Chemical Analysis Report

CEN-DIST-2017-04-25-03

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

Event Description: **Lk Dora x4/Holiday Springs**
Request ID: **RQ-2017-04-24-57**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
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3319 Maguire Blvd., Suite 232
Orlando, FL 32803-3767
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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 19-MAY-2017 11:06

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: Lake Dora Middle **Collection Date/Time: 04/24/2017 11:11**

Field ID: G1CE0045 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1891947	EPA 180.1 Rev. 2.0	Turbidity	12	A	NTU	P323977	
	EPA 300.0 Rev. 2.1	Chloride	46		mg Cl/L	P324309	
		Sulfate	39		mg SO4/L	P324311	
	SM 2120 B	Color (true)	21		PCU	P324080	
	SM 2320 B-97	Total Alkalinity	111		mg CaCO3/L	P324652	
	SM 2540 C-97	TDS	273		mg/L	P324361	
	SM 2540 D-97	TSS	19		mg/L	P324367	
	SM 4500 F-C-97	Fluoride	0.24		mg F/L	P324654	RPD
1891952	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P324255	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.3		mg N/L	P323988	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P324128	
	EPA 365.1 Rev. 2.0	Total-P	0.039		mg P/L	P324056	
	SM 5310 B-00	Organic Carbon	21		mg C/L	P323997	
1891957	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P323981	
1891982	EPA 200.7 Rev. 4.4	Calcium	41.3		mg/L	P324211	
		Iron	30	U	ug/L	P324211	
		Magnesium	16.1		mg/L	P324211	
		Potassium	11.7		mg/L	P324211	
		Sodium	23.0		mg/L	P324211	
		Zinc	5.0	U	ug/L	P324211	
	EPA 200.8 Rev. 5.4	Arsenic	3.10		ug/L	P324211	
		Cadmium	0.020	U	ug/L	P324211	
		Chromium	0.40	U	ug/L	P324211	
		Copper	0.20	U	ug/L	P324211	
		Lead	0.17	I	ug/L	P324211	
		Nickel	0.20	U	ug/L	P324211	
		Silver	0.010	U	ug/L	P324211	

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

Sample Location: Lake Dora East End Mid East Bay **Collection Date/Time: 04/24/2017 11:24**

Field ID: G1CE0043 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1891948	EPA 180.1 Rev. 2.0	Turbidity	13		NTU	P323977	
	EPA 300.0 Rev. 2.1	Chloride	44		mg Cl/L	P324478	
		Sulfate	39		mg SO4/L	P324476	
	SM 2120 B	Color (true)	21		PCU	P324080	
	SM 2320 B-97	Total Alkalinity	111		mg CaCO3/L	P324652	
	SM 2540 C-97	TDS	285		mg/L	P324361	
	SM 2540 D-97	TSS	20		mg/L	P324367	
	SM 4500 F-C-97	Fluoride	0.24		mg F/L	P324654	RPD
1891953	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P324255	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.5		mg N/L	P323988	

Field ID: G1CE0043 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1891953	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P324128	
	EPA 365.1 Rev. 2.0	Total-P	0.041		mg P/L	P324056	
	SM 5310 B-00	Organic Carbon	21		mg C/L	P323997	
1891958	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P323981	
1891983	EPA 200.7 Rev. 4.4	Calcium	40.5		mg/L	P324211	
		Iron	30	U	ug/L	P324211	
		Magnesium	15.7		mg/L	P324211	
		Potassium	11.6		mg/L	P324211	
		Sodium	22.7		mg/L	P324211	
		Zinc	5.0	U	ug/L	P324211	
	EPA 200.8 Rev. 5.4	Arsenic	3.10		ug/L	P324211	
		Cadmium	0.020	U	ug/L	P324211	
		Chromium	0.40	U	ug/L	P324211	
		Copper	0.20	U	ug/L	P324211	
		Lead	0.18	I	ug/L	P324211	
		Nickel	0.20	U	ug/L	P324211	
		Silver	0.010	U	ug/L	P324211	

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: NE Lobe of LK Dora @ 500m N of LK Beauclair Canal **Collection Date/Time: 04/24/2017 11:35**

Field ID: G1CE0044 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1891949	EPA 180.1 Rev. 2.0	Turbidity	13		NTU	P323977	
	EPA 300.0 Rev. 2.1	Chloride	44		mg Cl/L	P324478	
		Sulfate	39		mg SO4/L	P324476	
	SM 2120 B	Color (true)	23		PCU	P324080	
	SM 2320 B-97	Total Alkalinity	107		mg CaCO3/L	P324652	
	SM 2540 C-97	TDS	258		mg/L	P324361	
	SM 2540 D-97	TSS	20		mg/L	P324367	
	SM 4500 F-C-97	Fluoride	0.31		mg F/L	P324654	RPD
1891954	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P324255	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.4		mg N/L	P323988	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P324128	
	EPA 365.1 Rev. 2.0	Total-P	0.049		mg P/L	P324056	
	SM 5310 B-00	Organic Carbon	22		mg C/L	P323997	
1891959	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P323981	
1891984	EPA 200.7 Rev. 4.4	Calcium	40.1		mg/L	P324211	
		Iron	30	U	ug/L	P324211	
		Magnesium	16.1		mg/L	P324211	
		Potassium	11.9		mg/L	P324211	
		Sodium	23.1		mg/L	P324211	
		Zinc	5.0	U	ug/L	P324211	

Field ID: G1CE0044 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1891984	EPA 200.8 Rev. 5.4	Arsenic	3.05		ug/L	P324211	
		Cadmium	0.020	U	ug/L	P324211	
		Chromium	0.40	U	ug/L	P324211	
		Copper	0.20	U	ug/L	P324211	
		Lead	0.14	I	ug/L	P324211	
		Nickel	0.20	U	ug/L	P324211	
		Silver	0.010	U	ug/L	P324211	

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: NE Lobe of LK Dora @ 250m NE of Center Lobe Collection Date/Time: 04/24/2017 11:48

Field ID: G1CE0046 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1891950	EPA 180.1 Rev. 2.0	Turbidity	13		NTU	P323977	
	EPA 300.0 Rev. 2.1	Chloride	44		mg Cl/L	P324478	
		Sulfate	39		mg SO4/L	P324476	
	SM 2120 B	Color (true)	21		PCU	P324080	
	SM 2320 B-97	Total Alkalinity	107		mg CaCO3/L	P324652	
	SM 2540 C-97	TDS	276		mg/L	P324361	
	SM 2540 D-97	TSS	19		mg/L	P324367	
	SM 4500 F-C-97	Fluoride	0.24		mg F/L	P324654	RPD
1891955	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P324255	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.5		mg N/L	P323989	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P324128	
	EPA 365.1 Rev. 2.0	Total-P	0.051		mg P/L	P324056	
	SM 5310 B-00	Organic Carbon	22		mg C/L	P323997	
1891960	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P323981	
1891985	EPA 200.7 Rev. 4.4	Calcium	40.1		mg/L	P324211	
		Iron	30	U	ug/L	P324211	
		Magnesium	16.1		mg/L	P324211	
		Potassium	12.0		mg/L	P324211	
		Sodium	23.1		mg/L	P324211	
		Zinc	5.0	U	ug/L	P324211	
	EPA 200.8 Rev. 5.4	Arsenic	3.01		ug/L	P324211	
		Cadmium	0.020	U	ug/L	P324211	
		Chromium	0.40	U	ug/L	P324211	
		Copper	0.20	U	ug/L	P324211	
		Lead	0.15	I	ug/L	P324211	
		Nickel	0.20	U	ug/L	P324211	
		Silver	0.010	U	ug/L	P324211	

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: Holiday Springs above pump house Collection Date/Time: 04/24/2017 13:22

Field ID: G1CE0029 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1891951	EPA 180.1 Rev. 2.0	Turbidity	0.15		NTU	P323977	
	EPA 300.0 Rev. 2.1	Chloride	13		mg Cl/L	P324478	
		Sulfate	13		mg SO4/L	P324476	
	SM 2120 B	Color (true)	2.5	U	PCU	P324080	
	SM 2320 B-97	Total Alkalinity	113	A	mg CaCO3/L	P324652	
	SM 2540 C-97	TDS	166		mg/L	P324361	
	SM 2540 D-97	TSS	3	I	mg/L	P324367	
	SM 4500 F-C-97	Fluoride	0.097	I	mg F/L	P325413	
1891956	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P324255	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.13	I	mg N/L	P323989	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	2.9		mg N/L	P324128	
	EPA 365.1 Rev. 2.0	Total-P	0.034		mg P/L	P324057	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P323997	
1891961	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.034		mg P/L	P323981	
1891986	EPA 200.7 Rev. 4.4	Calcium	44.6		mg/L	P324211	
		Iron	30	U	ug/L	P324211	
		Magnesium	7.52		mg/L	P324211	
		Potassium	1.0	I	mg/L	P324211	
		Sodium	5.9		mg/L	P324211	
		Zinc	5.0	U	ug/L	P324211	
	EPA 200.8 Rev. 5.4	Arsenic	1.13		ug/L	P324211	
		Cadmium	0.020	U	ug/L	P324211	
		Chromium	0.42	I	ug/L	P324211	
		Copper	0.20	U	ug/L	P324211	
		Lead	0.050	U	ug/L	P324211	
		Nickel	0.27	I	ug/L	P324211	
		Silver	0.010	U	ug/L	P324211	

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P323977

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P324211

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P324211

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324309

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324311

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324476

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324478

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P324255

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P323988

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P323989

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: P324128

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P324056

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P324057

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P323981

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

Reference Method: SM 2120 B
Batch ID: P324080

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P324652

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

Reference Method: SM 2540 C-97
Batch ID: P324361

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P324367

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P324654

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report
Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P325413

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P323997

Component	Result	Code	Units
Organic Carbon	0.5	U	mg C/L

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P324211

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	104		P	85 - 115
Iron	105		P	85 - 115
Magnesium	106		P	85 - 115
Potassium	103		P	85 - 115
Sodium	103		P	85 - 115
Zinc	100		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P324211

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	99.3		P	85 - 115
Cadmium	95.5		P	85 - 115
Chromium	98.4		P	85 - 115
Copper	97.6		P	85 - 115
Lead	98.3		P	85 - 115
Nickel	98.6		P	85 - 115
Silver	97.2		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324309

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324311

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324476

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324478

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P324255

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P323988

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	98.0		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P323989

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	98.1		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P324128

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	106		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P324056

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P324057

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	96.6		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P323981

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: P324652

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	95 - 108

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P324654

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

Reference Method: SM 4500 F-C-97
Batch ID: P325413

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.5		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P323997

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.6		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P324211

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1891986	Calcium	100		P	80 - 120
1891986	Iron	106		P	80 - 120
1891986	Magnesium	99.0		P	80 - 120
1891986	Potassium	102		P	80 - 120
1891986	Sodium	99.6		P	80 - 120
1891986	Zinc	98.8		P	80 - 120
1892076	Calcium	103	103	P/P	80 - 120
1892076	Iron	106	105	P/P	80 - 120
1892076	Magnesium	106	105	P/P	80 - 120
1892076	Potassium	101	99.4	P/P	80 - 120
1892076	Sodium	98.8	97.0	P/P	80 - 120
1892076	Zinc	100	100	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P324211

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1891986	Arsenic	101		P	80 - 120
1891986	Cadmium	99.4		P	80 - 120
1891986	Chromium	98.1		P	80 - 120
1891986	Copper	94.7		P	80 - 120
1891986	Lead	99.3		P	80 - 120
1891986	Nickel	95.9		P	80 - 120
1891986	Silver	99.2		P	80 - 120
1892076	Arsenic	100	98.4	P/P	80 - 120
1892076	Cadmium	97.4	97.5	P/P	80 - 120
1892076	Chromium	99.1	98.9	P/P	80 - 120
1892076	Copper	99.0	98.2	P/P	80 - 120
1892076	Lead	99.8	98.8	P/P	80 - 120
1892076	Nickel	99.9	97.8	P/P	80 - 120

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P324211

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1892076	Silver	98.0	97.6	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324309

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1891234	Chloride	101		P	90 - 110
1891365	Chloride	102		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324311

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1891234	Sulfate	99.0		P	90 - 110
1891365	Sulfate	94.1		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324476

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1891993	Sulfate	99.6		P	90 - 110
1892005	Sulfate	100		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324478

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1891993	Chloride	98.7		P	90 - 110
1892005	Chloride	94.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P324255

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1891952	Ammonia-N	96.9	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P323988

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1891925	Kjeldahl Nitrogen	94.9	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P323989

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1891998	Kjeldahl Nitrogen	84.0	87.7	F/F	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P324128

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P324128

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1891952	NO2NO3-N	106	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P324056

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1891924	Total-P	103	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P324057

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1891998	Total-P	96.9	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P323981

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1891957	O-Phosphate-P	92.5	95.7	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P324654

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1891951	Fluoride	97.6	101	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P325413

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1891951	Fluoride	98.7	100	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P323997

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1891862	Organic Carbon	101	99.6	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P323977

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1891947	Turbidity	0.0	Sample	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P324211

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1892076	Calcium	0.188	Spike	P	0 - 20
1892076	Iron	1.01	Spike	P	0 - 20
1892076	Magnesium	0.829	Spike	P	0 - 20
1892076	Potassium	1.14	Spike	P	0 - 20
1892076	Sodium	1.07	Spike	P	0 - 20
1892076	Zinc	0.283	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P324211

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1892076	Arsenic	1.61	Spike	P	0 - 20
1892076	Cadmium	0.0928	Spike	P	0 - 20
1892076	Chromium	0.182	Spike	P	0 - 20
1892076	Copper	0.796	Spike	P	0 - 20
1892076	Lead	1.00	Spike	P	0 - 20
1892076	Nickel	1.88	Spike	P	0 - 20
1892076	Silver	0.448	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324309

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1891234	Chloride	0.0793	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324311

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1891234	Sulfate	0.582	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324476

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1891993	Sulfate	0.841	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324478

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1891993	Chloride	0.138	Sample	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P324255

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1891952	Ammonia-N	3.12	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P323988

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1891925	Kjeldahl Nitrogen	5.16	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P323989

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1891998	Kjeldahl Nitrogen	3.28	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P324128

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1891952	NO2NO3-N	0.471	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P324056

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1891924	Total-P	0.674	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P324057

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1891998	Total-P	3.35	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P323981

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1891957	O-Phosphate-P	3.40	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P324080

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1891963	Color (true)	1.56	Sample	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2320 B-97
Batch ID: P324652

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1891951	Total Alkalinity	0.195	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P324361

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1891920	TDS	3.98	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P324654

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1891951	Fluoride	3.01	Spike	F	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P325413

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1891951	Fluoride	1.02	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P323997

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1891862	Organic Carbon	1.59	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: A75986
Included Lab Sample IDs: 1891957, 1891958, 1891959, 1891960, 1891961

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.3	100	P/P	90 - 110
O-Phosphate-P	99.3	98.6	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A75987
Included Lab Sample IDs: 1891947, 1891948, 1891949, 1891950, 1891951

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	99.5	P/P	95 - 105

Quality Assurance Report
Calibration Verification

Reference Method: SM 5310 B-00
Run ID: A75992
Included Lab Sample IDs: 1891952, 1891953, 1891954, 1891955, 1891956

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.4	97.0	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A75999
Included Lab Sample IDs: 1891947

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	102	102	P/P	90 - 110
Sulfate	97.5	91.9	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A76021
Included Lab Sample IDs: 1891947, 1891948, 1891949, 1891950, 1891951

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.7	104	P/P	85 - 115

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A76029
Included Lab Sample IDs: 1891952, 1891953, 1891954, 1891955, 1891956

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A76033
Included Lab Sample IDs: 1891955

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A76038
Included Lab Sample IDs: 1891952, 1891953, 1891954, 1891955, 1891956

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A76052
Included Lab Sample IDs: 1891952, 1891953, 1891954, 1891956

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A76071
Included Lab Sample IDs: 1891952, 1891953, 1891954, 1891955, 1891956

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A76071
Included Lab Sample IDs: 1891952, 1891953, 1891954, 1891955, 1891956

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

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A76134
Included Lab Sample IDs: 1891982, 1891983, 1891984, 1891985, 1891986

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	96.7	95.7	P/P	90 - 110
Arsenic	99.3	96.7	P/P	90 - 110
Cadmium	94.7	93.4	P/P	90 - 110
Cadmium	96.0	94.7	P/P	90 - 110
Chromium	97.1	96.3	P/P	90 - 110
Chromium	99.7	97.1	P/P	90 - 110
Copper	101	97.8	P/P	90 - 110
Copper	97.8	97.0	P/P	90 - 110
Lead	101	99.7	P/P	90 - 110
Lead	99.7	98.9	P/P	90 - 110
Nickel	97.4	95.6	P/P	90 - 110
Nickel	98.7	97.4	P/P	90 - 110
Silver	95.7	95.5	P/P	90 - 110
Silver	98.4	95.7	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A76148
Included Lab Sample IDs: 1891948, 1891949, 1891950, 1891951

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	102	P/P	90 - 110
Sulfate	100	93.4	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A76196
Included Lab Sample IDs: 1891947, 1891948, 1891949, 1891950, 1891951

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

Reference Method: SM 4500 F-C-97
Run ID: A76196
Included Lab Sample IDs: 1891947, 1891948, 1891949, 1891950

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A76199
Included Lab Sample IDs: 1891982, 1891983, 1891984, 1891985, 1891986

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	100	105	P/P	90 - 110
Calcium	105	104	P/P	90 - 110
Iron	101	105	P/P	90 - 110
Iron	105	105	P/P	90 - 110
Magnesium	102	105	P/P	90 - 110
Magnesium	105	104	P/P	90 - 110
Potassium	101	104	P/P	90 - 110
Potassium	104	104	P/P	90 - 110
Sodium	104	103	P/P	90 - 110
Sodium	99.6	104	P/P	90 - 110
Zinc	102	104	P/P	90 - 110
Zinc	102	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A76475
Included Lab Sample IDs: 1891951

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	102	97.1	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						0.0	
EPA 200.7 Rev. 4.4	Calcium	104	103	103	100			0.188
	Iron	105	106	105	106			1.01
	Magnesium	106	106	105	99.0			0.829
	Potassium	103	101	99.4	102			1.14
	Sodium	103	98.8	97.0	99.6			1.07
	Zinc	100	100	100	98.8			0.283
EPA 200.8 Rev. 5.4	Arsenic	99.3	101	100	98.4			1.61
	Cadmium	95.5	99.4	97.4	97.5			0.0928
	Chromium	98.4	98.1	99.1	98.9			0.182
	Copper	97.6	94.7	99.0	98.2			0.796
	Lead	98.3	99.3	99.8	98.8			1.00
	Nickel	98.6	95.9	99.9	97.8			1.88
	Silver	97.2	99.2	98.0	97.6			0.448
EPA 300.0 Rev. 2.1	Chloride	102	101	102			0.0793	
	Chloride	99.2	98.7	94.7			0.138	
	Sulfate	98.9	99.0	94.1			0.582	
	Sulfate	100	99.6	100			0.841	
EPA 350.1 Rev. 2.0	Ammonia-N	99.3	96.9	100				3.12
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.0	94.9	101				5.16
	Kjeldahl Nitrogen	98.1	84.0	87.7				3.28

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
EPA 353.2 Rev. 2.0	NO2NO3-N	106	106	106			0.471
EPA 365.1 Rev. 2.0	Total-P	102	103	104			0.674
	Total-P	96.6	96.9	100			3.35
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.7	92.5	95.7			3.40
SM 2120 B	Color (true)					1.56	
SM 2320 B-97	Total Alkalinity	102				0.195	
SM 2540 C-97	TDS					3.98	
SM 4500 F-C-97	Fluoride	97.2	97.6	101			3.01
	Fluoride	97.5	98.7	100			1.02
SM 5310 B-00	Organic Carbon	97.6	101	99.6			1.59

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1891947, 1891948, 1891949, 1891950, 1891951
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1891982, 1891983, 1891984, 1891985, 1891986
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	1891982, 1891983, 1891984, 1891985, 1891986
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1891947, 1891948, 1891949, 1891950, 1891951
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1891947, 1891948, 1891949, 1891950, 1891951
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1891952, 1891953, 1891954, 1891955, 1891956
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1891952, 1891953, 1891954, 1891955, 1891956
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1891952, 1891953, 1891954, 1891955, 1891956
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1891952, 1891953, 1891954, 1891955, 1891956
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1891957, 1891958, 1891959, 1891960, 1891961
SM 2120 B / E31780	True Color measured at 450 nm	1891947, 1891948, 1891949, 1891950, 1891951
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1891947, 1891948, 1891949, 1891950, 1891951
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1891947, 1891948, 1891949, 1891950, 1891951
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1891947, 1891948, 1891949, 1891950, 1891951
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1891947, 1891948, 1891949, 1891950, 1891951
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1891952, 1891953, 1891954, 1891955, 1891956

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	04/25/2017			04/25/2017 15:41	Sima Feizi	1891947, 1891948, 1891949, 1891950, 1891951
EPA 200.7 Rev. 4.4	04/25/2017	04/28/2017	Elliott D. Healy	05/05/2017	Martin Acosta	1891982, 1891983, 1891984, 1891985, 1891986
EPA 200.8 Rev. 5.4	04/25/2017	04/28/2017	Elliott D. Healy	05/02/2017	Betina Topolski	1891982, 1891983, 1891984, 1891985, 1891986
EPA 300.0 Rev. 2.1	04/25/2017			04/29/2017	Ping Hua	1891947
	04/25/2017			05/03/2017	Ping Hua	1891948, 1891949, 1891950, 1891951
EPA 350.1 Rev. 2.0	04/25/2017			04/28/2017	Julie Michelle Frank	1891952, 1891953, 1891954, 1891955, 1891956
EPA 351.2 Rev. 2.0	04/25/2017	04/26/2017	Adrian Shelby	04/27/2017	Joseph Suarez	1891952, 1891953, 1891954, 1891955, 1891956
EPA 353.2 Rev. 2.0	04/25/2017			04/27/2017	Beverly Y. Sanders	1891952, 1891953, 1891954, 1891955, 1891956
EPA 365.1 Rev. 2.0	04/25/2017	04/26/2017	Vijayalakshmi Reddy	04/27/2017	Lipi Saha	1891952, 1891953, 1891954, 1891955, 1891956
EPA 365.1 Rev. 2.0 dissolved	04/25/2017			04/25/2017 13:49	Lipi Saha	1891957
	04/25/2017			04/25/2017 14:13	Lipi Saha	1891958
	04/25/2017			04/25/2017 14:14	Lipi Saha	1891959, 1891960
	04/25/2017			04/25/2017 14:15	Lipi Saha	1891961
SM 2120 B	04/25/2017			04/25/2017 17:17	Blanca Fach	1891947
	04/25/2017			04/25/2017 17:18	Blanca Fach	1891948
	04/25/2017			04/25/2017 17:19	Blanca Fach	1891949
	04/25/2017			04/25/2017 17:20	Blanca Fach	1891950, 1891951
SM 2320 B-97	04/25/2017			05/03/2017	Dale L. Simmons	1891951
	04/25/2017			05/04/2017	Dale L. Simmons	1891947, 1891948, 1891949, 1891950
SM 2540 C-97	04/25/2017			04/26/2017	Yijie Li	1891947, 1891948, 1891949, 1891950, 1891951
SM 2540 D-97	04/25/2017			04/26/2017	Yijie Li	1891947, 1891948, 1891949, 1891950, 1891951
SM 4500 F-C-97	04/25/2017			05/04/2017	Dale L. Simmons	1891947, 1891948, 1891949, 1891950
	04/25/2017			05/16/2017	Dale L. Simmons	1891951
SM 5310 B-00	04/25/2017			04/25/2017	Julie Michelle Frank	1891952, 1891953, 1891954, 1891955, 1891956