

Chemical Analysis Report

SW-DIST-2018-04-03-02

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-2018-04-02-21**
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: Dylan Horning

For additional information please contact
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Certified by: Liang Lin, Environmental Administrator

Date Certified: 23-APR-2018 10:59

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

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 @ 19

Collection Date/Time: 04/02/2018 12:50

Field ID: G1SW0103

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1980245	EPA 180.1 Rev. 2.0	Turbidity	1.4		NTU	P342712	
	EPA 300.0 Rev. 2.1	Chloride	16		mg Cl/L	P342831	
		Sulfate	1.4		mg SO4/L	P342834	
	SM 2120 B	Color (true)	170		PCU	P342647	
	SM 2320 B-97	Total Alkalinity	85	A	mg CaCO3/L	P343370	
	SM 2540 C-97	TDS	175		mg/L	P343340	
	SM 2540 D-97	TSS	3	I	mg/L	P343452	
	SM 4500 F-C-97	Fluoride	0.053	I	mg F/L	P343375	
1980246	EPA 350.1 Rev. 2.0	Ammonia-N	0.030		mg N/L	P343232	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.83		mg N/L	P342813	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.012		mg N/L	P342941	
	EPA 365.1 Rev. 2.0	Total-P	0.057		mg P/L	P342809	
	SM 5310 B-00	Organic Carbon	27		mg C/L	P343191	
1980247	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.028		mg P/L	P342698	

Ref. Method and Comment:

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

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

EPA 365.1 Rev. 2.0: Total-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: HORSEHOLE CREEK @ 19

Collection Date/Time: 04/02/2018 12:50

Field ID: G1SW0103

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1980251	EPA 8321B	2,4-D	0.0020	U	ug/L	P342539	
		Sucralose**	0.11	U	ug/L	P342825	
		Bentazon	8.0E-04	U	ug/L	P342539	
		MCP	0.0020	U	ug/L	P342539	
		Triclopyr**	0.0040	U	ug/L	P342539	
		Imidacloprid	0.0020	U	ug/L	P342539	MS
		Diuron	0.0020	U	ug/L	P342539	
		Pyraclostrobin**	0.0020	U	ug/L	P342539	
		Primidone**	0.0040	U	ug/L	P342539	
		Linuron	0.0040	U	ug/L	P342539	
		Acetaminophen**	0.0080	UJ	ug/L	P342539	SUR
		Fenuron	0.016	U	ug/L	P342539	
		Imazapyr**	0.010	I	ug/L	P342539	
		Carbamazepine**	4.0E-04	U	ug/L	P342539	
		Fluridone**	8.0E-04	U	ug/L	P342539	
		Hydrocodone**	8.0E-04	U	ug/L	P342539	

Ref. Method and Comment:

EPA 8321B: MS accuracy for 2,4-D and imazapyr could not be assessed due to high concentration of parameter in the spiked sample. Refer to the narrative for an explanation of QC Codes.

Quality Assurance Report

Method Blank Results

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P342712

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P342831

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P342834

Component	Result	Code	Units
Sulfate	0.20	U	mg SO ₄ /L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343232

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P342813

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P342941

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: P342809

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P342698

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

Reference Method: EPA 8321B
Batch ID: P342539

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B
Batch ID: P342539

Component	Result	Code	Units
Diuron	0.0020	U	ug/L
Fenuron	0.017	I	ug/L
Fluridone	8.0E-04	U	ug/L
Hydrocodone	8.0E-04	U	ug/L
Imazapyr	0.0040	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
Pyraclostrobin	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Reference Method: EPA 8321B
Batch ID: P342825

Component	Result	Code	Units
Sucralose	0.11	U	ug/L

Reference Method: SM 2120 B
Batch ID: P342647

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P343370

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

Reference Method: SM 2540 C-97
Batch ID: P343340

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P343452

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P343375

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P343191

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

Reference Method: SM 5310 B-00
Batch ID: P343191

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: P342831

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	99.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P342834

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343232

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.3		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P342813

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	93.5		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P342941

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P342809

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P342698

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

Reference Method: EPA 8321B
Batch ID: P342539

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

Reference Method: EPA 8321B
Batch ID: P342539

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	64.8		P	40 - 150
Acetaminophen	99.8		P	30 - 150
Bentazon	68.3		P	30 - 150
Carbamazepine	83.6		P	40 - 150
Diuron	66.7		P	40 - 150
Fenuron	114		P	40 - 150
Fluridone	62.2		P	40 - 150
Hydrocodone	118		P	40 - 150
Imazapyr	73.4		P	40 - 150
Imidacloprid	106		P	40 - 160
Linuron	79.8		P	40 - 150
MCPP	61.0		P	40 - 150
Primidone	110		P	40 - 150
Pyraclostrobin	66.6		P	40 - 150
Triclopyr	56.8		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P342825

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	117		P	40 - 150

Reference Method: SM 2320 B-97
Batch ID: P343370

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P343375

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.6		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P343191

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	104		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P342831

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1980171	Chloride	98.1		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P342834

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1979904	Sulfate	96.9		P	90 - 110
1980171	Sulfate	100		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P343232

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1979968	Ammonia-N	97.2	97.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P342813

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1979968	Kjeldahl Nitrogen	95.1	96.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P342941

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1980176	NO2NO3-N	103	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P342698

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1980247	O-Phosphate-P	95.4	96.0	P/P	90 - 110

Reference Method: EPA 8321B
 Batch ID: P342539

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1979892	Acetaminophen	127	125	P/P	30 - 150
1979892	Bentazon	37.7	33.9	P/P	30 - 150
1979892	Carbamazepine	94.2	92.9	P/P	40 - 150
1979892	Diuron	72.4	79.4	P/P	40 - 150
1979892	Fenuron	101	106	P/P	40 - 150
1979892	Fluridone	65.1	62.8	P/P	40 - 150
1979892	Hydrocodone	139	140	P/P	40 - 150
1979892	Imidacloprid	185	197	F/F	40 - 160
1979892	Linuron	82.6	91.5	P/P	40 - 150
1979892	MCP	55.2	56.7	P/P	40 - 150
1979892	Primidone	132	132	P/P	40 - 150
1979892	Pyraclostrobin	75.7	73.6	P/P	40 - 150
1979892	Triclopyr	59.3	54.8	P/P	40 - 150

Reference Method: EPA 8321B
 Batch ID: P342825

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1979892	Sucralose	69.9	75.2	P/P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
 Batch ID: P343375

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1980245	Fluoride	96.9	98.6	P/P	91 - 105

Reference Method: SM 5310 B-00
 Batch ID: P343191

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1979921	Organic Carbon	97.6	95.8	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P342712

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1980130	Turbidity	0.837	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P342831

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1979904	Chloride	0.304	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P342834

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1979904	Sulfate	0.243	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P343232

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1979968	Ammonia-N	0.204	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P342813

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1979968	Kjeldahl Nitrogen	0.744	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P342941

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P342941

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1980176	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P342809

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1980260	Total-P	0.241	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P342698

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1980247	O-Phosphate-P	0.487	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P342539

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1979892	2,4-D	3.02	Spike	P	0 - 30
1979892	Acetaminophen	1.33	Spike	P	0 - 30
1979892	Bentazon	9.31	Spike	P	0 - 30
1979892	Carbamazepine	1.36	Spike	P	0 - 30
1979892	Diuron	9.25	Spike	P	0 - 30
1979892	Fenuron	5.30	Spike	P	0 - 30
1979892	Fluridone	3.64	Spike	P	0 - 30
1979892	Hydrocodone	0.429	Spike	P	0 - 30
1979892	Imazapyr	7.98	Spike	P	0 - 30
1979892	Imidacloprid	5.04	Spike	P	0 - 30
1979892	Linuron	10.2	Spike	P	0 - 30
1979892	MCPP	2.68	Spike	P	0 - 30
1979892	Primidone	0.439	Spike	P	0 - 30
1979892	Pyraclostrobin	2.75	Spike	P	0 - 30
1979892	Triclopyr	7.82	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P342825

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1979892	Sucralose	4.85	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P342647

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1980172	Color (true)	1.71	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
Batch ID: P343370

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1980245	Total Alkalinity	0.247	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P343340

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1980232	TDS	6.10	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P343375

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1980245	Fluoride	1.49	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P343191

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1979921	Organic Carbon	1.16	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: 1980251
Field Sample ID: G1SW0103

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	120	P	30 - 160
EPA 8321B	Acetaminophen-d4	171	F	30 - 160
EPA 8321B	Carbamazepine-d10	119	P	30 - 160
EPA 8321B	Diuron-d6	91.9	P	30 - 160
EPA 8321B	Primidone-d5	115	P	30 - 160
EPA 8321B	Sucralose-d6	48.5	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A83001
Included Lab Sample IDs: 1980245

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

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B
Run ID: A83011
Included Lab Sample IDs: 1980245

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.9	99.8	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A83021
Included Lab Sample IDs: 1980247

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.9	98.6	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A83022
Included Lab Sample IDs: 1980245

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A83073
Included Lab Sample IDs: 1980246

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A83084
Included Lab Sample IDs: 1980246

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A83103
Included Lab Sample IDs: 1980246

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	90.9	P/P	90 - 110

Reference Method: EPA 8321B
Run ID: A83110
Included Lab Sample IDs: 1980251

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	94.8	99.1	P/P	50 - 150
Acetaminophen	114	103	P/P	60 - 150
Bentazon	106	104	P/P	50 - 150
Carbamazepine	108	106	P/P	60 - 150
Diuron	121	122	P/P	60 - 150
Fenuron	108	103	P/P	60 - 150
Fluridone	120	119	P/P	60 - 160
Hydrocodone	120	104	P/P	60 - 150
Imazapyr	90.5	85.0	P/P	50 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A83110
Included Lab Sample IDs: 1980251

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Imidacloprid	107	103	P/P	60 - 150
Linuron	118	129	P/P	60 - 150
MCPP	102	100	P/P	50 - 150
Primidone	118	106	P/P	60 - 150
Pyraclostrobin	117	111	P/P	60 - 150
Triclopyr	94.9	95.1	P/P	50 - 150

Reference Method: SM 5310 B-00
Run ID: A83162
Included Lab Sample IDs: 1980246

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.2	92.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A83174
Included Lab Sample IDs: 1980246

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

Reference Method: EPA 8321B
Run ID: A83192
Included Lab Sample IDs: 1980251

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	108	101	P/P	60 - 130

Reference Method: SM 2320 B-97
Run ID: A83225
Included Lab Sample IDs: 1980245

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.9	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A83225
Included Lab Sample IDs: 1980245

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	100	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	MS
						SMP	
EPA 180.1 Rev. 2.0	Turbidity					0.837	
EPA 300.0 Rev. 2.1	Chloride	99.7	98.1			0.304	
	Sulfate	99.1	96.9	100		0.243	
EPA 350.1 Rev. 2.0	Ammonia-N	97.3	97.2	97.4			0.204
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	93.5	95.1	96.0			0.744
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	102	103	103			0.0
EPA 365.1 Rev. 2.0	Total-P	104					0.241
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	103	95.4	96.0			0.487
EPA 8321B	2,4-D	64.8					3.02
	Acetaminophen	99.8	127	125			1.33
	Bentazon	68.3	37.7	33.9			9.31
	Carbamazepine	83.6	94.2	92.9			1.36
	Diuron	66.7	72.4	79.4			9.25
	Fenuron	114	101	106			5.30
	Fluridone	62.2	65.1	62.8			3.64
	Hydrocodone	118	139	140			0.429
	Imazapyr	73.4					7.98
	Imidacloprid	106	185	197			5.04
	Linuron	79.8	82.6	91.5			10.2
	MCP	61.0	55.2	56.7			2.68
	Primidone	110	132	132			0.439
	Pyraclostrobin	66.6	75.7	73.6			2.75
	Sucralose	117	69.9	75.2			4.85
	Triclopyr	56.8	59.3	54.8			7.82
SM 2120 B	Color (true)					1.71	
SM 2320 B-97	Total Alkalinity	102				0.247	
SM 2540 C-97	TDS					6.10	
SM 4500 F-C-97	Fluoride	95.6	96.9	98.6			1.49
SM 5310 B-00	Organic Carbon	104	97.6	95.8			1.16

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1980245
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1980245
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1980245
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1980246
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1980246
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1980246
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1980246
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1980247
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	1980251
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	1980251
SM 2120 B / E31780	True Color measured at 450 nm	1980245
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1980245
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1980245
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1980245

Reference Method Descriptions

Method / DoH Cert #	Description	<u>Associated Samples</u>
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1980245
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1980246

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	04/03/2018			04/03/2018 16:07	DeAsia Armster	1980245
EPA 300.0 Rev. 2.1	04/03/2018			04/05/2018 06:06	Lipi Saha	1980245
EPA 350.1 Rev. 2.0	04/03/2018			04/11/2018 12:33	Ping Hua	1980246
EPA 351.2 Rev. 2.0	04/03/2018	04/05/2018 10:30	Adrian Shelby	04/06/2018 13:52	Joseph Suarez	1980246
EPA 353.2 Rev. 2.0	04/03/2018			04/06/2018 13:52	Lauren Bottorf	1980246
EPA 365.1 Rev. 2.0	04/03/2018	04/05/2018 11:16	Sima Feizi	04/06/2018 10:06	Beverly Y. Sanders	1980246
EPA 365.1 Rev. 2.0 dissolved	04/03/2018			04/03/2018 15:14	Megan Treadwell	1980247
EPA 8321B	04/03/2018	04/04/2018 12:00	Hoor Shaik	04/05/2018 06:42	Julie Michelle Frank	1980251
	04/03/2018	04/04/2018 12:00	Hoor Shaik	04/05/2018 22:51	Julie Michelle Frank	1980251
	04/03/2018	04/05/2018 14:30	Julie Michelle Frank	04/10/2018 20:29	Julie Michelle Frank	1980251
SM 2120 B	04/03/2018			04/03/2018 16:12	Tanya Welborn	1980245
SM 2320 B-97	04/03/2018			04/13/2018 07:11	Dale L. Simmons	1980245
SM 2540 C-97	04/03/2018			04/06/2018 16:01	Yijie Li	1980245
SM 2540 D-97	04/03/2018			04/06/2018 16:01	Yijie Li	1980245
SM 4500 F-C-97	04/03/2018			04/13/2018 07:04	Dale L. Simmons	1980245
SM 5310 B-00	04/03/2018			04/10/2018 19:11	Julia Storbeck	1980246