

Chemical Analysis Report

NW-DIST-2016-09-23-01

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

Event Description: **Freeport Run WBID 567 646 557 371 570**
Request ID: **RQ-2016-09-19-31**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
160 W Government St
Suite 208A
Pensacola, FL 32502-5794
Attn: Michael King

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

Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 20-OCT-2016 15:41



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: LAFAYETTE CREEK HWY 20

Collection Date/Time: 09/22/2016 13:00

Field ID: G3NW0118

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1834242	EPA 180.1 Rev. 2.0	Turbidity	2.3		NTU	P311759	
	EPA 300.0 Rev. 2.1	Chloride	3.2		mg Cl/L	P312256	
		Sulfate	2.7		mg SO4/L	P312253	
	SM 2120 B	Color (true)	30		PCU	P311747	
	SM 2320 B-97	Total Alkalinity	2.7		mg CaCO3/L	P311965	
	SM 2540 C-97	TDS	16	I	mg/L	P312652	
	SM 2540 D-97	TSS	3	I	mg/L	P312181	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P311969	
1834248	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P312115	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.13	I	mg N/L	P312213	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.19		mg N/L	P312232	
	EPA 365.1 Rev. 2.0	Total-P	0.006		mg P/L	P312404	
	SM 5310 B-00	Organic Carbon	2.5		mg C/L	P312088	
1834254	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P311762	

Sample Location: FOURMILE CREEK SR-20

Collection Date/Time: 09/22/2016 13:40

Field ID: G3NW0112

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1834243	EPA 180.1 Rev. 2.0	Turbidity	1.4		NTU	P311759	
	EPA 300.0 Rev. 2.1	Chloride	2.3		mg Cl/L	P312256	
		Sulfate	2.1		mg SO4/L	P312253	
	SM 2120 B	Color (true)	37		PCU	P311747	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P311965	
	SM 2540 C-97	TDS	15	U	mg/L	P312652	
	SM 2540 D-97	TSS	2	I	mg/L	P312181	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P311969	
1834249	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P312115	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.16	I	mg N/L	P312214	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.070		mg N/L	P312232	
	EPA 365.1 Rev. 2.0	Total-P	0.005		mg P/L	P312404	
	SM 5310 B-00	Organic Carbon	3.3		mg C/L	P312088	
1834255	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P311762	

Sample Location: SEVEN RUNS 7.5 MI N BRUCE HWY 81

Collection Date/Time: 09/22/2016 14:15

Field ID: G3NW0116

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1834244	EPA 180.1 Rev. 2.0	Turbidity	2.5		NTU	P311759	
	EPA 300.0 Rev. 2.1	Chloride	1.8		mg Cl/L	P312256	
		Sulfate	2.5		mg SO4/L	P312253	
	SM 2120 B	Color (true)	30		PCU	P311747	
	SM 2320 B-97	Total Alkalinity	1.1	I	mg CaCO3/L	P311965	

Field ID: G3NW0116

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1834244	SM 2540 C-97	TDS	15	U	mg/L	P312652	
	SM 2540 D-97	TSS	6	I	mg/L	P312181	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P311969	
1834250	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P312115	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.12	I	mg N/L	P312214	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.11		mg N/L	P312232	
	EPA 365.1 Rev. 2.0	Total-P	0.007		mg P/L	P312404	
	SM 5310 B-00	Organic Carbon	2.5		mg C/L	P312088	
1834256	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P311762	

Sample Location: SEVEN RUNS END OF DEAD RIVER RD.

Collection Date/Time: 09/22/2016 14:45

Field ID: G3NW0115

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1834245	EPA 180.1 Rev. 2.0	Turbidity	2.7	A	NTU	P311760	
	EPA 300.0 Rev. 2.1	Chloride	1.9		mg Cl/L	P312256	
		Sulfate	2.7		mg SO4/L	P312253	
	SM 2120 B	Color (true)	37		PCU	P311748	
	SM 2320 B-97	Total Alkalinity	1.6	I	mg CaCO3/L	P311965	
	SM 2540 C-97	TDS	15	U	mg/L	P312652	
	SM 2540 D-97	TSS	7	I	mg/L	P312181	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P311969	
1834251	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P312115	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.15	I	mg N/L	P312214	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.087		mg N/L	P312232	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P312404	
	SM 5310 B-00	Organic Carbon	2.9		mg C/L	P312088	
1834257	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P311762	

Sample Location: MAGNOLIA CREEK AMERICAN FARMS

Collection Date/Time: 09/22/2016 15:47

Field ID: G3NW0100

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1834246	EPA 180.1 Rev. 2.0	Turbidity	1.1		NTU	P311760	
	EPA 300.0 Rev. 2.1	Chloride	1.7		mg Cl/L	P312256	
		Sulfate	1.8		mg SO4/L	P312253	
	SM 2120 B	Color (true)	39		PCU	P311748	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P311965	
	SM 2540 C-97	TDS	15	U	mg/L	P312652	
	SM 2540 D-97	TSS	2	U	mg/L	P312181	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P311969	
1834252	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P312115	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.13	I	mg N/L	P312214	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.052		mg N/L	P312232	
	EPA 365.1 Rev. 2.0	Total-P	0.004	I	mg P/L	P312434	

Field ID: G3NW0100

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1834252	SM 5310 B-00	Organic Carbon	3.5		mg C/L	P312088	
1834258	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P311763	

Sample Location: MAGNOLIA CREEK OWLS HEAD RD.

Collection Date/Time: 09/22/2016 16:13

Field ID: G3NW0099

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1834247	EPA 180.1 Rev. 2.0	Turbidity	1.3		NTU	P311760	
	EPA 300.0 Rev. 2.1	Chloride	1.7		mg Cl/L	P312256	
		Sulfate	2.1		mg SO4/L	P312253	
	SM 2120 B	Color (true)	34	A	PCU	P311748	
	SM 2320 B-97	Total Alkalinity	1.0	I	mg CaCO3/L	P311965	
	SM 2540 C-97	TDS	15	U	mg/L	P312652	
	SM 2540 D-97	TSS	2	I	mg/L	P312181	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P311969	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P312115	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.15	I	mg N/L	P312214	
1834253	EPA 353.2 Rev. 2.0	NO2NO3-N	0.063		mg N/L	P312233	
	EPA 365.1 Rev. 2.0	Total-P	0.004	I	mg P/L	P312434	
	SM 5310 B-00	Organic Carbon	3.0		mg C/L	P312088	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P311763	
1834259	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P311763	

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P311759

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P311760

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P312253

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P312256

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P312115

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P312213

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P312214

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P312232

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: P312233

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: P312404

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P312434

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P311762

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P311763

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

Quality Assurance Report Method Blank Results

Reference Method: SM 2120 B
Batch ID: P311747

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P311748

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P311965

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

Reference Method: SM 2540 C-97
Batch ID: P312652

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P312181

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P311969

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P312088

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: P312253

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	96.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P312256

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P312256

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	99.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P312115

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P312213

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P312214

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	91.7		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P312232

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: P312233

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P312404

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P312434

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P311762

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P311763

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

Reference Method: SM 2320 B-97
 Batch ID: P311965

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	95 - 108

Reference Method: SM 4500 F-C-97
 Batch ID: P311969

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.9		P	92 - 103

Reference Method: SM 5310 B-00
 Batch ID: P312088

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.3		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P312253

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1833924	Sulfate	97.1		P	90 - 110
1834067	Sulfate	96.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P312256

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1833924	Chloride	100		P	90 - 110
1834067	Chloride	99.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P312115

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1834208	Ammonia-N	100	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P312213

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1834192	Kjeldahl Nitrogen	102	89.2	P/F	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P312214

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1834306	Kjeldahl Nitrogen	94.2	97.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P312232

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1834208	NO2NO3-N	99.9	98.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P312233

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1834253	NO2NO3-N	102	99.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P312404

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1834191	Total-P	101	92.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P312434

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1834287	Total-P	97.0	97.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P311762

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1834256	O-Phosphate-P	104	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P311763

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1834258	O-Phosphate-P	102	104	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P311969

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1834207	Fluoride	98.4	98.4	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P312088

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1834070	Organic Carbon	99.8	99.0	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P311759

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1834172	Turbidity	0.769	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P311760

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1834245	Turbidity	4.44	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P312253

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1833924	Sulfate	0.836	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P312256

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1833924	Chloride	0.0617	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P312115

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1834208	Ammonia-N	2.18	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P312213

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1834192	Kjeldahl Nitrogen	8.67	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P312214

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1834306	Kjeldahl Nitrogen	2.44	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P312232

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1834208	NO2NO3-N	1.48	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P312233

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1834253	NO2NO3-N	1.89	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P312404

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1834191	Total-P	7.59	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P312434

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1834288	Total-P	0.273	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P311762

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1834256	O-Phosphate-P	0.768	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P311763

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1834258	O-Phosphate-P	1.36	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P311747

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1834189	Color (true)	2.23	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P311748

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1834247	Color (true)	3.95	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P311965

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1834207	Total Alkalinity	0.0664	Sample	P	0 - 4.8

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
Batch ID: P312652

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1834069	TDS	1.39	Sample	P	0 - 10

Reference Method: SM 2540 D-97
Batch ID: P312181

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1834069	TSS	0.0	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P311969

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1834207	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P312088

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1834070	Organic Carbon	0.652	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.
Replicate spike precision may be reported when sample results are below quantifiable levels.

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B
Run ID: A71806
Included Lab Sample IDs: 1834242, 1834243, 1834244, 1834245, 1834246, 1834247

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	96.7	98.9	P/P	85 - 115
Color (true)	96.7	96.7	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A71808
Included Lab Sample IDs: 1834242, 1834243, 1834244, 1834245, 1834246, 1834247

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A71809
Included Lab Sample IDs: 1834254, 1834255, 1834256, 1834257, 1834258, 1834259

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A71809

Included Lab Sample IDs: 1834254, 1834255, 1834256, 1834257, 1834258, 1834259

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

Reference Method: SM 2320 B-97

Run ID: A71875

Included Lab Sample IDs: 1834242, 1834243, 1834244, 1834245, 1834246, 1834247

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	103	P/P	90 - 110
Total Alkalinity	103	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A71875

Included Lab Sample IDs: 1834242, 1834243, 1834244, 1834245, 1834246, 1834247

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A71882

Included Lab Sample IDs: 1834242, 1834243, 1834244, 1834245, 1834246, 1834247

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	98.4	100	P/P	90 - 110
Chloride	98.6	98.4	P/P	90 - 110
Sulfate	96.7	99.0	P/P	90 - 110
Sulfate	98.3	96.7	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A71905

Included Lab Sample IDs: 1834248, 1834249, 1834250, 1834251, 1834252, 1834253

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A71914

Included Lab Sample IDs: 1834248, 1834249, 1834250, 1834251, 1834252, 1834253

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A71950

Included Lab Sample IDs: 1834248, 1834249, 1834250, 1834251, 1834252, 1834253

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A72037

Included Lab Sample IDs: 1834248, 1834249, 1834250, 1834251

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A72047

Included Lab Sample IDs: 1834248, 1834249, 1834250, 1834251, 1834252, 1834253

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.3	94.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A72124

Included Lab Sample IDs: 1834252, 1834253

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	102	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						0.769	
	Turbidity						4.44	
EPA 300.0 Rev. 2.1	Chloride	99.1		100	99.9		0.0617	
	Sulfate	96.7		97.1	96.2		0.836	
EPA 350.1 Rev. 2.0	Ammonia-N	102		100	102			2.18
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.4		102	89.2			8.67
	Kjeldahl Nitrogen	91.7		94.2	97.6			2.44
EPA 353.2 Rev. 2.0	NO2NO3-N	102		99.9	98.4			1.48
	NO2NO3-N	103		102	99.4			1.89
EPA 365.1 Rev. 2.0	Total-P	98.8		101	92.6			7.59
	Total-P	98.5		97.0	97.3			0.273
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102		104	104			0.768
	O-Phosphate-P	105		102	104			1.36
SM 2120 B	Color (true)						2.23	
	Color (true)						3.95	
SM 2320 B-97	Total Alkalinity	103					0.0664	
SM 2540 C-97	TDS						1.39	
SM 2540 D-97	TSS						0.0	
SM 4500 F-C-97	Fluoride	97.9		98.4	98.4			0.0
SM 5310 B-00	Organic Carbon	99.3		99.8	99.0			0.652

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
---------------------	-------------	--------------------

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1834242, 1834243, 1834244, 1834245, 1834246, 1834247
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1834242, 1834243, 1834244, 1834245, 1834246, 1834247
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1834242, 1834243, 1834244, 1834245, 1834246, 1834247
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1834248, 1834249, 1834250, 1834251, 1834252, 1834253
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1834248, 1834249, 1834250, 1834251, 1834252, 1834253
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1834248, 1834249, 1834250, 1834251, 1834252, 1834253
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1834248, 1834249, 1834250, 1834251, 1834252, 1834253
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1834254, 1834255, 1834256, 1834257, 1834258, 1834259
SM 2120 B / E31780	True Color measured at 450 nm	1834242, 1834243, 1834244, 1834245, 1834246, 1834247
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1834242, 1834243, 1834244, 1834245, 1834246, 1834247
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1834242, 1834243, 1834244, 1834245, 1834246, 1834247
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1834242, 1834243, 1834244, 1834245, 1834246, 1834247
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1834242, 1834243, 1834244, 1834245, 1834246, 1834247
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1834248, 1834249, 1834250, 1834251, 1834252, 1834253

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	09/23/2016			09/23/2016 15:22	Sima Feizi	1834242, 1834243, 1834244, 1834245, 1834246, 1834247
EPA 300.0 Rev. 2.1	09/23/2016			10/01/2016	Ping Hua	1834242, 1834243, 1834244, 1834245, 1834246, 1834247
EPA 350.1 Rev. 2.0	09/23/2016			09/28/2016	Sofia Elnemr	1834248, 1834249, 1834250, 1834251, 1834252, 1834253
EPA 351.2 Rev. 2.0	09/23/2016	09/30/2016	Adrian Shelby	10/06/2016	Christopher Armour	1834248, 1834249, 1834250, 1834251, 1834252, 1834253
EPA 353.2 Rev. 2.0	09/23/2016			09/30/2016	Beverly Y. Sanders	1834248, 1834249, 1834250, 1834251, 1834252, 1834253
EPA 365.1 Rev. 2.0	09/23/2016	10/04/2016	Vijayalakshmi Reddy	10/05/2016	Lipi Saha	1834248, 1834249, 1834250, 1834251
	09/23/2016	10/05/2016	Vijayalakshmi Reddy	10/10/2016	Lipi Saha	1834252, 1834253
EPA 365.1 Rev. 2.0 dissolved	09/23/2016			09/23/2016 16:23	Julia Storbeck	1834256
	09/23/2016			09/23/2016 16:28	Julia Storbeck	1834258
	09/23/2016			09/23/2016 16:48	Julia Storbeck	1834254
	09/23/2016			09/23/2016 16:49	Julia Storbeck	1834255
	09/23/2016			09/23/2016 16:50	Julia Storbeck	1834257
	09/23/2016			09/23/2016 16:51	Julia Storbeck	1834259
SM 2120 B	09/23/2016			09/23/2016 15:03	Blanca Fach	1834242
	09/23/2016			09/23/2016 15:04	Blanca Fach	1834243, 1834244
	09/23/2016			09/23/2016 15:08	Blanca Fach	1834247
	09/23/2016			09/23/2016 15:09	Blanca Fach	1834245
	09/23/2016			09/23/2016 15:10	Blanca Fach	1834246
SM 2320 B-97	09/23/2016			09/27/2016	Dale L. Simmons	1834242, 1834243, 1834244, 1834245, 1834246, 1834247
SM 2540 C-97	09/23/2016			09/26/2016	Sima Feizi	1834242, 1834243, 1834244, 1834245, 1834246, 1834247
SM 2540 D-97	09/23/2016			09/26/2016	Sima Feizi	1834242, 1834243, 1834244, 1834245, 1834246, 1834247
SM 4500 F-C-97	09/23/2016			09/27/2016	Dale L. Simmons	1834242, 1834243, 1834244, 1834245, 1834246, 1834247
SM 5310 B-00	09/23/2016			09/28/2016	Julie Michelle Frank	1834248, 1834249, 1834250, 1834251, 1834252, 1834253