

Chemical Analysis Report

TLH-ROC-2019-05-03-01

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

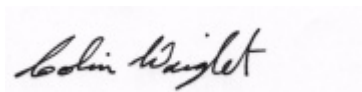
Event Description: **Run 13**
Request ID: **RQ-2019-04-29-70**
Customer: **TLH-ROC**
Project ID: **SMP**

Send Reports to:
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Certified by: Colin Wright, Program Administrator

Date Certified: 22-MAY-2019 12:26

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

Case Narrative

Unless otherwise noted, all samples included in this report were received in accordance with protocols referenced in Chapter 62-160, Florida Administrative Code (F.A.C.). Results published in this report pertain only to the samples as submitted to, and received by the laboratory. All times in this report are adjusted to the applicable Eastern Time Zone (EST or EDT).

Results for the following analytical groups are included in this report: Metals and Nutrients.

Scientific notation may be used in reporting very large or small values. Values reported using scientific notation will take the form of the following example: 1.3E+03, which is equivalent to 1.3×10^3 or 1300.

Unless otherwise noted, analytical values for soil and sediment samples are reported on a dry weight basis, and analytical values for waste and tissue samples are reported on a wet weight basis.

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited by the Florida Department of Health Environmental Laboratory Certification Program or where accreditation for that field of testing is not applicable.

Any significant anomalies or deviations from established protocols are documented in Non-Conformance Reports, which, where appropriate, are included within this analytical report. Additional comments related to specific analytical tests may be included as remarks following the analytical results for each sample. Such comments and remarks are for informational purposes only and are not intended to convey judgement about the usability of the reported data.

A quality control report on the performance of the test method for the submitted samples is included. Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published quality control acceptance limits for each analytical test. Matrix quality control results (matrix spike recoveries and matrix sample precision) pertain only to the matrix sample tested and do not necessarily reflect test method performance for other samples.

Typical matrix quality control (QC) measurements may include matrix spike recovery, matrix spike duplicate recovery, matrix spike precision and matrix sample precision. Not all matrix QC results may be available or reportable; where they are not an explanation is provided. Typical reasons for unavailable QC results include, but are not limited to, a) insufficient matrix sample to perform some or all QC measurements; b) analyte concentration in the sample replicated was too low for a meaningful measurement of precision and c) analyte concentration in the matrix sample spiked was too high (relative to the amount of analyte spiked) for a meaningful measurement of recovery. Where matrix QC results are unavailable, other method performance metrics (e.g., LCS recovery, LCS precision, surrogate recovery) may be used to assess performance of the method. Comments explaining any missing QC measurements are not intended to convey any adverse conclusions about the quality of the reported data.

Precision is reported as relative percent difference unless otherwise noted.

Quality Control codes as defined below may be used in this report to indicate results that are associated with one or more quality control elements which did not fall within established test method criteria. Such results may be qualified as estimates using a J qualifier as required by 62-160 F.A.C. Explanations are included in the report for any results that were reported as estimates for other reasons.

QC Codes used in this report may include:

- LCS – Recovery for the batch Laboratory Control Sample (LCS) was outside existing control limits;
- MS – Recovery for the batch matrix spike (MS) was outside existing control limits;
- CCV – Recovery for a continuing calibration verification (CCV) standard was outside existing control limits;
- SUR – Recovery of a surrogate (SUR) for associated analytes was outside existing control limits;
- RPD – The precision, measured as relative percent difference (RPD), of batch replicate measurements was outside existing control limits;
- RSD – The precision, measured as relative standard deviation (RSD), of batch replicate measurements was outside existing control limits;
- SMP – Sample - used precision derived from replicate analyses of a sample;

The following data qualifiers are used, where applicable, in this report as specified in 62-160 F.A.C.

- A - Value reported is the mean of two or more determinations.
- B - Results based on colony counts outside the acceptable range.
- I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
- J - Estimated value and/or the analysis did not meet established quality control criteria.
- K - Actual value is known to be less than value given.
- L - Actual value is known to be greater than value given.
- N - Presumptive evidence of presence of material.
- O - Sampled, but analysis lost or not performed.
- Q - Sample held beyond normal holding time.
- T - Value reported is less than the criterion of detection.
- U - Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
- V - Analyte was detected in both sample and method blank.
- X - Too few individuals to calculate SCI value.
- Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
- Z - Colonies were too numerous to count (TNTC).

Quality control information from overflow laboratories may not be included in this report. Please refer to the associated report from the overflow laboratory for additional information.

Sample Location: HORSESHOE CREEK 100M UPSTREAM FROM INTERCOASTAL/LAKE WIMICO **Collection Date/Time: 05/02/2019 11:40**

Field ID: G2TLHR0033

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2082894	EPA 180.1 Rev. 2.0	Turbidity	5.5	A	NTU	P363372	
	EPA 300.0 Rev. 2.1	Chloride	11		mg Cl/L	P363557	
		Sulfate	5.0		mg SO4/L	P363559	
	SM 2120 B	Color (true)	45	A	PCU	P363338	
	SM 2320 B-97	Total Alkalinity	34		mg CaCO3/L	P363806	
	SM 2540 C-97	TDS	87		mg/L	P363913	
	SM 2540 D-97	TSS	4	I	mg/L	P363890	
	SM 4500 F-C-97	Fluoride	0.059	I	mg F/L	P363968	
2082897	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P363633	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.44		mg N/L	P363707	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.056		mg N/L	P363479	
	EPA 365.1 Rev. 2.0	Total-P	0.032		mg P/L	P363389	
	SM 5310 B-00	Organic Carbon	4.8		mg C/L	P363433	
2082900	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P363304	

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: DOUBLE BAYOU 800M UPSTREAM FROM LAKE WIMICO

Collection Date/Time: 05/02/2019 12:25

Field ID: G2TLHR0003

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2082895	EPA 180.1 Rev. 2.0	Turbidity	2.0		NTU	P363372	
	EPA 300.0 Rev. 2.1	Chloride	19		mg Cl/L	P363557	
		Sulfate	4.0		mg SO4/L	P363559	
	SM 2120 B	Color (true)	59		PCU	P363338	
	SM 2320 B-97	Total Alkalinity	40		mg CaCO3/L	P363806	
	SM 2540 C-97	TDS	84	A	mg/L	P363913	
	SM 2540 D-97	TSS	3	IA	mg/L	P363890	
	SM 4500 F-C-97	Fluoride	0.057	I	mg F/L	P363968	
2082898	EPA 350.1 Rev. 2.0	Ammonia-N	0.020		mg N/L	P363633	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.39		mg N/L	P363707	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.021		mg N/L	P363479	
	EPA 365.1 Rev. 2.0	Total-P	0.024		mg P/L	P363389	
	SM 5310 B-00	Organic Carbon	5.7		mg C/L	P363433	
2082901	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P363304	

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: SAUL CREEK @ MOUTH

Collection Date/Time: 05/02/2019 12:50

Field ID: G2TLHR0014

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2082896	EPA 180.1 Rev. 2.0	Turbidity	5.6		NTU	P363372	
	EPA 300.0 Rev. 2.1	Chloride	6.0		mg Cl/L	P363557	
		Sulfate	4.2		mg SO4/L	P363559	
	SM 2120 B	Color (true)	27		PCU	P363338	
	SM 2320 B-97	Total Alkalinity	44		mg CaCO3/L	P363806	
	SM 2540 C-97	TDS	70		mg/L	P363913	
	SM 2540 D-97	TSS	5	I	mg/L	P363890	
	SM 4500 F-C-97	Fluoride	0.062	I	mg F/L	P363968	
2082899	EPA 350.1 Rev. 2.0	Ammonia-N	0.013		mg N/L	P363633	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.32		mg N/L	P363708	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.23		mg N/L	P363479	
	EPA 365.1 Rev. 2.0	Total-P	0.032		mg P/L	P363389	
	SM 5310 B-00	Organic Carbon	3.6		mg C/L	P363433	
2082902	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P363304	

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: INTERCOASTAL 450M D-STREAM PINE LOG
 BOAT RAMP**

Collection Date/Time: 05/02/2019 13:05

Field ID: G2TLHR0034

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2082909	EPA 180.1 Rev. 2.0	Turbidity	7.2		NTU	P363372	
	EPA 300.0 Rev. 2.1	Chloride	5.3		mg Cl/L	P363557	
		Sulfate	4.4		mg SO4/L	P363559	
		Color (true)	24		PCU	P363338	
	SM 2320 B-97	Total Alkalinity	42		mg CaCO3/L	P363806	
	SM 2540 C-97	TDS	68		mg/L	P363913	
	SM 2540 D-97	TSS	9	I	mg/L	P363890	
	SM 4500 F-C-97	Fluoride	0.061	I	mg F/L	P363968	
2082910	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P363633	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.34		mg N/L	P363708	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.33		mg N/L	P363479	
	EPA 365.1 Rev. 2.0	Total-P	0.037		mg P/L	P363389	
	SM 5310 B-00	Organic Carbon	3.2		mg C/L	P363435	
2082911	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P363304	
2082927	EPA 200.7 Rev. 4.4	Barium	21.5		ug/L	P363403	
		Calcium	14.7		mg/L	P363403	
		Iron	810		ug/L	P363403	
		Magnesium	1.97		mg/L	P363403	
		Potassium	1.7		mg/L	P363403	
		Sodium	5.3		mg/L	P363403	
		Zinc	5.0	U	ug/L	P363403	
	EPA 200.8 Rev. 5.4	Aluminum	322		ug/L	P363403	
		Antimony	0.051	I	ug/L	P363403	
		Arsenic	0.42		ug/L	P363403	
		Boron**	15.4		ug/L	P363403	
		Cadmium	0.020	U	ug/L	P363403	
		Chromium	0.60	I	ug/L	P363403	
		Copper	0.71	I	ug/L	P363403	
		Lead	0.31	I	ug/L	P363403	
		Nickel	0.50	U	ug/L	P363403	
		Selenium	0.20	U	ug/L	P363403	
		Silver	0.010	U	ug/L	P363403	
		Thallium	0.10	U	ug/L	P363403	

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: APALACHICOLA BAY CENTER

Collection Date/Time: 05/02/2019 13:55

Field ID: G2TLHR0026

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2082903	EPA 180.1 Rev. 2.0	Turbidity	120		NTU	P363372	
	EPA 300.0	Bromide	0.12		mg Br/L	P363643	
	SM 2320 B-97	Total Alkalinity	45		mg CaCO3/L	P363806	
	SM 2540 D-97	TSS	83		mg/L	P363893	
	SM 4500 F-C-97	Fluoride	0.068	I	mg F/L	P363968	
2082904	EPA 350.1 Rev. 2.0	Ammonia-N	0.016		mg N/L	P363633	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.97		mg N/L	P363708	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.29		mg N/L	P363479	
	EPA 365.1 Rev. 2.0	Total-P	0.16		mg P/L	P363389	
	SM 5310 B-00	Organic Carbon	3.4		mg C/L	P363435	
2082905	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.006	I	mg P/L	P363304	
2082926	EPA 200.7 Rev. 4.4	Iron	7.85E+03		ug/L	P363403	
		Manganese	313		ug/L	P363403	
		Zinc	14	I	ug/L	P363403	
	EPA 200.8 Rev. 5.4	Aluminum	4.82E+03		ug/L	P364002	
		Antimony	0.069	I	ug/L	P363403	
		Arsenic	2.69		ug/L	P363403	
		Cadmium	0.026	I	ug/L	P363403	
		Chromium	8.5		ug/L	P363403	
		Copper	2.88		ug/L	P363403	
		Lead	4.08		ug/L	P363403	
		Nickel	2.4		ug/L	P363403	
		Selenium	0.20	U	ug/L	P363403	
		Silver	0.010	U	ug/L	P363403	
		Thallium	0.11	I	ug/L	P363403	

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 aluminum result was confirmed on 05/14/2019.

Sample Location: EAST BAY

Collection Date/Time: 05/02/2019 14:35

Field ID: G2TLHR0027

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2082906	EPA 180.1 Rev. 2.0	Turbidity	8.6		NTU	P363372	
	EPA 300.0	Bromide	2.5		mg Br/L	P363643	
	SM 2320 B-97	Total Alkalinity	41		mg CaCO3/L	P363806	
	SM 2540 D-97	TSS	7	IA	mg/L	P363894	
	SM 4500 F-C-97	Fluoride	0.10		mg F/L	P363968	
2082907	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P363633	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.37		mg N/L	P363708	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.21		mg N/L	P363479	
	EPA 365.1 Rev. 2.0	Total-P	0.031		mg P/L	P363389	
	SM 5310 B-00	Organic Carbon	3.5		mg C/L	P363435	
2082908	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P363304	

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: P363372

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P363403

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
Manganese	1.0	U	ug/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: P363403

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 200.8 Rev. 5.4
Batch ID: P364002

Component	Result	Code	Units
Aluminum	5.0	U	ug/L

Reference Method: EPA 300.0
Batch ID: P363643

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P363557

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P363559

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363633

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P363707

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P363708

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P363479

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P363389

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P363304

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

Reference Method: SM 2120 B
Batch ID: P363338

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P363806

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 C-97
Batch ID: P363913

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P363890

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P363893

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P363894

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P363968

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P363433

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

Reference Method: SM 5310 B-00
Batch ID: P363435

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: P363403

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	96.6		P	85 - 115
Calcium	101		P	85 - 115
Iron	101		P	85 - 115
Magnesium	99.9		P	85 - 115
Manganese	97.7		P	85 - 115
Potassium	99.2		P	85 - 115
Sodium	100		P	85 - 115
Zinc	95.7		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P363403

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	97.1		P	85 - 115
Antimony	98.1		P	85 - 115
Arsenic	99.4		P	85 - 115
Boron	105		P	85 - 115
Cadmium	99.2		P	85 - 115
Chromium	98.8		P	85 - 115
Copper	97.3		P	85 - 115
Lead	96.6		P	85 - 115
Nickel	98.6		P	85 - 115
Selenium	105		P	85 - 115
Silver	99.4		P	85 - 115
Thallium	103		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P364002

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	96.1		P	85 - 115

Reference Method: EPA 300.0
Batch ID: P363643

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P363557

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	97.0		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P363559

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	97.7		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363633

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P363707

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P363708

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P363479

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: P363389

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P363304

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

Reference Method: SM 2120 B
Batch ID: P363338

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.1		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P363806

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	98 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P363968

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P363433

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.6		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P363435

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	92.3		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P363403

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2082813	Barium	98.7		P	80 - 120
2082813	Calcium	105		P	80 - 120
2082813	Iron	101		P	80 - 120
2082813	Magnesium	103		P	80 - 120
2082813	Manganese	98.6		P	80 - 120
2082813	Potassium	98.0		P	80 - 120
2082813	Sodium	103		P	80 - 120
2082813	Zinc	100		P	80 - 120
2082842	Barium	99.5	101	P/P	80 - 120
2082842	Calcium	104		P	80 - 120
2082842	Iron	108	107	P/P	80 - 120
2082842	Magnesium	103		P	80 - 120
2082842	Manganese	101	102	P/P	80 - 120
2082842	Potassium	101		P	80 - 120
2082842	Sodium	104		P	80 - 120
2082842	Zinc	100	102	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P363403

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2082813	Aluminum	95.3		P	80 - 120
2082813	Antimony	96.1		P	80 - 120
2082813	Arsenic	98.9		P	80 - 120
2082813	Boron	105		P	80 - 120
2082813	Cadmium	98.2		P	80 - 120
2082813	Chromium	99.2		P	80 - 120
2082813	Copper	98.1		P	80 - 120
2082813	Lead	96.6		P	80 - 120
2082813	Nickel	99.6		P	80 - 120
2082813	Selenium	106		P	80 - 120
2082813	Silver	99.1		P	80 - 120
2082813	Thallium	104		P	80 - 120
2082842	Aluminum	99.8	98.6	P/P	80 - 120
2082842	Antimony	101	99.0	P/P	80 - 120
2082842	Arsenic	104	103	P/P	80 - 120
2082842	Boron	110	110	P/P	80 - 120
2082842	Cadmium	102	99.7	P/P	80 - 120
2082842	Chromium	103	100	P/P	80 - 120
2082842	Copper	102	99.1	P/P	80 - 120
2082842	Lead	101	99.0	P/P	80 - 120
2082842	Nickel	102	101	P/P	80 - 120
2082842	Selenium	108	108	P/P	80 - 120
2082842	Silver	103	100	P/P	80 - 120
2082842	Thallium	108	107	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P364002

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2085989	Aluminum	93.5		P	80 - 120
2086093	Aluminum	93.1	91.6	P/P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0
Batch ID: P363643

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2082903	Bromide	95.9	94.8	P/P	90 - 110
2082953	Bromide	95.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P363557

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2082680	Chloride	97.6		P	90 - 110
2082792	Chloride	97.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P363559

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2082680	Sulfate	99.4		P	90 - 110
2082792	Sulfate	98.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363633

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2082794	Ammonia-N	101	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P363707

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2082786	Kjeldahl Nitrogen	104	108	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P363708

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2082899	Kjeldahl Nitrogen	99.7	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P363479

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2082839	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P363389

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2082910	Total-P	97.6	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P363304

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2082942	O-Phosphate-P	99.6	97.7	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P363968

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2084024	Fluoride	97.5	98.1	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P363433

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2082651	Organic Carbon	97.5	98.3	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P363435

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2082904	Organic Carbon	94.3	95.6	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P363372

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2082894	Turbidity	2.54	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
 Batch ID: P363403

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2082842	Barium	1.50	Spike	P	0 - 20
2082842	Calcium	0.449	Spike	P	0 - 20
2082842	Iron	0.704	Spike	P	0 - 20
2082842	Magnesium	0.168	Spike	P	0 - 20
2082842	Manganese	1.36	Spike	P	0 - 20
2082842	Potassium	0.583	Spike	P	0 - 20
2082842	Sodium	0.604	Spike	P	0 - 20
2082842	Zinc	1.35	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
 Batch ID: P363403

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2082842	Aluminum	1.19	Spike	P	0 - 20
2082842	Antimony	2.09	Spike	P	0 - 20
2082842	Arsenic	1.63	Spike	P	0 - 20
2082842	Boron	0.186	Spike	P	0 - 20
2082842	Cadmium	2.50	Spike	P	0 - 20
2082842	Chromium	2.29	Spike	P	0 - 20
2082842	Copper	2.45	Spike	P	0 - 20
2082842	Lead	1.90	Spike	P	0 - 20
2082842	Nickel	1.71	Spike	P	0 - 20
2082842	Selenium	0.251	Spike	P	0 - 20
2082842	Silver	2.23	Spike	P	0 - 20
2082842	Thallium	1.01	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
 Batch ID: P364002

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2086093	Aluminum	1.54	Spike	P	0 - 20

Reference Method: EPA 300.0
 Batch ID: P363643

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2082903	Bromide	0.937	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P363557

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2082680	Chloride	0.0280	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P363559

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2082680	Sulfate	0.0572	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P363633

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2082794	Ammonia-N	0.832	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P363707

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2082786	Kjeldahl Nitrogen	2.59	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P363708

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2082899	Kjeldahl Nitrogen	4.23	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P363479

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2082839	NO2NO3-N	0.489	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P363389

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2082910	Total-P	2.48	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P363304

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2082942	O-Phosphate-P	1.74	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B
Batch ID: P363338

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2082894	Color (true)	1.79	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P363806

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2084024	Total Alkalinity	0.604	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
Batch ID: P363913

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2082895	TDS	3.59	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P363968

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2084024	Fluoride	0.487	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P363433

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2082651	Organic Carbon	0.589	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P363435

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2082904	Organic Carbon	1.16	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.
Replicate spike precision may be reported when sample results are below quantifiable levels.

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A91181

Included Lab Sample IDs: 2082900, 2082901, 2082902, 2082905, 2082908, 2082911

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.7	96.1	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A91199

Included Lab Sample IDs: 2082894, 2082895, 2082896, 2082909

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.4	100	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A91209

Included Lab Sample IDs: 2082894, 2082895, 2082896, 2082903, 2082906, 2082909

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.5	100	P/P	95 - 105
Turbidity	99.5	99.5	P/P	95 - 105

Reference Method: SM 5310 B-00

Run ID: A91225

Included Lab Sample IDs: 2082897, 2082898, 2082899, 2082904, 2082907, 2082910

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	93.8	93.4	P/P	90 - 110
Organic Carbon	94.5	93.8	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A91228

Included Lab Sample IDs: 2082894, 2082895, 2082896, 2082909

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A91242

Included Lab Sample IDs: 2082897, 2082898, 2082899, 2082904, 2082907, 2082910

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

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A91263

Included Lab Sample IDs: 2082926, 2082927

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	98.9	102	P/P	90 - 110
Calcium	100	101	P/P	90 - 110
Iron	102	102	P/P	90 - 110
Magnesium	102	102	P/P	90 - 110
Manganese	100	100	P/P	90 - 110
Potassium	100	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A91263

Included Lab Sample IDs: 2082926, 2082927

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sodium	98.7	102	P/P	90 - 110
Zinc	101	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A91296

Included Lab Sample IDs: 2082904

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.8	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A91302

Included Lab Sample IDs: 2082897, 2082898, 2082899, 2082904, 2082907, 2082910

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A91303

Included Lab Sample IDs: 2082897, 2082898, 2082899, 2082907, 2082910

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.8	99.2	P/P	90 - 110

Reference Method: EPA 300.0

Run ID: A91304

Included Lab Sample IDs: 2082903, 2082906

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	101	104	P/P	90 - 110
Bromide	99.6	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A91365

Included Lab Sample IDs: 2082899, 2082904, 2082907, 2082910

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.6	103	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A91369

Included Lab Sample IDs: 2082926, 2082927

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	97.0	99.4	P/P	90 - 110
Antimony	94.6	93.9	P/P	90 - 110
Arsenic	98.2	98.7	P/P	90 - 110
Cadmium	97.6	97.6	P/P	90 - 110
Chromium	99.6	98.1	P/P	90 - 110
Copper	99.1	99.1	P/P	90 - 110
Lead	96.9	96.2	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A91369

Included Lab Sample IDs: 2082926, 2082927

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Nickel	98.3	98.0	P/P	90 - 110
Silver	98.2	98.4	P/P	90 - 110
Thallium	97.9	96.8	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A91372

Included Lab Sample IDs: 2082894, 2082895, 2082896, 2082903, 2082906, 2082909

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.9	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A91383

Included Lab Sample IDs: 2082897, 2082898

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A91393

Included Lab Sample IDs: 2082926, 2082927

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Boron	102	100	P/P	90 - 110
Selenium	101	99.8	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A91436

Included Lab Sample IDs: 2082894, 2082895, 2082896, 2082903, 2082906, 2082909

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.0	98.1	P/P	90 - 110
Fluoride	98.1	97.6	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A91561

Included Lab Sample IDs: 2082926

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	94.0	91.1	P/P	90 - 110

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

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

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			Precision SMP	MS
			LCS				
EPA 180.1 Rev. 2.0	Turbidity					2.54	
EPA 200.7 Rev. 4.4	Barium	96.6	98.7	99.5	101		1.50
	Calcium	101	105	104			0.449
	Iron	101	101	108	107		0.704
	Magnesium	99.9	103	103			0.168
	Manganese	97.7	98.6	101	102		1.36
	Potassium	99.2	98.0	101			0.583
	Sodium	100	103	104			0.604
	Zinc	95.7	100	100	102		1.35
EPA 200.8 Rev. 5.4	Aluminum	97.1	95.3	99.8	98.6		1.19
	Aluminum	96.1	93.5	93.1	91.6		1.54
	Antimony	98.1	96.1	101	99.0		2.09
	Arsenic	99.4	98.9	104	103		1.63
	Boron	105	105	110	110		0.186
	Cadmium	99.2	98.2	102	99.7		2.50
	Chromium	98.8	99.2	103	100		2.29
	Copper	97.3	98.1	102	99.1		2.45
	Lead	96.6	96.6	101	99.0		1.90
	Nickel	98.6	99.6	102	101		1.71
	Selenium	105	106	108	108		0.251
	Silver	99.4	99.1	103	100		2.23
	Thallium	103	104	108	107		1.01
EPA 300.0	Bromide	97.1	95.9	94.8	95.3		0.937
EPA 300.0 Rev. 2.1	Chloride	97.0	97.6	97.9		0.0280	
	Sulfate	97.7	99.4	98.9		0.0572	
EPA 350.1 Rev. 2.0	Ammonia-N	99.7	101	101			0.832
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	104	108			2.59
	Kjeldahl Nitrogen	107	99.7	105			4.23
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	100	102	102			0.489
EPA 365.1 Rev. 2.0	Total-P	99.5	97.6	100			2.48
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.8	99.6	97.7			1.74
SM 2120 B	Color (true)	98.1				1.79	
SM 2320 B-97	Total Alkalinity	102				0.604	
SM 2540 C-97	TDS					3.59	
SM 4500 F-C-97	Fluoride	96.1	97.5	98.1			0.487
SM 5310 B-00	Organic Carbon	96.6	97.5	98.3			0.589
	Organic Carbon	92.3	94.3	95.6			1.16

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2082894, 2082895, 2082896, 2082903, 2082906, 2082909
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2082926, 2082927
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2082926, 2082927
EPA 300.0 / E31780	Bromide in aqueous matrices	2082903, 2082906
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2082894, 2082895, 2082896, 2082909
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2082894, 2082895, 2082896, 2082909
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2082897, 2082898, 2082899, 2082904, 2082907, 2082910

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2082897, 2082898, 2082899, 2082904, 2082907, 2082910
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2082897, 2082898, 2082899, 2082904, 2082907, 2082910
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2082897, 2082898, 2082899, 2082904, 2082907, 2082910
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2082900, 2082901, 2082902, 2082905, 2082908, 2082911
SM 2120 B / E31780	True Color measured at 450 nm	2082894, 2082895, 2082896, 2082909
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2082894, 2082895, 2082896, 2082903, 2082906, 2082909
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2082894, 2082895, 2082896, 2082909
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2082894, 2082895, 2082896, 2082903, 2082906, 2082909
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2082894, 2082895, 2082896, 2082903, 2082906, 2082909
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2082897, 2082898, 2082899, 2082904, 2082907, 2082910

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	05/02/2019			05/03/2019 16:06	Sima Feizi	2082894, 2082895, 2082896, 2082903, 2082906, 2082909
EPA 200.7 Rev. 4.4	05/02/2019	05/06/2019 13:35	Elliott D. Healy	05/07/2019 16:02	Betina Topolski	2082926
	05/02/2019	05/06/2019 13:35	Elliott D. Healy	05/07/2019 16:07	Betina Topolski	2082927
EPA 200.8 Rev. 5.4	05/02/2019	05/06/2019 13:35	Elliott D. Healy	05/11/2019 00:30	Robert K Palmer	2082926
	05/02/2019	05/06/2019 13:35	Elliott D. Healy	05/11/2019 00:40	Robert K Palmer	2082927
	05/02/2019	05/06/2019 13:35	Elliott D. Healy	05/14/2019 02:25	Robert K Palmer	2082926
	05/02/2019	05/06/2019 13:35	Elliott D. Healy	05/14/2019 02:33	Robert K Palmer	2082927
	05/02/2019	05/15/2019 17:15	Elliott D. Healy	05/20/2019 22:49	Martin Acosta	2082926
EPA 300.0	05/02/2019			05/08/2019 15:32	Lipi Saha	2082903
	05/02/2019			05/08/2019 21:14	Lipi Saha	2082906
EPA 300.0 Rev. 2.1	05/02/2019			05/07/2019 20:23	Lipi Saha	2082894
	05/02/2019			05/07/2019 20:35	Lipi Saha	2082895
	05/02/2019			05/07/2019 20:47	Lipi Saha	2082896
	05/02/2019			05/07/2019 20:59	Lipi Saha	2082909
EPA 350.1 Rev. 2.0	05/02/2019			05/08/2019 12:46	Ping Hua	2082897
	05/02/2019			05/08/2019 12:48	Ping Hua	2082898
	05/02/2019			05/08/2019 12:49	Ping Hua	2082899
	05/02/2019			05/08/2019 12:51	Ping Hua	2082904
	05/02/2019			05/08/2019 12:52	Ping Hua	2082907
	05/02/2019			05/08/2019 12:54	Ping Hua	2082910
EPA 351.2 Rev. 2.0	05/02/2019	05/09/2019 13:00	Adrian Shelby	05/10/2019 13:50	Joseph Suarez	2082899
	05/02/2019	05/09/2019 13:00	Adrian Shelby	05/10/2019 13:54	Joseph Suarez	2082904
	05/02/2019	05/09/2019 13:00	Adrian Shelby	05/10/2019 13:56	Joseph Suarez	2082907
	05/02/2019	05/09/2019 13:00	Adrian Shelby	05/10/2019 13:57	Joseph Suarez	2082910
	05/02/2019	05/09/2019 13:00	Adrian Shelby	05/13/2019 10:41	Joseph Suarez	2082897
	05/02/2019	05/09/2019 13:00	Adrian Shelby	05/13/2019 10:42	Joseph Suarez	2082898
EPA 353.2 Rev. 2.0	05/02/2019			05/07/2019 09:41	Beverly Y. Sanders	2082897
	05/02/2019			05/07/2019 09:42	Beverly Y. Sanders	2082898
	05/02/2019			05/07/2019 09:43	Beverly Y. Sanders	2082899
	05/02/2019			05/07/2019 09:44	Beverly Y. Sanders	2082904
	05/02/2019			05/07/2019 09:45	Beverly Y. Sanders	2082907
	05/02/2019			05/07/2019 09:47	Beverly Y. Sanders	2082910
EPA 365.1 Rev. 2.0	05/02/2019	05/06/2019 10:59	Joseph Suarez	05/08/2019 14:43	Rosalyn Ballman	2082904
	05/02/2019	05/06/2019 10:59	Joseph Suarez	05/08/2019 17:26	Rosalyn Ballman	2082897
	05/02/2019	05/06/2019 10:59	Joseph Suarez	05/08/2019 17:27	Rosalyn Ballman	2082898
	05/02/2019	05/06/2019 10:59	Joseph Suarez	05/08/2019 17:28	Rosalyn Ballman	2082899
	05/02/2019	05/06/2019 10:59	Joseph Suarez	05/08/2019 17:29	Rosalyn Ballman	2082907
	05/02/2019	05/06/2019 10:59	Joseph Suarez	05/08/2019 17:30	Rosalyn Ballman	2082910
EPA 365.1 Rev. 2.0 dissolved	05/02/2019			05/03/2019 10:42	Lipi Saha	2082900

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 365.1 Rev. 2.0 dissolved	05/02/2019			05/03/2019 10:43	Lipi Saha	2082901
	05/02/2019			05/03/2019 10:44	Lipi Saha	2082902
	05/02/2019			05/03/2019 10:45	Lipi Saha	2082905
	05/02/2019			05/03/2019 10:46	Lipi Saha	2082908
	05/02/2019			05/03/2019 10:47	Lipi Saha	2082911
SM 2120 B	05/02/2019			05/03/2019 14:27	Blanca Fach	2082894
	05/02/2019			05/03/2019 14:28	Blanca Fach	2082895
	05/02/2019			05/03/2019 14:29	Blanca Fach	2082896, 2082909
SM 2320 B-97	05/02/2019			05/11/2019 09:46	Dale L. Simmons	2082894
	05/02/2019			05/11/2019 09:58	Dale L. Simmons	2082895
	05/02/2019			05/11/2019 10:10	Dale L. Simmons	2082896
	05/02/2019			05/11/2019 10:23	Dale L. Simmons	2082903
	05/02/2019			05/11/2019 10:35	Dale L. Simmons	2082909
	05/02/2019			05/11/2019 11:15	Dale L. Simmons	2082906
SM 2540 C-97	05/02/2019			05/08/2019 14:21	Yijie Li	2082894, 2082895, 2082896, 2082909
SM 2540 D-97	05/02/2019			05/08/2019 14:21	Yijie Li	2082894, 2082895, 2082896, 2082903, 2082906, 2082909
SM 4500 F-C-97	05/02/2019			05/15/2019 02:38	Dale L. Simmons	2082894
	05/02/2019			05/15/2019 02:43	Dale L. Simmons	2082895
	05/02/2019			05/15/2019 02:48	Dale L. Simmons	2082896
	05/02/2019			05/15/2019 02:53	Dale L. Simmons	2082903
	05/02/2019			05/15/2019 02:58	Dale L. Simmons	2082909
	05/02/2019			05/15/2019 03:22	Dale L. Simmons	2082906
SM 5310 B-00	05/02/2019			05/06/2019 19:49	Lauren Lees	2082897
	05/02/2019			05/06/2019 20:01	Lauren Lees	2082898
	05/02/2019			05/06/2019 20:13	Lauren Lees	2082899
	05/02/2019			05/06/2019 22:30	Lauren Lees	2082904
	05/02/2019			05/06/2019 23:18	Lauren Lees	2082907
	05/02/2019			05/06/2019 23:30	Lauren Lees	2082910