Chemical Analysis Report

SO-DIST-2016-04-20-04

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

Event Description: **SMP: Florida Keys**
Request ID: **RQ-2016-04-18-09**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901
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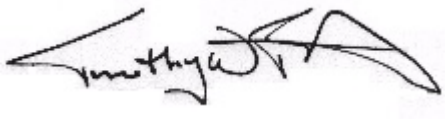
Certified by: Timothy Fitzpatrick, Program Administrator

Date Certified: 17-MAY-2016 09:16



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: 8080-ENRG3 Nearshore **Collection Date/Time: 04/19/2016 08:55**

Field ID: G5SD041916-9 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1791217	EPA 180.1 Rev. 2.0	Turbidity	0.70		NTU	P302662	
	SM 2320 B-97	Total Alkalinity	111		mg CaCO3/L	P302992	
	SM 2540 D-97	TSS	3	U	mg/L	P303221	RPD
	SM 4500 F-C-97	Fluoride	1.3		mg F/L	P302995	
1791223	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P303484	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.26	I	mg N/L	P303772	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P303059	
	EPA 365.1 Rev. 2.0	Total-P	0.01	I	mg P/L	P303333	
	SM 5310 B-00	Organic Carbon	2.2		mg C/L	P304297	
1791229	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P302622	
1791253	EPA 200.7 Rev. 4.4	Iron	120	U	ug/L	P302981	
		Zinc	20	U	ug/L	P302981	
	EPA 200.8 Rev. 5.4	Arsenic	1.57		ug/L	P302981	
		Cadmium	0.060	U	ug/L	P302981	
		Chromium	0.15	U	ug/L	P302981	
		Copper	0.30	U	ug/L	P302981	
		Lead	0.25	U	ug/L	P302981	
		Nickel	1.0	U	ug/L	P302981	
		Silver	0.015	U	ug/L	P302981	

Ref. Method and Comment:
EPA 350.1 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: 6012C by Bridge No Name Key **Collection Date/Time: 04/19/2016 09:30**

Field ID: G5SD041916-10 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1791218	EPA 180.1 Rev. 2.0	Turbidity	0.90		NTU	P302662	
	SM 2320 B-97	Total Alkalinity	109		mg CaCO3/L	P302992	
	SM 2540 D-97	TSS	3	U	mg/L	P303221	RPD
	SM 4500 F-C-97	Fluoride	1.3		mg F/L	P302995	
1791224	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P303484	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.25	I	mg N/L	P303772	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P303059	
	EPA 365.1 Rev. 2.0	Total-P	0.011		mg P/L	P303333	
	SM 5310 B-00	Organic Carbon	2.4		mg C/L	P304297	
1791230	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P302622	
1791254	EPA 200.7 Rev. 4.4	Iron	120	U	ug/L	P302981	
		Zinc	20	U	ug/L	P302981	
	EPA 200.8 Rev. 5.4	Arsenic	1.87		ug/L	P302981	
		Cadmium	0.060	U	ug/L	P302981	
		Chromium	0.15	U	ug/L	P302981	
		Copper	0.30	U	ug/L	P302981	
		Lead	0.25	U	ug/L	P302981	
		Nickel	1.0	U	ug/L	P302981	

Field ID: G5SD041916-10 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1791254	EPA 200.8 Rev. 5.4	Silver	0.015	U	ug/L	P302981	

Ref. Method and Comment:
EPA 350.1 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: Field Blank **Collection Date/Time: 04/19/2016 13:30**

Field ID: G5SD041916-12 Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1791219	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P302662	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P302971	
	SM 2540 D-97	TSS	2	U	mg/L	P303218	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P302975	
1791225	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P303495	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P303659	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.11		mg N/L	P303166	
	EPA 365.1 Rev. 2.0	Total-P	0.003	I	mg P/L	P303236	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P303348	
1791231	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P302622	
1791255	EPA 200.7 Rev. 4.4	Iron	30	U	ug/L	P302981	
		Zinc	5.0	U	ug/L	P302981	
	EPA 200.8 Rev. 5.4	Arsenic	0.050	U	ug/L	P302981	
		Cadmium	0.020	U	ug/L	P302981	
		Chromium	0.050	U	ug/L	P302981	
		Copper	0.18	I	ug/L	P302981	
		Lead	0.050	U	ug/L	P302981	
		Nickel	0.25	U	ug/L	P302981	
		Silver	0.0050	U	ug/L	P302981	

Ref. Method and Comment:
SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.
EPA 350.1 Rev. 2.0: The result was confirmed on 05/03/2016.
EPA 353.2 Rev. 2.0: The result was confirmed on 05/04/2016.
EPA 365.1 Rev. 2.0: Total-P: The result was confirmed on 05/05/2016.
EPA 200.8 Rev. 5.4: The copper result was confirmed in the undigested sample on 05/02/2016.

Sample Location: 8080-ENRG3 Nearshore DUPL **Collection Date/Time: 04/19/2016 09:00**

Field ID: G5SD041916-13 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1791220	EPA 180.1 Rev. 2.0	Turbidity	0.75		NTU	P302662	
	SM 2320 B-97	Total Alkalinity	111		mg CaCO3/L	P302992	
	SM 2540 D-97	TSS	3	U	mg/L	P303221	RPD
	SM 4500 F-C-97	Fluoride	1.3		mg F/L	P302995	
1791226	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P303484	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.24	I	mg N/L	P303764	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P303059	
	EPA 365.1 Rev. 2.0	Total-P	0.009	I	mg P/L	P303333	
	SM 5310 B-00	Organic Carbon	2.2		mg C/L	P304297	

Field ID: G5SD041916-13 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1791232	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P302622	
1791256	EPA 200.7 Rev. 4.4	Iron	120	U	ug/L	P302981	
		Zinc	20	U	ug/L	P302981	
	EPA 200.8 Rev. 5.4	Arsenic	1.50		ug/L	P302981	
		Cadmium	0.060	U	ug/L	P302981	
		Chromium	0.15	U	ug/L	P302981	
		Copper	0.30	U	ug/L	P302981	
		Lead	0.25	U	ug/L	P302981	
		Nickel	1.0	U	ug/L	P302981	
		Silver	0.015	U	ug/L	P302981	

Ref. Method and Comment:
EPA 350.1 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: 8073 #1 South of Ft. Zach **Collection Date/Time: 04/19/2016 12:05**

Field ID: G5SD041916-1 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1791221	EPA 180.1 Rev. 2.0	Turbidity	1.1		NTU	P302662	
	SM 2320 B-97	Total Alkalinity	111		mg CaCO3/L	P302992	
	SM 2540 D-97	TSS	3	U	mg/L	P303221	RPD
	SM 4500 F-C-97	Fluoride	1.3		mg F/L	P302995	
1791227	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P303484	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.28	I	mg N/L	P303772	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P303060	
	EPA 365.1 Rev. 2.0	Total-P	0.01	I	mg P/L	P303333	
	SM 5310 B-00	Organic Carbon	2.1		mg C/L	P304297	
1791233	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P302622	
1791257	EPA 200.7 Rev. 4.4	Iron	120	U	ug/L	P302981	
		Zinc	20	U	ug/L	P302981	
	EPA 200.8 Rev. 5.4	Arsenic	1.56		ug/L	P302981	
		Cadmium	0.060	U	ug/L	P302981	
		Chromium	0.15	U	ug/L	P302981	
		Copper	0.30	U	ug/L	P302981	
		Lead	0.25	U	ug/L	P302981	
		Nickel	1.0	U	ug/L	P302981	
		Silver	0.015	U	ug/L	P302981	

Ref. Method and Comment:
EPA 350.1 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: 8073 #5 ENRG1 **Collection Date/Time: 04/19/2016 12:42**

Field ID: G5SD041916-5 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1791222	EPA 180.1 Rev. 2.0	Turbidity	0.75		NTU	P302662	
	SM 2320 B-97	Total Alkalinity	113		mg CaCO3/L	P302992	
	SM 2540 D-97	TSS	3	U	mg/L	P303221	RPD

Field ID: G5SD041916-5 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1791222	SM 4500 F-C-97	Fluoride	1.3		mg F/L	P302995	
1791228	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P303484	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.26	I	mg N/L	P303772	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.008	U	mg N/L	P303060	
	EPA 365.1 Rev. 2.0	Total-P	0.010		mg P/L	P303333	
	SM 5310 B-00	Organic Carbon	2.2		mg C/L	P304297	
1791234	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P302622	
1791258	EPA 200.7 Rev. 4.4	Iron	120	U	ug/L	P302981	
		Zinc	20	U	ug/L	P302981	
	EPA 200.8 Rev. 5.4	Arsenic	2.04		ug/L	P302981	
		Cadmium	0.060	U	ug/L	P302981	
		Chromium	0.15	U	ug/L	P302981	
		Copper	0.30	U	ug/L	P302981	
		Lead	0.25	U	ug/L	P302981	
		Nickel	1.0	U	ug/L	P302981	
		Silver	0.015	U	ug/L	P302981	

Ref. Method and Comment:
EPA 350.1 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P302662

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P302981

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

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P302981

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	0.25	U	ug/L
Silver	0.0050	U	ug/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303484

Component	Result	Code	Units

Quality Assurance Report
Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303484

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303495

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303659

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303764

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303772

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303059

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303060

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303166

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P303236

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P303333

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P302622

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

Reference Method: SM 2320 B-97
Batch ID: P302971

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

Reference Method: SM 2320 B-97
Batch ID: P302992

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

Reference Method: SM 2540 D-97
Batch ID: P303218

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P303221

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P302975

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P302995

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P303348

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

Quality Assurance Report
Method Blank Results

Reference Method: SM 5310 B-00
Batch ID: P304297

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: P302981

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	109		P	85 - 115
Zinc	103		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P302981

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	98.3		P	85 - 115
Cadmium	98.5		P	85 - 115
Chromium	101		P	85 - 115
Copper	96.7		P	85 - 115
Lead	97.6		P	85 - 115
Nickel	98.1		P	80 - 120
Silver	94.1		P	85 - 115

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303484

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303495

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303659

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303764

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303772

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303059

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303060

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303166

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: P303236

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P303333

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	97.1		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P302622

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

Reference Method: SM 2320 B-97
Batch ID: P302971

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	97.7		P	95 - 105

Reference Method: SM 2320 B-97
Batch ID: P302992

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P302975

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.1		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P302995

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.7		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P303348

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.4		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P304297

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: P302981

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1791097	Iron	107	110	P/P	70 - 130
1791097	Zinc	103	104	P/P	70 - 130

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P302981

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1791097	Arsenic	103	103	P/P	80 - 120
1791097	Cadmium	101	103	P/P	80 - 120
1791097	Chromium	100	99.3	P/P	80 - 120
1791097	Copper	94.4	93.9	P/P	80 - 120
1791097	Lead	103	104	P/P	80 - 120
1791097	Nickel	101	99.5	P/P	70 - 130
1791097	Silver	93.7	93.7	P/P	80 - 120

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303495

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1791185	Ammonia-N	103	101	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303659

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1791152	Kjeldahl Nitrogen	90.2	86.9	P/F	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303764

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1791226	Kjeldahl Nitrogen	97.5	96.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303772

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1791137	Kjeldahl Nitrogen	96.7	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303059

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1790543	NO2NO3-N	100	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303060

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1791227	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303166

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1791185	NO2NO3-N	100	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P303236

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1791151	Total-P	97.4	97.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P303333

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1791223	Total-P	90.9	90.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P302622

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1791229	O-Phosphate-P	99.3	101	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P302975

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1791467	Fluoride	97.9	98.7	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P302995

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1791589	Fluoride	97.8	97.8	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P303348

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1791148	Organic Carbon	99.5	99.9	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P304297

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1790748	Organic Carbon	91.6	93.1	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P302662

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1791183	Turbidity	0.509	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P302981

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1791097	Iron	2.32	Spike	P	0 - 20
1791097	Zinc	0.443	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P302981

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1791097	Arsenic	0.406	Spike	P	0 - 20
1791097	Cadmium	1.87	Spike	P	0 - 20
1791097	Chromium	1.11	Spike	P	0 - 20
1791097	Copper	0.511	Spike	P	0 - 20
1791097	Lead	0.640	Spike	P	0 - 20
1791097	Nickel	1.74	Spike	P	0 - 20
1791097	Silver	0.0134	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303484

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1790812	Ammonia-N	0.357	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303495

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1791185	Ammonia-N	1.36	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303659

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1791152	Kjeldahl Nitrogen	3.41	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303764

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1791226	Kjeldahl Nitrogen	1.17	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303772

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1791137	Kjeldahl Nitrogen	2.42	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303059

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1790543	NO2NO3-N	1.09	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303060

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1791227	NO2NO3-N	0.980	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303166

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1791185	NO2NO3-N	0.0	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P303236

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1791151	Total-P	0.359	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P303333

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1791223	Total-P	0.303	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P302622

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1791229	O-Phosphate-P	1.90	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P302971

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1791467	Total Alkalinity	0.882	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P302992

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1791589	Total Alkalinity	0.357	Sample	P	0 - 4.8

Reference Method: SM 2540 D-97
Batch ID: P303221

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1790520	TSS	10.9	Sample	F	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P302975

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1791467	Fluoride	0.483	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P302995

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1791589	Fluoride	0.0	Spike	P	0 - 3.0

Quality Assurance Report
Precision

Reference Method: SM 5310 B-00
Batch ID: P303348

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1791148	Organic Carbon	0.358	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P304297

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1790748	Organic Carbon	1.50	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: A68990
Included Lab Sample IDs: 1791229, 1791230, 1791231, 1791232, 1791233, 1791234

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.0	100	P/P	90 - 110
O-Phosphate-P	98.3	100	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A69002
Included Lab Sample IDs: 1791217, 1791218, 1791219, 1791220, 1791221, 1791222

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	100	P/P	95 - 105

Reference Method: SM 2320 B-97
Run ID: A69103
Included Lab Sample IDs: 1791219

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	96.8	99.5	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A69103
Included Lab Sample IDs: 1791219

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.5	98.5	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A69110
Included Lab Sample IDs: 1791217, 1791218, 1791220, 1791221, 1791222

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	97.3	99.7	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: SM 4500 F-C-97
Run ID: A69110
Included Lab Sample IDs: 1791217, 1791218, 1791220, 1791221, 1791222

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	99.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A69129
Included Lab Sample IDs: 1791223, 1791224, 1791226, 1791227, 1791228

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A69154
Included Lab Sample IDs: 1791225

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	101	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A69191
Included Lab Sample IDs: 1791253, 1791254, 1791255, 1791256, 1791257, 1791258

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	102	102	P/P	90 - 110
Iron	102	99.9	P/P	90 - 110
Zinc	101	98.9	P/P	90 - 110
Zinc	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A69204
Included Lab Sample IDs: 1791225

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	96.5	97.8	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A69211
Included Lab Sample IDs: 1791225

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.4	98.9	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A69214
Included Lab Sample IDs: 1791253, 1791254, 1791255, 1791256, 1791257, 1791258

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	100	99.8	P/P	90 - 110
Arsenic	98.3	98.3	P/P	90 - 110
Cadmium	95.5	94.7	P/P	90 - 110
Cadmium	97.9	97.6	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A69214
Included Lab Sample IDs: 1791253, 1791254, 1791255, 1791256, 1791257, 1791258

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chromium	100	100	P/P	90 - 110
Chromium	96.6	92.8	P/P	90 - 110
Copper	101	101	P/P	90 - 110
Copper	97.9	97.2	P/P	90 - 110
Lead	95.4	95.9	P/P	90 - 110
Lead	96.0	95.4	P/P	90 - 110
Silver	95.3	94.5	P/P	90 - 110
Silver	95.9	95.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A69238
Included Lab Sample IDs: 1791223, 1791224, 1791225, 1791226, 1791227, 1791228

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	104	P/P	90 - 110
Ammonia-N	104	103	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A69248
Included Lab Sample IDs: 1791253, 1791254, 1791255, 1791256, 1791257, 1791258

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Nickel	106	97.2	P/P	90 - 110
Nickel	95.6	93.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A69269
Included Lab Sample IDs: 1791223, 1791224, 1791226, 1791227, 1791228

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.8	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A69362
Included Lab Sample IDs: 1791225

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.7	95.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A69369
Included Lab Sample IDs: 1791226

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A69414
Included Lab Sample IDs: 1791223, 1791224, 1791227, 1791228

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A69414
Included Lab Sample IDs: 1791223, 1791224, 1791227, 1791228

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.5	98.5	P/P	90 - 110
Kjeldahl Nitrogen	95.6	95.5	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A69473
Included Lab Sample IDs: 1791223, 1791224, 1791226, 1791227, 1791228

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.9	92.4	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					0.509	
EPA 200.7 Rev. 4.4	Iron	109	107	110			2.32
	Zinc	103	103	104			0.443
EPA 200.8 Rev. 5.4	Arsenic	98.3	103	103			0.406
	Cadmium	98.5	101	103			1.87
	Chromium	101	100	99.3			1.11
	Copper	96.7	94.4	93.9			0.511
	Lead	97.6	103	104			0.640
	Nickel	98.1	101	99.5			1.74
	Silver	94.1	93.7	93.7			0.0134
EPA 350.1 Rev. 2.0	Ammonia-N	99.3					0.357
	Ammonia-N	102	103	101			1.36
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.8	90.2	86.9			3.41
	Kjeldahl Nitrogen	104	97.5	96.2			1.17
	Kjeldahl Nitrogen	102	96.7	101			2.42
EPA 353.2 Rev. 2.0	NO2NO3-N	102	100	102			1.09
	NO2NO3-N	102	102	102			0.980
	NO2NO3-N	104	100	100			0.0
EPA 365.1 Rev. 2.0	Total-P	100	97.4	97.7			0.359
	Total-P	97.1	90.9	90.6			0.303
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	99.3	101			1.90
SM 2320 B-97	Total Alkalinity	97.7				0.882	
	Total Alkalinity	101				0.357	
SM 2540 D-97	TSS					10.9	
SM 4500 F-C-97	Fluoride	95.1	97.9	98.7			0.483
	Fluoride	97.7	97.8	97.8			0.0
SM 5310 B-00	Organic Carbon	99.4	99.5	99.9			0.358
	Organic Carbon	97.6	91.6	93.1			1.50

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1791217, 1791218, 1791219, 1791220, 1791221, 1791222
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1791253, 1791254, 1791255, 1791256, 1791257, 1791258
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	1791253, 1791254, 1791255, 1791256, 1791257, 1791258
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1791223, 1791224, 1791225, 1791226, 1791227, 1791228
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1791223, 1791224, 1791225, 1791226, 1791227, 1791228
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1791223, 1791224, 1791225, 1791226, 1791227, 1791228
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1791223, 1791224, 1791225, 1791226, 1791227, 1791228
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1791229, 1791230, 1791231, 1791232, 1791233, 1791234
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1791217, 1791218, 1791219, 1791220, 1791221, 1791222
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1791217, 1791218, 1791219, 1791220, 1791221, 1791222
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1791217, 1791218, 1791219, 1791220, 1791221, 1791222
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1791223, 1791224, 1791225, 1791226, 1791227, 1791228

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	04/20/2016			04/20/2016 15:29	Blanca Fach	1791217, 1791218, 1791219, 1791220, 1791221, 1791222
EPA 200.7 Rev. 4.4	04/20/2016	04/26/2016	Elliott D. Healy	04/29/2016	Joshua Ayres	1791253, 1791254, 1791255, 1791256, 1791257, 1791258
EPA 200.8 Rev. 5.4	04/20/2016	04/26/2016	Elliott D. Healy	05/02/2016	Charles J. Peterson	1791253, 1791254, 1791255, 1791256, 1791257, 1791258
	04/20/2016	04/26/2016	Elliott D. Healy	05/03/2016	Charles J. Peterson	1791256, 1791257, 1791258
	04/20/2016	04/26/2016	Elliott D. Healy	05/03/2016	Robert K Palmer	1791253, 1791254, 1791255, 1791256, 1791257, 1791258
EPA 350.1 Rev. 2.0	04/20/2016			05/03/2016	Diana M. Turner	1791223, 1791224, 1791225, 1791226, 1791227, 1791228
EPA 351.2 Rev. 2.0	04/20/2016	05/06/2016	Sofia Elnemr	05/09/2016	Christopher Armour	1791225
	04/20/2016	05/09/2016	Sofia Elnemr	05/10/2016	Christopher Armour	1791223, 1791224, 1791226, 1791227, 1791228
EPA 353.2 Rev. 2.0	04/20/2016			04/27/2016	Peter D. Kaus	1791223, 1791224, 1791226, 1791227, 1791228
	04/20/2016			04/28/2016	Diana M. Turner	1791225
EPA 365.1 Rev. 2.0	04/20/2016	04/29/2016	Christopher Armour	05/02/2016	Lipi Saha	1791225
	04/20/2016	05/02/2016	Vijayalakshmi Reddy	05/04/2016	Lipi Saha	1791223, 1791224, 1791226, 1791227, 1791228
EPA 365.1 Rev. 2.0 dissolved	04/20/2016			04/20/2016 14:13	Ping Hua	1791229
	04/20/2016			04/20/2016 15:30	Ping Hua	1791230
	04/20/2016			04/20/2016 15:31	Ping Hua	1791231
	04/20/2016			04/20/2016 15:32	Ping Hua	1791232
	04/20/2016			04/20/2016 15:33	Ping Hua	1791233, 1791234
SM 2320 B-97	04/20/2016			04/25/2016	Dale L. Simmons	1791219
	04/20/2016			04/27/2016	Dale L. Simmons	1791217, 1791218, 1791220, 1791221, 1791222
SM 2540 D-97	04/20/2016			04/22/2016	Yijie Li	1791217, 1791218, 1791219, 1791220, 1791221, 1791222
SM 4500 F-C-97	04/20/2016			04/25/2016	Dale L. Simmons	1791219
	04/20/2016			04/27/2016	Dale L. Simmons	1791217, 1791218, 1791220, 1791221, 1791222
SM 5310 B-00	04/20/2016			04/30/2016	Sofia Elnemr	1791225
	04/20/2016			05/13/2016	Diana M. Turner	1791223, 1791224, 1791226, 1791227, 1791228