Chemical Analysis Report

CEN-DIST-2016-11-30-01

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

Event Description: **Orange Creek+HA+D&B**
Request ID: **RQ-2016-11-28-42**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
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3319 Maguire Blvd., Suite 232
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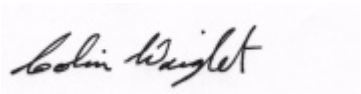
Certified by: Colin Wright, Environmental Administrator

Date Certified: 22-DEC-2016 09:24



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: ORANGE CREEK @ EAST SIDE OF US 301 BRIDGE **Collection Date/Time: 11/29/2016 10:59**

Field ID: G1CE0027 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1852981	EPA 180.1 Rev. 2.0	Turbidity	1.1		NTU	P316183	
	EPA 300.0 Rev. 2.1	Chloride	11	A	mg Cl/L	P316794	
		Sulfate	0.28	I	mg SO4/L	P316795	
	SM 2120 B	Color (true)	220		PCU	P315981	
	SM 2320 B-97	Total Alkalinity	22		mg CaCO3/L	P316061	
	SM 2540 C-97	TDS	95		mg/L	P316605	
	SM 2540 D-97	TSS	3	I	mg/L	P316581	
	SM 4500 F-C-97	Fluoride	0.12		mg F/L	P316063	
1852985	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P316239	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.9		mg N/L	P316367	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P316088	
	EPA 365.1 Rev. 2.0	Total-P	0.10		mg P/L	P316253	
	SM 5310 B-00	Organic Carbon	33		mg C/L	P316049	
1852989	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.070		mg P/L	P315944	
1852997	EPA 200.7 Rev. 4.4	Calcium	8.90		mg/L	P316023	
		Iron	740		ug/L	P316023	
		Magnesium	2.79		mg/L	P316023	
		Potassium	0.68	I	mg/L	P316023	
		Sodium	7.1		mg/L	P316023	
	EPA 200.8 Rev. 5.4	Arsenic	0.64		ug/L	P316023	
		Cadmium	0.020	U	ug/L	P316023	
		Chromium	0.21		ug/L	P316023	
		Copper	0.14	I	ug/L	P316023	
		Lead	0.20	I	ug/L	P316023	
		Nickel	0.18	I	ug/L	P316023	
		Silver	0.0050	U	ug/L	P316023	
		Zinc	2.6	I	ug/L	P316023	

Ref. Method and Comment:
EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
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: ORANGE CREEK @ CR 21 **Collection Date/Time: 11/29/2016 12:40**

Field ID: G1CE0028 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1852982	EPA 180.1 Rev. 2.0	Turbidity	0.75		NTU	P316183	
	EPA 300.0 Rev. 2.1	Chloride	11		mg Cl/L	P316794	
		Sulfate	6.0		mg SO4/L	P316795	
	SM 2120 B	Color (true)	130		PCU	P315981	
	SM 2320 B-97	Total Alkalinity	35		mg CaCO3/L	P316061	
	SM 2540 C-97	TDS	101		mg/L	P316605	
	SM 2540 D-97	TSS	2	I	mg/L	P316581	
	SM 4500 F-C-97	Fluoride	0.11		mg F/L	P316063	

Field ID: G1CE0028 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1852986	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P316616	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.86		mg N/L	P316480	
	EPA 353.2 Rev. 2.0	NO2NO3-N	1.2		mg N/L	P316088	
	EPA 365.1 Rev. 2.0	Total-P	0.054		mg P/L	P316253	
	SM 5310 B-00	Organic Carbon	17		mg C/L	P316049	
1852990	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.037		mg P/L	P315944	
1852998	EPA 200.7 Rev. 4.4	Calcium	14.7		mg/L	P316023	
		Iron	220		ug/L	P316023	
		Magnesium	4.66		mg/L	P316023	
		Potassium	1.3		mg/L	P316023	
		Sodium	5.9		mg/L	P316023	
	EPA 200.8 Rev. 5.4	Arsenic	0.35		ug/L	P316023	
		Cadmium	0.020	U	ug/L	P316023	
		Chromium	0.27		ug/L	P316023	
		Copper	0.35	I	ug/L	P316023	
		Lead	0.066	I	ug/L	P316023	
		Nickel	0.23		ug/L	P316023	
		Silver	0.0050	U	ug/L	P316023	
		Zinc	1.1	I	ug/L	P316023	

Ref. Method and Comment:
EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
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: ORANGE CREEK @ CR 21 **Collection Date/Time: 11/29/2016 12:40**

Field ID: G1CE0028_DUP Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1852983	EPA 180.1 Rev. 2.0	Turbidity	0.65		NTU	P316183	
	EPA 300.0 Rev. 2.1	Chloride	11		mg Cl/L	P316794	
		Sulfate	6.0		mg SO4/L	P316795	
	SM 2120 B	Color (true)	130		PCU	P315981	
	SM 2320 B-97	Total Alkalinity	36		mg CaCO3/L	P316061	
	SM 2540 C-97	TDS	96		mg/L	P316605	
	SM 2540 D-97	TSS	3	I	mg/L	P316581	
	SM 4500 F-C-97	Fluoride	0.11		mg F/L	P316063	
1852987	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P316471	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.81		mg N/L	P316480	
	EPA 353.2 Rev. 2.0	NO2NO3-N	1.2		mg N/L	P316088	
	EPA 365.1 Rev. 2.0	Total-P	0.055		mg P/L	P316253	
	SM 5310 B-00	Organic Carbon	17		mg C/L	P316049	
1852991	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.039		mg P/L	P315944	
1852999	EPA 200.7 Rev. 4.4	Calcium	15.0		mg/L	P316023	
		Iron	220		ug/L	P316023	
		Magnesium	4.66		mg/L	P316023	
		Potassium	1.3		mg/L	P316023	

Field ID: G1CE0028_DUP Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1852999	EPA 200.7 Rev. 4.4	Sodium	6.0		mg/L	P316023	
	EPA 200.8 Rev. 5.4	Arsenic	0.37		ug/L	P316023	
		Cadmium	0.020	U	ug/L	P316023	
		Chromium	0.24		ug/L	P316023	
		Copper	0.34	I	ug/L	P316023	
		Lead	0.067	I	ug/L	P316023	
		Nickel	0.24		ug/L	P316023	
		Silver	0.0050	U	ug/L	P316023	
		Zinc	1.0	I	ug/L	P316023	

Ref. Method and Comment:
EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
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: ORANGE CREEK @ CR 21 **Collection Date/Time: 11/29/2016 13:09**

Field ID: FIELD BLANK Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1852984	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P316183	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P316832	
		Sulfate	0.20	U	mg SO4/L	P316831	
	SM 2120 B	Color (true)	2.5	U	PCU	P315981	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P316061	
	SM 2540 C-97	TDS	15	U	mg/L	P316603	
	SM 2540 D-97	TSS	2	U	mg/L	P316579	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P316063	
1852988	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P316239	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P316480	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P316088	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P316253	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P316049	
1852992	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P315944	
1853000	EPA 200.7 Rev. 4.4	Calcium	0.075	U	mg/L	P316023	
		Iron	30	U	ug/L	P316023	
		Magnesium	0.040	U	mg/L	P316023	
		Potassium	0.30	U	mg/L	P316023	
		Sodium	0.50	U	mg/L	P316023	
	EPA 200.8 Rev. 5.4	Arsenic	0.050	U	ug/L	P316023	
		Cadmium	0.020	U	ug/L	P316023	
		Chromium	0.050	U	ug/L	P316023	
		Copper	0.15	I	ug/L	P316023	
		Lead	0.050	U	ug/L	P316023	
		Nickel	0.050	U	ug/L	P316023	
		Silver	0.0050	U	ug/L	P316023	
		Zinc	1.0	U	ug/L	P316023	

Field ID: FIELD BLANK Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes

Ref. Method and Comment:
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.
EPA 200.8 Rev. 5.4: The copper result was confirmed in the undigested sample on 12/07/2016.

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P316183

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P316023

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

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P316023

Component	Result	Code	Units
Arsenic	0.050	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.050	U	ug/L
Copper	0.10	U	ug/L
Lead	0.050	U	ug/L
Nickel	0.050	U	ug/L
Silver	0.0050	U	ug/L
Zinc	1.0	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P316794

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P316795

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P316831

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Quality Assurance Report
Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P316832

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P316239

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P316471

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P316616

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316367

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316480

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P316088

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P316253

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P315944

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

Quality Assurance Report
Method Blank Results

Reference Method: SM 2120 B
Batch ID: P315981

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P316061

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

Reference Method: SM 2540 C-97
Batch ID: P316603

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P316605

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P316579

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P316581

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P316063

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P316049

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: P316023

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P316023

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	103		P	85 - 115
Iron	107		P	85 - 115
Magnesium	102		P	85 - 115
Potassium	103		P	85 - 115
Sodium	104		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P316023

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	99.6		P	85 - 115
Cadmium	101		P	85 - 115
Chromium	101		P	85 - 115
Copper	94.5		P	85 - 115
Lead	94.6		P	85 - 115
Nickel	96.1		P	85 - 115
Silver	98.0		P	85 - 115
Zinc	98.0		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P316794

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P316795

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P316831

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P316832

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P316239

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P316471

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P316616

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.1		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316367

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316480

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P316088

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	104		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P316253

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P315944

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

Reference Method: SM 2320 B-97
Batch ID: P316061

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.1		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P316063

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.3		P	92 - 103

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P316049

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.2		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P316023

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1852754	Calcium	102		P	80 - 120
1852754	Iron	104		P	80 - 120
1852754	Magnesium	102		P	80 - 120
1852754	Potassium	98.8		P	80 - 120
1852754	Sodium	105		P	80 - 120
1852821	Calcium	103		P	80 - 120
1852821	Iron	107	108	P/P	80 - 120
1852821	Magnesium	103		P	80 - 120
1852821	Potassium	103	103	P/P	80 - 120
1852821	Sodium	107	103	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P316023

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1852754	Arsenic	102		P	80 - 120
1852754	Cadmium	105		P	80 - 120
1852754	Chromium	102		P	80 - 120
1852754	Copper	93.5		P	80 - 120
1852754	Lead	95.6		P	80 - 120
1852754	Nickel	94.5		P	80 - 120
1852754	Silver	99.0		P	80 - 120
1852754	Zinc	98.0		P	80 - 120
1852821	Arsenic	99.5	98.8	P/P	80 - 120
1852821	Cadmium	102	100	P/P	80 - 120
1852821	Chromium	101	100	P/P	80 - 120
1852821	Copper	89.9	90.0	P/P	80 - 120
1852821	Lead	93.6	93.3	P/P	80 - 120
1852821	Nickel	92.2	91.5	P/P	80 - 120
1852821	Silver	98.4	98.8	P/P	80 - 120
1852821	Zinc	95.6	94.8	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P316794

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1852981	Chloride	101		P	90 - 110
1852982	Chloride	99.5		P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P316795

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1852981	Sulfate	97.9		P	90 - 110
1852982	Sulfate	96.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P316831

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1852910	Sulfate	102		P	90 - 110
1852911	Sulfate	103		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P316832

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1852910	Chloride	102		P	90 - 110
1852911	Chloride	102		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P316239

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1852917	Ammonia-N	101	99.3	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P316471

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1852987	Ammonia-N	97.8	96.9	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P316616

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1855663	Ammonia-N	99.1	98.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316367

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1852747	Kjeldahl Nitrogen	102	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316480

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1852816	Kjeldahl Nitrogen	100	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P316088

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1852682	NO2NO3-N	98.5	99.5	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P316253

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1853016	Total-P	103	97.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P315944

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1853007	O-Phosphate-P	102	103	P/P	90 - 110

Reference Method: SM 5310 B-00
Batch ID: P316049

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1852829	Organic Carbon	94.9	96.9	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P316183

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1852912	Turbidity	5.16	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P316023

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1852821	Calcium	1.63	Spike	P	0 - 20
1852821	Iron	0.461	Spike	P	0 - 20
1852821	Magnesium	0.972	Spike	P	0 - 20
1852821	Potassium	0.130	Spike	P	0 - 20
1852821	Sodium	2.00	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P316023

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1852821	Arsenic	0.777	Spike	P	0 - 20
1852821	Cadmium	1.29	Spike	P	0 - 20
1852821	Chromium	0.682	Spike	P	0 - 20
1852821	Copper	0.0589	Spike	P	0 - 20
1852821	Lead	0.369	Spike	P	0 - 20
1852821	Nickel	0.765	Spike	P	0 - 20
1852821	Silver	0.433	Spike	P	0 - 20
1852821	Zinc	0.859	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P316794

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1852981	Chloride	0.0564	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P316831

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1852911	Sulfate	4.97	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P316832

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1852911	Chloride	0.0890	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P316239

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1852917	Ammonia-N	1.04	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P316471

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1852987	Ammonia-N	0.759	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P316616

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1855663	Ammonia-N	0.390	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316367

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1852747	Kjeldahl Nitrogen	0.554	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316480

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1852816	Kjeldahl Nitrogen	0.696	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P316088

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1852682	NO2NO3-N	1.01	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P316253

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1853016	Total-P	4.95	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P315944

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1853007	O-Phosphate-P	0.681	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P315981

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1853005	Color (true)	0.0673	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P316061

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1853013	Total Alkalinity	0.0347	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P316603

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1852538	TDS	2.64	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P316605

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1852813	TDS	6.19	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P316063

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1853013	Fluoride	1.93	Spike	P	0 - 3.0

Quality Assurance Report
Precision

Reference Method: SM 5310 B-00
Batch ID: P316049

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1852829	Organic Carbon	1.52	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: A73092
Included Lab Sample IDs: 1852989, 1852990, 1852991, 1852992

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.3	99.7	P/P	90 - 110
O-Phosphate-P	99.7	98.4	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A73102
Included Lab Sample IDs: 1852981, 1852982, 1852983, 1852984

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	100	P/P	85 - 115
Color (true)	98.2	98.2	P/P	85 - 115

Reference Method: SM 5310 B-00
Run ID: A73126
Included Lab Sample IDs: 1852985, 1852986, 1852987, 1852988

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.2	99.4	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A73130
Included Lab Sample IDs: 1852981, 1852982, 1852983, 1852984

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	96.8	98.5	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A73130
Included Lab Sample IDs: 1852981, 1852982, 1852983, 1852984

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A73139
Included Lab Sample IDs: 1852985, 1852986, 1852987, 1852988

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A73139
Included Lab Sample IDs: 1852985, 1852986, 1852987, 1852988

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

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A73167
Included Lab Sample IDs: 1852981, 1852982, 1852983, 1852984

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.0	98.5	P/P	95 - 105
Turbidity	98.0	99.0	P/P	95 - 105

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A73181
Included Lab Sample IDs: 1852997, 1852998, 1852999, 1853000

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	102	102	P/P	90 - 110
Calcium	98.3	102	P/P	90 - 110
Iron	101	102	P/P	90 - 110
Iron	102	104	P/P	90 - 110
Magnesium	100	102	P/P	90 - 110
Magnesium	102	103	P/P	90 - 110
Potassium	100	101	P/P	90 - 110
Potassium	99.3	101	P/P	90 - 110
Sodium	102	104	P/P	90 - 110
Sodium	99.9	103	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A73197
Included Lab Sample IDs: 1852985, 1852988

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A73224
Included Lab Sample IDs: 1852985, 1852986, 1852987

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A73226
Included Lab Sample IDs: 1852988

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.2	96.2	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A73248
Included Lab Sample IDs: 1852997, 1852998, 1852999, 1853000

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	96.9	98.8	P/P	90 - 110
Arsenic	99.8	99.2	P/P	90 - 110
Cadmium	100	100	P/P	90 - 110
Cadmium	100	99.2	P/P	90 - 110
Chromium	101	101	P/P	90 - 110
Chromium	101	101	P/P	90 - 110
Copper	92.4	93.9	P/P	90 - 110
Copper	95.5	95.2	P/P	90 - 110
Lead	91.6	91.9	P/P	90 - 110
Lead	93.1	93.9	P/P	90 - 110
Nickel	93.1	94.6	P/P	90 - 110
Zinc	96.0	96.5	P/P	90 - 110
Zinc	98.8	99.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A73263
Included Lab Sample IDs: 1852987

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.7	99.4	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A73271
Included Lab Sample IDs: 1852997, 1852998, 1852999, 1853000

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Silver	97.1	97.7	P/P	90 - 110
Silver	97.4	97.7	P/P	90 - 110
Silver	97.7	97.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A73272
Included Lab Sample IDs: 1852985

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.2	102	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A73276
Included Lab Sample IDs: 1853000

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Nickel	100	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A73285
Included Lab Sample IDs: 1852986, 1852987, 1852988

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.0	95.6	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A73313
Included Lab Sample IDs: 1852986

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A73375
Included Lab Sample IDs: 1852981, 1852982, 1852983, 1852984

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	102	P/P	90 - 110
Chloride	103	102	P/P	90 - 110
Chloride	103	103	P/P	90 - 110
Sulfate	101	99.9	P/P	90 - 110
Sulfate	106	99.7	P/P	90 - 110
Sulfate	98.6	99.3	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						5.16	
EPA 200.7 Rev. 4.4	Calcium	103	102	103				1.63
	Iron	107	104	107	108			0.461
	Magnesium	102	102	103				0.972
	Potassium	103	98.8	103	103			0.130
	Sodium	104	105	107	103			2.00
EPA 200.8 Rev. 5.4	Arsenic	99.6	102	99.5	98.8			0.777
	Cadmium	101	105	102	100			1.29
	Chromium	101	102	101	100			0.682
	Copper	94.5	93.5	89.9	90.0			0.0589
	Lead	94.6	95.6	93.6	93.3			0.369
	Nickel	96.1	94.5	92.2	91.5			0.765
	Silver	98.0	99.0	98.4	98.8			0.433
	Zinc	98.0	98.0	95.6	94.8			0.859
EPA 300.0 Rev. 2.1	Chloride	102	101	99.5			0.0564	
	Chloride	104	102	102			0.0890	
	Sulfate	98.6	97.9	96.5				
	Sulfate	105	103	102			4.97	
EPA 350.1 Rev. 2.0	Ammonia-N	109	101	99.3				1.04
	Ammonia-N	102	97.8	96.9				0.759
	Ammonia-N	99.1	99.1	98.7				0.390
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	102	101				0.554
	Kjeldahl Nitrogen	101	100	101				0.696
EPA 353.2 Rev. 2.0	NO2NO3-N	104	98.5	99.5				1.01
EPA 365.1 Rev. 2.0	Total-P	102	103	97.6				4.95
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	102	103				0.681
SM 2120 B	Color (true)						0.0673	

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
SM 2320 B-97	Total Alkalinity	98.1				0.0347	
SM 2540 C-97	TDS					2.64	
	TDS					6.19	
SM 4500 F-C-97	Fluoride	99.3					1.93
SM 5310 B-00	Organic Carbon	98.2	94.9	96.9			1.52

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1852981, 1852982, 1852983, 1852984
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1852997, 1852998, 1852999, 1853000
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	1852997, 1852998, 1852999, 1853000
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1852981, 1852982, 1852983, 1852984
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1852981, 1852982, 1852983, 1852984
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1852985, 1852986, 1852987, 1852988
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1852985, 1852986, 1852987, 1852988
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1852985, 1852986, 1852987, 1852988
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1852985, 1852986, 1852987, 1852988
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1852989, 1852990, 1852991, 1852992
SM 2120 B / E31780	True Color measured at 450 nm	1852981, 1852982, 1852983, 1852984
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1852981, 1852982, 1852983, 1852984
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1852981, 1852982, 1852983, 1852984
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1852981, 1852982, 1852983, 1852984
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1852981, 1852982, 1852983, 1852984
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1852985, 1852986, 1852987, 1852988

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	11/30/2016			11/30/2016 16:14	Julie Michelle Frank	1852981, 1852982, 1852983, 1852984
EPA 200.7 Rev. 4.4	11/30/2016	12/01/2016	Elliott D. Healy	12/05/2016	Joshua Ayres	1852997, 1852998, 1852999, 1853000
EPA 200.8 Rev. 5.4	11/30/2016	12/01/2016	Elliott D. Healy	12/07/2016	Charles J. Peterson	1853000
	11/30/2016	12/01/2016	Elliott D. Healy	12/08/2016	Charles J. Peterson	1852997, 1852998, 1852999, 1853000
EPA 300.0 Rev. 2.1	11/30/2016			12/14/2016	Ping Hua	1852981, 1852982, 1852983
	11/30/2016			12/15/2016	Ping Hua	1852984
EPA 350.1 Rev. 2.0	11/30/2016			12/05/2016	Sofia Elnemr	1852985, 1852988
	11/30/2016			12/08/2016	Sofia Elnemr	1852987
	11/30/2016			12/09/2016	Sofia Elnemr	1852986
EPA 351.2 Rev. 2.0	11/30/2016	12/08/2016	Adrian Shelby	12/09/2016	Joseph Suarez	1852985
	11/30/2016	12/09/2016	Adrian Shelby	12/09/2016	Joseph Suarez	1852986, 1852987, 1852988
EPA 353.2 Rev. 2.0	11/30/2016			12/02/2016	Beverly Y. Sanders	1852985, 1852986, 1852987, 1852988
EPA 365.1 Rev. 2.0	11/30/2016	12/06/2016	Vijayalakshmi Reddy	12/07/2016	Lipi Saha	1852985, 1852986, 1852987, 1852988
EPA 365.1 Rev. 2.0 dissolved	11/30/2016			11/30/2016 15:58	Julia Storbeck	1852992
	11/30/2016			11/30/2016 16:00	Julia Storbeck	1852990, 1852991
	11/30/2016			11/30/2016 16:16	Julia Storbeck	1852989
SM 2120 B	11/30/2016			11/30/2016 16:22	Jared I. Manley	1852982, 1852983
	11/30/2016			11/30/2016 16:23	Jared I. Manley	1852984
	11/30/2016			11/30/2016 16:42	Jared I. Manley	1852981
SM 2320 B-97	11/30/2016			12/02/2016	Dale L. Simmons	1852981, 1852982, 1852983, 1852984
SM 2540 C-97	11/30/2016			12/01/2016	Yijie Li	1852981, 1852982, 1852983, 1852984
SM 2540 D-97	11/30/2016			12/01/2016	Yijie Li	1852981, 1852982, 1852983, 1852984
SM 4500 F-C-97	11/30/2016			12/02/2016	Dale L. Simmons	1852981, 1852982, 1852983, 1852984
SM 5310 B-00	11/30/2016			12/01/2016	Julie Michelle Frank	1852985, 1852986, 1852987, 1852988