	100	102		1.26
	Chromium	98.1	97.2	95.7	95.6		0.0458
	Copper	95.0	94.8	90.9	90.5		0.533
	Lead	96.4	96.6	96.6	95.6		1.04
	Nickel	96.5	96.6	94.8	94.9		0.0847
	Silver	97.7	98.7	97.7	96.8		0.875
EPA 300.0 Rev. 2.1	Chloride	98.8	99.9	100		0.0807	
	Chloride	96.8	95.9	96.5		0.500	
	Chloride	97.8	99.7	97.9	97.3		1.65
	Sulfate	99.9	99.8	100		0.148	
	Sulfate	93.9	93.4	93.6		1.88	
	Sulfate	94.1	93.6	92.7	93.5		0.848
EPA 350.1 Rev. 2.0	Ammonia-N	102	98.5	98.5			0.0266
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.6	94.3	93.8			0.440
	Kjeldahl Nitrogen	104	99.9	103			1.68
EPA 353.2 Rev. 2.0	NO2NO3-N	104	105	105			0.426
EPA 353.2 Rev. 2.0 dissolved	NO2NO3-N	106	102	104			0.971
EPA 365.1 Rev. 2.0	Total-P	99.4	102	104			1.90
	Total-P	99.4	101	107			4.87
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	99.8	100			0.699
SM 2120 B	Color (true)					5.14	
SM 2320 B-97	Total Alkalinity	106				0.646	
SM 2540 C-97	TDS					0.922	
SM 4500 F-C-97	Fluoride	98.9	105	106			0.979
SM 5310 B-00	Organic Carbon	100	98.3	99.7			1.27

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1843287, 1843288, 1843293, 1843294, 1843295
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1843310, 1843311, 1843312
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	1843310, 1843311, 1843312
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1843287, 1843288, 1843293, 1843294, 1843295
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1843287, 1843288, 1843293, 1843294, 1843295
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1843289, 1843290, 1843296, 1843297, 1843298
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1843289, 1843290, 1843296, 1843297, 1843298
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1843289, 1843290
EPA 353.2 Rev. 2.0 dissolved / E31780	Nitrite/Nitrate, dissolved, in filtered, aqueous matrices as mg N/L	1843299, 1843300, 1843301
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1843289, 1843290, 1843296, 1843297, 1843298
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1843291, 1843292, 1843302, 1843303, 1843304
SM 2120 B / E31780	True Color measured at 450 nm	1843287, 1843288, 1843293, 1843294, 1843295

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1843287, 1843288, 1843293, 1843294, 1843295
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1843287, 1843288, 1843293, 1843294, 1843295
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1843287, 1843288, 1843293, 1843294, 1843295
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1843287, 1843288, 1843293, 1843294, 1843295
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1843289, 1843290, 1843296, 1843297, 1843298

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	10/21/2016			10/21/2016 15:29	Blanca Fach	1843287, 1843288, 1843293, 1843294, 1843295
EPA 200.7 Rev. 4.4	10/21/2016	10/25/2016	Elliott D. Healy	10/26/2016	Betina Topolski	1843310, 1843311, 1843312
EPA 200.8 Rev. 5.4	10/21/2016	10/25/2016	Elliott D. Healy	10/28/2016	Charles J. Peterson	1843310, 1843311, 1843312
EPA 300.0 Rev. 2.1	10/21/2016			11/05/2016	Elisa J Lutz	1843287
	10/21/2016			11/06/2016	Elisa J Lutz	1843288
	10/21/2016			11/08/2016	Elisa J Lutz	1843294, 1843295
	10/21/2016			11/09/2016	Ping Hua	1843293
EPA 350.1 Rev. 2.0	10/21/2016			11/04/2016	Sofia Elnemr	1843289, 1843290, 1843296, 1843297, 1843298
EPA 351.2 Rev. 2.0	10/21/2016	11/08/2016	Adrian Shelby	11/08/2016	Joseph Suarez	1843298
	10/21/2016	11/09/2016	Adrian Shelby	11/10/2016	Joseph Suarez	1843289, 1843290, 1843296, 1843297
EPA 353.2 Rev. 2.0	10/21/2016			10/27/2016	Beverly Y. Sanders	1843289, 1843290
EPA 353.2 Rev. 2.0 dissolved	10/21/2016			10/27/2016	Beverly Y. Sanders	1843299, 1843300, 1843301
EPA 365.1 Rev. 2.0	10/21/2016	11/02/2016	Vijayalakshmi Reddy	11/03/2016	Lipi Saha	1843289, 1843290, 1843296, 1843297, 1843298
EPA 365.1 Rev. 2.0 dissolved	10/21/2016			10/21/2016 16:52	Julia Storbeck	1843302
	10/21/2016			10/21/2016 16:53	Julia Storbeck	1843303
	10/21/2016			10/21/2016 16:54	Julia Storbeck	1843304
	10/21/2016			10/21/2016 17:07	Julia Storbeck	1843291
	10/21/2016			10/21/2016 17:13	Julia Storbeck	1843292
SM 2120 B	10/21/2016			10/21/2016 15:57	Julie Michelle Frank	1843287
	10/21/2016			10/21/2016 15:58	Julie Michelle Frank	1843288
	10/21/2016			10/21/2016 15:59	Julie Michelle Frank	1843293, 1843294
	10/21/2016			10/21/2016 16:00	Julie Michelle Frank	1843295
SM 2320 B-97	10/21/2016			10/24/2016	Dale L. Simmons	1843287, 1843288, 1843293, 1843294, 1843295
SM 2540 C-97	10/21/2016			10/26/2016	Yijie Li	1843287, 1843288, 1843293, 1843294, 1843295
SM 2540 D-97	10/21/2016			10/26/2016	Yijie Li	1843287, 1843288, 1843293, 1843294, 1843295
SM 4500 F-C-97	10/21/2016			10/24/2016	Dale L. Simmons	1843287, 1843288, 1843293, 1843294, 1843295
SM 5310 B-00	10/21/2016			10/25/2016	Julie Michelle Frank	1843289, 1843290, 1843296, 1843297, 1843298