

Chemical Analysis Report

SW-DIST-2018-02-02-01

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

Event Description: **Horsehole Creek**
Request ID: **RQ-2018-02-05-19**
Customer: **SW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
13051 N. Telecom Parkway
Temple Terrace, FL 33637-0926
Attn: Judy Ashton

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: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 26-FEB-2018 14:26



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 groups are included in this report: Nutrients and Pesticides.

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: HORSEHOLE CREEK @ US 19

Collection Date/Time: 02/01/2018 13:25

Field ID: G5SW0141

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1964208	EPA 180.1 Rev. 2.0	Turbidity	0.75		NTU	P339264	
	EPA 300.0 Rev. 2.1	Chloride	15		mg Cl/L	P339699	
		Sulfate	0.76		mg SO4/L	P339704	
	SM 2120 B	Color (true)	250		PCU	P339258	
	SM 2320 B-97	Total Alkalinity	47	A	mg CaCO3/L	P339979	
	SM 2540 C-97	TDS	153		mg/L	P339747	
	SM 2540 D-97	TSS	2	I	mg/L	P339686	
	SM 4500 F-C-97	Fluoride	0.053	I	mg F/L	P340473	
1964209	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P339680	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P339426	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P339338	
	EPA 365.1 Rev. 2.0	Total-P	0.020		mg P/L	P339464	
	SM 5310 B-00	Organic Carbon	36		mg C/L	P340071	
1964210	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P339314	
1964247	EPA 8321B	2,4-D	0.0020	U	ug/L	P339218	
		Sucralose**	0.010	U	ug/L	P339296	
		Bentazon	8.0E-04	U	ug/L	P339218	
		MCP	0.0020	U	ug/L	P339218	
		Triclopyr**	0.0040	U	ug/L	P339218	
		Imidacloprid	0.0020	U	ug/L	P339218	
		Diuron	0.0020	U	ug/L	P339218	
		Primidone**	0.0040	U	ug/L	P339218	
		Linuron	0.0040	U	ug/L	P339218	
		Acetaminophen**	0.0080	U	ug/L	P339218	
		Fenuron	0.0080	U	ug/L	P339218	
		Carbamazepine**	4.0E-04	U	ug/L	P339218	
		Fluridone**	8.0E-04	U	ug/L	P339218	

Ref. Method and Comment:

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

EPA 8321B: MS accuracy for 2,4-D could not be assessed due to high concentration of parameter in the spiked sample.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P339264

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P339699

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P339704

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P339680

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P339426

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P339338

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P339464

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P339314

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

Reference Method: EPA 8321B
Batch ID: P339218

Component	Result	Code	Units
2,4-D	0.0020	U	ug/L
Acetaminophen	0.0080	U	ug/L
Bentazon	8.0E-04	U	ug/L
Carbamazepine	4.0E-04	U	ug/L
Diuron	0.0020	U	ug/L
Fenuron	0.0080	U	ug/L
Fluridone	8.0E-04	U	ug/L
Imidacloprid	0.0020	U	ug/L
Linuron	0.0040	U	ug/L
MCPP	0.0020	U	ug/L
Primidone	0.0040	U	ug/L
Triclopyr	0.0040	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B
Batch ID: P339296

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: SM 2120 B
Batch ID: P339258

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P339979

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

Reference Method: SM 2540 C-97
Batch ID: P339747

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P339686

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P340473

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P340071

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: P339699

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P339704

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P339704

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	95.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P339680

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P339426

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	93.9		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P339338

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P339464

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P339314

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	95.4		P	90 - 110

Reference Method: EPA 8321B
Batch ID: P339218

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	71.2		P	40 - 150
Acetaminophen	109		P	30 - 150
Bentazon	84.2		P	30 - 150
Carbamazepine	94.0		P	40 - 150
Diuron	86.8		P	40 - 150
Fenuron	115		P	40 - 150
Fluridone	86.2		P	40 - 150
Imidacloprid	95.2		P	40 - 160
Linuron	89.5		P	40 - 150
MCP	81.1		P	40 - 150
Primidone	107		P	40 - 150
Triclopyr	73.8		P	40 - 150

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P339296

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	105		P	40 - 150

Reference Method: SM 2320 B-97
Batch ID: P339979

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	97.3		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P340473

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.2		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P340071

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.8		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P339699

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1963974	Chloride	96.1		P	90 - 110
1964145	Chloride	96.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P339704

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1963974	Sulfate	95.9		P	90 - 110
1964145	Sulfate	97.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P339680

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1964566	Ammonia-N	97.9	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P339426

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1964318	Kjeldahl Nitrogen	92.0	94.5	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P339338

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1964143	NO2NO3-N	101	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P339464

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1964318	Total-P	96.7	96.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P339314

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1964144	O-Phosphate-P	94.1	94.1	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P339218

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1963931	Acetaminophen	134	126	P/P	30 - 150
1963931	Bentazon	68.5	57.0	P/P	30 - 150
1963931	Carbamazepine	93.4	90.7	P/P	40 - 150
1963931	Diuron	84.6	77.4	P/P	40 - 150
1963931	Fenuron	98.1	88.2	P/P	40 - 150
1963931	Fluridone	71.6	66.0	P/P	40 - 150
1963931	Imidacloprid	149	153	P/P	40 - 160
1963931	Linuron	85.7	87.7	P/P	40 - 150
1963931	MCP	64.2	59.4	P/P	40 - 150
1963931	Primidone	127	113	P/P	40 - 150
1963931	Triclopyr	64.7	52.8	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P339296

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1963387	Sucralose	116	112	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P340473

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1964802	Fluoride	94.9	96.1	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P340071

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1963978	Organic Carbon	107		P	85 - 115

Quality Assurance Report Precision

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P339264

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1964146	Turbidity	0.669	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P339699

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963974	Chloride	0.402	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P339704

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963974	Sulfate	0.466	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P339680

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1964566	Ammonia-N	1.94	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P339426

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1964318	Kjeldahl Nitrogen	2.30	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P339338

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1964143	NO2NO3-N	0.494	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P339464

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1964318	Total-P	0.163	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P339314

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1964144	O-Phosphate-P	0.0	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P339218

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963931	2,4-D	21.5	Spike	P	0 - 30
1963931	Acetaminophen	5.63	Spike	P	0 - 30
1963931	Bentazon	8.15	Spike	P	0 - 30
1963931	Carbamazepine	2.87	Spike	P	0 - 30
1963931	Diuron	8.34	Spike	P	0 - 30
1963931	Fenuron	10.6	Spike	P	0 - 30
1963931	Fluridone	2.79	Spike	P	0 - 30
1963931	Imidacloprid	2.65	Spike	P	0 - 30
1963931	Linuron	2.27	Spike	P	0 - 30
1963931	MCP	7.72	Spike	P	0 - 30
1963931	Primidone	11.2	Spike	P	0 - 30
1963931	Triclopyr	20.2	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P339296

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963387	Sucralose	3.87	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P339258

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1964090	Color (true)	3.35	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P339979

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1964208	Total Alkalinity	0.687	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P339747

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1964093	TDS	6.53	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P340473

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1964802	Fluoride	0.940	Spike	P	0 - 3.0

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P340071

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963978	Organic Carbon	0.538	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 Surrogates

Lab Sample ID: 1964247
Field Sample ID: G5SW0141

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	80.0	P	30 - 160
EPA 8321B	Acetaminophen-d4	142	P	30 - 160
EPA 8321B	Carbamazepine-d10	85.3	P	30 - 160
EPA 8321B	Diuron-d6	85.0	P	30 - 160
EPA 8321B	Primidone-d5	87.8	P	30 - 160
EPA 8321B	Sucralose-d6	158	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B
Run ID: A81828
Included Lab Sample IDs: 1964208

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	109	111	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A81829
Included Lab Sample IDs: 1964208

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	101	101	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A81844
Included Lab Sample IDs: 1964210

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.7	98.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A81855
Included Lab Sample IDs: 1964209

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A81900

Included Lab Sample IDs: 1964209

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.8	100	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A81928

Included Lab Sample IDs: 1964247

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	109	107	P/P	60 - 150

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A81948

Included Lab Sample IDs: 1964209

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A81964

Included Lab Sample IDs: 1964209

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.3	101	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A81969

Included Lab Sample IDs: 1964208

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	102	100	P/P	90 - 110
Sulfate	101	101	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A82073

Included Lab Sample IDs: 1964208

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	95.1	97.8	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A82106

Included Lab Sample IDs: 1964209

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.2	96.6	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A82192

Included Lab Sample IDs: 1964247

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	81.1	95.4	P/P	50 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A82192
Included Lab Sample IDs: 1964247

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetaminophen	106	105	P/P	60 - 150
Bentazon	115	108	P/P	50 - 150
Carbamazepine	110	117	P/P	60 - 150
Diuron	117	111	P/P	60 - 150
Fenuron	114	113	P/P	60 - 150
Fluridone	105	101	P/P	60 - 160
Imidacloprid	99.9	104	P/P	60 - 150
Linuron	129	121	P/P	60 - 150
MCP	102	97.4	P/P	50 - 150
Primidone	108	114	P/P	60 - 150
Triclopyr	92.8	90.8	P/P	50 - 150

Reference Method: SM 4500 F-C-97
Run ID: A82245
Included Lab Sample IDs: 1964208

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.6	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	LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity				0.669	
EPA 300.0 Rev. 2.1	Chloride	96.4	96.1 96.8		0.402	
	Sulfate	95.0	95.9 97.5		0.466	
EPA 350.1 Rev. 2.0	Ammonia-N	101	97.9 100			1.94
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	93.9	92.0 94.5			2.30
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	105	101 102			0.494
EPA 365.1 Rev. 2.0	Total-P	100	96.7 96.5			0.163
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	95.4	94.1 94.1			0.0
EPA 8321B	2,4-D	71.2				21.5
	Acetaminophen	109	134 126			5.63
	Bentazon	84.2	68.5 57.0			8.15
	Carbamazepine	94.0	93.4 90.7			2.87
	Diuron	86.8	84.6 77.4			8.34
	Fenuron	115	98.1 88.2			10.6
	Fluridone	86.2	71.6 66.0			2.79
	Imidacloprid	95.2	149 153			2.65
	Linuron	89.5	85.7 87.7			2.27
	MCP	81.1	64.2 59.4			7.72
	Primidone	107	127 113			11.2
	Sucralose	105	116 112			3.87
	Triclopyr	73.8	64.7 52.8			20.2
SM 2120 B	Color (true)				3.35	

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision SMP	MS
					LCS	
SM 2320 B-97	Total Alkalinity	97.3			0.687	
SM 2540 C-97	TDS				6.53	
SM 4500 F-C-97	Fluoride	96.2	94.9	96.1		0.940
SM 5310 B-00	Organic Carbon	95.8	107			0.538

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1964208
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1964208
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1964208
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1964209
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1964209
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1964209
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1964209
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1964210
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	1964247
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	1964247
SM 2120 B / E31780	True Color measured at 450 nm	1964208
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1964208
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1964208
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1964208
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1964208
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1964209

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	02/02/2018			02/02/2018 14:20	Tanya Welborn	1964208
EPA 300.0 Rev. 2.1	02/02/2018			02/09/2018	Julia Storbeck	1964208
EPA 350.1 Rev. 2.0	02/02/2018			02/09/2018	Julia Storbeck	1964209
EPA 351.2 Rev. 2.0	02/02/2018	02/07/2018	Adrian Shelby	02/07/2018	Joseph Suarez	1964209
EPA 353.2 Rev. 2.0	02/02/2018			02/05/2018	Lauren Bottorf	1964209
EPA 365.1 Rev. 2.0	02/02/2018	02/07/2018	Sima Feizi	02/08/2018	Lipi Saha	1964209
EPA 365.1 Rev. 2.0 dissolved	02/02/2018			02/02/2018 16:05	Megan Treadwell	1964210
EPA 8321B	02/02/2018	02/06/2018	Juyoung Kim	02/07/2018	Juyoung Kim	1964247
	02/02/2018	02/07/2018	Hoor Shaik	02/09/2018	Julie Michelle Frank	1964247
SM 2120 B	02/02/2018			02/02/2018 17:14	Tanya Welborn	1964208
SM 2320 B-97	02/02/2018			02/14/2018	Dale L. Simmons	1964208
SM 2540 C-97	02/02/2018			02/07/2018	Yijie Li	1964208
SM 2540 D-97	02/02/2018			02/07/2018	Yijie Li	1964208
SM 4500 F-C-97	02/02/2018			02/22/2018	Dale L. Simmons	1964208
SM 5310 B-00	02/02/2018			02/15/2018	Megan Treadwell	1964209