Chemical Analysis Report

CEN-DIST-2016-01-27-01

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

Event Description: **Hatchineha/Skeeter + D&B**
Request ID: **RQ-2016-01-25-14**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
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3319 Maguire Blvd., Suite 232
Orlando, FL 32803-3767
Attn: Mike Linger

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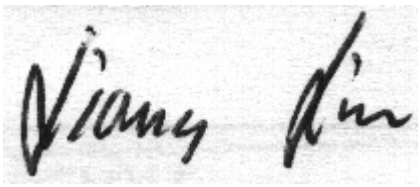
Certified by: Liang Lin, Environmental Administrator

Date Certified: 11-FEB-2016 17:19



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: Hatchineha Canal **Collection Date/Time: 01/26/2016 14:20**

Field ID: G4CE0056 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1765585	EPA 180.1 Rev. 2.0	Turbidity	4.3		NTU	P297691	
	EPA 300.0 Rev. 2.1	Chloride	22		mg Cl/L	P297775	
		Sulfate	6.6		mg SO4/L	P297780	
	SM 2120 B	Color (true)	89		PCU	P297662	
	SM 2320 B-97	Total Alkalinity	32	A	mg CaCO3/L	P297752	
	SM 2540 C-97	TDS	110	A	mg/L	P298283	
	SM 2540 D-97	TSS	7	I	mg/L	P298120	
	SM 4500 F-C-97	Fluoride	0.076	I	mg F/L	P297747	
1765587	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P297992	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P297740	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P297869	
	EPA 365.1 Rev. 2.0	Total-P	0.040		mg P/L	P297766	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P297846	
1765589	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P297631	

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: Field Blank **Collection Date/Time: 01/26/2016 17:00**

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

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1765586	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P297691	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P297775	
		Sulfate	0.20	U	mg SO4/L	P297780	
	SM 2120 B	Color (true)	2.5	U	PCU	P297662	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P297752	
	SM 2540 C-97	TDS	15	U	mg/L	P298283	
	SM 2540 D-97	TSS	2	U	mg/L	P298120	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P297747	
1765588	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P297992	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P297740	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P297869	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P297766	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P297846	
1765590	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P297631	

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: Hatchineha Canal **Collection Date/Time: 01/26/2016 14:38**

Field ID: G4CE0064 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1765664	EPA 180.1 Rev. 2.0	Turbidity	4.6		NTU	P297692	
	EPA 300.0 Rev. 2.1	Chloride	21	A	mg Cl/L	P297815	
		Sulfate	6.5	A	mg SO4/L	P297813	

Field ID: G4CE0064 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1765664	SM 2120 B	Color (true)	79		PCU	P297663	
	SM 2320 B-97	Total Alkalinity	32		mg CaCO3/L	P297752	
	SM 2540 C-97	TDS	111	A	mg/L	P298282	
	SM 2540 D-97	TSS	7	I	mg/L	P298119	
	SM 4500 F-C-97	Fluoride	0.074	I	mg F/L	P297747	
1765666	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P297993	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.96		mg N/L	P297741	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P297870	
	EPA 365.1 Rev. 2.0	Total-P	0.044		mg P/L	P297828	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P297847	
1765668	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P297631	

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: G4CE0056D **Collection Date/Time: 01/26/2016 14:21**

Field ID: G4CE0056D Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1765665	EPA 180.1 Rev. 2.0	Turbidity	4.4		NTU	P297692	
	EPA 300.0 Rev. 2.1	Chloride	21		mg Cl/L	P297815	
		Sulfate	6.5		mg SO4/L	P297813	
	SM 2120 B	Color (true)	80		PCU	P297663	
	SM 2320 B-97	Total Alkalinity	33		mg CaCO3/L	P297752	
	SM 2540 C-97	TDS	110	A	mg/L	P298284	
	SM 2540 D-97	TSS	6	I	mg/L	P298121	
	SM 4500 F-C-97	Fluoride	0.074	I	mg F/L	P297747	
1765667	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P297993	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P297741	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P297870	
	EPA 365.1 Rev. 2.0	Total-P	0.041		mg P/L	P297828	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P297847	
1765669	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P297631	

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P297691

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P297692

Component	Result	Code	Units

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P297692

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P297775

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P297780

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P297813

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P297815

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P297992

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P297993

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P297740

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P297741

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P297869

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P297870

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P297766

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P297828

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P297631

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

Reference Method: SM 2120 B
Batch ID: P297662

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P297663

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P297752

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

Reference Method: SM 2540 C-97
Batch ID: P298282

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report
Method Blank Results

Reference Method: SM 2540 C-97
Batch ID: P298283

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P298284

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P298119

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P298120

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P298121

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P297747

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P297846

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

Reference Method: SM 5310 B-00
Batch ID: P297847

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: P297775

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P297775

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P297780

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P297813

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	97.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P297815

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P297992

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P297993

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P297740

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P297741

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P297869

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P297870

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P297766

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P297828

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: P297631

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

Reference Method: SM 2320 B-97
Batch ID: P297752

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	95 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P297747

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.1		P	94 - 108

Reference Method: SM 5310 B-00
Batch ID: P297846

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	106		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P297847

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

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P297775

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: P297775

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1765543	Chloride	104		P	90 - 110
1765585	Chloride	99.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P297780

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1765543	Sulfate	100		P	90 - 110
1765585	Sulfate	99.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P297813

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1765664	Sulfate	101		P	90 - 110
1765665	Sulfate	98.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P297815

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1765664	Chloride	99.8		P	90 - 110
1765665	Chloride	99.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P297992

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1765574	Ammonia-N	100	98.1	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P297993

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1765667	Ammonia-N	98.3	98.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P297740

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1765574	Kjeldahl Nitrogen	94.9	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P297741

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1765666	Kjeldahl Nitrogen	97.9	97.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P297869

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

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P297869

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1765587	NO2NO3-N	97.5	97.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P297870

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1765666	NO2NO3-N	98.5	99.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P297766

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1765571	Total-P	99.2	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P297828

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1765602	Total-P	99.4	97.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P297631

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1765668	O-Phosphate-P	100	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P297747

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1765585	Fluoride	97.0	97.0	P/P	94 - 107

Reference Method: SM 5310 B-00
Batch ID: P297846

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1765513	Organic Carbon	93.1	93.1	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P297847

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1765655	Organic Carbon	91.0	92.7	P/P	85 - 115

Quality Assurance Report
Precision

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P297691

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1765563	Turbidity	10.1	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P297692

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1765593	Turbidity	0.985	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P297775

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1765543	Chloride	0.475	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P297780

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1765543	Sulfate	0.0426	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P297813

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1765664	Sulfate	0.110	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P297815

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1765664	Chloride	0.0691	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P297992

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1765574	Ammonia-N	1.51	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P297993

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1765667	Ammonia-N	0.0219	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P297740

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1765574	Kjeldahl Nitrogen	5.66	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P297741

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1765666	Kjeldahl Nitrogen	0.248	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P297869

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1765587	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P297870

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1765666	NO2NO3-N	0.506	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P297766

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1765571	Total-P	5.22	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P297828

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1765602	Total-P	2.10	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P297631

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1765668	O-Phosphate-P	1.59	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P297662

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1765562	Color (true)	0.841	Sample	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2120 B
Batch ID: P297663

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1765600	Color (true)	0.148	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P297752

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1765585	Total Alkalinity	1.82	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P298282

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1765664	TDS	5.41	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P298283

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1765585	TDS	6.33	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P298284

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1765665	TDS	9.09	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P297747

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1765585	Fluoride	0.0	Spike	P	0 - 3.7

Reference Method: SM 5310 B-00
Batch ID: P297846

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1765513	Organic Carbon	0.0403	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P297847

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1765655	Organic Carbon	1.52	Spike	P	0 - 20

Quality Assurance Report
Precision

* 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 300.0 Rev. 2.1
Run ID: A67286
Included Lab Sample IDs: 1765585, 1765586, 1765664, 1765665

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	103	P/P	90 - 110
Chloride	102	101	P/P	90 - 110
Chloride	103	104	P/P	90 - 110
Sulfate	96.1	97.4	P/P	90 - 110
Sulfate	96.8	97.2	P/P	90 - 110
Sulfate	97.2	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A67295
Included Lab Sample IDs: 1765589, 1765590, 1765668, 1765669

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.2	98.4	P/P	90 - 110
O-Phosphate-P	98.4	99.1	P/P	90 - 110
O-Phosphate-P	98.9	99.4	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A67310
Included Lab Sample IDs: 1765585, 1765586, 1765664, 1765665

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	104	P/P	85 - 115
Color (true)	103	103	P/P	85 - 115
Color (true)	104	102	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A67317
Included Lab Sample IDs: 1765585, 1765586, 1765664, 1765665

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 4500 F-C-97
Run ID: A67337
Included Lab Sample IDs: 1765585, 1765586, 1765664, 1765665

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.0	98.5	P/P	90 - 110
Fluoride	99.0	99.0	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: SM 2320 B-97
Run ID: A67338
Included Lab Sample IDs: 1765585, 1765586, 1765664, 1765665

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.8	99.8	P/P	90 - 110
Total Alkalinity	99.4	98.8	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A67371
Included Lab Sample IDs: 1765587, 1765588, 1765666, 1765667

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	93.6	93.8	P/P	90 - 110
Organic Carbon	93.8	94.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A67381
Included Lab Sample IDs: 1765587, 1765588, 1765666, 1765667

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A67384
Included Lab Sample IDs: 1765587, 1765588, 1765666, 1765667

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	97.5	P/P	90 - 110
Kjeldahl Nitrogen	97.5	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A67402
Included Lab Sample IDs: 1765587, 1765588

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A67409
Included Lab Sample IDs: 1765666, 1765667

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A67424
Included Lab Sample IDs: 1765587, 1765588, 1765666, 1765667

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

Quality Assurance Report
Calibration Verification

* 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					10.1	
	Turbidity					0.985	
EPA 300.0 Rev. 2.1	Chloride	105	104	99.7		0.475	
	Chloride	101	99.8	99.1		0.0691	
	Sulfate	101	100	99.9		0.0426	
	Sulfate	97.3	101	98.8		0.110	
EPA 350.1 Rev. 2.0	Ammonia-N	98.6	100	98.1			1.51
	Ammonia-N	99.4	98.3	98.3			0.0219
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	94.9	101			5.66
	Kjeldahl Nitrogen	100	97.9	97.5			0.248
EPA 353.2 Rev. 2.0	NO2NO3-N	102	97.5	97.5			0.0
	NO2NO3-N	101	98.5	99.0			0.506
EPA 365.1 Rev. 2.0	Total-P	103	99.2	105			5.22
	Total-P	102	99.4	97.2			2.10
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	103	100	102			1.59
SM 2120 B	Color (true)					0.841	
	Color (true)					0.148	
SM 2320 B-97	Total Alkalinity	103				1.82	
SM 2540 C-97	TDS					5.41	
	TDS					6.33	
	TDS					9.09	
SM 4500 F-C-97	Fluoride	97.1	97.0	97.0			0.0
SM 5310 B-00	Organic Carbon	106	93.1	93.1			0.0403
	Organic Carbon	94.0	91.0	92.7			1.52

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1765585, 1765586, 1765664, 1765665
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1765585, 1765586, 1765664, 1765665
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1765585, 1765586, 1765664, 1765665
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1765587, 1765588, 1765666, 1765667
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1765587, 1765588, 1765666, 1765667
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1765587, 1765588, 1765666, 1765667
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1765587, 1765588, 1765666, 1765667
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1765589, 1765590, 1765668, 1765669
SM 2120 B / E31780	True Color measured at 450 nm	1765585, 1765586, 1765664, 1765665
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1765585, 1765586, 1765664, 1765665
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1765585, 1765586, 1765664, 1765665

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1765585, 1765586, 1765664, 1765665
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1765585, 1765586, 1765664, 1765665
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1765587, 1765588, 1765666, 1765667

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	01/27/2016			01/27/2016 17:25	Sima Feizi	1765585, 1765586
EPA 300.0 Rev. 2.1	01/27/2016			01/29/2016	Ping Hua	1765664, 1765665
EPA 350.1 Rev. 2.0	01/27/2016			02/03/2016	Diana M. Turner	1765587, 1765588
EPA 351.2 Rev. 2.0	01/27/2016	01/29/2016	Christopher Armour	02/01/2016	Bryan A. Werth	1765587, 1765588
EPA 353.2 Rev. 2.0	01/27/2016			02/01/2016	Diana M. Turner	1765587, 1765588
EPA 365.1 Rev. 2.0	01/27/2016	01/29/2016	Christopher Armour	02/02/2016	Lipi Saha	1765587, 1765588
	01/27/2016	02/01/2016	Christopher Armour	02/02/2016	Lipi Saha	1765666, 1765667
EPA 365.1 Rev. 2.0 dissolved	01/27/2016			01/27/2016 12:51	Julia Storbeck	1765668
	01/27/2016			01/27/2016 13:12	Julia Storbeck	1765590
	01/27/2016			01/27/2016 13:24	Julia Storbeck	1765669
SM 2120 B	01/27/2016			01/27/2016 14:29	Blanca Fach	1765586
	01/27/2016			01/27/2016 14:39	Blanca Fach	1765664, 1765665
	01/27/2016			01/27/2016 15:11	Blanca Fach	1765585
SM 2320 B-97	01/27/2016			01/28/2016	Dale L. Simmons	1765585
	01/27/2016			01/29/2016	Dale L. Simmons	1765664, 1765665
SM 2540 C-97	01/27/2016			01/29/2016	Yijie Li	1765664, 1765665
SM 2540 D-97	01/27/2016			01/29/2016	Yijie Li	1765585, 1765586
SM 4500 F-C-97	01/27/2016			01/28/2016	Dale L. Simmons	1765664, 1765665
SM 5310 B-00	01/27/2016			01/30/2016	Sofia Elnemr	1765666, 1765667