

Chemical Analysis Report

SO-DIST-2019-05-30-02

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

Event Description: **KEYS**
Request ID: **RQ-2019-03-25-22**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901-3381
Attn: Gary Snorek

For additional information please contact
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Phone (850) 245-8085

Certified by: Colin Wright, Program Administrator

Date Certified: 18-JUN-2019 09:49



NON-CONFORMANCE REPORT INCLUDED

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: 8073 @ENRG2 Bayside #2

Collection Date/Time: 05/29/2019 11:50

Field ID: G5SD0082

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2089996	EPA 180.1 Rev. 2.0	Turbidity	0.35		NTU	P364763	
	EPA 300.0	Bromide	76		mg Br/L	P365161	
	SM 2320 B-97	Total Alkalinity	122		mg CaCO3/L	P364929	
	SM 2540 D-97	TSS	3	U	mg/L	P365414	
	SM 4500 F-C-97	Fluoride	1.3		mg F/L	P364931	
2090004	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P365207	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.19	I	mg N/L	P365075	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P364989	
	EPA 365.1 Rev. 2.0	Total-P	0.01	I	mg P/L	P364977	
	SM 5310 B-00	Organic Carbon	2.1		mg C/L	P364951	
2090012	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P364769	

Ref. Method and Comment:

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

SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: 8073 @ENRG2 Bayside #1

Collection Date/Time: 05/29/2019 11:35

Field ID: G5SD0065

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2089997	EPA 180.1 Rev. 2.0	Turbidity	0.35		NTU	P364763	
	EPA 300.0	Bromide	77		mg Br/L	P365161	
	SM 2320 B-97	Total Alkalinity	123		mg CaCO3/L	P364929	
	SM 2540 D-97	TSS	3	U	mg/L	P365414	
	SM 4500 F-C-97	Fluoride	1.3		mg F/L	P364931	
2090005	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P365207	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.23	I	mg N/L	P365075	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P364989	
	EPA 365.1 Rev. 2.0	Total-P	0.010		mg P/L	P364977	
	SM 5310 B-00	Organic Carbon	2.0		mg C/L	P364951	
2090013	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P364769	

Ref. Method and Comment:

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

SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: 8073 @ENRG1 Dredgers#2

Collection Date/Time: 05/29/2019 12:30

Field ID: G5SD0096

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2089998	EPA 180.1 Rev. 2.0	Turbidity	0.75		NTU	P364763	
	EPA 300.0	Bromide	78		mg Br/L	P365161	
	SM 2320 B-97	Total Alkalinity	107		mg CaCO3/L	P364929	
	SM 2540 D-97	TSS	3	U	mg/L	P365414	
	SM 4500 F-C-97	Fluoride	1.3		mg F/L	P364931	
2090006	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P365207	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.36	I	mg N/L	P365181	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P364989	
	EPA 365.1 Rev. 2.0	Total-P	0.010		mg P/L	P364977	
	SM 5310 B-00	Organic Carbon	3.1		mg C/L	P364951	
2090014	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P364769	

Ref. Method and Comment:

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

SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: 8073 @ ENRG1 Dredgers#2

Collection Date/Time: 05/29/2019 12:35

Field ID: G5SD0096_DUP

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2090020	EPA 180.1 Rev. 2.0	Turbidity	0.70		NTU	P364763	
	EPA 300.0	Bromide	80		mg Br/L	P365161	
	SM 2320 B-97	Total Alkalinity	108		mg CaCO3/L	P364930	
	SM 2540 D-97	TSS	3	UA	mg/L	P365414	
	SM 4500 F-C-97	Fluoride	1.3		mg F/L	P364932	
2090021	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P365207	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.29	I	mg N/L	P365108	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P364989	
	EPA 365.1 Rev. 2.0	Total-P	0.009	I	mg P/L	P364977	
	SM 5310 B-00	Organic Carbon	3.0		mg C/L	P364951	
2090022	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P364769	

Ref. Method and Comment:

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

SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: 8073@ENRG4 WofKeywest#2

Collection Date/Time: 05/29/2019 08:50

Field ID: G5SD0081

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2089999	EPA 180.1 Rev. 2.0	Turbidity	0.90		NTU	P364764	
	EPA 300.0	Bromide	78		mg Br/L	P365161	
	SM 2320 B-97	Total Alkalinity	119		mg CaCO3/L	P364930	
	SM 2540 D-97	TSS	3	U	mg/L	P365414	
	SM 4500 F-C-97	Fluoride	1.3		mg F/L	P364932	
2090007	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P365207	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.22	I	mg N/L	P365181	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P364989	
	EPA 365.1 Rev. 2.0	Total-P	0.008	I	mg P/L	P364977	
	SM 5310 B-00	Organic Carbon	1.7	I	mg C/L	P364951	
2090015	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P364769	

Ref. Method and Comment:

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

SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: 8073@ENRG4 WofKeywest#1

Collection Date/Time: 05/29/2019 09:05

Field ID: G5SD0063

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2090000	EPA 180.1 Rev. 2.0	Turbidity	1.1		NTU	P364764	
	EPA 300.0	Bromide	78		mg Br/L	P365161	
	SM 2320 B-97	Total Alkalinity	116		mg CaCO3/L	P364930	
	SM 2540 D-97	TSS	3	U	mg/L	P365414	
	SM 4500 F-C-97	Fluoride	1.3		mg F/L	P364932	
2090008	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	IY	mg N/L	P365207	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.22	IY	mg N/L	P365181	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	UY	mg N/L	P364989	
	EPA 365.1 Rev. 2.0	Total-P	0.008	IY	mg P/L	P364977	
	SM 5310 B-00	Organic Carbon	1.9	IY	mg C/L	P364951	
2090016	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P364769	

Ref. Method and Comment:

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

SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

EPA 350.1 Rev. 2.0: The sample was received unpreserved: pH > 2. Sample preserved in laboratory.

EPA 351.2 Rev. 2.0: The sample was received unpreserved: pH > 2. Sample preserved in laboratory.

EPA 353.2 Rev. 2.0: The sample was received unpreserved: pH > 2. Sample preserved in laboratory.

EPA 365.1 Rev. 2.0: Total-P: The sample was received unpreserved: pH > 2. Sample preserved in laboratory.

SM 5310 B-00: The sample was received unpreserved: pH > 2. Sample preserved in laboratory.

Sample Location: 8073 @ENRG6 Out@Reef #2

Collection Date/Time: 05/29/2019 09:35

Field ID: G5SD0083

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2090001	EPA 180.1 Rev. 2.0	Turbidity	1.7		NTU	P364764	
	EPA 300.0	Bromide	76		mg Br/L	P365161	
	SM 2320 B-97	Total Alkalinity	123		mg CaCO3/L	P364930	
	SM 2540 D-97	TSS	3	U	mg/L	P365414	
	SM 4500 F-C-97	Fluoride	1.3		mg F/L	P364932	
2090009	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P365207	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.16	IJ	mg N/L	P365108	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P364989	
	EPA 365.1 Rev. 2.0	Total-P	0.008	I	mg P/L	P364977	
	SM 5310 B-00	Organic Carbon	1.0	I	mg C/L	P364951	
2090017	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P364769	

Ref. Method and Comment:

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

SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

EPA 351.2 Rev. 2.0: Refer to the narrative for an explanation of QC Codes.

Sample Location: 8073 @ENRG1 DredgersKey

Collection Date/Time: 05/29/2019 12:55

Field ID: G5SD0066

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2090003	EPA 180.1 Rev. 2.0	Turbidity	0.75		NTU	P364764	
	EPA 300.0	Bromide	80		mg Br/L	P365161	
	SM 2320 B-97	Total Alkalinity	109		mg CaCO3/L	P364930	
	SM 2540 D-97	TSS	3	U	mg/L	P365414	
	SM 4500 F-C-97	Fluoride	1.3		mg F/L	P364932	
2090011	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P365207	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.29	I	mg N/L	P365108	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P364989	
	EPA 365.1 Rev. 2.0	Total-P	0.010		mg P/L	P364977	
	SM 5310 B-00	Organic Carbon	3.0		mg C/L	P364951	
2090019	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P364769	

Ref. Method and Comment:

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

SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: FB_05292019

Collection Date/Time: 05/29/2019 14:20

Field ID: FB_05292019

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2090023	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P364764	
	EPA 300.0	Bromide	0.013	U	mg Br/L	P365161	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P365082	
	SM 2540 D-97	TSS	2	U	mg/L	P365411	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P365086	
2090024	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P365205	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P365077	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P364891	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P364976	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P364949	
2090025	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P364767	

Ref. Method and Comment:

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

Non-Conformance Report

NCR ID: 7709

Event(s)

SO-DIST-2019-05-30-02

Job(s)

TLH-2019-05-30-73

Sample(s)

2090008

Test(s)

NCR Type: SHIPPING/RECEIVING

NCR Category: Preservation Not Intact

Observation: Sample not preserved to pH < 2.

Resolution: Sample preserved in the laboratory with sulfuric acid
H2SO4 Lot# SA8274050 | Expiration Date: 10-01-2019
Data will be qualified as appropriate.

Authorized by/Date: Joshua Ayres 5/31/2019

The Non-Conformance Report details exceptions or problems encountered with the events/jobs/samples/test.
Please address questions to:

Chemistry	Colin Wright	(850) 245-8085
Biology	Cheryl Swanson	(850) 245-8177

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P364763

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P364764

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0
Batch ID: P365161

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365205

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365207

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365075

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365077

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365108

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365181

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: P364891

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364989

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364976

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364977

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364767

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364769

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

Reference Method: SM 2320 B-97
Batch ID: P364929

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

Reference Method: SM 2320 B-97
Batch ID: P364930

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

Reference Method: SM 2320 B-97
Batch ID: P365082

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P365411

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P365414

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P364931

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P364932

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P365086

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P364949

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

Reference Method: SM 5310 B-00
Batch ID: P364951

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 300.0
Batch ID: P365161

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365205

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: P365207

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365075

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365077

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365108

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365181

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364891

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	96.5		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364989

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	99.5		P	90 - 110

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364976

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364977

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364767

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364769

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

Reference Method: SM 2320 B-97
Batch ID: P364929

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

Reference Method: SM 2320 B-97
Batch ID: P364930

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

Reference Method: SM 2320 B-97
Batch ID: P365082

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

Reference Method: SM 4500 F-C-97
Batch ID: P364931

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.8		P	89 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P364932

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.7		P	92 - 103

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P365086

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.9		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P364949

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

Reference Method: SM 5310 B-00
Batch ID: P364951

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	105		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0
Batch ID: P365161

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2090173	Bromide	96.2	96.7	P/P	90 - 110
2090174	Bromide	96.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365205

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2089892	Ammonia-N	99.2	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365207

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2089986	Ammonia-N	102	105	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365075

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2089884	Kjeldahl Nitrogen	98.4	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365077

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2090031	Kjeldahl Nitrogen	104	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365108

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2090009	Kjeldahl Nitrogen	87.2	89.6	F/F	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365181

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2089599	Kjeldahl Nitrogen	102	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364891

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2090029	NO2NO3-N	98.5	98.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364989

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2090004	NO2NO3-N	102	101	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364976

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2090029	Total-P	102	97.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364977

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2089986	Total-P	94.6	95.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364767

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2089798	O-Phosphate-P	95.2	95.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364769

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2089835	O-Phosphate-P	94.3	96.0	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P365086

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2090176	Fluoride	101	99.3	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P364949

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2089947	Organic Carbon	100	102	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P364951

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2090004	Organic Carbon	101	102	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P364763

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2089828	Turbidity	7.62	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P364764

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2090069	Turbidity	5.44	Sample	P	0 - 20

Reference Method: EPA 300.0
Batch ID: P365161

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2090173	Bromide	0.456	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365205

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2089892	Ammonia-N	3.03	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365207

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2089986	Ammonia-N	2.72	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365075

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2089884	Kjeldahl Nitrogen	1.13	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365077

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2090031	Kjeldahl Nitrogen	2.09	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365108

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2090009	Kjeldahl Nitrogen	2.57	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365181

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2089599	Kjeldahl Nitrogen	0.0469	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364891

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2090029	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364989

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2090004	NO2NO3-N	0.985	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364976

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2090029	Total-P	5.02	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364977

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2089986	Total-P	0.361	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364767

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2089798	O-Phosphate-P	0.628	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364769

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2089835	O-Phosphate-P	1.50	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P364929

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2088458	Total Alkalinity	0.434	Sample	P	0 - 2.8

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
Batch ID: P364930

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2089083	Total Alkalinity	1.42	Sample	P	0 - 2.8

Reference Method: SM 2320 B-97
Batch ID: P365082

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2090176	Total Alkalinity	0.703	Sample	P	0 - 2.8

Reference Method: SM 4500 F-C-97
Batch ID: P364931

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2088458	Fluoride	0.513	Spike	P	0 - 2.5

Reference Method: SM 4500 F-C-97
Batch ID: P364932

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2089083	Fluoride	0.473	Spike	P	0 - 2.5

Reference Method: SM 4500 F-C-97
Batch ID: P365086

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2090176	Fluoride	0.992	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P364949

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2089947	Organic Carbon	1.02	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P364951

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2090004	Organic Carbon	0.748	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 180.1 Rev. 2.0

Run ID: A91762

Included Lab Sample IDs: 2089996, 2089997, 2089998, 2089999, 2090000, 2090001, 2090003, 2090020, 2090023

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	99.0	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A91763

Included Lab Sample IDs: 2090012, 2090013, 2090014, 2090015, 2090016, 2090017, 2090019, 2090022, 2090025

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.6	97.5	P/P	90 - 110
O-Phosphate-P	99.6	95.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A91809

Included Lab Sample IDs: 2090024

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	97.0	99.0	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A91818

Included Lab Sample IDs: 2089996, 2089997, 2089998, 2089999, 2090000, 2090001, 2090003, 2090020

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	103	P/P	90 - 110
Total Alkalinity	103	101	P/P	90 - 110
Total Alkalinity	103	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A91818

Included Lab Sample IDs: 2089996, 2089997, 2089998, 2089999, 2090000, 2090001, 2090003, 2090020

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.0	99.1	P/P	90 - 110
Fluoride	99.5	99.5	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A91835

Included Lab Sample IDs: 2090004, 2090005, 2090006, 2090007, 2090008, 2090009, 2090011, 2090021, 2090024

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A91846

Included Lab Sample IDs: 2090004, 2090005, 2090006, 2090007, 2090008, 2090009, 2090011, 2090021

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

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97
Run ID: A91867
Included Lab Sample IDs: 2090023

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

Reference Method: SM 4500 F-C-97
Run ID: A91867
Included Lab Sample IDs: 2090023

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A91886
Included Lab Sample IDs: 2090004, 2090005, 2090006, 2090007, 2090008, 2090009, 2090011, 2090021, 2090024

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	99.5	P/P	90 - 110
Total-P	99.2	100	P/P	90 - 110
Total-P	99.5	99.2	P/P	90 - 110

Reference Method: EPA 300.0
Run ID: A91896
Included Lab Sample IDs: 2089996, 2089997, 2089998, 2089999, 2090000, 2090001, 2090003, 2090020, 2090023

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A91905
Included Lab Sample IDs: 2090004, 2090005, 2090024

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	94.0	99.0	P/P	90 - 110
Kjeldahl Nitrogen	99.0	96.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A91914
Included Lab Sample IDs: 2090004, 2090005, 2090006, 2090007, 2090008, 2090009, 2090011, 2090021, 2090024

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	102	P/P	90 - 110
Ammonia-N	102	101	P/P	90 - 110
Ammonia-N	103	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A91923
Included Lab Sample IDs: 2090009, 2090011, 2090021

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	93.6	95.6	P/P	90 - 110
Kjeldahl Nitrogen	97.2	93.6	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A91946

Included Lab Sample IDs: 2090006, 2090007, 2090008

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	104	108	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					7.62	
	Turbidity					5.44	
EPA 300.0	Bromide	102	96.2	96.7	96.2		0.456
EPA 350.1 Rev. 2.0	Ammonia-N	101	99.2	102			3.03
	Ammonia-N	101	102	105			2.72
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	97.7	98.4	101			1.13
	Kjeldahl Nitrogen	101	104	101			2.09
	Kjeldahl Nitrogen	97.0	87.2	89.6			2.57
	Kjeldahl Nitrogen	104	102	102			0.0469
EPA 353.2 Rev. 2.0	NO2NO3-N	96.5	98.5	98.5			0.0
	NO2NO3-N	99.5	102	101			0.985
EPA 365.1 Rev. 2.0	Total-P	101	102	97.2			5.02
	Total-P	102	94.6	95.0			0.361
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.4	95.2	95.8			0.628
	O-Phosphate-P	97.4	94.3	96.0			1.50
SM 2320 B-97	Total Alkalinity	102				0.434	
	Total Alkalinity	103				1.42	
	Total Alkalinity	104				0.703	
SM 4500 F-C-97	Fluoride	95.8					0.513
	Fluoride	97.7					0.473
	Fluoride	96.9	101	99.3			0.992
SM 5310 B-00	Organic Carbon	100	100	102			1.02
	Organic Carbon	105	101	102			0.748

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2089996, 2089997, 2089998, 2089999, 2090000, 2090001, 2090003, 2090020, 2090023
EPA 300.0 / E31780	Bromide in aqueous matrices	2089996, 2089997, 2089998, 2089999, 2090000, 2090001, 2090003, 2090020, 2090023
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2090004, 2090005, 2090006, 2090007, 2090008, 2090009, 2090011, 2090021, 2090024
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2090004, 2090005, 2090006, 2090007, 2090008, 2090009, 2090011, 2090021, 2090024
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2090004, 2090005, 2090006, 2090007, 2090008, 2090009, 2090011, 2090021, 2090024
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2090004, 2090005, 2090006, 2090007, 2090008, 2090009, 2090011, 2090021, 2090024
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2090012, 2090013, 2090014, 2090015, 2090016, 2090017, 2090019, 2090022, 2090025
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2089996, 2089997, 2089998, 2089999, 2090000, 2090001, 2090003, 2090020, 2090023
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2089996, 2089997, 2089998, 2089999, 2090000, 2090001, 2090003, 2090020, 2090023
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2089996, 2089997, 2089998, 2089999, 2090000, 2090001, 2090003, 2090020, 2090023

Reference Method Descriptions

Method / DoH Cert #	Description	<u>Associated Samples</u>
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2090004, 2090005, 2090006, 2090007, 2090008, 2090009, 2090011, 2090021, 2090024

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	05/30/2019			05/30/2019 16:27	Julia Storbeck	2089996, 2089997, 2089998, 2089999, 2090000, 2090001, 2090003, 2090020, 2090023
EPA 300.0	05/30/2019			06/05/2019 19:21	Lipi Saha	2089996
	05/30/2019			06/05/2019 19:39	Lipi Saha	2089997
	05/30/2019			06/05/2019 19:56	Lipi Saha	2089998
	05/30/2019			06/05/2019 20:13	Lipi Saha	2089999
	05/30/2019			06/05/2019 21:04	Lipi Saha	2090000
	05/30/2019			06/05/2019 21:21	Lipi Saha	2090001
	05/30/2019			06/05/2019 21:38	Lipi Saha	2090003
	05/30/2019			06/05/2019 21:55	Lipi Saha	2090020
	05/30/2019			06/05/2019 22:12	Lipi Saha	2090023
EPA 350.1 Rev. 2.0	05/30/2019			06/05/2019 11:07	Ping Hua	2090024
	05/30/2019			06/05/2019 11:56	Ping Hua	2090004
	05/30/2019			06/05/2019 11:58	Ping Hua	2090005
	05/30/2019			06/05/2019 11:59	Ping Hua	2090006
	05/30/2019			06/05/2019 12:01	Ping Hua	2090021
	05/30/2019			06/05/2019 12:02	Ping Hua	2090007
	05/30/2019			06/05/2019 12:04	Ping Hua	2090008
	05/30/2019			06/05/2019 12:05	Ping Hua	2090009
	05/30/2019			06/05/2019 12:13	Ping Hua	2090011
EPA 351.2 Rev. 2.0	05/30/2019	06/05/2019 12:20	Adrian Shelby	06/06/2019 11:12	Joseph Suarez	2090004
	05/30/2019	06/05/2019 12:20	Adrian Shelby	06/06/2019 11:14	Joseph Suarez	2090005
	05/30/2019	06/05/2019 12:20	Adrian Shelby	06/06/2019 11:26	Joseph Suarez	2090024
	05/30/2019	06/05/2019 16:30	Adrian Shelby	06/06/2019 14:32	Joseph Suarez	2090009
	05/30/2019	06/05/2019 16:30	Adrian Shelby	06/06/2019 14:40	Joseph Suarez	2090011
	05/30/2019	06/05/2019 16:30	Adrian Shelby	06/06/2019 14:42	Joseph Suarez	2090021
	05/30/2019	06/06/2019 12:15	Adrian Shelby	06/07/2019 10:35	Joseph Suarez	2090006
	05/30/2019	06/06/2019 12:15	Adrian Shelby	06/07/2019 10:36	Joseph Suarez	2090007
	05/30/2019	06/06/2019 12:15	Adrian Shelby	06/07/2019 10:38	Joseph Suarez	2090008
EPA 353.2 Rev. 2.0	05/30/2019			06/03/2019 10:11	Beverly Y. Sanders	2090024
	05/30/2019			06/04/2019 14:26	Beverly Y. Sanders	2090004
	05/30/2019			06/04/2019 14:32	Beverly Y. Sanders	2090005
	05/30/2019			06/04/2019 14:33	Beverly Y. Sanders	2090006
	05/30/2019			06/04/2019 14:34	Beverly Y. Sanders	2090021
	05/30/2019			06/04/2019 14:35	Beverly Y. Sanders	2090007
	05/30/2019			06/04/2019 14:37	Beverly Y. Sanders	2090008
	05/30/2019			06/04/2019 14:38	Beverly Y. Sanders	2090009
	05/30/2019			06/04/2019 14:39	Beverly Y. Sanders	2090011
EPA 365.1 Rev. 2.0	05/30/2019	06/04/2019 11:15	Sima Feizi	06/05/2019 14:21	Rosalyn Ballman	2090024

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	05/30/2019	06/04/2019 11:15	Sima Feizi	06/05/2019 14:37	Rosalyn Ballman	2090004
	05/30/2019	06/04/2019 11:15	Sima Feizi	06/05/2019 14:38	Rosalyn Ballman	2090005
	05/30/2019	06/04/2019 11:15	Sima Feizi	06/05/2019 14:46	Rosalyn Ballman	2090006
	05/30/2019	06/04/2019 11:15	Sima Feizi	06/05/2019 14:47	Rosalyn Ballman	2090007
	05/30/2019	06/04/2019 11:15	Sima Feizi	06/05/2019 14:48	Rosalyn Ballman	2090008
	05/30/2019	06/04/2019 11:15	Sima Feizi	06/05/2019 14:49	Rosalyn Ballman	2090009
	05/30/2019	06/04/2019 11:15	Sima Feizi	06/05/2019 14:50	Rosalyn Ballman	2090011
	05/30/2019	06/04/2019 11:15	Sima Feizi	06/05/2019 14:51	Rosalyn Ballman	2090021
EPA 365.1 Rev. 2.0 dissolved	05/30/2019			05/30/2019 15:18	Jhamieka S. Greenwood	2090025
	05/30/2019			05/30/2019 15:40	Jhamieka S. Greenwood	2090012
	05/30/2019			05/30/2019 15:41	Jhamieka S. Greenwood	2090013
	05/30/2019			05/30/2019 15:42	Jhamieka S. Greenwood	2090014
	05/30/2019			05/30/2019 15:43	Jhamieka S. Greenwood	2090015, 2090016
	05/30/2019			05/30/2019 15:44	Jhamieka S. Greenwood	2090017
	05/30/2019			05/30/2019 15:45	Jhamieka S. Greenwood	2090019
	05/30/2019			05/30/2019 15:46	Jhamieka S. Greenwood	2090022
SM 2320 B-97	05/30/2019			06/03/2019 03:38	Dale L. Simmons	2089996
	05/30/2019			06/03/2019 04:45	Dale L. Simmons	2089997
	05/30/2019			06/03/2019 04:58	Dale L. Simmons	2089998
	05/30/2019			06/03/2019 10:59	Dale L. Simmons	2089999
	05/30/2019			06/03/2019 11:11	Dale L. Simmons	2090000
	05/30/2019			06/03/2019 11:24	Dale L. Simmons	2090001
	05/30/2019			06/03/2019 11:51	Dale L. Simmons	2090003
	05/30/2019			06/03/2019 12:04	Dale L. Simmons	2090020
SM 2540 D-97	05/30/2019			06/05/2019 06:12	Samantha Davila	2090023
	05/30/2019			06/04/2019 15:00	Yijie Li	2089996, 2089997, 2089998, 2089999, 2090000, 2090001, 2090003, 2090020, 2090023
SM 4500 F-C-97	05/30/2019			06/02/2019 22:41	Dale L. Simmons	2089996
	05/30/2019			06/02/2019 22:45	Dale L. Simmons	2089997
	05/30/2019			06/02/2019 22:50	Dale L. Simmons	2089998
	05/30/2019			06/03/2019 07:31	Dale L. Simmons	2089999
	05/30/2019			06/03/2019 07:35	Dale L. Simmons	2090000
	05/30/2019			06/03/2019 07:39	Dale L. Simmons	2090001
	05/30/2019			06/03/2019 07:52	Dale L. Simmons	2090003
	05/30/2019			06/03/2019 07:57	Dale L. Simmons	2090020
SM 5310 B-00	05/30/2019			06/05/2019 06:12	Samantha Davila	2090023
	05/30/2019			06/03/2019 18:45	Madeline Funaro	2090024
	05/30/2019			06/04/2019 03:11	Madeline Funaro	2090004
	05/30/2019			06/04/2019 03:48	Madeline Funaro	2090005

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 5310 B-00	05/30/2019			06/04/2019 04:24	Madeline Funaro	2090006
	05/30/2019			06/04/2019 04:49	Madeline Funaro	2090007
	05/30/2019			06/04/2019 05:01	Madeline Funaro	2090008
	05/30/2019			06/04/2019 05:13	Madeline Funaro	2090009
	05/30/2019			06/04/2019 05:38	Madeline Funaro	2090011
	05/30/2019			06/04/2019 06:02	Madeline Funaro	2090021