

Chemical Analysis Report

SO-DIST-2018-05-11-01

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

Event Description: **Gators & Ditches**
Request ID: **RQ-2018-04-23-20**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
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FLDEP South District Office
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Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator

Date Certified: 18-JUN-2018 11:28



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: Metals, 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: ALLIGATOR @ JACARANDA

Collection Date/Time: 05/10/2018 09:05

Field ID: G2SD0026

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1992228	EPA 8321B	2,4-D	0.0024	I	ug/L	P344935	
		Bentazon	0.016		ug/L	P344935	MS
		MCP	0.0020	U	ug/L	P344935	
		Triclopyr**	0.0040	U	ug/L	P344935	
		Imidacloprid	0.014		ug/L	P344935	
		Diuron	0.0020	U	ug/L	P344935	MS
		Pyraclostrobin**	0.0020	U	ug/L	P344935	
		Primidone**	0.0074	I	ug/L	P344935	
		Linuron	0.0040	U	ug/L	P344935	
		Acetaminophen**	0.0080	U	ug/L	P344935	
		Fenuron	0.029	I	ug/L	P344935	
		Imazapyr**	1.8		ug/L	P344935	
		Carbamazepine**	0.0015	I	ug/L	P344935	MS
		Fluridone**	0.022		ug/L	P344935	
		Hydrocodone**	8.0E-04	U	ug/L	P344935	
		Sucralose**	0.70		ug/L	P345005	

Sample Location: Woodmere Creek@Heron Rd

Collection Date/Time: 05/10/2018 09:40

Field ID: G2SD0027

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1992229	EPA 8321B	2,4-D	0.0020	U	ug/L	P344935	
		Bentazon	0.016		ug/L	P344935	MS
		MCP	0.0066	I	ug/L	P344935	
		Triclopyr**	0.0040	U	ug/L	P344935	
		Imidacloprid	0.0088		ug/L	P344935	
		Diuron	0.0020	U	ug/L	P344935	MS
		Pyraclostrobin**	0.0020	U	ug/L	P344935	
		Primidone**	0.0059	I	ug/L	P344935	
		Linuron	0.0040	U	ug/L	P344935	
		Acetaminophen**	0.0080	U	ug/L	P344935	
		Fenuron	0.016	U	ug/L	P344935	
		Imazapyr**	0.44		ug/L	P344935	
		Carbamazepine**	0.0096		ug/L	P344935	MS
		Fluridone**	6.6E-04	I	ug/L	P344935	
		Hydrocodone**	8.0E-04	U	ug/L	P344935	
		Sucralose**	3.2		ug/L	P345005	

Sample Location: TrailerParkCanal@Mouth

Collection Date/Time: 05/10/2018 10:45

Field ID: G3SD0072

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1992206	EPA 180.1 Rev. 2.0	Turbidity	6.7		NTU	P345146	
	EPA 300.0 Rev. 2.1	Sulfate	2.1E+03		mg SO4/L	P345290	

Field ID: G3SD0072

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1992206	SM 2320 B-97	Total Alkalinity	119		mg CaCO3/L	P345490	
	SM 2540 C-97	TDS	2.74E+04		mg/L	P345724	
	SM 2540 D-97	TSS	15		mg/L	P345717	
	SM 4500 F-C-97	Fluoride	1.1		mg F/L	P345492	MS
1992208	EPA 350.1 Rev. 2.0	Ammonia-N	0.020		mg N/L	P345379	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.89		mg N/L	P345534	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.005	I	mg N/L	P345351	
	EPA 365.1 Rev. 2.0	Total-P	0.25		mg P/L	P345382	
	SM 5310 B-00	Organic Carbon	9.0		mg C/L	P345546	
1992210	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.15		mg P/L	P345153	
1992230	EPA 200.7 Rev. 4.4	Iron	440	I	ug/L	P345381	
	EPA 200.8 Rev. 5.4	Arsenic	2.27		ug/L	P345381	
		Cadmium	0.080	U	ug/L	P345381	
		Chromium	1.6	U	ug/L	P345381	
		Copper	1.9	I	ug/L	P345381	
		Lead	0.33	I	ug/L	P345381	
		Nickel	0.80	U	ug/L	P345381	
		Silver	0.040	U	ug/L	P345381	
		Zinc	4.6	I	ug/L	P345381	

Ref. Method and Comment:

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

Sample Location: ClevelandCemetaryDitch

Collection Date/Time: 05/10/2018 11:35

Field ID: G3SD0076

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1992207	EPA 180.1 Rev. 2.0	Turbidity	1.7		NTU	P345146	
	EPA 300.0 Rev. 2.1	Sulfate	1.4E+03		mg SO4/L	P345290	
	SM 2320 B-97	Total Alkalinity	128		mg CaCO3/L	P345490	
	SM 2540 C-97	TDS	1.70E+04		mg/L	P345724	
	SM 2540 D-97	TSS	3	IA	mg/L	P345717	
	SM 4500 F-C-97	Fluoride	0.88		mg F/L	P345492	MS
1992209	EPA 350.1 Rev. 2.0	Ammonia-N	0.054		mg N/L	P345379	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.93		mg N/L	P345534	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P345351	
	EPA 365.1 Rev. 2.0	Total-P	0.44		mg P/L	P345382	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P345546	
1992211	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.39		mg P/L	P345153	
1992231	EPA 200.7 Rev. 4.4	Iron	170	I	ug/L	P345381	
	EPA 200.8 Rev. 5.4	Arsenic	1.70		ug/L	P345381	
		Cadmium	0.060	U	ug/L	P345381	
		Chromium	1.2	U	ug/L	P345381	
		Copper	0.60	U	ug/L	P345381	
		Lead	0.15	U	ug/L	P345381	
		Nickel	0.60	U	ug/L	P345381	

Field ID: G3SD0076

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1992231	EPA 200.8 Rev. 5.4	Silver	0.030	U	ug/L	P345381	
		Zinc	3.0	U	ug/L	P345381	

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P345146

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P345381

Component	Result	Code	Units
Iron	30	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P345381

Component	Result	Code	Units
Arsenic	0.050	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Copper	0.20	U	ug/L
Lead	0.050	U	ug/L
Nickel	0.20	U	ug/L
Silver	0.010	U	ug/L
Zinc	1.0	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P345290

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P345379

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P345534

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P345351

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P345351

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P345382

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P345153

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

Reference Method: EPA 8321B
Batch ID: P344935

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	0.016	U	ug/L
Fluridone	4.0E-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: P345005

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: SM 2320 B-97
Batch ID: P345490

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

Reference Method: SM 2540 C-97
Batch ID: P345724

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P345717

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P345492

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P345546

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P345381

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	103		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P345381

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	100		P	85 - 115
Cadmium	97.0		P	85 - 115
Chromium	106		P	85 - 115
Copper	95.2		P	85 - 115
Lead	98.2		P	85 - 115
Nickel	98.0		P	85 - 115
Silver	105		P	85 - 115
Zinc	95.8		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P345290

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P345379

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P345534

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P345351

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: P345382

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P345153

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.2		P	90 - 110

Reference Method: EPA 8321B
Batch ID: P344935

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	104		P	40 - 150
Acetaminophen	93.4		P	30 - 150
Bentazon	102		P	30 - 150
Carbamazepine	67.4		P	40 - 150
Diuron	65.0		P	40 - 150
Fenuron	107		P	40 - 150
Fluridone	85.4		P	40 - 150
Hydrocodone	109		P	40 - 150
Imazapyr	103		P	40 - 150
Imidacloprid	113		P	40 - 160
Linuron	101		P	40 - 150
MCPP	109		P	40 - 150
Primidone	103		P	40 - 150
Pyraclostrobin	83.4		P	40 - 150
Triclopyr	109		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P345005

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	109		P	40 - 150

Reference Method: SM 2320 B-97
Batch ID: P345490

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P345492

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	92.9		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P345546

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.8		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P345381

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1992394	Iron	100	101	P/P	70 - 130

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P345381

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1992394	Arsenic	109	111	P/P	70 - 130
1992394	Cadmium	95.7	97.4	P/P	70 - 130
1992394	Chromium	104	104	P/P	70 - 130
1992394	Copper	90.2	92.1	P/P	70 - 130
1992394	Lead	105	105	P/P	70 - 130
1992394	Nickel	93.1	94.1	P/P	70 - 130
1992394	Silver	100	101	P/P	70 - 130
1992394	Zinc	95.2	96.2	P/P	70 - 130

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P345290

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1992098	Sulfate	90.3		P	90 - 110
1992222	Sulfate	94.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P345379

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1991631	Ammonia-N	98.4	99.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P345534

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1992376	Kjeldahl Nitrogen	93.5	95.4	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P345351

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1991938	NO2NO3-N	102	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P345382

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1992443	Total-P	91.5	95.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P345153

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1992388	O-Phosphate-P	96.6	97.6	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P344935

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1990998	2,4-D	74.1	71.4	P/P	40 - 150
1990998	Acetaminophen	71.6	72.9	P/P	30 - 150
1990998	Bentazon	25.7	27.9	F/F	30 - 150
1990998	Carbamazepine	33.9	35.1	F/F	40 - 150
1990998	Diuron	37.5	38.0	F/F	40 - 150
1990998	Fenuron	42.6	46.5	P/P	40 - 150
1990998	Fluridone	63.7	66.1	P/P	40 - 150
1990998	Hydrocodone	67.5	71.6	P/P	40 - 150
1990998	Imazapyr	91.0	89.8	P/P	40 - 150
1990998	Imidacloprid	102	103	P/P	40 - 160
1990998	Linuron	78.7	77.8	P/P	40 - 150
1990998	MCP	65.8	60.1	P/P	40 - 150
1990998	Primidone	60.5	55.6	P/P	40 - 150
1990998	Pyraclostrobin	69.1	69.7	P/P	40 - 150
1990998	Triclopyr	77.8	78.2	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P345005

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1991713	Sucralose	97.2	99.2	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P345492

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1991068	Fluoride	89.2	89.2	F/F	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P345546

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1991941	Organic Carbon	94.9	94.4	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P345146

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1992167	Turbidity	2.37	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P345381

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1992394	Iron	0.867	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P345381

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1992394	Arsenic	1.72	Spike	P	0 - 20
1992394	Cadmium	1.79	Spike	P	0 - 20
1992394	Chromium	0.454	Spike	P	0 - 20
1992394	Copper	1.90	Spike	P	0 - 20
1992394	Lead	0.596	Spike	P	0 - 20
1992394	Nickel	1.09	Spike	P	0 - 20
1992394	Silver	0.905	Spike	P	0 - 20
1992394	Zinc	1.13	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P345290

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1992098	Sulfate	0.377	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P345379

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1991631	Ammonia-N	1.14	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P345534

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1992376	Kjeldahl Nitrogen	1.35	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P345351

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1991938	NO2NO3-N	0.971	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P345382

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1992443	Total-P	4.03	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P345153

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1992388	O-Phosphate-P	0.586	Spike	P	0 - 20

Reference Method: EPA 8321B

Batch ID: P344935

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1990998	2,4-D	3.71	Spike	P	0 - 30
1990998	Acetaminophen	1.78	Spike	P	0 - 30
1990998	Bentazon	8.36	Spike	P	0 - 30
1990998	Carbamazepine	3.60	Spike	P	0 - 30
1990998	Diuron	1.32	Spike	P	0 - 30
1990998	Fenuron	8.76	Spike	P	0 - 30
1990998	Fluridone	3.74	Spike	P	0 - 30
1990998	Hydrocodone	5.84	Spike	P	0 - 30
1990998	Imazapyr	0.809	Spike	P	0 - 30
1990998	Imidacloprid	0.974	Spike	P	0 - 30
1990998	Linuron	1.24	Spike	P	0 - 30
1990998	MCP	9.09	Spike	P	0 - 30
1990998	Primidone	8.44	Spike	P	0 - 30
1990998	Pyraclostrobin	0.775	Spike	P	0 - 30
1990998	Triclopyr	0.510	Spike	P	0 - 30

Reference Method: EPA 8321B

Batch ID: P345005

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1991713	Sucralose	1.94	Spike	P	0 - 30

Reference Method: SM 2320 B-97

Batch ID: P345490

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1991068	Total Alkalinity	1.46	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97

Batch ID: P345724

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1992822	TDS	4.68	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
Batch ID: P345492

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1991068	Fluoride	0.0	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P345546

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1991941	Organic Carbon	0.436	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: 1992228
Field Sample ID: G2SD0026

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	70.2	P	30 - 160
EPA 8321B	Acetaminophen-d4	74.6	P	30 - 160
EPA 8321B	Carbamazepine-d10	44.6	P	30 - 160
EPA 8321B	Diuron-d6	46.5	P	30 - 160
EPA 8321B	Primidone-d5	80.4	P	30 - 160
EPA 8321B	Sucralose-d6	105	P	40 - 160

Lab Sample ID: 1992229
Field Sample ID: G2SD0027

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	79.8	P	30 - 160
EPA 8321B	Acetaminophen-d4	81.9	P	30 - 160
EPA 8321B	Carbamazepine-d10	43.1	P	30 - 160
EPA 8321B	Diuron-d6	48.0	P	30 - 160
EPA 8321B	Primidone-d5	81.4	P	30 - 160
EPA 8321B	Sucralose-d6	119	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A83829
Included Lab Sample IDs: 1992206, 1992207

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	100	P/P	95 - 105

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A83830

Included Lab Sample IDs: 1992210, 1992211

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	101	99.6	P/P	90 - 110
O-Phosphate-P	99.4	98.4	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A83885

Included Lab Sample IDs: 1992206, 1992207

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

Reference Method: EPA 8321B

Run ID: A83887

Included Lab Sample IDs: 1992228, 1992229

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	110	101	P/P	50 - 150
Bentazon	112	119	P/P	50 - 150
MCP	104	104	P/P	50 - 150
Triclopyr	103	108	P/P	50 - 160

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A83899

Included Lab Sample IDs: 1992208, 1992209

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO ₂ NO ₃ -N	100	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A83920

Included Lab Sample IDs: 1992208, 1992209

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

Reference Method: SM 2320 B-97

Run ID: A83973

Included Lab Sample IDs: 1992206, 1992207

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

Reference Method: SM 4500 F-C-97

Run ID: A83973

Included Lab Sample IDs: 1992206, 1992207

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	96.3	98.1	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A83978

Included Lab Sample IDs: 1992228, 1992229

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	109	109	P/P	60 - 160

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A83986

Included Lab Sample IDs: 1992230, 1992231

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	100	99.7	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A83989

Included Lab Sample IDs: 1992208, 1992209

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.0	95.2	P/P	90 - 110
Organic Carbon	95.4	95.0	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A84028

Included Lab Sample IDs: 1992230, 1992231

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	99.2	98.3	P/P	90 - 110
Cadmium	95.1	95.2	P/P	90 - 110
Copper	97.6	95.4	P/P	90 - 110
Lead	97.4	96.9	P/P	90 - 110
Nickel	97.3	94.2	P/P	90 - 110
Silver	104	104	P/P	90 - 110
Zinc	97.2	95.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A84044

Included Lab Sample IDs: 1992208, 1992209

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	93.7	94.9	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A84054

Included Lab Sample IDs: 1992230, 1992231

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chromium	107	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A84065

Included Lab Sample IDs: 1992208, 1992209

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.6	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A84229

Included Lab Sample IDs: 1992228, 1992229

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetaminophen	103	108	P/P	60 - 150
Carbamazepine	94.7	91.8	P/P	60 - 150
Diuron	99.0	96.2	P/P	60 - 150
Fenuron	94.4	99.1	P/P	60 - 150
Fluridone	97.9	97.4	P/P	60 - 160
Hydrocodone	110	106	P/P	60 - 150
Imazapyr	114	108	P/P	50 - 150
Imidacloprid	104	97.7	P/P	60 - 150
Linuron	112	112	P/P	60 - 150
Primidone	107	107	P/P	60 - 150
Pyraclostrobin	97.8	91.7	P/P	60 - 150

Reference Method: EPA 8321B

Run ID: A84278

Included Lab Sample IDs: 1992228

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Imazapyr	99.8	101	P/P	50 - 150

* 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					2.37	
EPA 200.7 Rev. 4.4	Iron	103	100	101			0.867
EPA 200.8 Rev. 5.4	Arsenic	100	109	111			1.72
	Cadmium	97.0	95.7	97.4			1.79
	Chromium	106	104	104			0.454
	Copper	95.2	90.2	92.1			1.90
	Lead	98.2	105	105			0.596
	Nickel	98.0	93.1	94.1			1.09
	Silver	105	100	101			0.905
	Zinc	95.8	95.2	96.2			1.13
EPA 300.0 Rev. 2.1	Sulfate	96.4	90.3	94.6		0.377	
EPA 350.1 Rev. 2.0	Ammonia-N	100	98.4	99.7			1.14
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.8	93.5	95.4			1.35
EPA 353.2 Rev. 2.0	NO2NO3-N	102	102	104			0.971
EPA 365.1 Rev. 2.0	Total-P	102	91.5	95.5			4.03
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.2	96.6	97.6			0.586
EPA 8321B	2,4-D	104	74.1	71.4			3.71
	Acetaminophen	93.4	71.6	72.9			1.78
	Bentazon	102	25.7	27.9			8.36
	Carbamazepine	67.4	33.9	35.1			3.60
	Diuron	65.0	37.5	38.0			1.32
	Fenuron	107	42.6	46.5			8.76

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision LCS	SMP	MS
EPA 8321B	Fluridone	85.4	63.7	66.1			3.74
	Hydrocodone	109	67.5	71.6			5.84
	Imazapyr	103	91.0	89.8			0.809
	Imidacloprid	113	102	103			0.974
	Linuron	101	78.7	77.8			1.24
	MCP	109	65.8	60.1			9.09
	Primidone	103	60.5	55.6			8.44
	Pyraclostrobin	83.4	69.1	69.7			0.775
	Sucralose	109	97.2	99.2			1.94
	Triclopyr	109	77.8	78.2			0.510
SM 2320 B-97	Total Alkalinity	101				1.46	
SM 2540 C-97	TDS					4.68	
SM 4500 F-C-97	Fluoride	92.9	89.2	89.2			0.0
SM 5310 B-00	Organic Carbon	94.8	94.9	94.4			0.436

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1992206, 1992207
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1992230, 1992231
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	1992230, 1992231
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1992206, 1992207
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1992208, 1992209
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1992208, 1992209
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1992208, 1992209
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1992208, 1992209
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1992210, 1992211
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	1992228, 1992229
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1992206, 1992207
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1992206, 1992207
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	1992206, 1992207
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1992206, 1992207
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1992208, 1992209

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	05/11/2018			05/11/2018 14:35	Tanya Welborn	1992206, 1992207
EPA 200.7 Rev. 4.4	05/11/2018	05/16/2018 12:00	Martin Acosta	05/17/2018 23:07	Betina Topolski	1992230
	05/11/2018	05/16/2018 12:00	Martin Acosta	05/17/2018 23:15	Betina Topolski	1992231
EPA 200.8 Rev. 5.4	05/11/2018	05/16/2018 12:00	Martin Acosta	05/18/2018 12:47	Robert K Palmer	1992230
	05/11/2018	05/16/2018 12:00	Martin Acosta	05/18/2018 12:56	Robert K Palmer	1992231
	05/11/2018	05/16/2018 12:00	Martin Acosta	05/21/2018 14:49	Robert K Palmer	1992230
	05/11/2018	05/16/2018 12:00	Martin Acosta	05/21/2018 14:54	Robert K Palmer	1992231
EPA 300.0 Rev. 2.1	05/11/2018			05/14/2018 23:54	Lipi Saha	1992206
	05/11/2018			05/15/2018 00:06	Lipi Saha	1992207
EPA 350.1 Rev. 2.0	05/11/2018			05/14/2018 12:54	Ping Hua	1992208
	05/11/2018			05/14/2018 12:55	Ping Hua	1992209
EPA 351.2 Rev. 2.0	05/11/2018	05/17/2018 15:45	Adrian Shelby	05/18/2018 20:09	Joseph Suarez	1992208
	05/11/2018	05/17/2018 15:45	Adrian Shelby	05/18/2018 20:10	Joseph Suarez	1992209
EPA 353.2 Rev. 2.0	05/11/2018			05/15/2018 13:35	Lauren Bottorf	1992208
	05/11/2018			05/15/2018 13:36	Lauren Bottorf	1992209
EPA 365.1 Rev. 2.0	05/11/2018	05/16/2018 08:57	Sima Feizi	05/22/2018 09:54	Beverly Y. Sanders	1992208
	05/11/2018	05/16/2018 08:57	Sima Feizi	05/22/2018 09:56	Beverly Y. Sanders	1992209
EPA 365.1 Rev. 2.0 dissolved	05/11/2018			05/11/2018 14:37	Julia Storbeck	1992210
	05/11/2018			05/11/2018 15:25	Julia Storbeck	1992211
EPA 8321B	05/11/2018	05/11/2018 13:00	Hoor Shaik	05/12/2018 11:01	Juyoung Kim	1992228
	05/11/2018	05/11/2018 13:00	Hoor Shaik	05/12/2018 11:36	Juyoung Kim	1992229
	05/11/2018	05/11/2018 13:00	Hoor Shaik	05/16/2018 11:34	Juyoung Kim	1992228
	05/11/2018	05/11/2018 13:00	Hoor Shaik	05/16/2018 12:08	Juyoung Kim	1992229
	05/11/2018	05/11/2018 13:00	Hoor Shaik	06/01/2018 00:13	Juyoung Kim	1992228
	05/11/2018	05/15/2018 16:00	Hoor Shaik	05/15/2018 21:18	Juyoung Kim	1992228
	05/11/2018	05/15/2018 16:00	Hoor Shaik	05/15/2018 21:37	Juyoung Kim	1992229
SM 2320 B-97	05/11/2018			05/17/2018 00:33	Dale L. Simmons	1992206
	05/11/2018			05/17/2018 00:43	Dale L. Simmons	1992207
SM 2540 C-97	05/11/2018			05/16/2018 15:26	Yijie Li	1992206, 1992207
SM 2540 D-97	05/11/2018			05/16/2018 15:26	Yijie Li	1992206, 1992207
SM 4500 F-C-97	05/11/2018			05/16/2018 22:45	Dale L. Simmons	1992206
	05/11/2018			05/16/2018 22:49	Dale L. Simmons	1992207
SM 5310 B-00	05/11/2018			05/17/2018 08:20	Megan Treadwell	1992208
	05/11/2018			05/17/2018 09:06	Megan Treadwell	1992209