

Chemical Analysis Report

NE-DIST-2018-12-06-03

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

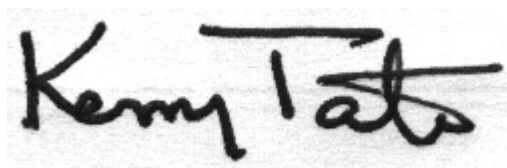
Event Description: **GTM NERR-Guana River SMP = 7 Sites**
Request ID: **RQ-2018-12-03-15**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
2600 Blair Stone Rd
Tallahassee, FL 32399
Attn: Alicia Hogue

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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 02-JAN-2019 14:19

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line above the first name.

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: DEPGR3

Collection Date/Time: 12/05/2018 08:42

Field ID: GTMGR3NUT

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2046857	EPA 180.1 Rev. 2.0	Turbidity	4.1		NTU	P355756	
	EPA 300.0 Rev. 2.1	Chloride	1.8E+04		mg Cl/L	P356154	
		Sulfate	2.6E+03		mg SO4/L	P356156	
	SM 2120 B	Color (true)	8.7		PCU	P355790	
	SM 2320 B-97	Total Alkalinity	116		mg CaCO3/L	P356045	
	SM 2540 C-97	TDS	3.14E+04		mg/L	P356116	
	SM 2540 D-97	TSS	10	I	mg/L	P356007	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P356046	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.017		mg N/L	P355903	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.42		mg N/L	P355932	
2046864	EPA 353.2 Rev. 2.0	NO2NO3-N	0.012		mg N/L	P356274	
	EPA 365.1 Rev. 2.0	Total-P	0.039		mg P/L	P355973	
	SM 5310 B-00	Organic Carbon	3.9		mg C/L	P355958	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.44		mg N/L	P355937	
	dissolved						

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.

Sample Location: DEPGR2

Collection Date/Time: 12/05/2018 09:06

Field ID: GTMGRNUT

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2046858	EPA 180.1 Rev. 2.0	Turbidity	5.0		NTU	P355757	
	EPA 300.0 Rev. 2.1	Chloride	1.6E+04		mg Cl/L	P356154	
		Sulfate	2.3E+03		mg SO4/L	P356156	
	SM 2120 B	Color (true)	11		PCU	P355783	
	SM 2320 B-97	Total Alkalinity	113		mg CaCO3/L	P356045	
	SM 2540 C-97	TDS	2.88E+04		mg/L	P356116	
	SM 2540 D-97	TSS	8	I	mg/L	P356007	
	SM 4500 F-C-97	Fluoride	1.1		mg F/L	P356046	
2046865	EPA 350.1 Rev. 2.0	Ammonia-N	0.030		mg N/L	P355903	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.53		mg N/L	P355932	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.012		mg N/L	P356274	
	EPA 365.1 Rev. 2.0	Total-P	0.048		mg P/L	P355973	
	SM 5310 B-00	Organic Carbon	5.2		mg C/L	P355958	
2046872	EPA 351.2 Rev. 2.0 dissolved	Kjeldahl Nitrogen	0.46		mg N/L	P355937	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.

Sample Location: DEPGR1

Collection Date/Time: 12/05/2018 09:27

Field ID: GTMGR1NUT

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2046859	EPA 180.1 Rev. 2.0	Turbidity	6.2		NTU	P355757	
	EPA 300.0 Rev. 2.1	Chloride	1.3E+04		mg Cl/L	P356154	
		Sulfate	1.9E+03		mg SO4/L	P356156	
		SM 2120 B	Color (true)	22		PCU	P355783
	SM 2320 B-97	Total Alkalinity	114		mg CaCO3/L	P356045	
	SM 2540 C-97	TDS	2.29E+04		mg/L	P356116	
	SM 2540 D-97	TSS	9	I	mg/L	P356007	
	SM 4500 F-C-97	Fluoride	0.93		mg F/L	P356046	
2046866	EPA 350.1 Rev. 2.0	Ammonia-N	0.055		mg N/L	P355972	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.79		mg N/L	P355932	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.009	I	mg N/L	P356453	
	EPA 365.1 Rev. 2.0	Total-P	0.052		mg P/L	P355973	
	SM 5310 B-00	Organic Carbon	8.8		mg C/L	P355958	
2046873	EPA 351.2 Rev. 2.0 dissolved	Kjeldahl Nitrogen	0.65		mg N/L	P355937	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.

Sample Location: DEPGL4

Collection Date/Time: 12/05/2018 10:36

Field ID: GTMGL4NUT

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2046860	EPA 180.1 Rev. 2.0	Turbidity	16		NTU	P355757	
	EPA 300.0 Rev. 2.1	Chloride	7.7E+03		mg Cl/L	P356154	
		Sulfate	1.1E+03		mg SO4/L	P356156	
	SM 2120 B	Color (true)	30	A	PCU	P355785	
	SM 2320 B-97	Total Alkalinity	117		mg CaCO3/L	P356045	
	SM 2540 C-97	TDS	1.35E+04		mg/L	P356116	
	SM 2540 D-97	TSS	25		mg/L	P356007	
	SM 4500 F-C-97	Fluoride	0.67		mg F/L	P356046	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P355972	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.5		mg N/L	P355932	
2046867	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P356274	
	EPA 365.1 Rev. 2.0	Total-P	0.047		mg P/L	P355973	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P355958	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P355937	
	dissolved						

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.

Sample Location: DEPGL3

Collection Date/Time: 12/05/2018 11:02

Field ID: GTMLMNUT

Matrix: W-BRACKISH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2046861	EPA 180.1 Rev. 2.0	Turbidity	14		NTU	P355757	
	EPA 300.0 Rev. 2.1	Chloride	4.5E+03		mg Cl/L	P356355	
		Sulfate	660		mg SO4/L	P356357	
	SM 2120 B	Color (true)	64		PCU	P355783	
	SM 2320 B-97	Total Alkalinity	112	A	mg CaCO3/L	P356045	
	SM 2540 C-97	TDS	8.44E+03		mg/L	P356304	
	SM 2540 D-97	TSS	23	A	mg/L	P356084	
	SM 4500 F-C-97	Fluoride	0.47		mg F/L	P356046	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P355972	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.5		mg N/L	P355937	
2046868	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P356274	
	EPA 365.1 Rev. 2.0	Total-P	0.055		mg P/L	P356179	
	SM 5310 B-00	Organic Carbon	18		mg C/L	P356146	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P355937	
	dissolved						

Sample Location: DEPLGL2

Collection Date/Time: 12/05/2018 11:29

Field ID: GTMGL2NUT

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2046862	EPA 180.1 Rev. 2.0	Turbidity	2.6		NTU	P355757	
	EPA 300.0 Rev. 2.1	Chloride	520		mg Cl/L	P356210	
		Sulfate	95		mg SO4/L	P356212	
	SM 2120 B	Color (true)	99	A	PCU	P355783	
	SM 2320 B-97	Total Alkalinity	100		mg CaCO3/L	P355946	
	SM 2540 C-97	TDS	1.20E+03		mg/L	P356302	
	SM 2540 D-97	TSS	4	I	mg/L	P356080	
	SM 4500 F-C-97	Fluoride	0.20		mg F/L	P355949	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.017		mg N/L	P355907	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P356223	
2046869	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P355842	
	EPA 365.1 Rev. 2.0	Total-P	0.048		mg P/L	P355900	
	SM 5310 B-00	Organic Carbon	20		mg C/L	P355956	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P356223	
	dissolved						

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: DEPGL1

Collection Date/Time: 12/05/2018 11:57

Field ID: GTMGL1NUT

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2046863	EPA 180.1 Rev. 2.0	Turbidity	0.65		NTU	P355757	
	EPA 300.0 Rev. 2.1	Chloride	100		mg Cl/L	P356210	
		Sulfate	53		mg SO4/L	P356212	
	SM 2120 B	Color (true)	79		PCU	P355783	
	SM 2320 B-97	Total Alkalinity	116		mg CaCO3/L	P355947	
	SM 2540 C-97	TDS	442	A	mg/L	P356302	
	SM 2540 D-97	TSS	2	IA	mg/L	P356080	
	SM 4500 F-C-97	Fluoride	0.19		mg F/L	P355950	
2046870	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P355907	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.77		mg N/L	P356223	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P355842	
	EPA 365.1 Rev. 2.0	Total-P	0.070		mg P/L	P355900	
	SM 5310 B-00	Organic Carbon	19		mg C/L	P355956	
2046877	EPA 351.2 Rev. 2.0 dissolved	Kjeldahl Nitrogen	0.81		mg N/L	P356223	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P355756

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P355757

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P356154

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P356156

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P356210

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P356212

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P356355

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P356357

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P355903

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P355907

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P355972

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P355932

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P355937

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P356223

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

Reference Method: EPA 351.2 Rev. 2.0 dissolved
Batch ID: P355937

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

Reference Method: EPA 351.2 Rev. 2.0 dissolved
Batch ID: P356223

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P355842

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: P356274

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P356453

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P355900

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P355973

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P356179

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

Reference Method: SM 2120 B
Batch ID: P355783

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P355785

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P355790

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P355946

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

Reference Method: SM 2320 B-97
Batch ID: P355947

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

Quality Assurance Report Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P356045

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

Reference Method: SM 2540 C-97
Batch ID: P356116

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P356302

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P356304

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P356007

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P356080

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P356084

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P355949

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P355950

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P356046

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P355956

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

Reference Method: SM 5310 B-00
Batch ID: P355958

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

Reference Method: SM 5310 B-00
Batch ID: P356146

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: P356154

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	96.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P356156

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	95.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P356210

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	97.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P356212

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	96.1		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P356355

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	96.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P356357

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	94.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P355903

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P355907

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P355972

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P355932

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P355937

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P356223

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	106		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0 dissolved
Batch ID: P355937

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

Reference Method: EPA 351.2 Rev. 2.0 dissolved
Batch ID: P356223

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	106		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P355842

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P356274

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P356453

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P355900

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P355973

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	106		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P356179

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

Reference Method: SM 2120 B
Batch ID: P355783

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	105		P	85 - 115

Reference Method: SM 2120 B
Batch ID: P355785

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	105		P	85 - 115

Reference Method: SM 2120 B
Batch ID: P355790

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.4		P	90 - 110

Reference Method: SM 2320 B-97
Batch ID: P355946

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.8		P	98 - 107

Reference Method: SM 2320 B-97
Batch ID: P355947

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	98 - 107

Reference Method: SM 2320 B-97
Batch ID: P356045

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	100		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P355949

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.9		P	91 - 105

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P355950

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.4		P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P356046

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.9		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P355956

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.6		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P355958

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.0		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P356146

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	93.0		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P356154

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2046778	Chloride	91.9		P	90 - 110
2046835	Chloride	91.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P356156

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2046835	Sulfate	91.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P356210

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2047281	Chloride	93.9		P	90 - 110
2047629	Chloride	97.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P356212

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2047281	Sulfate	93.5		P	90 - 110
2047629	Sulfate	95.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P356355

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2048135	Chloride	96.4		P	90 - 110
2048518	Chloride	96.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P356357

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2048135	Sulfate	94.2		P	90 - 110
2048518	Sulfate	92.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P355903

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2046439	Ammonia-N	106	105	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P355907

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2046838	Ammonia-N	97.4	99.3	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P355972

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2046867	Ammonia-N	101	96.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P355932

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2046530	Kjeldahl Nitrogen	105	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P355937

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2046871	Kjeldahl Nitrogen	97.2	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P356223

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2046870	Kjeldahl Nitrogen	107	107	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0 dissolved
Batch ID: P355937

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2046871	Kjeldahl Nitrogen	97.2	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0 dissolved
Batch ID: P356223

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2046870	Kjeldahl Nitrogen	107	107	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P355842

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2046869	NO2NO3-N	101	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P356274

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2046750	NO2NO3-N	104	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P356453

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2046866	NO2NO3-N	101	100	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P355900

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2046914	Total-P	102	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P355973

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2046864	Total-P	94.6	95.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P356179

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2047694	Total-P	101	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P355949

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2047114	Fluoride	101	99.7	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P355950

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2047124	Fluoride	102	101	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P356046

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2046861	Fluoride	100	98.3	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P355956

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2046837	Organic Carbon	103	99.7	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P355958

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2046446	Organic Carbon	98.5	98.7	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P356146

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2048081	Organic Carbon	97.4	94.2	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P355756

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2046808	Turbidity	1.22	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P355757

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2047078	Turbidity	1.82	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P356154

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2046778	Chloride	1.35	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P356156

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2046778	Sulfate	0.980	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P356210

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2047281	Chloride	1.40	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P356212

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2047281	Sulfate	2.08	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P356355

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2048135	Chloride	0.908	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P356357

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2048135	Sulfate	0.559	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P355903

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2046439	Ammonia-N	1.24	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P355907

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2046838	Ammonia-N	1.54	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P355972

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2046867	Ammonia-N	4.37	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P355932

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2046530	Kjeldahl Nitrogen	0.354	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P355937

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2046871	Kjeldahl Nitrogen	3.33	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P356223

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2046870	Kjeldahl Nitrogen	0.394	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0 dissolved
Batch ID: P355937

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2046871	Kjeldahl Nitrogen	3.33	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0 dissolved
Batch ID: P356223

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2046870	Kjeldahl Nitrogen	0.394	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P355842

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2046869	NO2NO3-N	0.494	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P356274

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2046750	NO2NO3-N	0.321	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P356453

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2046866	NO2NO3-N	0.477	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P355900

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2046914	Total-P	0.589	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P355973

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2046864	Total-P	0.703	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P356179

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2047694	Total-P	0.632	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P355783

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2046862	Color (true)	1.03	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P355785

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2046860	Color (true)	1.76	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B
Batch ID: P355790

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2046834	Color (true)	1.80	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P355946

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2047114	Total Alkalinity	0.572	Sample	P	0 - 1.6

Reference Method: SM 2320 B-97
Batch ID: P355947

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2047124	Total Alkalinity	0.0475	Sample	P	0 - 1.6

Reference Method: SM 2320 B-97
Batch ID: P356045

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2046861	Total Alkalinity	0.202	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P356116

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2046510	TDS	4.91	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P356302

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2046863	TDS	3.40	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P356304

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2047281	TDS	5.05	Sample	P	0 - 10

Reference Method: SM 2540 D-97
Batch ID: P356007

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2046536	TSS	7.41	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 2540 D-97
 Batch ID: P356084

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2046861	TSS	7.02	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
 Batch ID: P355949

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2047114	Fluoride	0.979	Spike	P	0 - 3.5

Reference Method: SM 4500 F-C-97
 Batch ID: P355950

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2047124	Fluoride	0.979	Spike	P	0 - 3.5

Reference Method: SM 4500 F-C-97
 Batch ID: P356046

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2046861	Fluoride	1.40	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
 Batch ID: P355956

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2046837	Organic Carbon	2.14	Spike	P	0 - 20

Reference Method: SM 5310 B-00
 Batch ID: P355958

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2046446	Organic Carbon	0.212	Spike	P	0 - 20

Reference Method: SM 5310 B-00
 Batch ID: P356146

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2048081	Organic Carbon	3.19	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 180.1 Rev. 2.0

Run ID: A88214

Included Lab Sample IDs: 2046857, 2046858, 2046859, 2046860, 2046861, 2046862, 2046863

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

Reference Method: SM 2120 B

Run ID: A88219

Included Lab Sample IDs: 2046858, 2046859, 2046860, 2046861, 2046862, 2046863

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	106	P/P	90 - 115
Color (true)	106	111	P/P	90 - 115

Reference Method: SM 2120 B

Run ID: A88222

Included Lab Sample IDs: 2046857

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.5	100	P/P	85 - 115

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A88232

Included Lab Sample IDs: 2046869, 2046870

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A88258

Included Lab Sample IDs: 2046864, 2046865, 2046869, 2046870

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	102	101	P/P	90 - 110
Ammonia-N	99.8	99.7	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A88275

Included Lab Sample IDs: 2046862, 2046863

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	99.0	P/P	90 - 110
Total Alkalinity	98.1	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A88275

Included Lab Sample IDs: 2046862, 2046863

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

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00

Run ID: A88280

Included Lab Sample IDs: 2046864, 2046865, 2046866, 2046867, 2046869, 2046870

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	101	99.6	P/P	90 - 110
Organic Carbon	97.5	99.6	P/P	90 - 110
Organic Carbon	99.6	99.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A88285

Included Lab Sample IDs: 2046866, 2046867, 2046868

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	99.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A88303

Included Lab Sample IDs: 2046864, 2046865, 2046866, 2046867

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	106	106	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A88305

Included Lab Sample IDs: 2046857, 2046858, 2046859, 2046860, 2046861

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	99.0	P/P	90 - 110
Total Alkalinity	99.0	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A88305

Included Lab Sample IDs: 2046857, 2046858, 2046859, 2046860, 2046861

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A88308

Included Lab Sample IDs: 2046870

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A88315

Included Lab Sample IDs: 2046868

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	106	104	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0 dissolved

Run ID: A88315

Included Lab Sample IDs: 2046871, 2046872, 2046873, 2046874, 2046875

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	104	103	P/P	90 - 110
Kjeldahl Nitrogen	106	104	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A88324

Included Lab Sample IDs: 2046857, 2046858, 2046859, 2046860, 2046861, 2046862, 2046863

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	99.2	P/P	90 - 110
Chloride	98.4	99.2	P/P	90 - 110
Chloride	99.3	99.0	P/P	90 - 110
Sulfate	97.5	97.4	P/P	90 - 110
Sulfate	98.8	98.2	P/P	90 - 110
Sulfate	99.9	98.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A88328

Included Lab Sample IDs: 2046869

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

Reference Method: SM 5310 B-00

Run ID: A88343

Included Lab Sample IDs: 2046868

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.0	95.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A88362

Included Lab Sample IDs: 2046864, 2046865, 2046866, 2046867

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A88382

Included Lab Sample IDs: 2046864, 2046865, 2046867, 2046868

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A88403

Included Lab Sample IDs: 2046869, 2046870

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	105	104	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0 dissolved

Run ID: A88403

Included Lab Sample IDs: 2046876, 2046877

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	105	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A88425

Included Lab Sample IDs: 2046868

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.8	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A88463

Included Lab Sample IDs: 2046866

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.0	98.5	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	MS
EPA 180.1 Rev. 2.0	Turbidity				1.22	
	Turbidity				1.82	
EPA 300.0 Rev. 2.1	Chloride	96.9	91.9	91.5	1.35	
	Chloride	97.6	93.9	97.5	1.40	
	Chloride	96.6	96.4	96.2	0.908	
	Sulfate	95.9	91.3		0.980	
	Sulfate	96.1	93.5	95.8	2.08	
	Sulfate	94.9	94.2	92.9	0.559	
EPA 350.1 Rev. 2.0	Ammonia-N	101	106	105		1.24
	Ammonia-N	97.7	97.4	99.3		1.54
	Ammonia-N	98.5	101	96.0		4.37
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	107	105	104		0.354
	Kjeldahl Nitrogen	107	97.2	101		3.33
	Kjeldahl Nitrogen	106	107	107		0.394
EPA 351.2 Rev. 2.0 dissolved	Kjeldahl Nitrogen	107	97.2	101		3.33
	Kjeldahl Nitrogen	106	107	107		0.394
EPA 353.2 Rev. 2.0	NO2NO3-N	100	101	102		0.494
	NO2NO3-N	102	104	103		0.321
	NO2NO3-N	100	101	100		0.477
EPA 365.1 Rev. 2.0	Total-P	95.6	102	103		0.589
	Total-P	106	94.6	95.4		0.703
	Total-P	105	101	100		0.632
SM 2120 B	Color (true)	105			1.03	
	Color (true)	105			1.76	
	Color (true)	99.4			1.80	
SM 2320 B-97	Total Alkalinity	99.8			0.572	
	Total Alkalinity	101			0.0475	
	Total Alkalinity	100			0.202	
SM 2540 C-97	TDS				4.91	
	TDS				3.40	
	TDS				5.05	
SM 2540 D-97	TSS				7.41	
	TSS				7.02	
SM 4500 F-C-97	Fluoride	98.9	101	99.7		0.979
	Fluoride	99.4	102	101		0.979
	Fluoride	99.9	100	98.3		1.40
SM 5310 B-00	Organic Carbon	99.6	103	99.7		2.14
	Organic Carbon	98.0	98.5	98.7		0.212
	Organic Carbon	93.0	97.4	94.2		3.19

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2046857, 2046858, 2046859, 2046860, 2046861, 2046862, 2046863
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2046857, 2046858, 2046859, 2046860, 2046861, 2046862, 2046863
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2046857, 2046858, 2046859, 2046860, 2046861, 2046862, 2046863
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2046864, 2046865, 2046866, 2046867, 2046868, 2046869, 2046870
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2046864, 2046865, 2046866, 2046867, 2046868, 2046869, 2046870

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 351.2 Rev. 2.0 dissolved / E31780	Total Kjeldahl Nitrogen, dissolved, in filtered, aqueous matrices	2046871, 2046872, 2046873, 2046874, 2046875, 2046876, 2046877
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2046864, 2046865, 2046866, 2046867, 2046868, 2046869, 2046870
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2046864, 2046865, 2046866, 2046867, 2046868, 2046869, 2046870
SM 2120 B / E31780	True Color measured at 450 nm	2046857, 2046858, 2046859, 2046860, 2046861, 2046862, 2046863
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2046857, 2046858, 2046859, 2046860, 2046861, 2046862, 2046863
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2046857, 2046858, 2046859, 2046860, 2046861, 2046862, 2046863
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2046857, 2046858, 2046859, 2046860, 2046861, 2046862, 2046863
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2046857, 2046858, 2046859, 2046860, 2046861, 2046862, 2046863
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2046864, 2046865, 2046866, 2046867, 2046868, 2046869, 2046870

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	12/06/2018			12/06/2018 16:50	Megan Treadwell	2046857, 2046858, 2046859, 2046860, 2046861, 2046862, 2046863
EPA 300.0 Rev. 2.1	12/06/2018			12/13/2018 21:05	Lipi Saha	2046857
	12/06/2018			12/13/2018 21:17	Lipi Saha	2046858
	12/06/2018			12/13/2018 21:30	Lipi Saha	2046859
	12/06/2018			12/13/2018 21:42	Lipi Saha	2046860
	12/06/2018			12/14/2018 16:53	Lipi Saha	2046862
	12/06/2018			12/14/2018 17:05	Lipi Saha	2046863
	12/06/2018			12/18/2018 15:17	Lipi Saha	2046861
EPA 350.1 Rev. 2.0	12/06/2018			12/07/2018 12:18	Ping Hua	2046864
	12/06/2018			12/07/2018 12:19	Ping Hua	2046865
	12/06/2018			12/07/2018 14:17	Ping Hua	2046869
	12/06/2018			12/07/2018 14:18	Ping Hua	2046870
	12/06/2018			12/11/2018 13:37	Ping Hua	2046866
	12/06/2018			12/11/2018 13:42	Ping Hua	2046867
	12/06/2018			12/11/2018 13:43	Ping Hua	2046868
EPA 351.2 Rev. 2.0	12/06/2018	12/11/2018 12:50	Adrian Shelby	12/12/2018 12:22	Joseph Suarez	2046864
	12/06/2018	12/11/2018 12:50	Adrian Shelby	12/12/2018 12:24	Joseph Suarez	2046865
	12/06/2018	12/11/2018 12:50	Adrian Shelby	12/12/2018 12:25	Joseph Suarez	2046866
	12/06/2018	12/11/2018 12:50	Adrian Shelby	12/12/2018 12:27	Joseph Suarez	2046867
	12/06/2018	12/11/2018 12:50	Adrian Shelby	12/12/2018 14:49	Joseph Suarez	2046868
	12/06/2018	12/14/2018 12:30	Adrian Shelby	12/17/2018 15:23	Chelsea Hernandez	2046869
	12/06/2018	12/14/2018 12:30	Adrian Shelby	12/17/2018 15:25	Chelsea Hernandez	2046870
EPA 351.2 Rev. 2.0 dissolved	12/06/2018	12/11/2018 12:50	Adrian Shelby	12/12/2018 14:50	Joseph Suarez	2046871
	12/06/2018	12/11/2018 12:50	Adrian Shelby	12/12/2018 14:58	Joseph Suarez	2046872
	12/06/2018	12/11/2018 12:50	Adrian Shelby	12/12/2018 15:00	Joseph Suarez	2046873
	12/06/2018	12/11/2018 12:50	Adrian Shelby	12/12/2018 15:01	Joseph Suarez	2046874
	12/06/2018	12/11/2018 12:50	Adrian Shelby	12/12/2018 15:03	Joseph Suarez	2046875
	12/06/2018	12/14/2018 12:30	Adrian Shelby	12/17/2018 15:29	Chelsea Hernandez	2046876
	12/06/2018	12/14/2018 12:30	Adrian Shelby	12/17/2018 15:31	Chelsea Hernandez	2046877
EPA 353.2 Rev. 2.0	12/06/2018			12/07/2018 14:10	Lauren Bottorf	2046869
	12/06/2018			12/07/2018 14:16	Lauren Bottorf	2046870
	12/06/2018			12/14/2018 11:34	Beverly Y. Sanders	2046864
	12/06/2018			12/14/2018 11:35	Beverly Y. Sanders	2046865
	12/06/2018			12/14/2018 11:36	Beverly Y. Sanders	2046867
	12/06/2018			12/14/2018 11:37	Beverly Y. Sanders	2046868
	12/06/2018			12/20/2018 12:04	Lauren Bottorf	2046866
EPA 365.1 Rev. 2.0	12/06/2018	12/11/2018 11:15	Sima Feizi	12/12/2018 11:23	Beverly Y. Sanders	2046870
	12/06/2018	12/11/2018 11:15	Sima Feizi	12/12/2018 15:02	Beverly Y. Sanders	2046869
	12/06/2018	12/12/2018 11:00	Sima Feizi	12/14/2018 14:32	Beverly Y. Sanders	2046864

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 365.1 Rev. 2.0	12/06/2018	12/12/2018 11:00	Sima Feizi	12/14/2018 14:33	Beverly Y. Sanders	2046865
	12/06/2018	12/12/2018 11:00	Sima Feizi	12/14/2018 14:34	Beverly Y. Sanders	2046866
	12/06/2018	12/12/2018 11:00	Sima Feizi	12/14/2018 14:35	Beverly Y. Sanders	2046867
	12/06/2018	12/14/2018 12:10	Sima Feizi	12/18/2018 17:51	Beverly Y. Sanders	2046868
SM 2120 B	12/06/2018			12/06/2018 15:39	Chelsea Hernandez	2046858
	12/06/2018			12/06/2018 15:40	Chelsea Hernandez	2046859
	12/06/2018			12/06/2018 15:41	Chelsea Hernandez	2046861
	12/06/2018			12/06/2018 15:43	Chelsea Hernandez	2046862, 2046863
	12/06/2018			12/06/2018 16:03	Chelsea Hernandez	2046860
	12/06/2018			12/06/2018 17:28	Chelsea Hernandez	2046857
SM 2320 B-97	12/06/2018			12/11/2018 03:17	Lauren Bottorf	2046862
	12/06/2018			12/11/2018 06:02	Lauren Bottorf	2046863
	12/06/2018			12/12/2018 05:52	Lauren Bottorf	2046861
	12/06/2018			12/12/2018 07:54	Lauren Bottorf	2046857
	12/06/2018			12/12/2018 08:04	Lauren Bottorf	2046858
	12/06/2018			12/12/2018 08:14	Lauren Bottorf	2046859
SM 2540 C-97	12/06/2018			12/12/2018 09:16	Lauren Bottorf	2046860
	12/06/2018			12/10/2018 14:10	Yijie Li	2046857, 2046858, 2046859, 2046860
SM 2540 D-97	12/06/2018			12/11/2018 16:05	Yijie Li	2046861, 2046862, 2046863
	12/06/2018			12/10/2018 14:10	Yijie Li	2046857, 2046858, 2046859, 2046860
SM 4500 F-C-97	12/06/2018			12/11/2018 16:05	Yijie Li	2046861, 2046862, 2046863
	12/06/2018			12/11/2018 03:17	Lauren Bottorf	2046862
SM 5310 B-00	12/06/2018			12/11/2018 06:02	Lauren Bottorf	2046863
	12/06/2018			12/12/2018 02:44	Lauren Bottorf	2046861
	12/06/2018			12/12/2018 04:30	Lauren Bottorf	2046857
	12/06/2018			12/12/2018 04:34	Lauren Bottorf	2046858
	12/06/2018			12/12/2018 04:38	Lauren Bottorf	2046859
	12/06/2018			12/12/2018 04:42	Lauren Bottorf	2046860
	12/06/2018			12/10/2018 06:56	Megan Treadwell	2046869
	12/06/2018			12/10/2018 07:32	Megan Treadwell	2046870
	12/06/2018			12/11/2018 09:10	Megan Treadwell	2046864
	12/06/2018			12/11/2018 09:22	Megan Treadwell	2046865
SM 5310 B-00	12/06/2018			12/11/2018 09:34	Megan Treadwell	2046866
	12/06/2018			12/11/2018 09:48	Megan Treadwell	2046867
	12/06/2018			12/14/2018 07:02	Megan Treadwell	2046868