Chemical Analysis Report

SO-DIST-2016-04-20-03

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

Event Description: **SMP: Shell, Joshua, Hog Bay**
Request ID: **RQ-2016-04-18-06**
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
Attn: Ben Paswater

For additional information please contact
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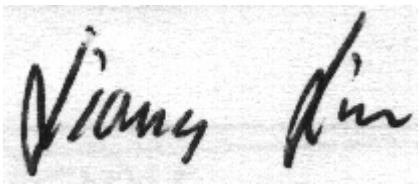
Certified by: Liang Lin, Environmental Administrator

Date Certified: 13-MAY-2016 18:11



NON-CONFORMANCE REPORT INCLUDED

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 group are included in this report: 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: Joshua CR-1.2 MI N OF RT 760A **Collection Date/Time: 04/19/2016 12:50**

Field ID: G3SD04192016-3 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1790965	EPA 180.1 Rev. 2.0	Turbidity	1.5		NTU	P302626	
	EPA 300.0 Rev. 2.1	Chloride	65		mg Cl/L	P303239	
		Sulfate	88		mg SO4/L	P303242	
	SM 2120 B	Color (true)	68		PCU	P302597	
	SM 2320 B-97	Total Alkalinity	60		mg CaCO3/L	P302970	
	SM 2540 C-97	TDS	338	A	mg/L	P303355	
	SM 2540 D-97	TSS	2	I	mg/L	P303215	
	SM 4500 F-C-97	Fluoride	0.35		mg F/L	P302974	
1790968	EPA 350.1 Rev. 2.0	Ammonia-N	0.023		mg N/L	P303491	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.82		mg N/L	P303732	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.096		mg N/L	P303162	
	EPA 365.1 Rev. 2.0	Total-P	0.21		mg P/L	P303232	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P303346	
1790971	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.17		mg P/L	P302619	

Ref. Method and Comment:
SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.

Sample Location: Hog Day @ CR 763 **Collection Date/Time: 04/19/2016 12:20**

Field ID: G3SD04192016-4 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1790966	EPA 180.1 Rev. 2.0	Turbidity	5.5	A	NTU	P302627	
	EPA 300.0 Rev. 2.1	Chloride	300		mg Cl/L	P303239	
		Sulfate	210		mg SO4/L	P303242	
	SM 2120 B	Color (true)	29		PCU	P302597	
	SM 2320 B-97	Total Alkalinity	136		mg CaCO3/L	P302970	
	SM 2540 C-97	TDS	904		mg/L	P303355	
	SM 2540 D-97	TSS	8	I	mg/L	P303215	
	SM 4500 F-C-97	Fluoride	0.81		mg F/L	P302974	
1790969	EPA 350.1 Rev. 2.0	Ammonia-N	0.51		mg N/L	P303491	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P303732	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.12		mg N/L	P303162	
	EPA 365.1 Rev. 2.0	Total-P	0.15		mg P/L	P303232	
	SM 5310 B-00	Organic Carbon	6.7		mg C/L	P303346	
1790972	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.073		mg P/L	P302619	

Ref. Method and Comment:
SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.

Sample Location: Shell Cr. @ SR 31 **Collection Date/Time: 04/19/2016 11:00**

Field ID: G3SD04192016-5 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1790967	EPA 180.1 Rev. 2.0	Turbidity	8.5		NTU	P302627	
	EPA 300.0 Rev. 2.1	Chloride	240		mg Cl/L	P303239	
		Sulfate	89		mg SO4/L	P303242	

Field ID: G3SD04192016-5 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1790967	SM 2120 B	Color (true)	73		PCU	P302597	
	SM 2320 B-97	Total Alkalinity	192		mg CaCO3/L	P302970	
	SM 2540 C-97	TDS	842	A	mg/L	P303356	
	SM 2540 D-97	TSS	6	I	mg/L	P303216	
	SM 4500 F-C-97	Fluoride	0.27		mg F/L	P302974	
1790970	EPA 350.1 Rev. 2.0	Ammonia-N	0.040	Y	mg N/L	P303491	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.87	Y	mg N/L	P303732	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.029	Y	mg N/L	P303162	
	EPA 365.1 Rev. 2.0	Total-P	0.058	Y	mg P/L	P303232	
	SM 5310 B-00	Organic Carbon	17	Y	mg C/L	P303346	
1790973	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.021		mg P/L	P302619	

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 sample was received unpreserved: pH > 2. Sample preserved in laboratory.
EPA 351.2 Rev. 2.0: The sample was received unpreserved: pH > 2. Sample preserved in laboratory.
EPA 353.2 Rev. 2.0: The sample was received unpreserved: pH > 2. Sample preserved in laboratory.
EPA 365.1 Rev. 2.0: Total-P: The sample was received unpreserved: pH > 2. Sample preserved in laboratory.
SM 5310 B-00: The sample was received unpreserved: pH > 2. Sample preserved in laboratory.

Non-Conformance Report

NCR ID: 5823

Event(s)	Job(s)	Sample(s)	Test(s)
SO-DIST-2016-04-20-03	TLH-2016-04-20-60	1790970	

NCR Type: SHIPPING/RECEIVING **NCR Category: Preservation Not Intact**

Observation: Sample 1790970 not preserved to pH < 2.

Resolution: Sample 1790970 preserved in lab with Sulfuric Acid @ 11:23 a.m. on 4/20/2016.

Authorised by/Date: Kathryn Holland 4/29/2016

The Non-Conformance Report details exceptions or problems encountered with the events/jobs/samples/test.
Please address questions to:

Chemistry Tim Fitzpatrick (850) 245-8085
Biology Cheryl Swanson (850) 245-8177

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P302626

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P302627

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Quality Assurance Report
Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P303239

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P303242

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303491

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303732

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303162

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P303232

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P302619

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

Reference Method: SM 2120 B
Batch ID: P302597

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P302970

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

Quality Assurance Report
Method Blank Results

Reference Method: SM 2540 C-97
Batch ID: P303355

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P303356

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P303215

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P303216

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P302974

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P303346

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P303239

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P303242

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303491

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303491

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303732

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303162

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P303232

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P302619

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

Reference Method: SM 2320 B-97
Batch ID: P302970

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.7		P	95 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P302974

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

Reference Method: SM 5310 B-00
Batch ID: P303346

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.8		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P303239

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

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P303239

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1791020	Chloride	98.9		P	90 - 110
1791034	Chloride	99.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P303242

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1791020	Sulfate	96.1		P	90 - 110
1791034	Sulfate	96.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303491

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1790908	Ammonia-N	105	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303732

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1790907	Kjeldahl Nitrogen	97.8	97.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303162

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1790970	NO2NO3-N	99.3	98.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P303232

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1790968	Total-P	97.3	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P302619

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1790911	O-Phosphate-P	99.2	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P302974

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1791068	Fluoride	96.4	97.8	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P303346

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1790856	Organic Carbon	99.8	97.6	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P302626

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1790846	Turbidity	1.34	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P302627

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1790966	Turbidity	1.81	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P303239

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1791020	Chloride	0.281	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P303242

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1791020	Sulfate	4.05	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303491

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1790908	Ammonia-N	2.67	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303732

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1790907	Kjeldahl Nitrogen	0.489	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303162

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1790970	NO2NO3-N	0.881	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P303232

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1790968	Total-P	2.33	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P302619

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1790911	O-Phosphate-P	2.15	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P302597

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1790900	Color (true)	0.933	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P302970

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1791068	Total Alkalinity	0.0516	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P303355

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1790965	TDS	4.14	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P303356

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1790967	TDS	3.92	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P302974

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1791068	Fluoride	1.01	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P303346

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1790856	Organic Carbon	1.70	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

Quality Assurance Report
Calibration Verification

Reference Method: SM 2120 B
Run ID: A68985
Included Lab Sample IDs: 1790965, 1790966, 1790967

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.8	100	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A68990
Included Lab Sample IDs: 1790971, 1790972, 1790973

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.2	99.6	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A68992
Included Lab Sample IDs: 1790965, 1790966, 1790967

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

Reference Method: SM 2320 B-97
Run ID: A69103
Included Lab Sample IDs: 1790965, 1790966, 1790967

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	96.8	99.5	P/P	90 - 110
Total Alkalinity	98.3	96.8	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A69103
Included Lab Sample IDs: 1790965, 1790966, 1790967

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	96.5	99.5	P/P	90 - 110
Fluoride	99.5	98.5	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A69144
Included Lab Sample IDs: 1790965, 1790966, 1790967

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	99.9	P/P	90 - 110
Sulfate	99.4	98.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A69154
Included Lab Sample IDs: 1790968, 1790969, 1790970

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A69195
Included Lab Sample IDs: 1790968, 1790969, 1790970

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

Reference Method: SM 5310 B-00
Run ID: A69211
Included Lab Sample IDs: 1790968, 1790969, 1790970

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A69238
Included Lab Sample IDs: 1790968, 1790969, 1790970

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A69342
Included Lab Sample IDs: 1790968, 1790969, 1790970

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	91.4	95.6	P/P	90 - 110
Kjeldahl Nitrogen	93.0	91.4	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					1.34	
	Turbidity					1.81	
EPA 300.0 Rev. 2.1	Chloride	101	99.9	98.9		0.281	
	Sulfate	98.0	96.3	96.1		4.05	
EPA 350.1 Rev. 2.0	Ammonia-N	103	105	102			2.67
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	97.8	97.1			0.489
EPA 353.2 Rev. 2.0	NO2NO3-N	102	99.3	98.3			0.881
EPA 365.1 Rev. 2.0	Total-P	99.0	97.3	101			2.33
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	99.2	102			2.15
SM 2120 B	Color (true)					0.933	
SM 2320 B-97	Total Alkalinity	98.7				0.0516	
SM 2540 C-97	TDS					4.14	
	TDS					3.92	
SM 4500 F-C-97	Fluoride	95.1	96.4	97.8			1.01
SM 5310 B-00	Organic Carbon	97.8	99.8	97.6			1.70

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1790965, 1790966, 1790967
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1790965, 1790966, 1790967
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1790965, 1790966, 1790967
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1790968, 1790969, 1790970
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1790968, 1790969, 1790970
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1790968, 1790969, 1790970
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1790968, 1790969, 1790970
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1790971, 1790972, 1790973
SM 2120 B / E31780	True Color measured at 450 nm	1790965, 1790966, 1790967
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1790965, 1790966, 1790967
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1790965, 1790966, 1790967
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1790965, 1790966, 1790967
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1790965, 1790966, 1790967
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1790968, 1790969, 1790970

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 14:20	Sima Feizi	1790965, 1790966, 1790967
EPA 300.0 Rev. 2.1	04/20/2016			04/28/2016	Elisa J Lutz	1790965, 1790966, 1790967
EPA 350.1 Rev. 2.0	04/20/2016			05/03/2016	Diana M. Turner	1790968, 1790969, 1790970
EPA 351.2 Rev. 2.0	04/20/2016	05/06/2016	Sofia Elnemr	05/09/2016	Christopher Armour	1790968, 1790969, 1790970
EPA 353.2 Rev. 2.0	04/20/2016			04/28/2016	Diana M. Turner	1790968, 1790969, 1790970
EPA 365.1 Rev. 2.0	04/20/2016	04/29/2016	Christopher Armour	05/02/2016	Lipi Saha	1790968, 1790969, 1790970
EPA 365.1 Rev. 2.0 dissolved	04/20/2016			04/20/2016 14:57	Ping Hua	1790971
	04/20/2016			04/20/2016 14:58	Ping Hua	1790972
	04/20/2016			04/20/2016 14:59	Ping Hua	1790973
SM 2120 B	04/20/2016			04/20/2016 13:37	Rochelle Y Jackson	1790965
	04/20/2016			04/20/2016 13:38	Rochelle Y Jackson	1790966
	04/20/2016			04/20/2016 13:39	Rochelle Y Jackson	1790967
SM 2320 B-97	04/20/2016			04/25/2016	Dale L. Simmons	1790965, 1790966, 1790967
SM 2540 C-97	04/20/2016			04/22/2016	Yijie Li	1790965, 1790966, 1790967
SM 2540 D-97	04/20/2016			04/22/2016	Yijie Li	1790965, 1790966, 1790967
SM 4500 F-C-97	04/20/2016			04/25/2016	Dale L. Simmons	1790965, 1790966, 1790967
SM 5310 B-00	04/20/2016			04/29/2016	Sofia Elnemr	1790968, 1790969, 1790970