Chemical Analysis Report

CEN-DIST-2017-04-11-01

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

Event Description: **Horse Creek/Elbow Creek**
Request ID: **RQ-2017-03-20-51**
Customer: **CEN-DIST**
Project ID: **SMP**

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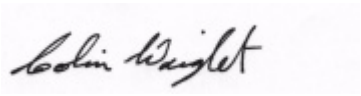
Certified by: Colin Wright, Program Administrator

Date Certified: 08-MAY-2017 10:10



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 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: Elbow Creek @ 540m Downstream of Apollo Blvd. **Collection Date/Time: 04/10/2017 10:42**

Field ID: G5CE0070 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1886866	EPA 180.1 Rev. 2.0	Turbidity	1.3		NTU	P323148	
	EPA 300.0 Rev. 2.1	Chloride	110		mg Cl/L	P323490	
		Sulfate	33		mg SO4/L	P323485	
	SM 2120 B	Color (true)	77		PCU	P323111	
	SM 2320 B-97	Total Alkalinity	149		mg CaCO3/L	P323457	
	SM 2540 C-97	TDS	424		mg/L	P323435	
	SM 2540 D-97	TSS	3	I	mg/L	P323550	
	SM 4500 F-C-97	Fluoride	0.12		mg F/L	P323461	
1886867	EPA 350.1 Rev. 2.0	Ammonia-N	0.063		mg N/L	P323271	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.65		mg N/L	P323208	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.047		mg N/L	P323316	
	EPA 365.1 Rev. 2.0	Total-P	0.084		mg P/L	P323251	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P323171	
1886868	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.061		mg P/L	P323104	

Ref. Method and Comment:
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 350.1 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Horse Creek West of US Highway 1 Bridge **Collection Date/Time: 04/10/2017 12:10**

Field ID: G5CE0071 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1886860	EPA 180.1 Rev. 2.0	Turbidity	4.6		NTU	P323148	
	SM 2320 B-97	Total Alkalinity	112		mg CaCO3/L	P323535	
	SM 2540 D-97	TSS	6	IA	mg/L	P323553	
	SM 4500 F-C-97	Fluoride	0.39		mg F/L	P323539	
1886862	EPA 350.1 Rev. 2.0	Ammonia-N	0.040		mg N/L	P323129	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.84		mg N/L	P323207	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.15		mg N/L	P323218	
	EPA 365.1 Rev. 2.0	Total-P	0.085		mg P/L	P323256	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P323331	
1886864	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.037		mg P/L	P323105	
1886874	EPA 200.7 Rev. 4.4	Iron	280	I	ug/L	P323748	
	EPA 200.8 Rev. 5.4	Arsenic	2.18		ug/L	P323748	
		Cadmium	0.060	U	ug/L	P323748	
		Chromium	1.2	U	ug/L	P323748	
		Copper	0.87	I	ug/L	P323748	
		Lead	0.22	I	ug/L	P323748	
		Nickel	0.60	U	ug/L	P323748	
		Silver	0.030	U	ug/L	P323748	
		Zinc	5.1	I	ug/L	P323748	

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: Horse Creek @ Croton Road Bridge **Collection Date/Time: 04/10/2017 12:30**

Field ID: G5CE0078 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1886861	EPA 180.1 Rev. 2.0	Turbidity	1.3		NTU	P323148	
	SM 2320 B-97	Total Alkalinity	101		mg CaCO3/L	P323457	
	SM 2540 D-97	TSS	3	I	mg/L	P323551	
	SM 4500 F-C-97	Fluoride	0.13		mg F/L	P323461	
1886863	EPA 350.1 Rev. 2.0	Ammonia-N	0.019		mg N/L	P323128	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.74		mg N/L	P323208	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.078		mg N/L	P323316	
	EPA 365.1 Rev. 2.0	Total-P	0.051		mg P/L	P323251	
	SM 5310 B-00	Organic Carbon	16		mg C/L	P323171	
1886865	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.029		mg P/L	P323104	
1886875	EPA 200.7 Rev. 4.4	Iron	96	I	ug/L	P323279	
		Zinc	5.0	U	ug/L	P323279	
	EPA 200.8 Rev. 5.4	Arsenic	1.99		ug/L	P323279	
		Cadmium	0.020	U	ug/L	P323279	
		Chromium	0.58	I	ug/L	P323279	
		Copper	0.80		ug/L	P323279	
		Lead	0.14	I	ug/L	P323279	
		Nickel	0.50	I	ug/L	P323279	
		Silver	0.010	U	ug/L	P323279	

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P323148

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P323279

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

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P323748

Component	Result	Code	Units
Iron	30	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P323279

Component	Result	Code	Units
Arsenic	0.050	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Copper	0.20	U	ug/L

Quality Assurance Report
Method Blank Results

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P323279

Component	Result	Code	Units
Lead	0.050	U	ug/L
Nickel	0.20	U	ug/L
Silver	0.010	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P323748

Component	Result	Code	Units
Arsenic	0.050	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Copper	0.20	U	ug/L
Lead	0.050	U	ug/L
Nickel	0.20	U	ug/L
Silver	0.010	U	ug/L
Zinc	1.0	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P323485

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P323490

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P323128

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P323129

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P323271

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P323207

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P323208

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P323218

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P323316

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P323251

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P323256

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P323104

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P323105

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

Reference Method: SM 2120 B
Batch ID: P323111

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P323457

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

Quality Assurance Report
Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P323535

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

Reference Method: SM 2540 C-97
Batch ID: P323435

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P323550

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P323551

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P323553

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P323461

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P323539

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P323171

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

Reference Method: SM 5310 B-00
Batch ID: P323331

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: P323279

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	105		P	85 - 115
Zinc	103		P	85 - 115

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P323748

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

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P323279

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	98.8		P	85 - 115
Cadmium	94.3		P	85 - 115
Chromium	96.2		P	85 - 115
Copper	96.6		P	85 - 115
Lead	95.4		P	85 - 115
Nickel	97.8		P	85 - 115
Silver	94.3		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P323748

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	98.0		P	85 - 115
Cadmium	96.0		P	85 - 115
Chromium	96.7		P	85 - 115
Copper	96.8		P	85 - 115
Lead	94.9		P	85 - 115
Nickel	97.5		P	85 - 115
Silver	96.1		P	85 - 115
Zinc	97.2		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P323485

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P323490

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P323128

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 350.1 Rev. 2.0
Batch ID: P323129

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P323271

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P323207

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	94.5		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P323208

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P323218

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P323316

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: P323251

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P323256

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P323104

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P323105

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

Reference Method: SM 2320 B-97
Batch ID: P323457

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	95 - 108

Reference Method: SM 2320 B-97
Batch ID: P323535

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P323461

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.9		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P323539

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.0		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P323171

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	91.2		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P323331

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

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P323279

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1886583	Iron	104		P	80 - 120
1886583	Zinc	97.6		P	80 - 120
1886643	Iron	105	106	P/P	80 - 120
1886643	Zinc	99.5	101	P/P	80 - 120

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P323748

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1887121	Iron	102		P	70 - 130
1887254	Iron	94.1	93.5	P/P	70 - 130

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P323279

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1886583	Arsenic	100		P	80 - 120
1886583	Cadmium	98.2		P	80 - 120
1886583	Chromium	98.8		P	80 - 120
1886583	Copper	92.3		P	80 - 120
1886583	Lead	97.6		P	80 - 120
1886583	Nickel	95.2		P	80 - 120
1886583	Silver	97.3		P	80 - 120
1886643	Arsenic	101	101	P/P	80 - 120
1886643	Cadmium	97.7	99.4	P/P	80 - 120
1886643	Chromium	97.7	97.4	P/P	80 - 120
1886643	Copper	93.8	93.6	P/P	80 - 120
1886643	Lead	99.6	98.2	P/P	80 - 120
1886643	Nickel	94.6	94.9	P/P	80 - 120
1886643	Silver	95.4	96.2	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P323748

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1887121	Arsenic	110		P	70 - 130
1887121	Cadmium	99.9		P	70 - 130
1887121	Chromium	94.6		P	70 - 130
1887121	Copper	98.3		P	70 - 130
1887121	Lead	103		P	70 - 130
1887121	Nickel	102		P	70 - 130
1887121	Silver	96.1		P	70 - 130
1887121	Zinc	100		P	70 - 130
1887254	Arsenic	108	107	P/P	70 - 130
1887254	Cadmium	101	101	P/P	70 - 130
1887254	Chromium	91.4	91.1	P/P	70 - 130
1887254	Copper	93.7	93.9	P/P	70 - 130
1887254	Lead	103	103	P/P	70 - 130
1887254	Nickel	99.8	99.2	P/P	70 - 130
1887254	Silver	93.9	94.3	P/P	70 - 130
1887254	Zinc	94.8	92.6	P/P	70 - 130

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P323485

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1886885	Sulfate	99.9		P	90 - 110
1886960	Sulfate	98.1		P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P323490

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1886885	Chloride	103		P	90 - 110
1886960	Chloride	102		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P323128

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1886836	Ammonia-N	99.8	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P323129

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1886862	Ammonia-N	102	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P323207

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1887078	Kjeldahl Nitrogen	95.2	97.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P323208

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1886837	Kjeldahl Nitrogen	108	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P323218

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1887449	NO2NO3-N	101	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P323316

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1886836	NO2NO3-N	96.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P323251

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1886836	Total-P	102	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P323256

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1887169	Total-P	102	108	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P323104

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1886838	O-Phosphate-P	98.5	97.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P323105

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1886864	O-Phosphate-P	97.7	96.7	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P323461

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1886659	Fluoride	97.9	98.5	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P323539

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1885557	Fluoride	95.5	94.3	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P323171

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1886836	Organic Carbon	92.3	90.2	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P323331

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1887215	Organic Carbon	98.7	94.9	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P323148

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1886834	Turbidity	5.88	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P323279

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1886643	Iron	1.27	Spike	P	0 - 20
1886643	Zinc	1.67	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P323748

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1887254	Iron	0.612	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P323279

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1886643	Arsenic	0.119	Spike	P	0 - 20
1886643	Cadmium	1.75	Spike	P	0 - 20
1886643	Chromium	0.228	Spike	P	0 - 20
1886643	Copper	0.183	Spike	P	0 - 20
1886643	Lead	1.36	Spike	P	0 - 20
1886643	Nickel	0.365	Spike	P	0 - 20
1886643	Silver	0.860	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P323748

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1887254	Arsenic	0.373	Spike	P	0 - 20
1887254	Cadmium	0.600	Spike	P	0 - 20
1887254	Chromium	0.363	Spike	P	0 - 20
1887254	Copper	0.185	Spike	P	0 - 20
1887254	Lead	0.141	Spike	P	0 - 20
1887254	Nickel	0.590	Spike	P	0 - 20
1887254	Silver	0.400	Spike	P	0 - 20
1887254	Zinc	1.73	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P323485

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1886885	Sulfate	1.12	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P323490

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1886885	Chloride	0.0661	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P323128

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1886836	Ammonia-N	0.198	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P323129

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1886862	Ammonia-N	0.242	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P323271

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1886867	Ammonia-N	0.182	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P323207

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1887078	Kjeldahl Nitrogen	1.93	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P323208

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1886837	Kjeldahl Nitrogen	4.33	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P323218

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1887449	NO2NO3-N	0.411	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P323316

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1886836	NO2NO3-N	1.35	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P323251

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1886836	Total-P	0.561	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P323256

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1887169	Total-P	5.47	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P323104

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1886838	O-Phosphate-P	0.887	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P323105

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1886864	O-Phosphate-P	0.743	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P323111

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1886960	Color (true)	0.606	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P323457

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1886659	Total Alkalinity	2.33	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P323535

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1887371	Total Alkalinity	0.989	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P323435

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1886606	TDS	5.59	Sample	P	0 - 10

Reference Method: SM 2540 D-97
Batch ID: P323551

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1887106	TSS	7.41	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P323461

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1886659	Fluoride	0.500	Spike	P	0 - 3.0

Quality Assurance Report
Precision

Reference Method: SM 4500 F-C-97
Batch ID: P323539

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1885557	Fluoride	0.934	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P323171

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1886836	Organic Carbon	1.56	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P323331

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1887215	Organic Carbon	3.39	Spike	P	0 - 20

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A75721
Included Lab Sample IDs: 1886864, 1886865, 1886868

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.2	98.6	P/P	90 - 110
O-Phosphate-P	98.6	98.4	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A75722
Included Lab Sample IDs: 1886866

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.7	100	P/P	85 - 115

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A75725
Included Lab Sample IDs: 1886862, 1886863

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	99.3	P/P	90 - 110
Ammonia-N	100	99.8	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A75732
Included Lab Sample IDs: 1886860, 1886861, 1886866

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits

Quality Assurance Report
Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A75732
Included Lab Sample IDs: 1886860, 1886861, 1886866

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	98.5	P/P	95 - 105

Reference Method: SM 5310 B-00
Run ID: A75734
Included Lab Sample IDs: 1886863, 1886867

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	91.1	90.3	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A75739
Included Lab Sample IDs: 1886862

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A75750
Included Lab Sample IDs: 1886867

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A75759
Included Lab Sample IDs: 1886863, 1886867

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A75762
Included Lab Sample IDs: 1886862, 1886863, 1886867

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.5	104	P/P	90 - 110
Kjeldahl Nitrogen	99.9	98.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A75763
Included Lab Sample IDs: 1886867

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A75765
Included Lab Sample IDs: 1886862, 1886863

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	99.8	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A75765
Included Lab Sample IDs: 1886862, 1886863

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.8	99.2	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A75769
Included Lab Sample IDs: 1886862

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.8	94.4	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A75780
Included Lab Sample IDs: 1886866

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	102	102	P/P	90 - 110
Sulfate	97.3	100	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A75798
Included Lab Sample IDs: 1886861, 1886866

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	104	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A75798
Included Lab Sample IDs: 1886861, 1886866

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.6	98.0	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A75833
Included Lab Sample IDs: 1886860

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

Reference Method: SM 4500 F-C-97
Run ID: A75833
Included Lab Sample IDs: 1886860

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	97.2	95.0	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A75866
Included Lab Sample IDs: 1886875

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A75866
Included Lab Sample IDs: 1886875

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Zinc	100	103	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A75891
Included Lab Sample IDs: 1886875

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	102	99.8	P/P	90 - 110
Cadmium	100	99.5	P/P	90 - 110
Chromium	103	101	P/P	90 - 110
Copper	102	100	P/P	90 - 110
Lead	101	98.2	P/P	90 - 110
Nickel	102	100	P/P	90 - 110
Silver	97.9	96.5	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A75972
Included Lab Sample IDs: 1886874

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	99.0	96.7	P/P	90 - 110
Cadmium	96.0	96.5	P/P	90 - 110
Chromium	98.3	98.1	P/P	90 - 110
Copper	101	96.4	P/P	90 - 110
Lead	98.4	97.2	P/P	90 - 110
Nickel	99.4	95.2	P/P	90 - 110
Silver	97.1	96.1	P/P	90 - 110
Zinc	101	97.9	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A75991
Included Lab Sample IDs: 1886874

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	98.0	95.8	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
EPA 180.1 Rev. 2.0	Turbidity						5.88	
EPA 200.7 Rev. 4.4	Iron	105	104	105	106			1.27
	Iron	100	94.1	93.5	102			0.612
	Zinc	103	97.6	99.5	101			1.67
EPA 200.8 Rev. 5.4	Arsenic	98.8	100	101	101			0.119

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			Precision		
						LCS	SMP	MS
EPA 200.8 Rev. 5.4	Arsenic	98.0	110	108	107			0.373
	Cadmium	94.3	98.2	97.7	99.4			1.75
	Cadmium	96.0	99.9	101	101			0.600
	Chromium	96.2	98.8	97.7	97.4			0.228
	Chromium	96.7	94.6	91.4	91.1			0.363
	Copper	96.6	92.3	93.8	93.6			0.183
	Copper	96.8	98.3	93.7	93.9			0.185
	Lead	95.4	97.6	99.6	98.2			1.36
	Lead	94.9	103	103	103			0.141
	Nickel	97.8	95.2	94.6	94.9			0.365
	Nickel	97.5	102	99.8	99.2			0.590
	Silver	94.3	97.3	95.4	96.2			0.860
	Silver	96.1	96.1	93.9	94.3			0.400
	Zinc	97.2	100	94.8	92.6			1.73
EPA 300.0 Rev. 2.1	Chloride	102	103	102			0.0661	
	Sulfate	99.2	99.9	98.1			1.12	
EPA 350.1 Rev. 2.0	Ammonia-N	101	99.8	100				0.198
	Ammonia-N	103	102	102				0.242
	Ammonia-N	100						0.182
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	94.5	95.2	97.8				1.93
	Kjeldahl Nitrogen	97.7	108	102				4.33
EPA 353.2 Rev. 2.0	NO2NO3-N	102	101	101				0.411
	NO2NO3-N	101	96.0					1.35
EPA 365.1 Rev. 2.0	Total-P	106	102	103				0.561
	Total-P	110	102	108				5.47
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.8	98.5	97.0				0.887
	O-Phosphate-P	98.8	97.7	96.7				0.743
SM 2120 B	Color (true)						0.606	
SM 2320 B-97	Total Alkalinity	104					2.33	
	Total Alkalinity	103					0.989	
SM 2540 C-97	TDS						5.59	
SM 2540 D-97	TSS						7.41	
SM 4500 F-C-97	Fluoride	95.9	97.9	98.5				0.500
	Fluoride	96.0	95.5	94.3				0.934
SM 5310 B-00	Organic Carbon	91.2	92.3	90.2				1.56
	Organic Carbon	101	98.7	94.9				3.39

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1886860, 1886861, 1886866
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1886874, 1886875
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	1886874, 1886875
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1886866
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1886866
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1886862, 1886863, 1886867
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1886862, 1886863, 1886867

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1886862, 1886863, 1886867
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1886862, 1886863, 1886867
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1886864, 1886865, 1886868
SM 2120 B / E31780	True Color measured at 450 nm	1886866
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1886860, 1886861, 1886866
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1886866
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1886860, 1886861, 1886866
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1886860, 1886861, 1886866
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1886862, 1886863, 1886867

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	04/11/2017			04/11/2017 16:14	Blanca Fach	1886860, 1886861, 1886866
EPA 200.7 Rev. 4.4	04/11/2017	04/12/2017	Elliott D. Healy	04/18/2017	Martin Acosta	1886875
	04/11/2017	04/20/2017	Elliott D. Healy	04/25/2017	Martin Acosta	1886874
EPA 200.8 Rev. 5.4	04/11/2017	04/12/2017	Elliott D. Healy	04/19/2017	Betina Topolski	1886875
	04/11/2017	04/20/2017	Elliott D. Healy	04/24/2017	Betina Topolski	1886874
EPA 300.0 Rev. 2.1	04/11/2017			04/15/2017	Ping Hua	1886866
EPA 350.1 Rev. 2.0	04/11/2017			04/11/2017	Julie Michelle Frank	1886862, 1886863
	04/11/2017			04/12/2017	Julie Michelle Frank	1886867
EPA 351.2 Rev. 2.0	04/11/2017	04/12/2017	Adrian Shelby	04/13/2017	Joseph Suarez	1886862, 1886863, 1886867
EPA 353.2 Rev. 2.0	04/11/2017			04/12/2017	Beverly Y. Sanders	1886862
	04/11/2017			04/13/2017	Beverly Y. Sanders	1886863, 1886867
EPA 365.1 Rev. 2.0	04/11/2017	04/12/2017	Vijayalakshmi Reddy	04/13/2017	Lipi Saha	1886862, 1886863, 1886867
EPA 365.1 Rev. 2.0 dissolved	04/11/2017			04/11/2017 14:03	Lipi Saha	1886864
	04/11/2017			04/11/2017 14:11	Lipi Saha	1886865
	04/11/2017			04/11/2017 14:12	Lipi Saha	1886868
SM 2120 B	04/11/2017			04/11/2017 15:54	Julia Storbeck	1886866
SM 2320 B-97	04/11/2017			04/15/2017	Dale L. Simmons	1886861, 1886866
	04/11/2017			04/17/2017	Dale L. Simmons	1886860
SM 2540 C-97	04/11/2017			04/12/2017	Yijie Li	1886866
SM 2540 D-97	04/11/2017			04/12/2017	Yijie Li	1886860, 1886861, 1886866
SM 4500 F-C-97	04/11/2017			04/15/2017	Dale L. Simmons	1886861, 1886866
	04/11/2017			04/17/2017	Dale L. Simmons	1886860
SM 5310 B-00	04/11/2017			04/11/2017	Julie Michelle Frank	1886863, 1886867
	04/11/2017			04/13/2017	Julie Michelle Frank	1886862