

Chemical Analysis Report

SO-DIST-2019-09-12-02

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

Event Description: **2019 SMP : Charlotte Harbor**
Request ID: **RQ-2019-09-09-37**
Customer: **SO-DIST**
Project ID: **SMP**

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FLDEP South District Office
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Date Certified: 08-OCT-2019 11:06



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: TrailerParkCanal@Mouth

Collection Date/Time: 09/11/2019 10:30

Field ID: G3SD0072

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2118662	EPA 180.1 Rev. 2.0	Turbidity	2.2		NTU	P370589	
	EPA 300.0	Bromide	22		mg Br/L	P370690	
	SM 2320 B-97	Total Alkalinity	87		mg CaCO3/L	P371102	
	SM 2540 D-97	TSS	5	I	mg/L	P370804	
	SM 4500 F-C-97	Fluoride	0.55		mg F/L	P371519	
2118663	EPA 350.1 Rev. 2.0	Ammonia-N	0.010		mg N/L	P370847	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.93		mg N/L	P370774	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.018		mg N/L	P370713	
	EPA 365.1 Rev. 2.0	Total-P	0.30		mg P/L	P371310	
	SM 5310 B-00	Organic Carbon	17		mg C/L	P371023	
2118664	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.24		mg P/L	P370582	
2118690	EPA 200.7 Rev. 4.4	Iron	220	I	ug/L	P370727	
		Manganese	13		ug/L	P370727	
		Zinc	15	U	ug/L	P370727	
	EPA 200.8 Rev. 5.4	Aluminum	74	I	ug/L	P370727	
		Antimony	0.50	U	ug/L	P370727	
		Arsenic	2.10		ug/L	P370727	
		Boron**	1.46E+03		ug/L	P370727	
		Cadmium	0.20	U	ug/L	P370727	
		Chromium	4.0	U	ug/L	P370727	
		Copper	1.6	U	ug/L	P370727	
		Lead	2.0	U	ug/L	P370727	
		Nickel	3.1	I	ug/L	P370727	
		Selenium	0.80	U	ug/L	P370727	
		Silver	0.10	U	ug/L	P370727	
		Thallium	1.0	U	ug/L	P370727	

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: MyakkaCutoff(Western)

Collection Date/Time: 09/11/2019 10:45

Field ID: G3SD0073

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2118665	EPA 180.1 Rev. 2.0	Turbidity	3.6		NTU	P370590	
	EPA 300.0	Bromide	25		mg Br/L	P370690	
	SM 2320 B-97	Total Alkalinity	95		mg CaCO3/L	P371103	
	SM 2540 D-97	TSS	9	I	mg/L	P370804	
	SM 4500 F-C-97	Fluoride	0.64		mg F/L	P371107	
2118667	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P370847	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P370787	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P370713	
	EPA 365.1 Rev. 2.0	Total-P	0.32		mg P/L	P371310	
	SM 5310 B-00	Organic Carbon	16		mg C/L	P371023	
2118669	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.26		mg P/L	P370582	

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: MyakkaCutoff(Western)

Collection Date/Time: 09/11/2019 10:50

Field ID: G3SD0073_DUP

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2118671	EPA 180.1 Rev. 2.0	Turbidity	4.0		NTU	P370590	
	EPA 300.0	Bromide	25		mg Br/L	P370690	
	SM 2320 B-97	Total Alkalinity	95		mg CaCO3/L	P371103	
	SM 2540 D-97	TSS	8	I	mg/L	P370804	
	SM 4500 F-C-97	Fluoride	0.64		mg F/L	P371107	
2118673	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P370847	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.90		mg N/L	P370787	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P370713	
	EPA 365.1 Rev. 2.0	Total-P	0.32		mg P/L	P371311	
	SM 5310 B-00	Organic Carbon	16		mg C/L	P371023	
2118675	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.26		mg P/L	P370582	

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: MyakkaCutoff(Western)

Collection Date/Time: 09/11/2019 11:25

Field ID: FB_09112019

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2118672	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P370590	
	EPA 300.0	Bromide	0.013	U	mg Br/L	P370690	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P371032	
	SM 2540 D-97	TSS	2	U	mg/L	P370800	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P371510	
2118674	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P370844	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P370750	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P370634	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P371268	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P370755	
2118676	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P370580	

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: Whidden Creek South Pt

Collection Date/Time: 09/11/2019 12:20

Field ID: G2SD0029

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2118666	EPA 180.1 Rev. 2.0	Turbidity	2.2		NTU	P370590	
	EPA 300.0	Bromide	61		mg Br/L	P370690	
	SM 2320 B-97	Total Alkalinity	152		mg CaCO3/L	P371103	
	SM 2540 D-97	TSS	4	I	mg/L	P370804	
	SM 4500 F-C-97	Fluoride	1.1		mg F/L	P371107	
2118668	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P370848	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.99		mg N/L	P370787	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P370713	
	EPA 365.1 Rev. 2.0	Total-P	0.057		mg P/L	P371310	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P371023	
2118670	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P370582	

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: P370589

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P370590

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P370727

Component	Result	Code	Units
Iron	30	U	ug/L
Manganese	1.0	U	ug/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P370727

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
Batch ID: P370690

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370844

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370847

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370848

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370750

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370774

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370787

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370634

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370713

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P371268

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P371310

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P371311

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: P370580

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P370582

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

Reference Method: SM 2320 B-97
Batch ID: P371032

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

Reference Method: SM 2320 B-97
Batch ID: P371102

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

Reference Method: SM 2320 B-97
Batch ID: P371103

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

Reference Method: SM 2540 D-97
Batch ID: P370800

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P370804

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P371107

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P371510

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P371519

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P370755

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

Reference Method: SM 5310 B-00
Batch ID: P371023

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: P370727

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	101		P	85 - 115
Manganese	100		P	85 - 115
Zinc	99.0		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P370727

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	105		P	85 - 115
Antimony	98.0		P	85 - 115
Arsenic	101		P	85 - 115
Boron	103		P	85 - 115
Cadmium	97.2		P	85 - 115
Chromium	91.3		P	85 - 115
Copper	98.6		P	85 - 115
Lead	98.4		P	85 - 115
Nickel	98.1		P	85 - 115
Selenium	101		P	85 - 115
Silver	98.6		P	85 - 115
Thallium	102		P	85 - 115

Reference Method: EPA 300.0
Batch ID: P370690

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370844

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370847

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370848

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: P370750

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370774

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	98.3		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370787

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370634

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370713

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: P371268

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P371310

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P371311

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	94.4		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P370580

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.3		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P370582

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.7		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P371032

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

Reference Method: SM 2320 B-97
Batch ID: P371102

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

Reference Method: SM 2320 B-97
Batch ID: P371103

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

Reference Method: SM 4500 F-C-97
Batch ID: P371107

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.6		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P371510

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.1		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P371519

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.1		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P370755

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

Reference Method: SM 5310 B-00
Batch ID: P371023

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.6		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P370727

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2117903	Iron	95.8	95.7	P/P	80 - 120
2117903	Manganese	93.9	94.6	P/P	80 - 120
2117903	Zinc	101	102	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P370727

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2117903	Aluminum	112	113	P/P	70 - 130
2117903	Antimony	101	103	P/P	70 - 130
2117903	Arsenic	108	109	P/P	70 - 130
2117903	Boron	103	107	P/P	70 - 130
2117903	Cadmium	99.1	98.4	P/P	70 - 130
2117903	Chromium	93.7	91.4	P/P	70 - 130
2117903	Copper	97.4	98.9	P/P	70 - 130
2117903	Lead	103	102	P/P	70 - 130
2117903	Nickel	95.0	96.3	P/P	70 - 130
2117903	Selenium	102	104	P/P	70 - 130
2117903	Silver	94.3	94.9	P/P	70 - 130
2117903	Thallium	105	106	P/P	70 - 130

Reference Method: EPA 300.0
Batch ID: P370690

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2118899	Bromide	95.6	96.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370844

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2118900	Ammonia-N	100	97.9	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370847

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2118616	Ammonia-N	100	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370848

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2118668	Ammonia-N	104	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370750

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2118725	Kjeldahl Nitrogen	101	94.4	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370774

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2118616	Kjeldahl Nitrogen	93.7	93.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370787

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2118779	Kjeldahl Nitrogen	92.8	97.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370634

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2118465	NO2NO3-N	99.5	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370713

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2118668	NO2NO3-N	99.5	99.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P371268

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2118511	Total-P	98.5	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P371310

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2118563	Total-P	94.6	93.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P371311

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2118673	Total-P	99.4	94.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P370580

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2118284	O-Phosphate-P	96.0	97.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P370582

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2118630	O-Phosphate-P	96.7	97.7	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P371107

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2117596	Fluoride	93.6	96.2	P/P	89 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P371510

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2119000	Fluoride	98.1	98.1	P/P	89 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P371519

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2119124	Fluoride	95.1	95.1	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P370755

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2118683	Organic Carbon	103	104	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P371023

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2118626	Organic Carbon	94.4	96.8	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P370589

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2118320	Turbidity	0.494	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P370590

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2118776	Turbidity	7.60	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
 Batch ID: P370727

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2117903	Iron	0.0664	Spike	P	0 - 20
2117903	Manganese	0.602	Spike	P	0 - 20
2117903	Zinc	0.355	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
 Batch ID: P370727

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2117903	Aluminum	0.634	Spike	P	0 - 20
2117903	Antimony	1.68	Spike	P	0 - 20
2117903	Arsenic	1.20	Spike	P	0 - 20
2117903	Boron	0.807	Spike	P	0 - 20
2117903	Cadmium	0.716	Spike	P	0 - 20
2117903	Chromium	2.50	Spike	P	0 - 20
2117903	Copper	1.42	Spike	P	0 - 20
2117903	Lead	1.16	Spike	P	0 - 20
2117903	Nickel	1.36	Spike	P	0 - 20
2117903	Selenium	1.65	Spike	P	0 - 20
2117903	Silver	0.607	Spike	P	0 - 20
2117903	Thallium	1.26	Spike	P	0 - 20

Reference Method: EPA 300.0
 Batch ID: P370690

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2118899	Bromide	0.308	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P370844

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2118900	Ammonia-N	1.57	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370847

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2118616	Ammonia-N	0.345	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370848

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2118668	Ammonia-N	0.928	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370750

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2118725	Kjeldahl Nitrogen	4.45	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370774

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2118616	Kjeldahl Nitrogen	0.143	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370787

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2118779	Kjeldahl Nitrogen	4.69	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370634

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2118465	NO2NO3-N	0.602	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370713

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2118668	NO2NO3-N	0.504	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P371268

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2118511	Total-P	1.96	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P371310

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2118563	Total-P	1.08	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P371311

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2118673	Total-P	3.69	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P370580

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2118284	O-Phosphate-P	1.06	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P370582

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2118630	O-Phosphate-P	0.987	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P371032

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2119000	Total Alkalinity	0.777	Sample	P	0 - 2.8

Reference Method: SM 2320 B-97
Batch ID: P371102

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2118624	Total Alkalinity	0.706	Sample	P	0 - 2.8

Reference Method: SM 2320 B-97
Batch ID: P371103

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2117596	Total Alkalinity	0.228	Sample	P	0 - 2.8

Reference Method: SM 4500 F-C-97
Batch ID: P371107

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2117596	Fluoride	1.95	Spike	P	0 - 2.5

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
Batch ID: P371510

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2119000	Fluoride	0.0	Spike	P	0 - 2.5

Reference Method: SM 4500 F-C-97
Batch ID: P371519

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2119124	Fluoride	0.0	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P370755

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2118683	Organic Carbon	0.324	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P371023

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2118626	Organic Carbon	1.89	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0

Run ID: A94097

Included Lab Sample IDs: 2118662, 2118665, 2118666, 2118671, 2118672

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	102	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A94166

Included Lab Sample IDs: 2118664, 2118669, 2118670, 2118675, 2118676

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	101	P/P	90 - 110
O-Phosphate-P	101	99.3	P/P	90 - 110
O-Phosphate-P	99.7	100	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A94168

Included Lab Sample IDs: 2118662, 2118665, 2118666, 2118671, 2118672

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A94193

Included Lab Sample IDs: 2118674

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

Run ID: A94233

Included Lab Sample IDs: 2118663, 2118667, 2118668, 2118673

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.5	100	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A94255

Included Lab Sample IDs: 2118674

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A94295

Included Lab Sample IDs: 2118663, 2118667, 2118668, 2118673, 2118674

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A94318

Included Lab Sample IDs: 2118663, 2118667, 2118668, 2118673, 2118674

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	93.2	95.8	P/P	90 - 110
Kjeldahl Nitrogen	96.3	90.6	P/P	90 - 110
Kjeldahl Nitrogen	98.1	93.2	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A94322

Included Lab Sample IDs: 2118690

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	98.6	96.8	P/P	90 - 110
Manganese	103	102	P/P	90 - 110
Zinc	101	99.2	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A94349

Included Lab Sample IDs: 2118663, 2118667, 2118668, 2118673

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.1	103	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A94353

Included Lab Sample IDs: 2118672

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	105	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A94392

Included Lab Sample IDs: 2118662, 2118665, 2118666, 2118671

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	103	P/P	90 - 110
Total Alkalinity	103	101	P/P	90 - 110
Total Alkalinity	104	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A94392

Included Lab Sample IDs: 2118665, 2118666, 2118671

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	98.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A94517

Included Lab Sample IDs: 2118663, 2118667, 2118673

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.6	97.6	P/P	90 - 110
Total-P	98.8	98.6	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A94532

Included Lab Sample IDs: 2118668, 2118674

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.2	99.5	P/P	90 - 110
Total-P	99.5	99.5	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A94545

Included Lab Sample IDs: 2118690

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chromium	93.6	92.4	P/P	90 - 110
Lead	94.2	93.7	P/P	90 - 110
Silver	95.4	94.6	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A94568

Included Lab Sample IDs: 2118672

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

Reference Method: SM 4500 F-C-97

Run ID: A94575

Included Lab Sample IDs: 2118662

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A94675

Included Lab Sample IDs: 2118690

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Antimony	100	100	P/P	90 - 110
Cadmium	104	103	P/P	90 - 110
Thallium	98.4	97.2	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A9471

Included Lab Sample IDs: 2118690

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Nickel	103	102	P/P	90 - 110
Selenium	100	99.7	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A94722

Included Lab Sample IDs: 2118690

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	105	106	P/P	90 - 110
Arsenic	101	102	P/P	90 - 110
Boron	105	104	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A94722

Included Lab Sample IDs: 2118690

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Copper	101	102	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					0.494	
	Turbidity					7.60	
EPA 200.7 Rev. 4.4	Iron	101	95.8	95.7			0.0664
	Manganese	100	93.9	94.6			0.602
	Zinc	99.0	101	102			0.355
EPA 200.8 Rev. 5.4	Aluminum	105	112	113			0.634
	Antimony	98.0	101	103			1.68
	Arsenic	101	108	109			1.20
	Boron	103	103	107			0.807
	Cadmium	97.2	99.1	98.4			0.716
	Chromium	91.3	93.7	91.4			2.50
	Copper	98.6	97.4	98.9			1.42
	Lead	98.4	103	102			1.16
	Nickel	98.1	95.0	96.3			1.36
	Selenium	101	102	104			1.65
	Silver	98.6	94.3	94.9			0.607
	Thallium	102	105	106			1.26
EPA 300.0	Bromide	96.8	95.6	96.0			0.308
EPA 350.1 Rev. 2.0	Ammonia-N	99.5	100	97.9			1.57
	Ammonia-N	99.8	100	101			0.345
	Ammonia-N	101	104	103			0.928
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	95.0	101	94.4			4.45
	Kjeldahl Nitrogen	98.3	93.7	93.6			0.143
	Kjeldahl Nitrogen	95.2	92.8	97.8			4.69
EPA 353.2 Rev. 2.0	NO2NO3-N	100	99.5	100			0.602
	NO2NO3-N	100	99.5	99.0			0.504
EPA 365.1 Rev. 2.0	Total-P	95.6	98.5	101			1.96
	Total-P	97.8	94.6	93.5			1.08
	Total-P	94.4	99.4	94.3			3.69
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.3	96.0	97.2			1.06
	O-Phosphate-P	99.7	96.7	97.7			0.987
SM 2320 B-97	Total Alkalinity	104				0.777	
	Total Alkalinity	103				0.706	
	Total Alkalinity	104				0.228	
SM 4500 F-C-97	Fluoride	96.6	93.6	96.2			1.95
	Fluoride	96.1	98.1	98.1			0.0
	Fluoride	96.1	95.1	95.1			0.0
SM 5310 B-00	Organic Carbon	103	103	104			0.324
	Organic Carbon	94.6	94.4	96.8			1.89

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2118662, 2118665, 2118666, 2118671, 2118672
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2118690
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2118690
EPA 300.0 / E31780	Bromide in aqueous matrices	2118662, 2118665, 2118666, 2118671, 2118672
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2118663, 2118667, 2118668, 2118673, 2118674

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2118663, 2118667, 2118668, 2118673, 2118674
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2118663, 2118667, 2118668, 2118673, 2118674
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2118663, 2118667, 2118668, 2118673, 2118674
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2118664, 2118669, 2118670, 2118675, 2118676
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2118662, 2118665, 2118666, 2118671, 2118672
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2118662, 2118665, 2118666, 2118671, 2118672
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2118662, 2118665, 2118666, 2118671, 2118672
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2118663, 2118667, 2118668, 2118673, 2118674

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	09/12/2019			09/12/2019 17:00	Samantha Davila	2118662, 2118665, 2118666, 2118671, 2118672
EPA 200.7 Rev. 4.4	09/12/2019	09/16/2019 14:50	Elliott D. Healy	09/18/2019 15:17	Betina Topolski	2118690
EPA 200.8 Rev. 5.4	09/12/2019	09/16/2019 14:50	Elliott D. Healy	09/26/2019 16:13	Robert K Palmer	2118690
	09/12/2019	09/16/2019 14:50	Elliott D. Healy	10/02/2019 19:59	Robert K Palmer	2118690
	09/12/2019	09/16/2019 14:50	Elliott D. Healy	10/03/2019 19:17	Justin Cutchin	2118690
	09/12/2019	09/16/2019 14:50	Elliott D. Healy	10/04/2019 20:52	Justin Cutchin	2118690
EPA 300.0	09/12/2019			09/13/2019 22:36	Jhamieka S. Greenwood	2118662
	09/12/2019			09/13/2019 22:53	Jhamieka S. Greenwood	2118665
	09/12/2019			09/13/2019 23:10	Jhamieka S. Greenwood	2118666
	09/12/2019			09/13/2019 23:27	Jhamieka S. Greenwood	2118671
	09/12/2019			09/13/2019 23:44	Jhamieka S. Greenwood	2118672
EPA 350.1 Rev. 2.0	09/12/2019			09/17/2019 10:57	Ping Hua	2118674
	09/12/2019			09/17/2019 12:35	Ping Hua	2118673
	09/12/2019			09/17/2019 12:36	Ping Hua	2118667
	09/12/2019			09/17/2019 12:38	Ping Hua	2118663
	09/12/2019			09/17/2019 12:42	Ping Hua	2118668
EPA 351.2 Rev. 2.0	09/12/2019	09/17/2019 12:50	Sima Feizi	09/18/2019 13:25	Julia Storbeck	2118674
	09/12/2019	09/17/2019 13:05	Sima Feizi	09/18/2019 14:49	Julia Storbeck	2118663
	09/12/2019	09/17/2019 13:05	Sima Feizi	09/18/2019 15:01	Julia Storbeck	2118667
	09/12/2019	09/17/2019 13:05	Sima Feizi	09/18/2019 15:03	Julia Storbeck	2118668
	09/12/2019	09/17/2019 13:05	Sima Feizi	09/18/2019 15:04	Julia Storbeck	2118673
EPA 353.2 Rev. 2.0	09/12/2019			09/13/2019 09:41	Beverly Y. Sanders	2118674
	09/12/2019			09/16/2019 12:19	Beverly Y. Sanders	2118668
	09/12/2019			09/16/2019 12:27	Beverly Y. Sanders	2118663
	09/12/2019			09/16/2019 12:28	Beverly Y. Sanders	2118667
	09/12/2019			09/16/2019 12:29	Beverly Y. Sanders	2118673
EPA 365.1 Rev. 2.0	09/12/2019	09/25/2019 14:00	Lipi Saha	09/26/2019 10:37	Lipi Saha	2118663
	09/12/2019	09/25/2019 14:00	Lipi Saha	09/26/2019 10:38	Lipi Saha	2118667
	09/12/2019	09/25/2019 14:00	Lipi Saha	09/26/2019 10:45	Lipi Saha	2118673
	09/12/2019	09/25/2019 14:00	Lipi Saha	09/26/2019 13:13	Lipi Saha	2118674
	09/12/2019	09/25/2019 14:00	Lipi Saha	09/26/2019 13:33	Lipi Saha	2118668
EPA 365.1 Rev. 2.0 dissolved	09/12/2019			09/12/2019 15:24	Jhamieka S. Greenwood	2118676
	09/12/2019			09/12/2019 15:38	Jhamieka S. Greenwood	2118669, 2118675
	09/12/2019			09/12/2019 15:39	Jhamieka S. Greenwood	2118664
	09/12/2019			09/12/2019 15:49	Jhamieka S. Greenwood	2118670
SM 2320 B-97	09/12/2019			09/18/2019 09:33	Dale L. Simmons	2118672
	09/12/2019			09/19/2019 07:20	Dale L. Simmons	2118662
	09/12/2019			09/19/2019 13:56	Dale L. Simmons	2118665
	09/12/2019			09/19/2019 14:08	Dale L. Simmons	2118666

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2320 B-97	09/12/2019			09/19/2019 15:16	Dale L. Simmons	2118671
SM 2540 D-97	09/12/2019			09/13/2019 17:30	Blanca Fach	2118662, 2118665, 2118666, 2118671, 2118672
SM 4500 F-C-97	09/12/2019			09/19/2019 10:08	Dale L. Simmons	2118665
	09/12/2019			09/19/2019 10:12	Dale L. Simmons	2118666
	09/12/2019			09/19/2019 10:17	Dale L. Simmons	2118671
	09/12/2019			09/25/2019 19:59	Dale L. Simmons	2118672
SM 5310 B-00	09/12/2019			09/27/2019 00:08	Dale L. Simmons	2118662
	09/12/2019			09/16/2019 23:32	Madeline Funaro	2118674
	09/12/2019			09/19/2019 05:31	Madeline Funaro	2118663
	09/12/2019			09/19/2019 05:43	Madeline Funaro	2118667
	09/12/2019			09/19/2019 05:55	Madeline Funaro	2118668
	09/12/2019			09/19/2019 06:10	Madeline Funaro	2118673