

Chemical Analysis Report

NW-DIST-2021-01-22-01

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

Event Description: **Perdido Bayou Run**
Request ID: **RQ-2021-01-11-32**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
160 Government Center
Suite 208
Pensacola, FL 32502-5794
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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator

Date Certified: 15-FEB-2021 10:34



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 group are included in this report: 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: Bayou Garcon

Collection Date/Time: 01/21/2021 12:40

Field ID: G5NW0152

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2220710	EPA 180.1 Rev. 2.0	Turbidity	0.90		NTU	P392827	
	EPA 300.0 Rev. 2.1	Bromide	29		mg Br/L	P393037	
	SM 2320 B-2011	Total Alkalinity	51		mg CaCO3/L	P392873	
	SM 2540 D-2011	TSS	3	U	mg/L	P393298	
	SM 4500 F-C-2011	Fluoride	0.52		mg F/L	P392876	
2220717	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P393337	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.24	I	mg N/L	P393090	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.044		mg N/L	P392960	
	EPA 365.1 Rev. 2.0	Total-P	0.009	I	mg P/L	P393073	
	SM 5310 B-2011	Organic Carbon	3.1		mg C/L	P393050	
2220724	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P392768	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Bayou Grande

Collection Date/Time: 01/21/2021 10:15

Field ID: G4NW0500

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2220711	EPA 180.1 Rev. 2.0	Turbidity	0.85		NTU	P392827	
	EPA 300.0 Rev. 2.1	Bromide	30		mg Br/L	P393037	
	SM 2320 B-2011	Total Alkalinity	59		mg CaCO3/L	P392873	
	SM 2540 D-2011	TSS	3	U	mg/L	P393298	
	SM 4500 F-C-2011	Fluoride	0.54		mg F/L	P392876	
2220718	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P393337	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.21	I	mg N/L	P393090	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.038		mg N/L	P392960	
	EPA 365.1 Rev. 2.0	Total-P	0.008	I	mg P/L	P393073	
	SM 5310 B-2011	Organic Carbon	2.8		mg C/L	P393050	
2220725	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P392768	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Weekly Bayou Creek @ County Rd 293

Collection Date/Time: 01/21/2021 13:35

Field ID: G4NW0482

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2220712	EPA 180.1 Rev. 2.0	Turbidity	0.75		NTU	P392827	
	EPA 300.0 Rev. 2.1	Bromide	3.2		mg Br/L	P393037	
	SM 2320 B-2011	Total Alkalinity	2.4	I	mg CaCO3/L	P392872	
	SM 2540 D-2011	TSS	3	U	mg/L	P393298	
	SM 4500 F-C-2011	Fluoride	0.062	I	mg F/L	P392875	
2220719	EPA 350.1 Rev. 2.0	Ammonia-N	0.071		mg N/L	P393337	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.29	I	mg N/L	P393090	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.008	I	mg N/L	P392960	
	EPA 365.1 Rev. 2.0	Total-P	0.007	I	mg P/L	P393073	
	SM 5310 B-2011	Organic Carbon	7.0		mg C/L	P393050	
2220726	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P392768	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Bayou Grande Near Navy Point Boat Ramp

Collection Date/Time: 01/21/2021 10:00

Field ID: G4NW0501

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2220713	EPA 180.1 Rev. 2.0	Turbidity	0.65		NTU	P392827	
	EPA 300.0 Rev. 2.1	Bromide	30		mg Br/L	P393037	
	SM 2320 B-2011	Total Alkalinity	60		mg CaCO3/L	P392873	
	SM 2540 D-2011	TSS	3	U	mg/L	P393298	
	SM 4500 F-C-2011	Fluoride	0.55		mg F/L	P392876	
2220720	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P393337	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.22	I	mg N/L	P393090	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.055		mg N/L	P392961	
	EPA 365.1 Rev. 2.0	Total-P	0.009	I	mg P/L	P393073	
	SM 5310 B-2011	Organic Carbon	2.9		mg C/L	P393050	
2220727	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P392768	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: FB_01212021

Collection Date/Time: 01/21/2021 12:50

Field ID: FB_01212021

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2220731	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P392828	
	EPA 300.0 Rev. 2.1	Bromide	0.013	U	mg Br/L	P393038	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P392871	
	SM 2540 D-2011	TSS	2	U	mg/L	P393296	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P393220	
2220732	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P393457	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P393180	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P392883	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P393246	
	SM 5310 B-2011	Organic Carbon	0.50	U	mg C/L	P393048	
2220733	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P392767	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Bayou Grande at CR-297

Collection Date/Time: 01/21/2021 10:55

Field ID: G4NW0521

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2220714	EPA 180.1 Rev. 2.0	Turbidity	1.4		NTU	P392828	
	EPA 300.0 Rev. 2.1	Bromide	3.1		mg Br/L	P393038	
	SM 2320 B-2011	Total Alkalinity	6.4		mg CaCO3/L	P392872	
	SM 2540 D-2011	TSS	3	UA	mg/L	P393298	
	SM 4500 F-C-2011	Fluoride	0.064	I	mg F/L	P392875	
2220721	EPA 350.1 Rev. 2.0	Ammonia-N	0.048		mg N/L	P393337	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.23	I	mg N/L	P393090	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.035		mg N/L	P392961	
	EPA 365.1 Rev. 2.0	Total-P	0.005	I	mg P/L	P393073	
	SM 5310 B-2011	Organic Carbon	5.5		mg C/L	P393050	
2220728	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P392768	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Bridge Creek Near Bridge Creek Landing

Collection Date/Time: 01/21/2021 14:55

Field ID: G5NW0153

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2220715	EPA 180.1 Rev. 2.0	Turbidity	1.4		NTU	P392828	
	EPA 300.0 Rev. 2.1	Bromide	11		mg Br/L	P393038	
	SM 2320 B-2011	Total Alkalinity	25		mg CaCO3/L	P392872	
	SM 2540 D-2011	TSS	2	I	mg/L	P393296	
	SM 4500 F-C-2011	Fluoride	0.19	I	mg F/L	P393219	
2220722	EPA 350.1 Rev. 2.0	Ammonia-N	0.042		mg N/L	P393337	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.23	I	mg N/L	P393124	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.11		mg N/L	P392961	
	EPA 365.1 Rev. 2.0	Total-P	0.010		mg P/L	P393073	
	SM 5310 B-2011	Organic Carbon	4.5		mg C/L	P393048	
2220729	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P392768	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Weekly Bayou Middle Portion

Collection Date/Time: 01/21/2021 13:15

Field ID: G5NW0157

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2220716	EPA 180.1 Rev. 2.0	Turbidity	2.2	A	NTU	P392828	
	EPA 300.0 Rev. 2.1	Bromide	18		mg Br/L	P393038	
	SM 2320 B-2011	Total Alkalinity	32	A	mg CaCO3/L	P392873	
	SM 2540 D-2011	TSS	3	U	mg/L	P393298	
	SM 4500 F-C-2011	Fluoride	0.31		mg F/L	P392876	
2220723	EPA 350.1 Rev. 2.0	Ammonia-N	0.049		mg N/L	P393337	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.28	I	mg N/L	P393124	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.061		mg N/L	P392961	
	EPA 365.1 Rev. 2.0	Total-P	0.013		mg P/L	P393073	
	SM 5310 B-2011	Organic Carbon	4.6		mg C/L	P393050	
2220730	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P392768	

Ref. Method and Comment:

SM 2540 D-2011: 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: P392827

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P392828

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P393037

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P393038

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P393337

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P393457

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P393090

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P393124

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P393180

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P392883

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P392960

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P392961

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P393073

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P393246

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P392767

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P392768

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

Reference Method: SM 2320 B-2011
Batch ID: P392871

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

Reference Method: SM 2320 B-2011
Batch ID: P392872

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P392873

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

Reference Method: SM 2540 D-2011
Batch ID: P393296

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P393298

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P392875

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-2011
Batch ID: P392876

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-2011
Batch ID: P393219

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-2011
Batch ID: P393220

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P393048

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

Reference Method: SM 5310 B-2011
Batch ID: P393050

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P393037

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Bromide	99.0		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P393038

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P393337

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P393457

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.0		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P393090

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	96.9		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P393124

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P393180

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P392883

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P392960

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P392961

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P393073

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	109		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P393246

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P392767

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P392768

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

Reference Method: SM 2320 B-2011
Batch ID: P392871

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	96.4		P	93 - 104

Reference Method: SM 2320 B-2011
Batch ID: P392872

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	94.7		P	93 - 104

Reference Method: SM 2320 B-2011
Batch ID: P392873

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	95.3		P	93 - 104

Reference Method: SM 4500 F-C-2011
Batch ID: P392875

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.1		P	90 - 106

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P392876

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.7		P	90 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P393219

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.7		P	90 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P393220

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	100		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P393048

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

Reference Method: SM 5310 B-2011
Batch ID: P393050

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P393037

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2219957	Bromide	90.3		P	90 - 110
2220312	Bromide	97.8	97.3	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P393038

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2221122	Bromide	98.8	98.5	P/P	90 - 110
2221195	Bromide	99.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P393337

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2220717	Ammonia-N	107	106	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P393457

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2220706	Ammonia-N	93.9	96.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P393090

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2220273	Kjeldahl Nitrogen	96.3	96.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P393124

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2220723	Kjeldahl Nitrogen	106	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P393180

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2220706	Kjeldahl Nitrogen	105	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P392883

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2220677	NO2NO3-N	96.2	96.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P392960

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2220258	NO2NO3-N	99.0	98.5	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P392961

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2220722	NO2NO3-N	99.5	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P393073

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2220559	Total-P	100	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P393246

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2220677	Total-P	106	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P392767

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2220634	O-Phosphate-P	97.2	99.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P392768

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2220725	O-Phosphate-P	99.3	101	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P392875

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2220795	Fluoride	95.0	94.4	P/P	94 - 107

Reference Method: SM 4500 F-C-2011
Batch ID: P392876

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2220716	Fluoride	96.3	98.2	P/P	94 - 107

Reference Method: SM 4500 F-C-2011
Batch ID: P393219

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2220715	Fluoride	104	102	P/P	94 - 107

Reference Method: SM 4500 F-C-2011
Batch ID: P393220

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2221661	Fluoride	101	101	P/P	94 - 107

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: SM 5310 B-2011
Batch ID: P393048

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2220678	Organic Carbon	100	99.2	P/P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P393050

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2220721	Organic Carbon	93.1	92.6	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P392827

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2220632	Turbidity	0.727	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P392828

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2220716	Turbidity	16.7	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P393037

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2220312	Bromide	0.421	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P393038

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2221122	Bromide	0.286	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P393337

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2220717	Ammonia-N	0.854	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P393457

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2220706	Ammonia-N	2.04	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P393090

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2220273	Kjeldahl Nitrogen	0.299	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P393124

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2220723	Kjeldahl Nitrogen	1.87	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P393180

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2220706	Kjeldahl Nitrogen	0.736	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P392883

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2220677	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P392960

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2220258	NO2NO3-N	0.334	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P392961

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2220722	NO2NO3-N	0.645	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P393073

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2220559	Total-P	1.74	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P393246

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2220677	Total-P	0.932	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P392767

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2220634	O-Phosphate-P	1.68	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P392768

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2220725	O-Phosphate-P	1.30	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-2011
Batch ID: P392871

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2220787	Total Alkalinity	3.43	Sample	P	0 - 8.1

Reference Method: SM 2320 B-2011
Batch ID: P392872

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2220795	Total Alkalinity	2.87	Sample	P	0 - 8.1

Reference Method: SM 2320 B-2011
Batch ID: P392873

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2220716	Total Alkalinity	6.33	Sample	P	0 - 8.1

Reference Method: SM 4500 F-C-2011
Batch ID: P392875

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2220795	Fluoride	0.469	Spike	P	0 - 2.8

Reference Method: SM 4500 F-C-2011
Batch ID: P392876

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2220716	Fluoride	1.42	Spike	P	0 - 2.8

Reference Method: SM 4500 F-C-2011
Batch ID: P393219

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2220715	Fluoride	0.915	Spike	P	0 - 2.8

Reference Method: SM 4500 F-C-2011
Batch ID: P393220

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2221661	Fluoride	0.0	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P393048

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2220678	Organic Carbon	0.532	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 5310 B-2011
Batch ID: P393050

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2220721	Organic Carbon	0.422	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A103194

Included Lab Sample IDs: 2220724, 2220725, 2220726, 2220727, 2220728, 2220729, 2220730, 2220733

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.7	P/P	90 - 110
O-Phosphate-P	99.6	100	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A103212

Included Lab Sample IDs: 2220710, 2220711, 2220712, 2220713, 2220714, 2220715, 2220716, 2220731

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	101	P/P	95 - 105
Turbidity	101	102	P/P	95 - 105

Reference Method: SM 2320 B-2011

Run ID: A103229

Included Lab Sample IDs: 2220710, 2220711, 2220712, 2220713, 2220714, 2220715, 2220716, 2220731

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	93.1	97.0	P/P	90 - 110
Total Alkalinity	96.9	93.1	P/P	90 - 110
Total Alkalinity	96.9	94.9	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A103229

Included Lab Sample IDs: 2220710, 2220711, 2220712, 2220713, 2220714, 2220716

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	97.6	98.6	P/P	90 - 110
Fluoride	98.6	97.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A103236

Included Lab Sample IDs: 2220732

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.0	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A103259

Included Lab Sample IDs: 2220717, 2220718, 2220719, 2220720, 2220721, 2220722, 2220723

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A103266

Included Lab Sample IDs: 2220710, 2220711, 2220712, 2220713, 2220714, 2220715, 2220716, 2220731

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	95.1	94.4	P/P	90 - 110
Bromide	96.5	96.8	P/P	90 - 110
Bromide	96.8	97.2	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-2011

Run ID: A103283

Included Lab Sample IDs: 2220717, 2220718, 2220719, 2220720, 2220721, 2220722, 2220723, 2220732

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.6	95.2	P/P	90 - 110
Organic Carbon	96.7	95.6	P/P	90 - 110
Organic Carbon	97.8	97.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A103313

Included Lab Sample IDs: 2220717, 2220718, 2220719, 2220720, 2220721, 2220722, 2220723

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	97.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A103322

Included Lab Sample IDs: 2220717, 2220718, 2220719, 2220720, 2220721

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.7	99.3	P/P	90 - 110
Kjeldahl Nitrogen	98.5	97.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A103347

Included Lab Sample IDs: 2220722, 2220723

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	105	107	P/P	90 - 110
Kjeldahl Nitrogen	107	104	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A103352

Included Lab Sample IDs: 2220715, 2220731

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A103356

Included Lab Sample IDs: 2220732

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.8	96.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A103396

Included Lab Sample IDs: 2220717, 2220718, 2220719, 2220720, 2220721, 2220722, 2220723

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	102	104	P/P	90 - 110
Ammonia-N	104	98.6	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A103417

Included Lab Sample IDs: 2220732

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A103454

Included Lab Sample IDs: 2220732

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	90.6	97.6	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	MS
EPA 180.1 Rev. 2.0	Turbidity					0.727	
	Turbidity					16.7	
EPA 300.0 Rev. 2.1	Bromide	99.0	97.8	97.3	90.3		0.421
	Bromide	101	98.8	98.5	99.1		0.286
EPA 350.1 Rev. 2.0	Ammonia-N	102	107	106			0.854
	Ammonia-N	99.0	93.9	96.1			2.04
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	96.9	96.3	96.6			0.299
	Kjeldahl Nitrogen	107	106	104			1.87
	Kjeldahl Nitrogen	106	105	103			0.736
EPA 353.2 Rev. 2.0	NO2NO3-N	99.5	96.2	96.2			0.0
	NO2NO3-N	99.5	99.0	98.5			0.334
	NO2NO3-N	99.0	99.5	100			0.645
EPA 365.1 Rev. 2.0	Total-P	109	100	102			1.74
	Total-P	104	106	107			0.932
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.8	97.2	99.3			1.68
	O-Phosphate-P	101	99.3	101			1.30
SM 2320 B-2011	Total Alkalinity	96.4				3.43	
	Total Alkalinity	94.7				2.87	
	Total Alkalinity	95.3				6.33	
SM 4500 F-C-2011	Fluoride	96.1	95.0	94.4			0.469
	Fluoride	95.7	96.3	98.2			1.42
	Fluoride	98.7	104	102			0.915
	Fluoride	100	101	101			0.0
SM 5310 B-2011	Organic Carbon	96.8	100	99.2			0.532
	Organic Carbon	94.4	93.1	92.6			0.422

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2220710, 2220711, 2220712, 2220713, 2220714, 2220715, 2220716, 2220731
EPA 300.0 Rev. 2.1	Bromide in aqueous matrices	2220710, 2220711, 2220712, 2220713, 2220714, 2220715, 2220716, 2220731
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2220717, 2220718, 2220719, 2220720, 2220721, 2220722, 2220723, 2220732
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2220717, 2220718, 2220719, 2220720, 2220721, 2220722, 2220723, 2220732
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2220717, 2220718, 2220719, 2220720, 2220721, 2220722, 2220723, 2220732
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2220717, 2220718, 2220719, 2220720, 2220721, 2220722, 2220723, 2220732
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2220724, 2220725, 2220726, 2220727, 2220728, 2220729, 2220730, 2220733
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2220710, 2220711, 2220712, 2220713, 2220714, 2220715, 2220716, 2220731
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2220710, 2220711, 2220712, 2220713, 2220714, 2220715, 2220716, 2220731
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2220710, 2220711, 2220712, 2220713, 2220714, 2220715, 2220716, 2220731
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2220717, 2220718, 2220719, 2220720, 2220721, 2220722, 2220723, 2220732

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	01/22/2021			01/22/2021 15:44	Yen Ta	2220710, 2220711, 2220712, 2220713, 2220714, 2220715, 2220716, 2220731
EPA 300.0 Rev. 2.1	01/22/2021			01/27/2021 21:14	Lipi Saha	2220710
	01/22/2021			01/27/2021 21:32	Lipi Saha	2220711
	01/22/2021			01/27/2021 21:51	Lipi Saha	2220712
	01/22/2021			01/27/2021 22:09	Lipi Saha	2220713
	01/22/2021			01/28/2021 01:27	Lipi Saha	2220715
	01/22/2021			01/28/2021 01:45	Lipi Saha	2220716
	01/22/2021			01/28/2021 02:03	Lipi Saha	2220731
	01/22/2021			01/28/2021 13:49	Lipi Saha	2220714
EPA 350.1 Rev. 2.0	01/22/2021			02/03/2021 18:27	Ping Hua	2220717
	01/22/2021			02/03/2021 18:41	Ping Hua	2220718
	01/22/2021			02/03/2021 18:42	Ping Hua	2220719
	01/22/2021			02/03/2021 18:44	Ping Hua	2220720
	01/22/2021			02/03/2021 18:45	Ping Hua	2220721
	01/22/2021			02/03/2021 18:47	Ping Hua	2220722
	01/22/2021			02/03/2021 18:48	Ping Hua	2220723
	01/22/2021			02/05/2021 19:29	Ping Hua	2220732
EPA 351.2 Rev. 2.0	01/22/2021	01/28/2021 13:00	Yen Ta	01/29/2021 13:57	Julia Storbeck	2220717
	01/22/2021	01/28/2021 13:00	Yen Ta	01/29/2021 13:59	Julia Storbeck	2220718
	01/22/2021	01/28/2021 13:00	Yen Ta	01/29/2021 14:01	Julia Storbeck	2220719
	01/22/2021	01/28/2021 13:00	Yen Ta	01/29/2021 14:05	Julia Storbeck	2220720
	01/22/2021	01/28/2021 13:00	Yen Ta	01/29/2021 14:07	Julia Storbeck	2220721
	01/22/2021	01/29/2021 12:30	Yen Ta	02/01/2021 14:40	Julia Storbeck	2220723
	01/22/2021	01/29/2021 12:30	Yen Ta	02/01/2021 14:50	Julia Storbeck	2220722
	01/22/2021	02/01/2021 09:53	Yen Ta	02/01/2021 20:45	Julia Storbeck	2220732
EPA 353.2 Rev. 2.0	01/22/2021			01/26/2021 09:32	Beverly Y. Sanders	2220732
	01/22/2021			01/27/2021 10:07	Beverly Y. Sanders	2220717
	01/22/2021			01/27/2021 10:08	Beverly Y. Sanders	2220718
	01/22/2021			01/27/2021 10:09	Beverly Y. Sanders	2220719
	01/22/2021			01/27/2021 10:16	Beverly Y. Sanders	2220722
	01/22/2021			01/27/2021 10:22	Beverly Y. Sanders	2220720
	01/22/2021			01/27/2021 10:23	Beverly Y. Sanders	2220721
	01/22/2021			01/27/2021 10:25	Beverly Y. Sanders	2220723
EPA 365.1 Rev. 2.0	01/22/2021	01/28/2021 17:26	Shengyu Wang	01/29/2021 12:24	Lipi Saha	2220717
	01/22/2021	01/28/2021 17:26	Shengyu Wang	01/29/2021 12:25	Lipi Saha	2220718
	01/22/2021	01/28/2021 17:26	Shengyu Wang	01/29/2021 12:26	Lipi Saha	2220719
	01/22/2021	01/28/2021 17:26	Shengyu Wang	01/29/2021 12:27	Lipi Saha	2220720
	01/22/2021	01/28/2021 17:26	Shengyu Wang	01/29/2021 12:28	Lipi Saha	2220721
	01/22/2021	01/28/2021 17:26	Shengyu Wang	01/29/2021 12:29	Lipi Saha	2220722

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	01/22/2021	01/28/2021 17:26	Shengyu Wang	01/29/2021 12:30	Lipi Saha	2220723
	01/22/2021	02/02/2021 13:00	Lipi Saha	02/04/2021 12:09	Shengyu Wang	2220732
EPA 365.1 Rev. 2.0 dissolved	01/22/2021			01/22/2021 16:18	Ping Hua	2220733
	01/22/2021			01/22/2021 16:20	Ping Hua	2220725
	01/22/2021			01/22/2021 16:23	Ping Hua	2220724
	01/22/2021			01/22/2021 16:28	Ping Hua	2220726
	01/22/2021			01/22/2021 16:29	Ping Hua	2220727
	01/22/2021			01/22/2021 16:30	Ping Hua	2220728, 2220729
	01/22/2021			01/22/2021 16:31	Ping Hua	2220730
	01/22/2021			01/25/2021 18:57	Dale L. Simmons	2220731
SM 2320 B-2011	01/22/2021			01/25/2021 23:31	Dale L. Simmons	2220712
	01/22/2021			01/25/2021 23:43	Dale L. Simmons	2220714
	01/22/2021			01/26/2021 00:12	Dale L. Simmons	2220715
	01/22/2021			01/26/2021 02:37	Dale L. Simmons	2220716
	01/22/2021			01/26/2021 03:01	Dale L. Simmons	2220710
	01/22/2021			01/26/2021 03:13	Dale L. Simmons	2220711
	01/22/2021			01/26/2021 03:25	Dale L. Simmons	2220713
	01/22/2021			01/26/2021 14:21	Yijie Li	2220710, 2220711, 2220712, 2220713, 2220714, 2220715, 2220716, 2220731
SM 2540 D-2011	01/22/2021					
SM 4500 F-C-2011	01/22/2021			01/25/2021 23:31	Dale L. Simmons	2220712
	01/22/2021			01/25/2021 23:43	Dale L. Simmons	2220714
	01/22/2021			01/26/2021 00:59	Dale L. Simmons	2220716
	01/22/2021			01/26/2021 02:00	Dale L. Simmons	2220710
	01/22/2021			01/26/2021 02:05	Dale L. Simmons	2220711
	01/22/2021			01/26/2021 02:10	Dale L. Simmons	2220713
	01/22/2021			01/30/2021 04:16	Dale L. Simmons	2220715
	01/22/2021			01/30/2021 10:08	Dale L. Simmons	2220731
SM 5310 B-2011	01/22/2021			01/27/2021 00:48	Touraj Touran	2220722
	01/22/2021			01/27/2021 01:03	Touraj Touran	2220732
	01/22/2021			01/27/2021 08:40	Touraj Touran	2220721
	01/22/2021			01/27/2021 09:41	Touraj Touran	2220717
	01/22/2021			01/27/2021 09:53	Touraj Touran	2220718
	01/22/2021			01/27/2021 10:17	Touraj Touran	2220719
	01/22/2021			01/27/2021 10:30	Touraj Touran	2220720
	01/22/2021			01/27/2021 10:42	Touraj Touran	2220723