

Chemical Analysis Report

CEN-DIST-2016-01-13-01

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

Event Description: **Hatchineha / Skeeter**

Request ID: **RQ-2016-01-11-33**

Customer: **CEN-DIST**

Project ID: **SMP**

Send Reports to:

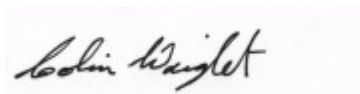
FL Dept. of Environmental Protection
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Orlando, FL 32803-3767
Attn: Mike Linger

For additional information please contact

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Phone (850) 245-8085

Certified by: Colin Wright, Environmental Administrator

Date Certified: 01-FEB-2016 11:46

A handwritten signature in black ink, appearing to read "Colin Wright", is positioned on a light-colored rectangular background.

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: Lake Jackson @ Center

Collection Date/Time: 01/12/2016 11:15

Field ID: G4CE0053_01122016

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1762587	EPA 180.1 Rev. 2.0	Turbidity	0.85		NTU	P297034	
	EPA 300.0 Rev. 2.1	Chloride	19		mg Cl/L	P297431	
		Sulfate	1.6		mg SO4/L	P297437	
	SM 2120 B	Color (true)	67		PCU	P297009	
	SM 2320 B-97	Total Alkalinity	27		mg CaCO3/L	P297130	
	SM 2540 C-97	TDS	88		mg/L	P297497	
	SM 2540 D-97	TSS	2	U	mg/L	P297423	
	SM 4500 F-C-97	Fluoride	0.090	I	mg F/L	P297123	
1762589	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P297286	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.91		mg N/L	P297117	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P297290	
	EPA 365.1 Rev. 2.0	Total-P	0.031		mg P/L	P297137	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P297555	
1762591	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.006	I	mg P/L	P297019	

Ref. Method and Comment:

SM 2120 B: The precision data is unavailable due to the low analyte concentration in the QC sample.

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

Sample Location: Jackson Canal @ 1100 m downstream

Collection Date/Time: 01/12/2016 12:10

Field ID: G4CE0060_01122016

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1762588	EPA 180.1 Rev. 2.0	Turbidity	0.80		NTU	P297034	
	EPA 300.0 Rev. 2.1	Chloride	20		mg Cl/L	P297431	
		Sulfate	1.6		mg SO4/L	P297437	
	SM 2120 B	Color (true)	84		PCU	P297009	
	SM 2320 B-97	Total Alkalinity	29		mg CaCO3/L	P297130	
	SM 2540 C-97	TDS	98		mg/L	P297497	
	SM 2540 D-97	TSS	2	U	mg/L	P297423	
	SM 4500 F-C-97	Fluoride	0.091	I	mg F/L	P297123	
1762590	EPA 350.1 Rev. 2.0	Ammonia-N	0.018		mg N/L	P297286	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P297117	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	I	mg N/L	P297290	
	EPA 365.1 Rev. 2.0	Total-P	0.025		mg P/L	P297137	
	SM 5310 B-00	Organic Carbon	18		mg C/L	P297555	
1762592	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P297019	

Ref. Method and Comment:

SM 2120 B: The precision data is unavailable due to the low analyte concentration in the QC sample.

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

Sample Location: Hatchineha Canal 2100 ft S of L.Cypress

Collection Date/Time: 01/12/2016 11:10

Field ID: G4CE0064_01122016

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1762623	EPA 180.1 Rev. 2.0	Turbidity	6.3		NTU	P297035	

Field ID: G4CE0064_01122016

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1762623	EPA 300.0 Rev. 2.1	Chloride	21		mg Cl/L	P297431	
		Sulfate	6.7		mg SO4/L	P297437	
	SM 2120 B	Color (true)	91		PCU	P297010	
	SM 2320 B-97	Total Alkalinity	29		mg CaCO3/L	P297130	
	SM 2540 C-97	TDS	106		mg/L	P297497	
	SM 2540 D-97	TSS	11		mg/L	P297423	
	SM 4500 F-C-97	Fluoride	0.073	I	mg F/L	P297123	
1762625	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P297605	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P297117	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P297290	
	EPA 365.1 Rev. 2.0	Total-P	0.054		mg P/L	P297138	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P297555	
1762627	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P297019	

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 50 yds S of L.Cypress

Collection Date/Time: 01/12/2016 10:56

Field ID: 26010078_01122016

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1762624	EPA 180.1 Rev. 2.0	Turbidity	6.0		NTU	P297035	
	EPA 300.0 Rev. 2.1	Chloride	22		mg Cl/L	P297431	
		Sulfate	6.5		mg SO4/L	P297437	
	SM 2120 B	Color (true)	100		PCU	P297010	
	SM 2320 B-97	Total Alkalinity	29		mg CaCO3/L	P297130	
	SM 2540 C-97	TDS	105		mg/L	P297497	
	SM 2540 D-97	TSS	9	I	mg/L	P297423	
1762626	SM 4500 F-C-97	Fluoride	0.074	I	mg F/L	P297123	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P297286	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P297117	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P297291	
	EPA 365.1 Rev. 2.0	Total-P	0.052		mg P/L	P297138	
1762628	SM 5310 B-00	Organic Carbon	16		mg C/L	P297556	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P297019	

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: P297034

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P297035

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P297431

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P297437

Component	Result	Code	Units
Sulfate	0.20	U	mg SO ₄ /L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P297286

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P297605

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P297117

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P297290

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P297291

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P297137

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: P297138

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P297019

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

Reference Method: SM 2120 B
Batch ID: P297009

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P297010

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P297130

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO ₃ /L

Reference Method: SM 2540 C-97
Batch ID: P297497

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P297423

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P297123

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P297555

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: P297556

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: P297431

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

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P297437

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

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P297286

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

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P297605

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P297117

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: P297290

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P297291

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	98.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P297137

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P297137

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	99.6		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P297138

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	98.4		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P297019

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

Reference Method: SM 2320 B-97
 Batch ID: P297130

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	95 - 105

Reference Method: SM 4500 F-C-97
 Batch ID: P297123

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.5		P	94 - 108

Reference Method: SM 5310 B-00
 Batch ID: P297555

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.2		P	85 - 115

Reference Method: SM 5310 B-00
 Batch ID: P297556

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.2		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P297431

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1762461	Chloride	103		P	90 - 110
1762476	Chloride	103		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P297437

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1762476	Sulfate	97.6		P	90 - 110
1762507	Sulfate	95.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P297286

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1762590	Ammonia-N	101	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P297605

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1762859	Ammonia-N	100	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P297117

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1762589	Kjeldahl Nitrogen	107	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P297290

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1762589	NO2NO3-N	97.5	98.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P297291

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1762626	NO2NO3-N	95.5	97.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P297137

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1762531	Total-P	95.0	92.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P297138

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1762607	Total-P	101	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P297019

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1762627	O-Phosphate-P	99.3	99.8	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P297123

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1762177	Fluoride	96.6	97.7	P/P	94 - 107

Reference Method: SM 5310 B-00
Batch ID: P297555

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1762510	Organic Carbon	92.4	91.0	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P297556

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1762626	Organic Carbon	92.4	95.0	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P297034

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1762551	Turbidity	2.76	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P297035

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1762603	Turbidity	3.88	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P297431

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1762461	Chloride	0.0241	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P297437

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1762476	Sulfate	1.14	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P297286

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1762590	Ammonia-N	0.730	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P297605

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1762859	Ammonia-N	0.626	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P297117

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1762589	Kjeldahl Nitrogen	1.53	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P297290

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1762589	NO2NO3-N	1.02	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P297291

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1762626	NO2NO3-N	1.56	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P297137

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1762531	Total-P	2.62	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P297138

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1762607	Total-P	0.0666	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P297019

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1762627	O-Phosphate-P	0.502	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P297010

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1762601	Color (true)	2.24	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
Batch ID: P297130

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1762177	Total Alkalinity	3.44	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P297497

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1762554	TDS	3.31	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P297123

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1762177	Fluoride	0.979	Spike	P	0 - 3.7

Reference Method: SM 5310 B-00
Batch ID: P297555

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1762510	Organic Carbon	1.53	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P297556

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1762626	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: SM 2120 B
Run ID: A67069
Included Lab Sample IDs: 1762587, 1762588, 1762623, 1762624

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	99.8	P/P	90 - 115
Color (true)	98.8	100	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A67074
Included Lab Sample IDs: 1762591, 1762592, 1762627, 1762628

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.0	98.9	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A67074

Included Lab Sample IDs: 1762591, 1762592, 1762627, 1762628

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.2	99.8	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A67076

Included Lab Sample IDs: 1762587, 1762588, 1762623, 1762624

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	100	P/P	95 - 105
Turbidity	99.5	100	P/P	95 - 105

Reference Method: SM 4500 F-C-97

Run ID: A67106

Included Lab Sample IDs: 1762587, 1762588, 1762623, 1762624

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

Reference Method: SM 2320 B-97

Run ID: A67108

Included Lab Sample IDs: 1762587, 1762588, 1762623, 1762624

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.7	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A67136

Included Lab Sample IDs: 1762625, 1762626

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A67146

Included Lab Sample IDs: 1762589, 1762590

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.0	99.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A67158

Included Lab Sample IDs: 1762589, 1762590, 1762625, 1762626

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	99.8	P/P	90 - 110
Kjeldahl Nitrogen	99.6	101	P/P	90 - 110
Kjeldahl Nitrogen	99.8	102	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A67176

Included Lab Sample IDs: 1762589, 1762590, 1762626

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A67180

Included Lab Sample IDs: 1762589, 1762590, 1762625, 1762626

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	98.0	96.5	P/P	90 - 110
NO2NO3-N	98.5	98.0	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A67217

Included Lab Sample IDs: 1762587, 1762588, 1762623, 1762624

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	104	103	P/P	90 - 110
Sulfate	100	98.9	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A67265

Included Lab Sample IDs: 1762589, 1762590, 1762625, 1762626

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	93.6	93.2	P/P	90 - 110
Organic Carbon	94.2	93.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A67289

Included Lab Sample IDs: 1762625

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	102	103	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	LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity				2.76	
	Turbidity				3.88	
EPA 300.0 Rev. 2.1	Chloride	105	103	103	0.0241	
	Sulfate	98.6	97.6	95.2	1.14	
EPA 350.1 Rev. 2.0	Ammonia-N	103	101	102		0.730
	Ammonia-N	101	100	102		0.626
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	107	104		1.53
EPA 353.2 Rev. 2.0	NO2NO3-N	98.5	97.5	98.5		1.02

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 353.2 Rev. 2.0	NO2NO3-N	98.0	95.5	97.0		1.56
EPA 365.1 Rev. 2.0	Total-P	99.6	95.0	92.6		2.62
	Total-P	98.4	101	101		0.0666
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	99.3	99.8		0.502
SM 2120 B	Color (true)				2.24	
SM 2320 B-97	Total Alkalinity	102			3.44	
SM 2540 C-97	TDS				3.31	
SM 4500 F-C-97	Fluoride	96.5	96.6	97.7		0.979
SM 5310 B-00	Organic Carbon	95.2	92.4	91.0		1.53
	Organic Carbon	96.2	92.4	95.0		1.50

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1762587, 1762588, 1762623, 1762624
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1762587, 1762588, 1762623, 1762624
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1762587, 1762588, 1762623, 1762624
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1762589, 1762590, 1762625, 1762626
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1762589, 1762590, 1762625, 1762626
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1762589, 1762590, 1762625, 1762626
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1762589, 1762590, 1762625, 1762626
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1762591, 1762592, 1762627, 1762628
SM 2120 B / E31780	True Color measured at 450 nm	1762587, 1762588, 1762623, 1762624
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1762587, 1762588, 1762623, 1762624
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1762587, 1762588, 1762623, 1762624
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1762587, 1762588, 1762623, 1762624
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1762587, 1762588, 1762623, 1762624
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1762589, 1762590, 1762625, 1762626

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	01/13/2016			01/13/2016 13:36	Sima Feizi	1762587, 1762588, 1762623, 1762624
EPA 300.0 Rev. 2.1	01/13/2016			01/21/2016	Ping Hua	1762587, 1762588, 1762623, 1762624
EPA 350.1 Rev. 2.0	01/13/2016			01/20/2016	Diana M. Turner	1762589, 1762590, 1762626
	01/13/2016			01/26/2016	Diana M. Turner	1762625
EPA 351.2 Rev. 2.0	01/13/2016	01/15/2016	Christopher Armour	01/19/2016	Bryan A. Werth	1762589, 1762590, 1762625, 1762626
EPA 353.2 Rev. 2.0	01/13/2016			01/20/2016	Peter D. Kaus	1762589, 1762590, 1762625, 1762626
EPA 365.1 Rev. 2.0	01/13/2016	01/15/2016	Christopher Armour	01/15/2016	Lipi Saha	1762625, 1762626
	01/13/2016	01/15/2016	Christopher Armour	01/19/2016	Lipi Saha	1762589, 1762590
EPA 365.1 Rev. 2.0 dissolved	01/13/2016			01/13/2016 13:39	Julia Storbeck	1762627
	01/13/2016			01/13/2016 14:03	Julia Storbeck	1762591
	01/13/2016			01/13/2016 14:04	Julia Storbeck	1762592
	01/13/2016			01/13/2016 14:05	Julia Storbeck	1762628
SM 2120 B	01/13/2016			01/13/2016 12:59	Rochelle Y Jackson	1762587
	01/13/2016			01/13/2016 13:00	Rochelle Y Jackson	1762588
	01/13/2016			01/13/2016 13:08	Rochelle Y Jackson	1762623
	01/13/2016			01/13/2016 13:09	Rochelle Y Jackson	1762624
SM 2320 B-97	01/13/2016			01/15/2016	Dale L. Simmons	1762587, 1762588, 1762623, 1762624
SM 2540 C-97	01/13/2016			01/15/2016	Yijie Li	1762587, 1762588, 1762623, 1762624
SM 2540 D-97	01/13/2016			01/15/2016	Yijie Li	1762587, 1762588, 1762623, 1762624
SM 4500 F-C-97	01/13/2016			01/14/2016	Dale L. Simmons	1762587, 1762588, 1762623, 1762624
SM 5310 B-00	01/13/2016			01/26/2016	Sofia Elnemr	1762589, 1762590, 1762625, 1762626