

Chemical Analysis Report

NW-DIST-2016-03-02-02

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

Event Description: **WBID 754 778A 786 843 874A**

Request ID: **RQ-2016-02-08-13**

Customer: **NW-DIST**

Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
160 Government Center
Suite 208A
Pensacola, FL 32502-5794
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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator

Date Certified: 21-MAR-2016 13:28



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: CINCO BAYOU WEST OF CINCO BRIDGE

Collection Date/Time: 03/01/2016 11:30

Field ID: G3NW0088

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1776265	EPA 180.1 Rev. 2.0	Turbidity	0.85		NTU	P299617	
	SM 2320 B-97	Total Alkalinity	49		mg CaCO3/L	P300246	
	SM 2540 D-97	TSS	3	U	mg/L	P300025	
	SM 4500 F-C-97	Fluoride	0.41		mg F/L	P300250	
1776271	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P300160	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.54		mg N/L	P299897	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.12		mg N/L	P299855	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P299929	
	SM 5310 B-00	Organic Carbon	4.4		mg C/L	P299933	
1776277	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P299611	

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: LAKE EARL CENTER

Collection Date/Time: 03/01/2016 11:50

Field ID: G3NW0090

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1776266	EPA 180.1 Rev. 2.0	Turbidity	3.0	A	NTU	P299618	
	SM 2320 B-97	Total Alkalinity	56		mg CaCO3/L	P300246	
	SM 2540 D-97	TSS	4	I	mg/L	P300025	
	SM 4500 F-C-97	Fluoride	0.35		mg F/L	P300250	
1776272	EPA 350.1 Rev. 2.0	Ammonia-N	0.021		mg N/L	P300160	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.53		mg N/L	P300627	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.077		mg N/L	P299855	
	EPA 365.1 Rev. 2.0	Total-P	0.027		mg P/L	P299929	
	SM 5310 B-00	Organic Carbon	5.9		mg C/L	P299933	
1776278	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P299611	

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 03/10/2016.

EPA 365.1 Rev. 2.0: Total-P: The result was confirmed on 03/14/2016.

Sample Location: LAKE EARL CENTER

Collection Date/Time: 03/01/2016 11:55

Field ID: G3NW0090DUPLICATE

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1776267	EPA 180.1 Rev. 2.0	Turbidity	2.6		NTU	P299618	
	SM 2320 B-97	Total Alkalinity	56		mg CaCO3/L	P300246	
	SM 2540 D-97	TSS	3	I	mg/L	P300025	
	SM 4500 F-C-97	Fluoride	0.38		mg F/L	P300250	
1776273	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P300160	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.46		mg N/L	P300627	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.073		mg N/L	P299855	
	EPA 365.1 Rev. 2.0	Total-P	0.020		mg P/L	P299929	
	SM 5310 B-00	Organic Carbon	5.3		mg C/L	P300237	

Field ID: G3NW0090DUPLICATE

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1776279	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P299611	

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 03/10/2016.

EPA 365.1 Rev. 2.0: Total-P: The result was confirmed on 03/14/2016.

Sample Location: CHOCTAWATCHEE BAY SEC B BACKGRN

Collection Date/Time: 03/01/2016 12:15

Field ID: G3NW0089

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1776268	EPA 180.1 Rev. 2.0	Turbidity	1.6		NTU	P299618	
	SM 2320 B-97	Total Alkalinity	40		mg CaCO3/L	P300246	
	SM 2540 D-97	TSS	2	I	mg/L	P300021	
	SM 4500 F-C-97	Fluoride	0.31		mg F/L	P300250	
1776274	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P300160	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.16	U	mg N/L	P300627	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.15		mg N/L	P299855	
	EPA 365.1 Rev. 2.0	Total-P	0.011		mg P/L	P300004	
	SM 5310 B-00	Organic Carbon	3.9		mg C/L	P299917	
1776280	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P299611	

Sample Location: GARNIER BAYOU PARADISE POINT

Collection Date/Time: 03/01/2016 12:45

Field ID: G3NW0087

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1776269	EPA 180.1 Rev. 2.0	Turbidity	0.90		NTU	P299618	
	SM 2320 B-97	Total Alkalinity	48	A	mg CaCO3/L	P300246	
	SM 2540 D-97	TSS	3	U	mg/L	P300025	
	SM 4500 F-C-97	Fluoride	0.40		mg F/L	P300250	
1776275	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P300160	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.19	I	mg N/L	P300627	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.19		mg N/L	P299855	
	EPA 365.1 Rev. 2.0	Total-P	0.013		mg P/L	P300004	
	SM 5310 B-00	Organic Carbon	4.1		mg C/L	P299933	
1776281	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P299611	

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: POQUITO BAYOU MIDDLE

Collection Date/Time: 03/01/2016 12:35

Field ID: G3NW0086

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1776270	EPA 180.1 Rev. 2.0	Turbidity	1.7		NTU	P299618	
	SM 2320 B-97	Total Alkalinity	49		mg CaCO3/L	P300246	
	SM 2540 D-97	TSS	3	U	mg/L	P300025	
	SM 4500 F-C-97	Fluoride	0.41		mg F/L	P300250	

Field ID: G3NW0086

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1776276	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P300160	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.40		mg N/L	P300627	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.16		mg N/L	P299856	
	EPA 365.1 Rev. 2.0	Total-P	0.022		mg P/L	P300004	
	SM 5310 B-00	Organic Carbon	4.2		mg C/L	P299933	
1776282	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P299611	

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: P299617

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P299618

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P300160

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P299897

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P300627

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

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P299855

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

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P299856

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P299929

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P300004

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299611

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

Reference Method: SM 2320 B-97
Batch ID: P300246

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

Reference Method: SM 2540 D-97
Batch ID: P300021

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P300025

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P300250

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P299917

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

Reference Method: SM 5310 B-00
Batch ID: P299933

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: P300237

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P300160

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P299897

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P300627

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: P299855

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P299856

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: P299929

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

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P300004

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	95.6		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P299611

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 dissolved
Batch ID: P299611

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

Reference Method: SM 2320 B-97
Batch ID: P300246

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

Reference Method: SM 4500 F-C-97
Batch ID: P300250

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.4		P	94 - 108

Reference Method: SM 5310 B-00
Batch ID: P299917

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

Reference Method: SM 5310 B-00
Batch ID: P299933

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.7		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P300237

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	105		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300160

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1776271	Ammonia-N	100	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P299897

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1775473	Kjeldahl Nitrogen	95.3	97.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300627

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300627

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1776272	Kjeldahl Nitrogen	90.4	92.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P299855

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1776271	NO2NO3-N	100	99.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P299856

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1776429	NO2NO3-N	98.8		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P299929

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1775604	Total-P	102	99.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P300004

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1776068	Total-P	95.0	96.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299611

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1776280	O-Phosphate-P	101	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P300250

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1776269	Fluoride	96.8	98.3	P/P	94 - 107

Reference Method: SM 5310 B-00
Batch ID: P299917

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1776138	Organic Carbon	96.4		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P299933

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1775958	Organic Carbon	89.2	87.4	P/P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P300237

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1776887	Organic Carbon	90.3	90.2	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P299617

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1776217	Turbidity	2.19	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P299618

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1776266	Turbidity	3.02	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300160

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1776271	Ammonia-N	1.19	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P299897

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1775473	Kjeldahl Nitrogen	1.70	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300627

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1776272	Kjeldahl Nitrogen	2.25	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P299855

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1776271	NO2NO3-N	0.619	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P299856

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1776429	NO2NO3-N	0.549	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P299929

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1775604	Total-P	1.99	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P300004

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1776068	Total-P	1.53	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299611

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1776280	O-Phosphate-P	0.986	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P300246

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1776269	Total Alkalinity	0.508	Sample	P	0 - 4.8

Reference Method: SM 2540 D-97
Batch ID: P300021

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777249	TSS	3.06	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P300250

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1776269	Fluoride	0.979	Spike	P	0 - 3.7

Reference Method: SM 5310 B-00
Batch ID: P299917

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1776138	Organic Carbon	0.459	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P299933

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1775958	Organic Carbon	1.29	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P300237

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1776887	Organic Carbon	0.137	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: A67950
Included Lab Sample IDs: 1776277, 1776278, 1776279, 1776280, 1776281, 1776282

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.5	99.5	P/P	90 - 110
O-Phosphate-P	99.1	99.4	P/P	90 - 110
O-Phosphate-P	99.5	98.6	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A67951
Included Lab Sample IDs: 1776265, 1776266, 1776267, 1776268, 1776269, 1776270

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A68043
Included Lab Sample IDs: 1776271, 1776272, 1776273, 1776274, 1776275, 1776276

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

Reference Method: SM 5310 B-00
Run ID: A68073
Included Lab Sample IDs: 1776274

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.4	96.1	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00

Run ID: A68077

Included Lab Sample IDs: 1776271, 1776272, 1776275, 1776276

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A68119

Included Lab Sample IDs: 1776271

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	99.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A68133

Included Lab Sample IDs: 1776271, 1776272, 1776273

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.5	97.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A68141

Included Lab Sample IDs: 1776274, 1776275, 1776276

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	99.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A68144

Included Lab Sample IDs: 1776271, 1776272, 1776273, 1776274, 1776275, 1776276

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	100	P/P	90 - 110
Ammonia-N	99.5	101	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A68174

Included Lab Sample IDs: 1776273

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.5	94.0	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A68179

Included Lab Sample IDs: 1776265, 1776266, 1776267, 1776268, 1776269, 1776270

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	99.7	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A68179

Included Lab Sample IDs: 1776265, 1776266, 1776267, 1776268, 1776269, 1776270

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

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97

Run ID: A68179

Included Lab Sample IDs: 1776265, 1776266, 1776267, 1776268, 1776269, 1776270

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A68326

Included Lab Sample IDs: 1776272, 1776273, 1776274, 1776275, 1776276

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	93.2	99.0	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				2.19	
	Turbidity				3.02	
EPA 350.1 Rev. 2.0	Ammonia-N	99.3	100 102			1.19
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.8	95.3 97.2			1.70
	Kjeldahl Nitrogen	100	90.4 92.9			2.25
EPA 353.2 Rev. 2.0	NO2NO3-N	99.5	100 99.0			0.619
	NO2NO3-N	102	98.8			0.549
EPA 365.1 Rev. 2.0	Total-P	98.3	102 99.7			1.99
	Total-P	95.6	95.0 96.5			1.53
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	101 102			0.986
SM 2320 B-97	Total Alkalinity	102			0.508	
SM 2540 D-97	TSS				3.06	
SM 4500 F-C-97	Fluoride	99.4	96.8 98.3			0.979
SM 5310 B-00	Organic Carbon	94.0	96.4			0.459
	Organic Carbon	94.7	89.2 87.4			1.29
	Organic Carbon	105	90.3 90.2			0.137

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1776265, 1776266, 1776267, 1776268, 1776269, 1776270
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1776271, 1776272, 1776273, 1776274, 1776275, 1776276
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1776271, 1776272, 1776273, 1776274, 1776275, 1776276
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1776271, 1776272, 1776273, 1776274, 1776275, 1776276
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1776271, 1776272, 1776273, 1776274, 1776275, 1776276
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1776277, 1776278, 1776279, 1776280, 1776281, 1776282

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1776265, 1776266, 1776267, 1776268, 1776269, 1776270
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1776265, 1776266, 1776267, 1776268, 1776269, 1776270
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1776265, 1776266, 1776267, 1776268, 1776269, 1776270
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1776271, 1776272, 1776273, 1776274, 1776275, 1776276

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	03/02/2016			03/02/2016 15:05	Sima Feizi	1776265, 1776266, 1776267, 1776268, 1776269, 1776270
EPA 350.1 Rev. 2.0	03/02/2016			03/10/2016	Diana M. Turner	1776271, 1776272, 1776273, 1776274, 1776275, 1776276
EPA 351.2 Rev. 2.0	03/02/2016	03/08/2016	Sofia Elnemr	03/09/2016	Rochelle Y Jackson	1776271
	03/02/2016	03/18/2016	Sofia Elnemr	03/20/2016	Rochelle Y Jackson	1776272, 1776273, 1776274, 1776275, 1776276
EPA 353.2 Rev. 2.0	03/02/2016			03/07/2016	Diana M. Turner	1776271, 1776272, 1776273, 1776274, 1776275, 1776276
EPA 365.1 Rev. 2.0	03/02/2016	03/08/2016	Lipi Saha	03/09/2016	Lipi Saha	1776271, 1776272, 1776273
	03/02/2016	03/09/2016	Christopher Armour	03/10/2016	Lipi Saha	1776274, 1776275, 1776276
EPA 365.1 Rev. 2.0 dissolved	03/02/2016			03/02/2016 14:21	Julia Storbeck	1776280
	03/02/2016			03/02/2016 15:04	Julia Storbeck	1776277
	03/02/2016			03/02/2016 15:05	Julia Storbeck	1776281
	03/02/2016			03/02/2016 15:10	Julia Storbeck	1776278
	03/02/2016			03/02/2016 15:11	Julia Storbeck	1776279
	03/02/2016			03/02/2016 15:12	Julia Storbeck	1776282
SM 2320 B-97	03/02/2016			03/10/2016	Dale L. Simmons	1776265, 1776266, 1776267, 1776268, 1776269, 1776270
SM 2540 D-97	03/02/2016			03/07/2016	Yijie Li	1776265, 1776266, 1776267, 1776268, 1776269, 1776270
SM 4500 F-C-97	03/02/2016			03/10/2016	Dale L. Simmons	1776265, 1776266, 1776267, 1776268, 1776269, 1776270
SM 5310 B-00	03/02/2016			03/05/2016	Sofia Elnemr	1776274
	03/02/2016			03/08/2016	Sofia Elnemr	1776271, 1776272, 1776275, 1776276
	03/02/2016			03/11/2016	Sofia Elnemr	1776273