

Chemical Analysis Report

NE-DIST-2018-01-25-01

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

Event Description: **UEC 1**
Request ID: **RQ-2018-01-15-23**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
NE ROC
8800 Baymeadows Way W
Suite 100
Jacksonville, FL 32256-7577
Attn: Nicole Frederick

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Liang Lin, Environmental Administrator

Date Certified: 16-FEB-2018 17:42

A handwritten signature in black ink, appearing to read "Liang Lin", on a light-colored background.

NON-CONFORMANCE REPORT INCLUDED

Case Narrative

Unless otherwise noted, all samples included in this report were received in accordance with protocols referenced in Chapter 62-160, Florida Administrative Code (F.A.C.). Results published in this report pertain only to the samples as submitted to, and received by the laboratory. All times in this report are adjusted to the applicable Eastern Time Zone (EST or EDT).

Results for the following analytical group are included in this report: Nutrients.

Scientific notation may be used in reporting very large or small values. Values reported using scientific notation will take the form of the following example: 1.3E+03, which is equivalent to 1.3×10^3 or 1300.

Unless otherwise noted, analytical values for soil and sediment samples are reported on a dry weight basis, and analytical values for waste and tissue samples are reported on a wet weight basis.

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited or where accreditation for that field of testing is not applicable.

Any significant anomalies or deviations from established protocols are documented in Non-Conformance Reports, which, where appropriate, are included within this analytical report. Additional comments related to specific analytical tests may be included as remarks following the analytical results for each sample. Such comments and remarks are for informational purposes only and are not intended to convey judgement about the usability of the reported data.

A quality control report on the performance of the test method for the submitted samples is included. Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published quality control acceptance limits for each analytical test. Matrix quality control results (matrix spike recoveries and matrix sample precision) pertain only to the matrix sample tested and do not necessarily reflect test method performance for other samples.

Typical matrix quality control (QC) measurements may include matrix spike recovery, matrix spike duplicate recovery, matrix spike precision and matrix sample precision. Not all matrix QC results may be available or reportable; where they are not an explanation is provided. Typical reasons for unavailable QC results include, but are not limited to, a) insufficient matrix sample to perform some or all QC measurements; b) analyte concentration in the sample replicated was too low for a meaningful measurement of precision and c) analyte concentration in the matrix sample spiked was too high (relative to the amount of analyte spiked) for a meaningful measurement of recovery. Where matrix QC results are unavailable, other method performance metrics (e.g., LCS recovery, LCS precision, surrogate recovery) may be used to assess performance of the method. Comments explaining any missing QC measurements are not intended to convey any adverse conclusions about the quality of the reported data.

Precision is reported as relative percent difference unless otherwise noted.

Quality Control codes as defined below may be used in this report to indicate results that are associated with one or more quality control elements which did not fall within established test method criteria. Such results may be qualified as estimates using a J qualifier as required by 62-160 F.A.C. Explanations are included in the report for any results that were reported as estimates for other reasons.

QC Codes used in this report may include:

- LCS – Recovery for the batch Laboratory Control Sample (LCS) was outside existing control limits;
- MS – Recovery for the batch matrix spike (MS) was outside existing control limits;
- CCV – Recovery for a continuing calibration verification (CCV) standard was outside existing control limits;
- SUR – Recovery of a surrogate (SUR) for associated analytes was outside existing control limits;
- RPD – The precision, measured as relative percent difference (RPD), of batch replicate measurements was outside existing control limits;
- RSD – The precision, measured as relative standard deviation (RSD), of batch replicate measurements was outside existing control limits;
- SMP – Sample - used precision derived from replicate analyses of a sample;

The following data qualifiers are used, where applicable, in this report as specified in 62-160 F.A.C.

- A - Value reported is the mean of two or more determinations.
- B - Results based on colony counts outside the acceptable range.
- I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
- J - Estimated value and/or the analysis did not meet established quality control criteria.
- K - Actual value is known to be less than value given.
- L - Actual value is known to be greater than value given.
- N - Presumptive evidence of presence of material.
- O - Sampled, but analysis lost or not performed.
- Q - Sample held beyond normal holding time.
- T - Value reported is less than the criterion of detection.
- U - Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
- V - Analyte was detected in both sample and method blank.
- X - Too few individuals to calculate SCI value.
- Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
- Z - Colonies were too numerous to count (TNTC).

Quality control information from overflow laboratories may not be included in this report. Please refer to the associated report from the overflow laboratory for additional information.

Sample Location: LAKE VEDRA / IBIS COVE @ SOLANA RD

Collection Date/Time: 01/24/2018 08:20

Field ID: 27010180

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1962170	EPA 180.1 Rev. 2.0	Turbidity	6.7		NTU	P338808	
	EPA 300.0 Rev. 2.1	Chloride	130		mg Cl/L	P338913	
		Sulfate	95	Y	mg SO4/L	P338915	
	SM 2120 B	Color (true)	56		PCU	P338811	
	SM 2320 B-97	Total Alkalinity	136	Y	mg CaCO3/L	P339016	
	SM 2540 C-97	TDS	494	Y	mg/L	P339125	
	SM 2540 D-97	TSS	13	Y	mg/L	P339064	
	SM 4500 F-C-97	Fluoride	0.27		mg F/L	P339309	
1962174	EPA 350.1 Rev. 2.0	Ammonia-N	0.01		mg N/L	P339286	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.5		mg N/L	P338831	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P338966	
	EPA 365.1 Rev. 2.0	Total-P	0.22		mg P/L	P338957	
	SM 5310 B-00	Organic Carbon	17		mg C/L	P339209	
1962178	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.035		mg P/L	P338839	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Sample was left out at room temperature overnight, should be stored below 6 degC.

SM 2320 B-97: Sample was left out at room temperature overnight, should be stored below 6 degC.

SM 2540 C-97: Sample was left out at room temperature overnight, should be stored below 6 degC.

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. Sample was left out at room temperature overnight, should be stored below 6 degC.

Sample Location: PALM COAST CANAL @ OLD KINGS RD

Collection Date/Time: 01/24/2018 12:00

Field ID: G5NE0005

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1962171	EPA 180.1 Rev. 2.0	Turbidity	2.4	A	NTU	P338810	
	EPA 300.0 Rev. 2.1	Chloride	40		mg Cl/L	P338913	
		Sulfate	15	Y	mg SO4/L	P338915	
	SM 2120 B	Color (true)	190		PCU	P338811	
	SM 2320 B-97	Total Alkalinity	80	Y	mg CaCO3/L	P339016	
	SM 2540 C-97	TDS	212	Y	mg/L	P339125	
	SM 2540 D-97	TSS	2	UY	mg/L	P339064	
	SM 4500 F-C-97	Fluoride	0.097	I	mg F/L	P339309	
1962175	EPA 350.1 Rev. 2.0	Ammonia-N	0.068		mg N/L	P339286	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.82		mg N/L	P338831	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.13		mg N/L	P338966	
	EPA 365.1 Rev. 2.0	Total-P	0.095		mg P/L	P338957	
	SM 5310 B-00	Organic Carbon	21		mg C/L	P339209	
1962179	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.059		mg P/L	P338838	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Sample was left out at room temperature overnight, should be stored below 6 degC.

SM 2320 B-97: Sample was left out at room temperature overnight, should be stored below 6 degC.

SM 2540 C-97: Sample was left out at room temperature overnight, should be stored below 6 degC.

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. Sample was left out at room temperature overnight, should be stored below 6 degC.

Sample Location: CRACKER BRANCH @ CR 204

Collection Date/Time: 01/24/2018 10:40

Field ID: 27010060

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1962172	EPA 180.1 Rev. 2.0	Turbidity	1.8		NTU	P338810	
	EPA 300.0 Rev. 2.1	Chloride	34		mg Cl/L	P338913	
		Sulfate	5.2	Y	mg SO4/L	P338915	
	SM 2120 B	Color (true)	380		PCU	P338811	
	SM 2320 B-97	Total Alkalinity	25	Y	mg CaCO3/L	P339016	
	SM 2540 C-97	TDS	159	Y	mg/L	P339125	
	SM 2540 D-97	TSS	2	UY	mg/L	P339064	
	SM 4500 F-C-97	Fluoride	0.056	I	mg F/L	P339309	
1962176	EPA 350.1 Rev. 2.0	Ammonia-N	0.024		mg N/L	P339286	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.89		mg N/L	P338831	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.005	I	mg N/L	P338967	
	EPA 365.1 Rev. 2.0	Total-P	0.065		mg P/L	P338957	
	SM 5310 B-00	Organic Carbon	31		mg C/L	P339209	
1962180	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.049		mg P/L	P338838	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Sample was left out at room temperature overnight, should be stored below 6 degC.

SM 2320 B-97: Sample was left out at room temperature overnight, should be stored below 6 degC.

SM 2540 C-97: Sample was left out at room temperature overnight, should be stored below 6 degC.

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. Sample was left out at room temperature overnight, should be stored below 6 degC.

Sample Location: MOSES CREEK @ US 1

Collection Date/Time: 01/24/2018 10:00

Field ID: 27010050

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1962173	EPA 180.1 Rev. 2.0	Turbidity	2.7		NTU	P338810	
	EPA 300.0 Rev. 2.1	Chloride	47		mg Cl/L	P338913	
		Sulfate	3.8	Y	mg SO4/L	P338915	
	SM 2120 B	Color (true)	440		PCU	P338811	
	SM 2320 B-97	Total Alkalinity	34	Y	mg CaCO3/L	P339016	
	SM 2540 C-97	TDS	199	Y	mg/L	P339125	
	SM 2540 D-97	TSS	2	IY	mg/L	P339064	
	SM 4500 F-C-97	Fluoride	0.067	I	mg F/L	P339309	
1962177	EPA 350.1 Rev. 2.0	Ammonia-N	0.015		mg N/L	P339286	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P338831	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.006	I	mg N/L	P338967	
	EPA 365.1 Rev. 2.0	Total-P	0.040		mg P/L	P338957	
	SM 5310 B-00	Organic Carbon	41		mg C/L	P339209	
1962181	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.022		mg P/L	P338839	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Sample was left out at room temperature overnight, should be stored below 6 degC.

SM 2320 B-97: Sample was left out at room temperature overnight, should be stored below 6 degC.

SM 2540 C-97: Sample was left out at room temperature overnight, should be stored below 6 degC.

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. Sample was left out at room temperature overnight, should be stored below 6 degC.

Non-Conformance Report

Non-Conformance Report

NCR ID: 6884

<u>Event(s)</u>	<u>Job(s)</u>	<u>Sample(s)</u>	<u>Test(s)</u>
NE-DIST-2018-01-25-01	TLH-2018-01-25-61	1962170	
NE-DIST-2018-01-25-01	TLH-2018-01-25-61	1962171	
NE-DIST-2018-01-25-01	TLH-2018-01-25-61	1962172	
NE-DIST-2018-01-25-01	TLH-2018-01-25-61	1962173	

NCR Type: CUSTODY

NCR Category: General

Observation: Samples stored at room temperature overnight on 1/25/2018 due to an oversight. Samples required refrigeration for proper preservation.

Resolution: Sample returned to refrigerator in the afternoon on 1/26/2018. All analysis done after 1/25/18 will be Y qualified.

Authorized by/Date: Peter D. Kaus 2/13/2018

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

Chemistry Colin Wright (850) 245-8085
Biology Cheryl Swanson (850) 245-8177

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P338808

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P338810

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P338913

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P338915

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P339286

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P338831

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P338831

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P338966

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: P338967

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: P338957

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P338838

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P338839

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

Reference Method: SM 2120 B
Batch ID: P338811

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P339016

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

Reference Method: SM 2540 C-97
Batch ID: P339125

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P339064

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P339309

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P339209

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: P338913

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	94.0		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P338915

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	92.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P339286

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P338831

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P338966

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	106		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P338967

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P338967

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	106		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P338957

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	109		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P338838

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	96.4		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P338839

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	97.1		P	90 - 110

Reference Method: SM 2320 B-97
Batch ID: P339016

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P339309

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.9		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P339209

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	93.2		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P338913

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1962219	Chloride	97.8		P	90 - 110
1962224	Chloride	101		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P338915

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1962219	Sulfate	95.9		P	90 - 110
1962224	Sulfate	99.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P339286

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1962156	Ammonia-N	97.8	98.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P338831

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1962221	Kjeldahl Nitrogen	109	106	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P338966

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1962155	NO2NO3-N	105	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P338967

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1962176	NO2NO3-N	101	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P338957

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1962162	Total-P	104	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P338838

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1961947	O-Phosphate-P	95.7	96.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P338839

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1962178	O-Phosphate-P	97.6	96.6	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P339309

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1962171	Fluoride	96.2	97.3	P/P	91 - 105

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P339209

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1961962	Organic Carbon	103		P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P338808

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1962040	Turbidity	5.05	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P338810

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1962171	Turbidity	1.24	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P338913

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1962224	Chloride	0.206	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P338915

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1962224	Sulfate	0.705	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P339286

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1962156	Ammonia-N	0.128	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P338831

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1962221	Kjeldahl Nitrogen	2.52	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P338966

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1962155	NO2NO3-N	0.678	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P338967

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1962176	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P338957

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1962162	Total-P	1.29	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P338838

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1961947	O-Phosphate-P	0.457	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P338839

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1962178	O-Phosphate-P	0.757	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P338811

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1962153	Color (true)	0.831	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P339016

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1962336	Total Alkalinity	0.887	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P339125

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1962153	TDS	0.853	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
Batch ID: P339309

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1962171	Fluoride	0.977	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P339209

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1961962	Organic Carbon	0.304	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 300.0 Rev. 2.1
Run ID: A81616
Included Lab Sample IDs: 1962170, 1962171, 1962172, 1962173

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	99.7	P/P	90 - 110
Chloride	99.7	99.1	P/P	90 - 110
Sulfate	99.3	98.6	P/P	90 - 110
Sulfate	99.9	99.3	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A81652
Included Lab Sample IDs: 1962170, 1962171, 1962172, 1962173

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

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A81653
Included Lab Sample IDs: 1962170, 1962171, 1962172, 1962173

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.5	99.0	P/P	95 - 105
Turbidity	99.0	99.0	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A81660
Included Lab Sample IDs: 1962178, 1962179, 1962180, 1962181

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.6	100	P/P	90 - 110
O-Phosphate-P	99.9	99.2	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A81701

Included Lab Sample IDs: 1962174, 1962175, 1962176, 1962177

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A81714

Included Lab Sample IDs: 1962174, 1962175, 1962176, 1962177

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A81723

Included Lab Sample IDs: 1962174

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	106	108	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A81730

Included Lab Sample IDs: 1962175, 1962176

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

Reference Method: SM 2320 B-97

Run ID: A81736

Included Lab Sample IDs: 1962170, 1962171, 1962172, 1962173

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	97.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A81742

Included Lab Sample IDs: 1962177

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

Reference Method: SM 5310 B-00

Run ID: A81810

Included Lab Sample IDs: 1962174, 1962175, 1962176, 1962177

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.4	94.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A81838

Included Lab Sample IDs: 1962174, 1962175, 1962176, 1962177

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.2	100	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97

Run ID: A81839

Included Lab Sample IDs: 1962170, 1962171, 1962172, 1962173

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	101	101	P/P	90 - 110
Fluoride	101	101	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				5.05	
	Turbidity				1.24	
EPA 300.0 Rev. 2.1	Chloride	94.0	101 97.8		0.206	
	Sulfate	92.0	99.0 95.9		0.705	
EPA 350.1 Rev. 2.0	Ammonia-N	96.6	97.8 98.0			0.128
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	107	109 106			2.52
EPA 353.2 Rev. 2.0	NO2NO3-N	106	105 104			0.678
	NO2NO3-N	106	101 101			0.0
EPA 365.1 Rev. 2.0	Total-P	109	104 106			1.29
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	96.4	95.7 96.5			0.457
	O-Phosphate-P	97.1	97.6 96.6			0.757
SM 2120 B	Color (true)				0.831	
SM 2320 B-97	Total Alkalinity	101			0.887	
SM 2540 C-97	TDS				0.853	
SM 4500 F-C-97	Fluoride	98.9	96.2 97.3			0.977
SM 5310 B-00	Organic Carbon	93.2	103			0.304

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1962170, 1962171, 1962172, 1962173
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1962170, 1962171, 1962172, 1962173
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1962170, 1962171, 1962172, 1962173
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1962174, 1962175, 1962176, 1962177
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1962174, 1962175, 1962176, 1962177
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1962174, 1962175, 1962176, 1962177
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1962174, 1962175, 1962176, 1962177
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1962178, 1962179, 1962180, 1962181
SM 2120 B / E31780	True Color measured at 450 nm	1962170, 1962171, 1962172, 1962173
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1962170, 1962171, 1962172, 1962173
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1962170, 1962171, 1962172, 1962173

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1962170, 1962171, 1962172, 1962173
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1962170, 1962171, 1962172, 1962173
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1962174, 1962175, 1962176, 1962177

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	01/25/2018			01/25/2018 16:15	DeAsia Armster	1962170, 1962171, 1962172, 1962173
EPA 300.0 Rev. 2.1	01/25/2018			01/26/2018	Julia Storbeck	1962170, 1962171, 1962172, 1962173
EPA 350.1 Rev. 2.0	01/25/2018			02/02/2018	Ping Hua	1962174, 1962175, 1962176, 1962177
EPA 351.2 Rev. 2.0	01/25/2018	01/26/2018	Adrian Shelby	01/29/2018	Joseph Suarez	1962174, 1962175, 1962176, 1962177
EPA 353.2 Rev. 2.0	01/25/2018			01/29/2018	Beverly Y. Sanders	1962174, 1962175, 1962176, 1962177
EPA 365.1 Rev. 2.0	01/25/2018	01/29/2018	Sima Feizi	01/30/2018	Beverly Y. Sanders	1962174, 1962175, 1962176, 1962177
EPA 365.1 Rev. 2.0 dissolved	01/25/2018			01/25/2018 15:22	Megan Treadwell	1962178
	01/25/2018			01/25/2018 16:00	Megan Treadwell	1962179
	01/25/2018			01/25/2018 16:01	Megan Treadwell	1962180, 1962181
	01/25/2018			01/25/2018 15:40	Tanya Welborn	1962170
SM 2120 B	01/25/2018			01/25/2018 16:04	Tanya Welborn	1962171, 1962172
	01/25/2018			01/25/2018 16:07	Tanya Welborn	1962173
	01/25/2018			01/30/2018	Lauren Bottorf	1962170, 1962171, 1962172, 1962173
SM 2320 B-97	01/25/2018			01/26/2018	DeAsia Armster	1962170, 1962171, 1962172, 1962173
SM 2540 C-97	01/25/2018			01/26/2018	DeAsia Armster	1962170, 1962171, 1962172, 1962173
SM 2540 D-97	01/25/2018			02/03/2018	Dale L. Simmons	1962170, 1962171, 1962172, 1962173
SM 4500 F-C-97	01/25/2018			02/01/2018	Megan Treadwell	1962174, 1962175, 1962176, 1962177
SM 5310 B-00	01/25/2018					