

Chemical Analysis Report

SE-DIST-2017-05-16-01

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

Event Description: **SMP-G5 Everglades Run**
Request ID: **RQ-2017-05-01-32**
Customer: **SE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
2199 South Rock Road
Fort Pierce, FL 34945
Attn: Matthew Sewell

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 12-JUN-2017 14:10



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: WCA1 North @ G-301

Collection Date/Time: 05/15/2017 10:30

Field ID: G5SE0046

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1899589	EPA 180.1 Rev. 2.0	Turbidity	1.8		NTU	P325378	
	EPA 300.0 Rev. 2.1	Chloride	110		mg Cl/L	P325902	
		Sulfate	49		mg SO4/L	P325899	
	SM 2120 B	Color (true)	100		PCU	P325373	
	SM 2320 B-97	Total Alkalinity	174		mg CaCO3/L	P325700	
	SM 2540 C-97	TDS	518		mg/L	P325690	
	SM 2540 D-97	TSS	2	I	mg/L	P325679	
	SM 4500 F-C-97	Fluoride	0.37		mg F/L	P325703	RPD
1899591	EPA 350.1 Rev. 2.0	Ammonia-N	0.016		mg N/L	P325658	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.5		mg N/L	P325540	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.058		mg N/L	P325548	
	EPA 365.1 Rev. 2.0	Total-P	0.025		mg P/L	P325435	
	SM 5310 B-00	Organic Carbon	24		mg C/L	P325583	
1899593	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P325388	
1899618	EPA 200.7 Rev. 4.4	Calcium	66.4		mg/L	P325692	
		Iron	30	U	ug/L	P325692	
		Magnesium	18.3		mg/L	P325692	
		Potassium	8.2		mg/L	P325692	
		Sodium	74.7		mg/L	P325692	
	EPA 200.8 Rev. 5.4	Zinc	5.0	U	ug/L	P325692	
		Arsenic	1.48		ug/L	P325692	
		Beryllium	0.010	U	ug/L	P325692	
		Cadmium	0.020	U	ug/L	P325692	
		Chromium	0.40	U	ug/L	P325692	
		Copper	0.20	U	ug/L	P325692	
		Lead	0.050	U	ug/L	P325692	
		Nickel	0.20	U	ug/L	P325692	
		Silver	0.010	U	ug/L	P325692	

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: WCA1 North @ G-301

Collection Date/Time: 05/15/2017 10:35

Field ID: G5SE0046_2

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1899620	EPA 200.7 Rev. 4.4	Calcium	64.1		mg/L	P325692	
		Iron	30	U	ug/L	P325692	
		Magnesium	18.0		mg/L	P325692	
		Potassium	8.1		mg/L	P325692	
		Sodium	72.4		mg/L	P325692	
	EPA 200.8 Rev. 5.4	Zinc	5.0	U	ug/L	P325692	
		Arsenic	1.55		ug/L	P325692	
		Cadmium	0.020	U	ug/L	P325692	
		Chromium	0.40	U	ug/L	P325692	

Field ID: G5SE0046_2

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1899620	EPA 200.8 Rev. 5.4	Copper	0.31	I	ug/L	P325692	
		Lead	0.055	I	ug/L	P325692	
		Nickel	0.20	U	ug/L	P325692	
		Silver	0.010	U	ug/L	P325692	

Sample Location: WCA-1 @ 5-5

Collection Date/Time: 05/15/2017 10:55

Field ID: G5SE0061

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1899590	EPA 180.1 Rev. 2.0	Turbidity	8.4		NTU	P325378	
	EPA 300.0 Rev. 2.1	Chloride	110		mg Cl/L	P325902	
		Sulfate	67		mg SO4/L	P325899	
	SM 2120 B	Color (true)	130		PCU	P325373	
	SM 2320 B-97	Total Alkalinity	224		mg CaCO3/L	P325700	
	SM 2540 C-97	TDS	588		mg/L	P325690	
	SM 2540 D-97	TSS	8	I	mg/L	P325679	
	SM 4500 F-C-97	Fluoride	0.40		mg F/L	P325703	RPD
1899592	EPA 350.1 Rev. 2.0	Ammonia-N	0.22		mg N/L	P325658	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.0		mg N/L	P325540	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.41		mg N/L	P325548	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P325435	
	SM 5310 B-00	Organic Carbon	25		mg C/L	P325583	
1899594	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.068		mg P/L	P325388	
1899619	EPA 200.7 Rev. 4.4	Calcium	84.9		mg/L	P325692	
		Iron	270		ug/L	P325692	
		Magnesium	21.9		mg/L	P325692	
		Potassium	8.3		mg/L	P325692	
		Sodium	76.4		mg/L	P325692	
		Zinc	5.0	U	ug/L	P325692	
	EPA 200.8 Rev. 5.4	Arsenic	3.28		ug/L	P325692	
		Beryllium	0.017	I	ug/L	P325692	
		Cadmium	0.020	U	ug/L	P325692	
		Chromium	0.41	I	ug/L	P325692	
		Copper	0.73	I	ug/L	P325692	
		Lead	0.19	I	ug/L	P325692	
		Nickel	0.58	I	ug/L	P325692	
		Silver	0.010	U	ug/L	P325692	

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: WCA1 West (Boat Ramp)

Collection Date/Time: 05/15/2017 12:15

Field ID: G5SE0018

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1899583	EPA 180.1 Rev. 2.0	Turbidity	2.2		NTU	P325378	
	EPA 300.0 Rev. 2.1	Chloride	110		mg Cl/L	P325902	

Field ID: G5SE0018

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1899583	EPA 300.0 Rev. 2.1	Sulfate	60		mg SO4/L	P325899	
	SM 2120 B	Color (true)	99		PCU	P325373	
	SM 2320 B-97	Total Alkalinity	181		mg CaCO3/L	P325701	
	SM 2540 C-97	TDS	504		mg/L	P325690	
	SM 2540 D-97	TSS	3	I	mg/L	P325679	
	SM 4500 F-C-97	Fluoride	0.43		mg F/L	P325704	
1899585	EPA 350.1 Rev. 2.0	Ammonia-N	0.041		mg N/L	P325658	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.7		mg N/L	P325538	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.086		mg N/L	P325547	
	EPA 365.1 Rev. 2.0	Total-P	0.026		mg P/L	P325435	
	SM 5310 B-00	Organic Carbon	25		mg C/L	P325583	
1899587	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P325388	
1899616	EPA 200.7 Rev. 4.4	Calcium	69.5		mg/L	P325692	
		Iron	30	U	ug/L	P325692	
		Magnesium	19.7		mg/L	P325692	
		Potassium	8.8		mg/L	P325692	
		Sodium	70.7		mg/L	P325692	
		Zinc	5.0	U	ug/L	P325692	
	EPA 200.8 Rev. 5.4	Arsenic	1.60		ug/L	P325692	
		Cadmium	0.020	U	ug/L	P325692	
		Chromium	0.40	U	ug/L	P325692	
		Copper	0.20	U	ug/L	P325692	
		Lead	0.053	I	ug/L	P325692	
		Nickel	0.20	U	ug/L	P325692	
		Silver	0.010	U	ug/L	P325692	

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: WCA1 West @ C39 Canal

Collection Date/Time: 05/15/2017 12:30

Field ID: G5SE0019

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1899584	EPA 180.1 Rev. 2.0	Turbidity	1.2		NTU	P325378	
	EPA 300.0 Rev. 2.1	Chloride	110		mg Cl/L	P325902	
		Sulfate	62		mg SO4/L	P325899	
		Color (true)	100		PCU	P325373	
	SM 2320 B-97	Total Alkalinity	182		mg CaCO3/L	P325701	
	SM 2540 C-97	TDS	546		mg/L	P325690	
	SM 2540 D-97	TSS	2	U	mg/L	P325679	
	SM 4500 F-C-97	Fluoride	0.44		mg F/L	P325704	
1899586	EPA 350.1 Rev. 2.0	Ammonia-N	0.019		mg N/L	P325658	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.6		mg N/L	P325540	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.076		mg N/L	P325548	
	EPA 365.1 Rev. 2.0	Total-P	0.018		mg P/L	P325435	
	SM 5310 B-00	Organic Carbon	25		mg C/L	P325583	

Field ID: G5SE0019

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1899588	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P325388	
1899617	EPA 200.7 Rev. 4.4	Calcium	72.4		mg/L	P325692	
		Iron	30	U	ug/L	P325692	
		Magnesium	20.1		mg/L	P325692	
		Potassium	9.0		mg/L	P325692	
		Sodium	71.7		mg/L	P325692	
		Zinc	5.0	U	ug/L	P325692	
	EPA 200.8 Rev. 5.4	Arsenic	1.65		ug/L	P325692	
		Cadmium	0.020	U	ug/L	P325692	
		Chromium	0.40	U	ug/L	P325692	
		Copper	0.20	U	ug/L	P325692	
		Lead	0.050	U	ug/L	P325692	
		Nickel	0.20	U	ug/L	P325692	
		Silver	0.010	U	ug/L	P325692	

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: Hillsboro Canal Upstream 5-6

Collection Date/Time: 05/15/2017 12:55

Field ID: 28010643

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1899580	EPA 180.1 Rev. 2.0	Turbidity	4.5		NTU	P325378	
	EPA 300.0 Rev. 2.1	Chloride	110		mg Cl/L	P325902	
		Sulfate	68		mg SO4/L	P325899	
	SM 2120 B	Color (true)	130		PCU	P325373	
	SM 2320 B-97	Total Alkalinity	248		mg CaCO3/L	P325701	
	SM 2540 C-97	TDS	668	A	mg/L	P325690	
	SM 2540 D-97	TSS	7	IA	mg/L	P325679	
	SM 4500 F-C-97	Fluoride	0.69		mg F/L	P325704	
1899581	EPA 350.1 Rev. 2.0	Ammonia-N	0.033		mg N/L	P325657	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.9		mg N/L	P325538	
	EPA 353.2 Rev. 2.0	NO2NO3-N	1.2		mg N/L	P325547	
	EPA 365.1 Rev. 2.0	Total-P	0.18		mg P/L	P325435	
	SM 5310 B-00	Organic Carbon	29		mg C/L	P325583	
1899582	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.033		mg P/L	P325388	

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.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P325378

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Quality Assurance Report Method Blank Results

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P325692

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

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P325692

Component	Result	Code	Units
Arsenic	0.050	U	ug/L
Beryllium	0.010	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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P325899

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P325902

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P325657

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P325658

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325538

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: P325540

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325547

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325548

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P325435

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P325388

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

Reference Method: SM 2120 B
Batch ID: P325373

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P325700

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

Reference Method: SM 2320 B-97
Batch ID: P325701

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

Reference Method: SM 2540 C-97
Batch ID: P325690

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P325679

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P325703

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P325704

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P325583

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: P325692

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	104		P	85 - 115
Iron	106		P	85 - 115
Magnesium	104		P	85 - 115
Potassium	100		P	85 - 115
Sodium	105		P	85 - 115
Zinc	101		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P325692

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	101		P	85 - 115
Beryllium	92.1		P	85 - 115
Cadmium	98.6		P	85 - 115
Chromium	97.9		P	85 - 115
Copper	96.4		P	85 - 115
Lead	102		P	85 - 115
Nickel	98.4		P	85 - 115
Silver	100		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P325899

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P325899

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	90.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P325902

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P325657

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P325658

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.8		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325538

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325540

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325547

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: P325548

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P325435

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P325388

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

Reference Method: SM 2320 B-97
Batch ID: P325700

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

Reference Method: SM 2320 B-97
Batch ID: P325701

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

Reference Method: SM 4500 F-C-97
Batch ID: P325703

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.1		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P325704

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.1		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P325583

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.0		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P325692

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1899419	Calcium	102		P	80 - 120
1899419	Iron	104		P	80 - 120
1899419	Magnesium	103		P	80 - 120
1899419	Potassium	101		P	80 - 120
1899419	Sodium	103		P	80 - 120
1899419	Zinc	99.2		P	80 - 120
1899723	Calcium	105		P	80 - 120
1899723	Iron	106	106	P/P	80 - 120
1899723	Magnesium	105		P	80 - 120
1899723	Potassium	108	107	P/P	80 - 120
1899723	Sodium	106		P	80 - 120
1899723	Zinc	98.4	99.6	P/P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P325692

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1899419	Arsenic	102		P	80 - 120
1899419	Beryllium	97.8		P	80 - 120
1899419	Cadmium	101		P	80 - 120
1899419	Chromium	97.5		P	80 - 120
1899419	Copper	93.9		P	80 - 120
1899419	Lead	102		P	80 - 120
1899419	Nickel	96.2		P	80 - 120
1899419	Silver	100		P	80 - 120
1899723	Arsenic	102	102	P/P	80 - 120
1899723	Beryllium	94.5	93.8	P/P	80 - 120
1899723	Cadmium	101	99.9	P/P	80 - 120
1899723	Chromium	98.1	97.9	P/P	80 - 120
1899723	Copper	93.7	94.9	P/P	80 - 120
1899723	Lead	102	101	P/P	80 - 120
1899723	Nickel	96.8	96.2	P/P	80 - 120
1899723	Silver	101	101	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P325899

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1899437	Sulfate	95.2		P	90 - 110
1899448	Sulfate	96.0		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P325902

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1899437	Chloride	101		P	90 - 110
1899448	Chloride	97.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P325657

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1899449	Ammonia-N	102	105	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P325658

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1899622	Ammonia-N	98.9	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325538

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1899502	Kjeldahl Nitrogen	97.9	95.9	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325540

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1899622	Kjeldahl Nitrogen	101	97.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325547

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1899438	NO2NO3-N	100	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325548

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1899591	NO2NO3-N	99.7	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P325435

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1899585	Total-P	102	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P325388

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1899582	O-Phosphate-P	99.0	99.7	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P325703

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1899011	Fluoride	96.5	102	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P325583

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1899365	Organic Carbon	92.8	93.6	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P325378

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1899448	Turbidity	2.70	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P325692

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1899723	Calcium	0.676	Spike	P	0 - 20
1899723	Iron	0.200	Spike	P	0 - 20
1899723	Magnesium	0.142	Spike	P	0 - 20
1899723	Potassium	0.424	Spike	P	0 - 20
1899723	Sodium	0.146	Spike	P	0 - 20
1899723	Zinc	1.15	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P325692

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1899723	Arsenic	0.568	Spike	P	0 - 20
1899723	Beryllium	0.829	Spike	P	0 - 20
1899723	Cadmium	1.07	Spike	P	0 - 20
1899723	Chromium	0.223	Spike	P	0 - 20
1899723	Copper	1.24	Spike	P	0 - 20
1899723	Lead	0.975	Spike	P	0 - 20
1899723	Nickel	0.641	Spike	P	0 - 20
1899723	Silver	0.252	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P325899

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1899437	Sulfate	0.0223	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P325902

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1899437	Chloride	0.337	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P325657

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1899449	Ammonia-N	2.27	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P325658

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1899622	Ammonia-N	2.45	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325538

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1899502	Kjeldahl Nitrogen	1.53	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325540

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1899622	Kjeldahl Nitrogen	1.91	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325547

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1899438	NO2NO3-N	0.619	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325548

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1899591	NO2NO3-N	1.16	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P325435

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1899585	Total-P	0.445	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P325388

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1899582	O-Phosphate-P	0.530	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P325373

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1899437	Color (true)	5.09	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P325700

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1899011	Total Alkalinity	0.127	Sample	P	0 - 4.8

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
Batch ID: P325701

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1899343	Total Alkalinity	0.355	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P325690

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1899580	TDS	2.25	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P325703

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1899011	Fluoride	3.92	Spike	F	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P325704

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1899343	Fluoride	1.48	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P325583

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1899365	Organic Carbon	0.616	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: SM 2120 B
Run ID: A76461
Included Lab Sample IDs: 1899580, 1899583, 1899584, 1899589, 1899590

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.8	110	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A76462
Included Lab Sample IDs: 1899580, 1899583, 1899584, 1899589, 1899590

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A76466

Included Lab Sample IDs: 1899582, 1899587, 1899588, 1899593, 1899594

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	101	98.8	P/P	90 - 110
O-Phosphate-P	98.1	98.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A76510

Included Lab Sample IDs: 1899581, 1899592

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A76516

Included Lab Sample IDs: 1899585, 1899586, 1899591

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A76545

Included Lab Sample IDs: 1899581, 1899585, 1899586, 1899591, 1899592

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

Reference Method: SM 5310 B-00

Run ID: A76560

Included Lab Sample IDs: 1899581, 1899585, 1899586, 1899591, 1899592

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.4	96.4	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A76600

Included Lab Sample IDs: 1899581, 1899585, 1899586, 1899591, 1899592

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A76606

Included Lab Sample IDs: 1899581, 1899585

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.0	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97

Run ID: A76617

Included Lab Sample IDs: 1899580, 1899583, 1899584, 1899589, 1899590

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	104	102	P/P	90 - 110
Total Alkalinity	104	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A76617

Included Lab Sample IDs: 1899580, 1899583, 1899584, 1899589, 1899590

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	99.0	P/P	90 - 110
Fluoride	98.0	99.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A76624

Included Lab Sample IDs: 1899586, 1899591, 1899592

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	94.2	93.7	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A76672

Included Lab Sample IDs: 1899580, 1899583, 1899584, 1899589, 1899590

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	101	P/P	90 - 110
Sulfate	95.7	95.5	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A76756

Included Lab Sample IDs: 1899616, 1899617, 1899618, 1899619, 1899620

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	100	99.8	P/P	90 - 110
Arsenic	99.0	100	P/P	90 - 110
Beryllium	96.8	97.2	P/P	90 - 110
Cadmium	96.3	96.3	P/P	90 - 110
Cadmium	96.3	96.9	P/P	90 - 110
Chromium	99.0	99.1	P/P	90 - 110
Chromium	99.1	99.0	P/P	90 - 110
Copper	96.9	98.0	P/P	90 - 110
Copper	98.0	98.5	P/P	90 - 110
Lead	100	100	P/P	90 - 110
Lead	99.5	100	P/P	90 - 110
Nickel	96.3	98.0	P/P	90 - 110
Nickel	98.0	97.7	P/P	90 - 110
Silver	103	104	P/P	90 - 110
Silver	103	103	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A76816

Included Lab Sample IDs: 1899616

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Silver	99.1	99.3	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A76847

Included Lab Sample IDs: 1899616, 1899617, 1899618, 1899619, 1899620

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	101	102	P/P	90 - 110
Calcium	102	100	P/P	90 - 110
Iron	102	103	P/P	90 - 110
Iron	103	102	P/P	90 - 110
Magnesium	102	103	P/P	90 - 110
Magnesium	103	102	P/P	90 - 110
Potassium	101	102	P/P	90 - 110
Potassium	102	102	P/P	90 - 110
Sodium	102	103	P/P	90 - 110
Sodium	103	103	P/P	90 - 110
Zinc	101	101	P/P	90 - 110
Zinc	102	101	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			LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity						2.70	
EPA 200.7 Rev. 4.4	Calcium	104	102	105				0.676
	Iron	106	104	106	106			0.200
	Magnesium	104	103	105				0.142
	Potassium	100	101	108	107			0.424
	Sodium	105	103	106				0.146
	Zinc	101	99.2	98.4	99.6			1.15
EPA 200.8 Rev. 5.4	Arsenic	101	102	102	102			0.568
	Beryllium	92.1	97.8	94.5	93.8			0.829
	Cadmium	98.6	101	101	99.9			1.07
	Chromium	97.9	97.5	98.1	97.9			0.223
	Copper	96.4	93.9	93.7	94.9			1.24
	Lead	102	102	102	101			0.975
	Nickel	98.4	96.2	96.8	96.2			0.641
	Silver	100	100	101	101			0.252
EPA 300.0 Rev. 2.1	Chloride	99.5	101	97.6			0.337	
	Sulfate	90.9	95.2	96.0			0.0223	
EPA 350.1 Rev. 2.0	Ammonia-N	98.2	102	105				2.27
	Ammonia-N	97.8	98.9	102				2.45
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.5	97.9	95.9				1.53
	Kjeldahl Nitrogen	100	101	97.0				1.91

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 353.2 Rev. 2.0	NO2NO3-N	99.5	100	102		0.619
	NO2NO3-N	102	99.7	101		1.16
EPA 365.1 Rev. 2.0	Total-P	102	102	101		0.445
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.7	99.0	99.7		0.530
SM 2120 B	Color (true)				5.09	
SM 2320 B-97	Total Alkalinity	103			0.127	
	Total Alkalinity	104			0.355	
SM 2540 C-97	TDS				2.25	
SM 4500 F-C-97	Fluoride	97.1	96.5	102		3.92
	Fluoride	99.1				1.48
SM 5310 B-00	Organic Carbon	94.0	92.8	93.6		0.616

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1899580, 1899583, 1899584, 1899589, 1899590
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1899616, 1899617, 1899618, 1899619, 1899620
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	1899616, 1899617, 1899618, 1899619, 1899620
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1899580, 1899583, 1899584, 1899589, 1899590
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1899580, 1899583, 1899584, 1899589, 1899590
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1899581, 1899585, 1899586, 1899591, 1899592
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1899581, 1899585, 1899586, 1899591, 1899592
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1899581, 1899585, 1899586, 1899591, 1899592
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1899581, 1899585, 1899586, 1899591, 1899592
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1899582, 1899587, 1899588, 1899593, 1899594
SM 2120 B / E31780	True Color measured at 450 nm	1899580, 1899583, 1899584, 1899589, 1899590
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1899580, 1899583, 1899584, 1899589, 1899590
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1899580, 1899583, 1899584, 1899589, 1899590
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1899580, 1899583, 1899584, 1899589, 1899590
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1899580, 1899583, 1899584, 1899589, 1899590
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1899581, 1899585, 1899586, 1899591, 1899592

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	05/16/2017			05/16/2017 15:00	Sima Feizi	1899580, 1899583, 1899584, 1899589, 1899590
EPA 200.7 Rev. 4.4	05/16/2017	05/23/2017	Elliott D. Healy	06/02/2017	Betina Topolski	1899616, 1899617, 1899618, 1899619, 1899620
EPA 200.8 Rev. 5.4	05/16/2017	05/23/2017	Elliott D. Healy	05/30/2017	Robert K Palmer	1899616, 1899617, 1899618, 1899619, 1899620
	05/16/2017	05/23/2017	Elliott D. Healy	06/01/2017	Robert K Palmer	1899616
EPA 300.0 Rev. 2.1	05/16/2017			05/26/2017	Ping Hua	1899580, 1899583, 1899584, 1899589, 1899590
EPA 350.1 Rev. 2.0	05/16/2017			05/22/2017	Julia Storbeck	1899581, 1899585, 1899586, 1899591, 1899592
EPA 351.2 Rev. 2.0	05/16/2017	05/19/2017	Adrian Shelby	05/23/2017	Joseph Suarez	1899581, 1899585, 1899586, 1899591, 1899592
EPA 353.2 Rev. 2.0	05/16/2017			05/19/2017	Beverly Y. Sanders	1899581, 1899585, 1899586, 1899591, 1899592
EPA 365.1 Rev. 2.0	05/16/2017	05/17/2017	Vijayalakshmi Reddy	05/18/2017	Lipi Saha	1899581, 1899585, 1899586, 1899591, 1899592
EPA 365.1 Rev. 2.0 dissolved	05/16/2017			05/16/2017 15:40	Anthony C. Onicha	1899582
	05/16/2017			05/16/2017 16:19	Anthony C. Onicha	1899587
	05/16/2017			05/16/2017 16:20	Anthony C. Onicha	1899588
	05/16/2017			05/16/2017 16:21	Anthony C. Onicha	1899593, 1899594
SM 2120 B	05/16/2017			05/16/2017 14:53	Blanca Fach	1899580
	05/16/2017			05/16/2017 14:54	Blanca Fach	1899583
	05/16/2017			05/16/2017 14:55	Blanca Fach	1899584
	05/16/2017			05/16/2017 14:56	Blanca Fach	1899589, 1899590
SM 2320 B-97	05/16/2017			05/23/2017	Dale L. Simmons	1899580, 1899583, 1899584, 1899589, 1899590
SM 2540 C-97	05/16/2017			05/17/2017	Yijie Li	1899580, 1899583, 1899584, 1899589, 1899590
SM 2540 D-97	05/16/2017			05/17/2017	Yijie Li	1899580, 1899583, 1899584, 1899589, 1899590
SM 4500 F-C-97	05/16/2017			05/23/2017	Dale L. Simmons	1899580, 1899583, 1899584, 1899589, 1899590
SM 5310 B-00	05/16/2017			05/20/2017	Christopher Armour	1899581, 1899585, 1899586, 1899591, 1899592