

Chemical Analysis Report

CEN-DIST-2019-05-15-01

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

Event Description: **Downey x2 / Drawdy / Theresa / Charm**
Request ID: **RQ-2019-05-13-37**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
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3319 Maguire Blvd., Suite 232
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Certified by: Liang Lin, Environmental Administrator

Date Certified: 31-MAY-2019 16:27

A handwritten signature in black ink, appearing to read "Liang Lin", is shown on a light-colored 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: Lake Theresa @ Center

Collection Date/Time: 05/14/2019 10:04

Field ID: G4CE0151

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2086081	EPA 180.1 Rev. 2.0	Turbidity	2.4		NTU	P364013	
	EPA 300.0 Rev. 2.1	Chloride	5.7		mg Cl/L	P364112	
		Sulfate	1.8		mg SO4/L	P364114	
	SM 2120 B	Color (true)	26		PCU	P364017	
	SM 2320 B-97	Total Alkalinity	45		mg CaCO3/L	P364309	
	SM 2540 C-97	TDS	56		mg/L	P364391	
	SM 2540 D-97	TSS	3	I	mg/L	P364397	
	SM 4500 F-C-97	Fluoride	0.083	I	mg F/L	P364313	
2086082	EPA 350.1 Rev. 2.0	Ammonia-N	0.051		mg N/L	P364282	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.78		mg N/L	P364296	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.013		mg N/L	P364215	
	EPA 365.1 Rev. 2.0	Total-P	0.052		mg P/L	P364188	
	SM 5310 B-00	Organic Carbon	6.6		mg C/L	P364411	
2086083	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.006	I	mg P/L	P364003	

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: Lake Downey @ 110m E of Center

Collection Date/Time: 05/14/2019 13:16

Field ID: G2CE0196

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2086075	EPA 180.1 Rev. 2.0	Turbidity	0.95		NTU	P364013	
	EPA 300.0 Rev. 2.1	Chloride	25		mg Cl/L	P364112	
		Sulfate	4.9		mg SO4/L	P364114	
	SM 2120 B	Color (true)	30	A	PCU	P364017	
	SM 2320 B-97	Total Alkalinity	11		mg CaCO3/L	P364309	
	SM 2540 C-97	TDS	77		mg/L	P364391	
	SM 2540 D-97	TSS	2	I	mg/L	P364397	
	SM 4500 F-C-97	Fluoride	0.042	I	mg F/L	P364313	
2086077	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P364281	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.61		mg N/L	P364296	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P364215	
	EPA 365.1 Rev. 2.0	Total-P	0.007		mg P/L	P364188	
	SM 5310 B-00	Organic Carbon	9.8		mg C/L	P364411	
2086079	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P364003	
2086093	EPA 200.7 Rev. 4.4	Barium	7.3		ug/L	P364002	
		Calcium	5.40		mg/L	P364002	
		Iron	30	U	ug/L	P364002	
		Magnesium	1.36		mg/L	P364002	
		Potassium	1.1	I	mg/L	P364002	
		Sodium	15.6		mg/L	P364002	
		Zinc	5.0	U	ug/L	P364002	
		Aluminum	26		ug/L	P364002	
		Antimony	0.055	I	ug/L	P364002	
		Arsenic	2.55		ug/L	P364002	
	EPA 200.8 Rev. 5.4	Boron**	38.5		ug/L	P364002	
		Cadmium	0.020	U	ug/L	P364002	
		Chromium	0.79	I	ug/L	P364002	
		Copper	1.03		ug/L	P364002	
		Lead	0.20	U	ug/L	P364002	
		Nickel	0.50	U	ug/L	P364002	
		Selenium	0.20	U	ug/L	P364002	
		Silver	0.010	U	ug/L	P364002	
		Thallium	0.10	U	ug/L	P364002	

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: Lake Downey @ 110m W of Center

Collection Date/Time: 05/14/2019 13:52

Field ID: G2CE0197

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2086076	EPA 180.1 Rev. 2.0	Turbidity	1.1		NTU	P364013	
	EPA 300.0 Rev. 2.1	Chloride	24		mg Cl/L	P364112	
		Sulfate	4.9		mg SO4/L	P364114	
	SM 2120 B	Color (true)	31		PCU	P364017	
	SM 2320 B-97	Total Alkalinity	11		mg CaCO3/L	P364309	
	SM 2540 C-97	TDS	75		mg/L	P364391	
	SM 2540 D-97	TSS	3	I	mg/L	P364397	
	SM 4500 F-C-97	Fluoride	0.042	I	mg F/L	P364313	
2086078	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P364281	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.55		mg N/L	P364296	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P364215	
	EPA 365.1 Rev. 2.0	Total-P	0.007		mg P/L	P364188	
	SM 5310 B-00	Organic Carbon	9.8		mg C/L	P364411	
2086080	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P364003	
2086094	EPA 200.7 Rev. 4.4	Barium	7.0		ug/L	P364002	
		Calcium	5.25		mg/L	P364002	
		Iron	35	I	ug/L	P364002	
		Magnesium	1.34		mg/L	P364002	
		Potassium	1.0	I	mg/L	P364002	
		Sodium	15.4		mg/L	P364002	
		Zinc	5.0	U	ug/L	P364002	
	EPA 200.8 Rev. 5.4	Aluminum	27		ug/L	P364002	
		Antimony	0.087	I	ug/L	P364002	
		Arsenic	2.51		ug/L	P364002	
		Boron**	38.6		ug/L	P364002	
		Cadmium	0.020	U	ug/L	P364002	
		Chromium	0.40	U	ug/L	P364002	
		Copper	0.93		ug/L	P364002	
		Lead	0.20	U	ug/L	P364002	
		Nickel	0.50	U	ug/L	P364002	
		Selenium	0.20	U	ug/L	P364002	
		Silver	0.010	U	ug/L	P364002	
		Thallium	0.10	U	ug/L	P364002	

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: Lake Downey @ 110m W of Center

Collection Date/Time: 05/14/2019 13:55

Field ID: G2CE0197_DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2086084	EPA 180.1 Rev. 2.0	Turbidity	1.0		NTU	P364013	
	EPA 300.0 Rev. 2.1	Chloride	24		mg Cl/L	P364112	
		Sulfate	4.9		mg SO4/L	P364114	
	SM 2120 B	Color (true)	31		PCU	P364017	
	SM 2320 B-97	Total Alkalinity	11		mg CaCO3/L	P364309	
	SM 2540 C-97	TDS	73		mg/L	P364391	
	SM 2540 D-97	TSS	2	I	mg/L	P364397	
	SM 4500 F-C-97	Fluoride	0.042	I	mg F/L	P364313	
2086086	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P364282	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.58		mg N/L	P364296	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P364215	
	EPA 365.1 Rev. 2.0	Total-P	0.008		mg P/L	P364188	
	SM 5310 B-00	Organic Carbon	9.9		mg C/L	P364411	
2086088	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P364003	
2086095	EPA 200.7 Rev. 4.4	Barium	7.3		ug/L	P364002	
		Calcium	5.40		mg/L	P364002	
		Iron	34	I	ug/L	P364002	
		Magnesium	1.40		mg/L	P364002	
		Potassium	1.1	I	mg/L	P364002	
		Sodium	15.9		mg/L	P364002	
		Zinc	5.0	U	ug/L	P364002	
	EPA 200.8 Rev. 5.4	Aluminum	27		ug/L	P364002	
		Antimony	0.070	I	ug/L	P364002	
		Arsenic	2.54		ug/L	P364002	
		Boron**	40.0		ug/L	P364002	
		Cadmium	0.020	U	ug/L	P364002	
		Chromium	0.40	U	ug/L	P364002	
		Copper	0.96		ug/L	P364002	
		Lead	0.20	U	ug/L	P364002	
		Nickel	0.50	U	ug/L	P364002	
		Selenium	0.20	U	ug/L	P364002	
		Silver	0.010	U	ug/L	P364002	
		Thallium	0.10	U	ug/L	P364002	

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: Field Blank

Collection Date/Time: 05/14/2019 14:20

Field ID: FB_05142019

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2086085	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P364013	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P364112	
		Sulfate	0.20	U	mg SO4/L	P364114	
		Color (true)	2.5	U	PCU	P364017	
	SM 2120 B	Total Alkalinity	0.65	U	mg CaCO3/L	P364309	
	SM 2540 C-97	TDS	15	U	mg/L	P364388	
	SM 2540 D-97	TSS	2	U	mg/L	P364394	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P364313	
2086087	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P364282	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P364296	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P364215	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P364188	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P364411	
2086089	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P364003	
2086096	EPA 200.7 Rev. 4.4	Barium	1.0	U	ug/L	P364002	
		Calcium	0.075	U	mg/L	P364002	
		Iron	30	U	ug/L	P364002	
		Magnesium	0.040	U	mg/L	P364002	
		Potassium	0.30	U	mg/L	P364002	
		Sodium	0.50	U	mg/L	P364002	
		Zinc	5.0	U	ug/L	P364002	
		Aluminum	5.0	U	ug/L	P364002	
		Antimony	0.050	U	ug/L	P364002	
		Arsenic	0.050	U	ug/L	P364002	
	EPA 200.8 Rev. 5.4	Boron**	2.0	U	ug/L	P364002	
		Cadmium	0.020	U	ug/L	P364002	
		Chromium	0.40	U	ug/L	P364002	
		Copper	0.40	U	ug/L	P364002	
		Lead	0.20	U	ug/L	P364002	
		Nickel	0.50	U	ug/L	P364002	
		Selenium	0.20	U	ug/L	P364002	
		Silver	0.010	U	ug/L	P364002	
		Thallium	0.10	U	ug/L	P364002	

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: P364013

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P364002

Component	Result	Code	Units
Barium	1.0	U	ug/L
Calcium	0.075	U	mg/L
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L
Potassium	0.30	U	mg/L
Sodium	0.50	U	mg/L
Zinc	5.0	U	ug/L

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

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Boron	2.0	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Copper	0.40	U	ug/L
Lead	0.20	U	ug/L
Nickel	0.50	U	ug/L
Selenium	0.20	U	ug/L
Silver	0.010	U	ug/L
Thallium	0.10	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364112

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364114

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364281

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: P364282

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364296

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364215

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364188

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364003

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

Reference Method: SM 2120 B
Batch ID: P364017

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P364309

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

Reference Method: SM 2540 C-97
Batch ID: P364388

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P364391

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P364394

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P364397

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P364313

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P364411

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: P364002

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	99.1		P	85 - 115
Calcium	94.5		P	85 - 115
Iron	99.0		P	85 - 115
Magnesium	105		P	85 - 115
Potassium	97.3		P	85 - 115
Sodium	90.7		P	85 - 115
Zinc	97.8		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
Antimony	96.9		P	85 - 115
Arsenic	102		P	85 - 115
Boron	96.6		P	85 - 115
Cadmium	99.5		P	85 - 115
Chromium	99.8		P	85 - 115
Copper	99.8		P	85 - 115
Lead	99.9		P	85 - 115
Nickel	101		P	85 - 115
Selenium	99.8		P	85 - 115
Silver	97.9		P	85 - 115
Thallium	102		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364112

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364114

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364281

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364282

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364296

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	98.9		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364215

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364188

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	98.4		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364003

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	96.3		P	90 - 110

Reference Method: SM 2120 B
Batch ID: P364017

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.2		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P364309

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

Reference Method: SM 4500 F-C-97
Batch ID: P364313

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

Reference Method: SM 5310 B-00
Batch ID: P364411

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.4		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P364002

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2085989	Barium	96.8		P	80 - 120
2085989	Calcium	92.4		P	80 - 120
2085989	Iron	101		P	80 - 120
2085989	Magnesium	95.0		P	80 - 120
2085989	Potassium	92.6		P	80 - 120
2085989	Sodium	91.1		P	80 - 120
2085989	Zinc	98.2		P	80 - 120
2086093	Barium	96.6	95.5	P/P	80 - 120
2086093	Calcium	95.2		P	80 - 120
2086093	Iron	98.5	97.3	P/P	80 - 120
2086093	Magnesium	100	99.8	P/P	80 - 120
2086093	Potassium	92.7	92.1	P/P	80 - 120
2086093	Sodium	95.4		P	80 - 120
2086093	Zinc	99.8	98.8	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
2085989	Antimony	97.4		P	80 - 120
2085989	Arsenic	103		P	80 - 120
2085989	Boron	93.6		P	80 - 120
2085989	Cadmium	99.4		P	80 - 120
2085989	Chromium	99.2		P	80 - 120
2085989	Copper	101		P	80 - 120
2085989	Lead	101		P	80 - 120
2085989	Nickel	100		P	80 - 120
2085989	Selenium	99.8		P	80 - 120
2085989	Silver	96.0		P	80 - 120
2085989	Thallium	104		P	80 - 120
2086093	Aluminum	93.1	91.6	P/P	80 - 120
2086093	Antimony	95.6	95.2	P/P	80 - 120
2086093	Arsenic	101	100	P/P	80 - 120
2086093	Boron	109	105	P/P	80 - 120
2086093	Cadmium	97.6	96.6	P/P	80 - 120
2086093	Chromium	95.1	94.8	P/P	80 - 120
2086093	Copper	98.3	97.1	P/P	80 - 120
2086093	Lead	98.9	98.4	P/P	80 - 120
2086093	Nickel	99.2	97.4	P/P	80 - 120
2086093	Selenium	98.5	97.6	P/P	80 - 120
2086093	Silver	94.9	94.4	P/P	80 - 120
2086093	Thallium	101	101	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364112

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2085881	Chloride	93.6		P	90 - 110
2086040	Chloride	99.0		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364114

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2085881	Sulfate	94.4		P	90 - 110
2086040	Sulfate	97.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364281

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2086077	Ammonia-N	107	109	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364282

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2086162	Ammonia-N	104	105	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364296

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2086082	Kjeldahl Nitrogen	98.9	108	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364215

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2086062	NO2NO3-N	99.5	98.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364188

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2086077	Total-P	99.0	99.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364003

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2086217	O-Phosphate-P	90.0	91.2	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P364313

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2086221	Fluoride	95.6	96.7	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P364411

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2086129	Organic Carbon	96.7	97.8	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P364013

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2086061	Turbidity	1.40	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P364002

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2086093	Barium	1.16	Spike	P	0 - 20
2086093	Calcium	0.130	Spike	P	0 - 20
2086093	Iron	1.22	Spike	P	0 - 20
2086093	Magnesium	0.482	Spike	P	0 - 20
2086093	Potassium	0.550	Spike	P	0 - 20
2086093	Sodium	0.617	Spike	P	0 - 20
2086093	Zinc	1.05	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
2086093	Antimony	0.421	Spike	P	0 - 20
2086093	Arsenic	1.13	Spike	P	0 - 20
2086093	Boron	2.14	Spike	P	0 - 20
2086093	Cadmium	0.978	Spike	P	0 - 20
2086093	Chromium	0.256	Spike	P	0 - 20
2086093	Copper	1.17	Spike	P	0 - 20
2086093	Lead	0.475	Spike	P	0 - 20
2086093	Nickel	1.85	Spike	P	0 - 20
2086093	Selenium	0.857	Spike	P	0 - 20
2086093	Silver	0.522	Spike	P	0 - 20
2086093	Thallium	0.373	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364112

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2085881	Chloride	0.775	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364114

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2085881	Sulfate	0.946	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364281

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2086077	Ammonia-N	2.06	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364282

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2086162	Ammonia-N	1.00	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364296

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2086082	Kjeldahl Nitrogen	5.41	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364215

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2086062	NO2NO3-N	0.513	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364188

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2086077	Total-P	0.671	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364003

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2086217	O-Phosphate-P	1.32	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P364017

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2086075	Color (true)	1.91	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P364309

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2086221	Total Alkalinity	1.02	Sample	P	0 - 2.8

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
Batch ID: P364388

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2085795	TDS	7.59	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P364391

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2086157	TDS	4.62	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P364313

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2086221	Fluoride	0.968	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P364411

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2086129	Organic Carbon	0.823	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 300.0 Rev. 2.1

Run ID: A91404

Included Lab Sample IDs: 2086075, 2086076, 2086081, 2086084, 2086085

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	101	P/P	90 - 110
Chloride	101	101	P/P	90 - 110
Sulfate	100	102	P/P	90 - 110
Sulfate	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A91453

Included Lab Sample IDs: 2086079, 2086080, 2086083, 2086088, 2086089

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.4	97.9	P/P	90 - 110
O-Phosphate-P	98.2	97.4	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A91457

Included Lab Sample IDs: 2086075, 2086076, 2086081, 2086084, 2086085

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

Reference Method: SM 2120 B

Run ID: A91460

Included Lab Sample IDs: 2086075, 2086076, 2086081, 2086084, 2086085

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	101	P/P	90 - 115

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A91517

Included Lab Sample IDs: 2086093, 2086094, 2086095, 2086096

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	101	98.6	P/P	95 - 105
Barium	97.6	97.4	P/P	90 - 110
Calcium	103	99.4	P/P	95 - 105
Calcium	97.9	97.6	P/P	90 - 110
Iron	104	98.7	P/P	95 - 105
Iron	97.9	97.4	P/P	90 - 110
Magnesium	103	98.6	P/P	95 - 105
Magnesium	97.9	96.8	P/P	90 - 110
Potassium	103	97.0	P/P	95 - 105
Potassium	97.1	96.9	P/P	90 - 110
Sodium	102	95.7	P/P	95 - 105
Sodium	97.5	100	P/P	90 - 110
Zinc	103	100	P/P	95 - 105
Zinc	98.4	98.2	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A91526

Included Lab Sample IDs: 2086094, 2086095

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	99.2	99.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A91529

Included Lab Sample IDs: 2086077, 2086078, 2086082, 2086086, 2086087

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A91558

Included Lab Sample IDs: 2086077, 2086078, 2086082, 2086086, 2086087

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A91561

Included Lab Sample IDs: 2086093, 2086094, 2086095, 2086096

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	91.1	91.2	P/P	90 - 110
Aluminum	95.6	94.0	P/P	90 - 110
Antimony	93.7	92.7	P/P	90 - 110
Antimony	95.4	94.6	P/P	90 - 110
Arsenic	97.1	95.8	P/P	90 - 110
Arsenic	99.2	96.6	P/P	90 - 110
Boron	92.8	93.7	P/P	90 - 110
Cadmium	93.8	93.9	P/P	90 - 110
Cadmium	96.3	95.4	P/P	90 - 110
Chromium	95.8	96.2	P/P	90 - 110
Chromium	97.5	96.9	P/P	90 - 110
Copper	97.3	96.0	P/P	90 - 110
Copper	98.9	97.2	P/P	90 - 110
Lead	96.2	96.1	P/P	90 - 110
Lead	98.4	96.8	P/P	90 - 110
Nickel	96.9	95.8	P/P	90 - 110
Nickel	98.9	96.5	P/P	90 - 110
Selenium	95.9	94.6	P/P	90 - 110
Selenium	97.7	94.4	P/P	90 - 110
Silver	92.4	92.6	P/P	90 - 110
Silver	94.6	93.5	P/P	90 - 110
Thallium	93.0	92.2	P/P	90 - 110
Thallium	95.2	93.6	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A91564

Included Lab Sample IDs: 2086075, 2086076, 2086081, 2086084, 2086085

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

Reference Method: SM 2320 B-97

Run ID: A91564

Included Lab Sample IDs: 2086075, 2086076, 2086081, 2086084, 2086085

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

Reference Method: SM 4500 F-C-97

Run ID: A91564

Included Lab Sample IDs: 2086075, 2086076, 2086081, 2086084, 2086085

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.5	99.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A91572

Included Lab Sample IDs: 2086077, 2086078, 2086082, 2086086, 2086087

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

Reference Method: SM 5310 B-00

Run ID: A91605

Included Lab Sample IDs: 2086077, 2086078, 2086082, 2086086, 2086087

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.0	98.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A91625

Included Lab Sample IDs: 2086077, 2086078, 2086082, 2086086, 2086087

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	101	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A91645

Included Lab Sample IDs: 2086093, 2086094, 2086095

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Boron	95.9	106	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	
			LCS	SMP	MS	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					1.40	
EPA 200.7 Rev. 4.4	Barium	99.1	96.8	96.6	95.5		1.16
	Calcium	94.5	92.4	95.2			0.130
	Iron	99.0	101	98.5	97.3		1.22
	Magnesium	105	95.0	100	99.8		0.482
	Potassium	97.3	92.6	92.7	92.1		0.550
	Sodium	90.7	91.1	95.4			0.617
	Zinc	97.8	98.2	99.8	98.8		1.05
EPA 200.8 Rev. 5.4	Aluminum	96.1	93.5	93.1	91.6		1.54
	Antimony	96.9	97.4	95.6	95.2		0.421
	Arsenic	102	103	101	100		1.13
	Boron	96.6	93.6	109	105		2.14
	Cadmium	99.5	99.4	97.6	96.6		0.978
	Chromium	99.8	99.2	95.1	94.8		0.256
	Copper	99.8	101	98.3	97.1		1.17
	Lead	99.9	101	98.9	98.4		0.475
	Nickel	101	100	99.2	97.4		1.85
	Selenium	99.8	99.8	98.5	97.6		0.857
	Silver	97.9	96.0	94.9	94.4		0.522
	Thallium	102	104	101	101		0.373
EPA 300.0 Rev. 2.1	Chloride	97.6	93.6	99.0		0.775	
	Sulfate	96.8	94.4	97.7		0.946	
EPA 350.1 Rev. 2.0	Ammonia-N	101	107	109			2.06
	Ammonia-N	101	104	105			1.00
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.9	98.9	108			5.41
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	101	99.5	98.5			0.513
EPA 365.1 Rev. 2.0	Total-P	98.4	99.0	99.7			0.671
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	96.3	90.0	91.2			1.32
SM 2120 B	Color (true)	98.2				1.91	
SM 2320 B-97	Total Alkalinity	101				1.02	
SM 2540 C-97	TDS					7.59	
	TDS					4.62	
SM 4500 F-C-97	Fluoride	97.2	95.6	96.7			0.968
SM 5310 B-00	Organic Carbon	97.4	96.7	97.8			0.823

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2086075, 2086076, 2086081, 2086084, 2086085
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2086093, 2086094, 2086095, 2086096
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2086093, 2086094, 2086095, 2086096
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2086075, 2086076, 2086081, 2086084, 2086085
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2086075, 2086076, 2086081, 2086084, 2086085
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2086077, 2086078, 2086082, 2086086, 2086087
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2086077, 2086078, 2086082, 2086086, 2086087
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2086077, 2086078, 2086082, 2086086, 2086087

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2086077, 2086078, 2086082, 2086086, 2086087
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2086079, 2086080, 2086083, 2086088, 2086089
SM 2120 B / E31780	True Color measured at 450 nm	2086075, 2086076, 2086081, 2086084, 2086085
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2086075, 2086076, 2086081, 2086084, 2086085
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2086075, 2086076, 2086081, 2086084, 2086085
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2086075, 2086076, 2086081, 2086084, 2086085
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2086075, 2086076, 2086081, 2086084, 2086085
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2086077, 2086078, 2086082, 2086086, 2086087

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	05/15/2019			05/15/2019 15:04	Sima Feizi	2086075, 2086076, 2086081, 2086084, 2086085
EPA 200.7 Rev. 4.4	05/15/2019	05/15/2019 17:15	Elliott D. Healy	05/17/2019 12:03	Betina Topolski	2086096
	05/15/2019	05/15/2019 17:15	Elliott D. Healy	05/17/2019 14:22	Betina Topolski	2086093
	05/15/2019	05/15/2019 17:15	Elliott D. Healy	05/17/2019 14:47	Betina Topolski	2086094
	05/15/2019	05/15/2019 17:15	Elliott D. Healy	05/17/2019 14:54	Betina Topolski	2086095
	05/15/2019	05/15/2019 17:15	Elliott D. Healy	05/20/2019 12:07	Betina Topolski	2086094
EPA 200.8 Rev. 5.4	05/15/2019	05/15/2019 17:15	Elliott D. Healy	05/20/2019 12:10	Betina Topolski	2086095
	05/15/2019	05/15/2019 17:15	Elliott D. Healy	05/20/2019 21:32	Martin Acosta	2086096
	05/15/2019	05/15/2019 17:15	Elliott D. Healy	05/21/2019 01:12	Martin Acosta	2086093
	05/15/2019	05/15/2019 17:15	Elliott D. Healy	05/21/2019 01:40	Martin Acosta	2086094
	05/15/2019	05/15/2019 17:15	Elliott D. Healy	05/21/2019 01:50	Martin Acosta	2086095
	05/15/2019	05/15/2019 17:15	Elliott D. Healy	05/23/2019 16:39	Martin Acosta	2086093
	05/15/2019	05/15/2019 17:15	Elliott D. Healy	05/23/2019 17:08	Martin Acosta	2086094
	05/15/2019	05/15/2019 17:15	Elliott D. Healy	05/23/2019 17:17	Martin Acosta	2086095
EPA 300.0 Rev. 2.1	05/15/2019			05/16/2019 18:49	Lipi Saha	2086075
	05/15/2019			05/16/2019 19:25	Lipi Saha	2086076
	05/15/2019			05/16/2019 19:37	Lipi Saha	2086081
	05/15/2019			05/16/2019 19:50	Lipi Saha	2086084
	05/15/2019			05/16/2019 20:02	Lipi Saha	2086085
EPA 350.1 Rev. 2.0	05/15/2019			05/17/2019 11:35	Ping Hua	2086077
	05/15/2019			05/17/2019 11:36	Ping Hua	2086078
	05/15/2019			05/17/2019 11:42	Ping Hua	2086082
	05/15/2019			05/17/2019 11:53	Ping Hua	2086086
	05/15/2019			05/17/2019 12:05	Ping Hua	2086087
EPA 351.2 Rev. 2.0	05/15/2019	05/21/2019 13:07	Jhamieka S. Greenwood	05/23/2019 13:10	Joseph Suarez	2086077
	05/15/2019	05/21/2019 13:07	Jhamieka S. Greenwood	05/23/2019 13:11	Joseph Suarez	2086078
	05/15/2019	05/21/2019 13:07	Jhamieka S. Greenwood	05/23/2019 13:13	Joseph Suarez	2086082
	05/15/2019	05/21/2019 13:07	Jhamieka S. Greenwood	05/23/2019 13:17	Joseph Suarez	2086086
	05/15/2019	05/21/2019 13:07	Jhamieka S. Greenwood	05/23/2019 13:19	Joseph Suarez	2086087
EPA 353.2 Rev. 2.0	05/15/2019			05/20/2019 11:21	Beverly Y. Sanders	2086077
	05/15/2019			05/20/2019 11:22	Beverly Y. Sanders	2086078
	05/15/2019			05/20/2019 11:23	Beverly Y. Sanders	2086082
	05/15/2019			05/20/2019 11:25	Beverly Y. Sanders	2086086
	05/15/2019			05/20/2019 11:26	Beverly Y. Sanders	2086087
EPA 365.1 Rev. 2.0	05/15/2019	05/20/2019 08:30	Joseph Suarez	05/21/2019 18:46	Rosalyn Ballman	2086077
	05/15/2019	05/20/2019 08:30	Joseph Suarez	05/21/2019 18:47	Rosalyn Ballman	2086078
	05/15/2019	05/20/2019 08:30	Joseph Suarez	05/21/2019 18:48	Rosalyn Ballman	2086082
	05/15/2019	05/20/2019 08:30	Joseph Suarez	05/21/2019 18:49	Rosalyn Ballman	2086086
	05/15/2019	05/20/2019 08:30	Joseph Suarez	05/21/2019 18:50	Rosalyn Ballman	2086087

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	05/15/2019			05/15/2019 16:28	Jhamieka S. Greenwood	2086080, 2086088
	05/15/2019			05/15/2019 16:29	Jhamieka S. Greenwood	2086079
	05/15/2019			05/15/2019 16:30	Jhamieka S. Greenwood	2086083
	05/15/2019			05/15/2019 16:39	Jhamieka S. Greenwood	2086089
SM 2120 B	05/15/2019			05/15/2019 16:22	Madeline Funaro	2086075
	05/15/2019			05/15/2019 16:25	Madeline Funaro	2086076
	05/15/2019			05/15/2019 16:26	Madeline Funaro	2086081, 2086084
	05/15/2019			05/15/2019 16:27	Madeline Funaro	2086085
SM 2320 B-97	05/15/2019			05/21/2019 02:38	Dale L. Simmons	2086075
	05/15/2019			05/21/2019 02:49	Dale L. Simmons	2086076
	05/15/2019			05/21/2019 03:01	Dale L. Simmons	2086081
	05/15/2019			05/21/2019 03:13	Dale L. Simmons	2086084
SM 2540 C-97	05/15/2019			05/21/2019 03:27	Dale L. Simmons	2086085
	05/15/2019			05/16/2019 15:31	Yijie Li	2086075, 2086076, 2086081, 2086084, 2086085
SM 2540 D-97	05/15/2019			05/16/2019 15:31	Yijie Li	2086075, 2086076, 2086081, 2086084, 2086085
SM 4500 F-C-97	05/15/2019			05/21/2019 02:38	Dale L. Simmons	2086075
	05/15/2019			05/21/2019 02:49	Dale L. Simmons	2086076
	05/15/2019			05/21/2019 03:01	Dale L. Simmons	2086081
	05/15/2019			05/21/2019 03:13	Dale L. Simmons	2086084
	05/15/2019			05/21/2019 03:27	Dale L. Simmons	2086085
SM 5310 B-00	05/15/2019			05/22/2019 01:12	Julia Storbeck	2086077
	05/15/2019			05/22/2019 01:26	Julia Storbeck	2086078
	05/15/2019			05/22/2019 01:39	Julia Storbeck	2086082
	05/15/2019			05/22/2019 01:54	Julia Storbeck	2086086
	05/15/2019			05/22/2019 02:07	Julia Storbeck	2086087