

Chemical Analysis Report

NE-DIST-2018-08-10-01

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

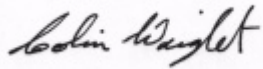
Event Description: **LSJR North Salt Boat**
Request ID: **RQ-2018-08-06-15**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
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8800 Baymeadows Way West
Jacksonville, FL 32256-7577
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Certified by: Colin Wright, Program Administrator

Date Certified: 27-AUG-2018 17:52



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: TROUT RIVER ABOVE 295

Collection Date/Time: 08/09/2018 08:40

Field ID: G2NE1138

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2016218	EPA 180.1 Rev. 2.0	Turbidity	10	A	NTU	P349937	
	SM 2320 B-97	Total Alkalinity	32		mg CaCO3/L	P350148	
	SM 2540 D-97	TSS	6	I	mg/L	P350400	
	SM 4500 F-C-97	Fluoride	0.071	I	mg F/L	P350151	
2016221	EPA 350.1 Rev. 2.0	Ammonia-N	0.13		mg N/L	P350240	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P350200	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.071		mg N/L	P350359	
	EPA 365.1 Rev. 2.0	Total-P	0.18		mg P/L	P350354	
	SM 5310 B-00	Organic Carbon	30		mg C/L	P350253	
2016224	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.12		mg P/L	P349929	
2016248	EPA 8321B	2,4-D	0.0092		ug/L	P349855	
		Bentazon	0.0015	I	ug/L	P349855	
		MCP	0.0063	I	ug/L	P349855	
		Triclopyr**	0.0040	U	ug/L	P349855	
		Imidacloprid	0.011		ug/L	P349855	
		Diuron	0.0039	I	ug/L	P349855	
		Pyraclostrobin**	0.0020	U	ug/L	P349855	
		Primidone**	0.0040	U	ug/L	P349855	
		Linuron	0.0040	U	ug/L	P349855	
		Acetaminophen**	0.0080	U	ug/L	P349855	
		Fenuron	0.016	U	ug/L	P349855	
		Imazapyr**	0.054		ug/L	P349855	
		Carbamazepine**	8.0E-04	U	ug/L	P349855	
		Fluridone**	0.0088		ug/L	P349855	
		Hydrocodone**	8.0E-04	U	ug/L	P349855	
		Naproxen**	0.0080	U	ug/L	P349855	
		Ibuprofen**	0.020	U	ug/L	P349855	
		Sucralose**	0.13		ug/L	P349904	

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: MONCRIEF CREEK NEAR MOUTH

Collection Date/Time: 08/09/2018 09:25

Field ID: 20030115

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2016219	EPA 180.1 Rev. 2.0	Turbidity	12		NTU	P349937	
	SM 2320 B-97	Total Alkalinity	52		mg CaCO3/L	P350148	
	SM 2540 D-97	TSS	16		mg/L	P350400	
	SM 4500 F-C-97	Fluoride	0.12		mg F/L	P350151	
2016222	EPA 350.1 Rev. 2.0	Ammonia-N	0.010		mg N/L	P350240	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.96		mg N/L	P350200	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.16		mg N/L	P350359	
	EPA 365.1 Rev. 2.0	Total-P	0.13		mg P/L	P350354	
	SM 5310 B-00	Organic Carbon	20		mg C/L	P350385	
2016225	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.064		mg P/L	P349929	
2016249	EPA 8321B	2,4-D	0.027		ug/L	P349855	
		Bentazon	0.0041		ug/L	P349855	
		MCP	0.0031	I	ug/L	P349855	
		Triclopyr**	0.0040	U	ug/L	P349855	
		Imidacloprid	0.019		ug/L	P349855	
		Diuron	0.0074	I	ug/L	P349855	
		Pyraclostrobin**	0.0020	U	ug/L	P349855	
		Primidone**	0.0040	U	ug/L	P349855	
		Linuron	0.0040	U	ug/L	P349855	
		Acetaminophen**	0.0080	U	ug/L	P349855	
		Fenuron	0.016	U	ug/L	P349855	
		Imazapyr**	0.079		ug/L	P349855	
		Carbamazepine**	8.0E-04	U	ug/L	P349855	
		Fluridone**	0.0093		ug/L	P349855	
		Hydrocodone**	8.0E-04	U	ug/L	P349855	
		Naproxen**	0.0080	U	ug/L	P349855	
		Ibuprofen**	0.020	U	ug/L	P349855	
		Sucralose**	0.43		ug/L	P349904	

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: TROUT R @ I-95 BURT MAXWELL DOCK

Collection Date/Time: 08/09/2018 09:35

Field ID: 20030121

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2016220	EPA 180.1 Rev. 2.0	Turbidity	12		NTU	P349937	
	SM 2320 B-97	Total Alkalinity	52		mg CaCO3/L	P350149	
	SM 2540 D-97	TSS	17		mg/L	P350400	
	SM 4500 F-C-97	Fluoride	0.11		mg F/L	P350152	
2016223	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P350240	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P350200	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.18		mg N/L	P350359	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P350354	
	SM 5310 B-00	Organic Carbon	19		mg C/L	P350385	
2016226	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.058		mg P/L	P349929	
2016250	EPA 8321B	2,4-D	0.016		ug/L	P349855	
		Bentazon	0.0055		ug/L	P349855	
		MCP	0.0020	U	ug/L	P349855	
		Triclopyr**	0.0040	U	ug/L	P349855	
		Imidacloprid	0.020		ug/L	P349855	
		Diuron	0.010		ug/L	P349855	
		Pyraclostrobin**	0.0020	U	ug/L	P349855	
		Primidone**	0.0040	U	ug/L	P349855	
		Linuron	0.0040	U	ug/L	P349855	
		Acetaminophen**	0.0080	U	ug/L	P349855	
		Fenuron	0.016	U	ug/L	P349855	
		Imazapyr**	0.055		ug/L	P349855	
		Carbamazepine**	8.0E-04	U	ug/L	P349855	
		Fluridone**	0.0060		ug/L	P349855	
		Hydrocodone**	8.0E-04	U	ug/L	P349855	
		Naproxen**	0.0080	U	ug/L	P349855	
		Ibuprofen**	0.020	U	ug/L	P349855	
		Sucralose**	0.53		ug/L	P349904	

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: ORTEGA R BR ROOSEVELT BLVD

Collection Date/Time: 08/09/2018 10:30

Field ID: 20030077

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2016227	EPA 180.1 Rev. 2.0	Turbidity	6.0		NTU	P349937	
	SM 2320 B-97	Total Alkalinity	40		mg CaCO3/L	P350149	
	SM 2540 D-97	TSS	5	I	mg/L	P350400	
	SM 4500 F-C-97	Fluoride	0.068	I	mg F/L	P350152	
2016228	EPA 350.1 Rev. 2.0	Ammonia-N	0.048		mg N/L	P350240	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.89		mg N/L	P350200	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.048		mg N/L	P350359	
	EPA 365.1 Rev. 2.0	Total-P	0.089		mg P/L	P350354	
	SM 5310 B-00	Organic Carbon	20		mg C/L	P350385	
2016229	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.055		mg P/L	P349929	

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: FISHING CRK AT PUBLIC BOAT RAMP OFF
 SEABOARD AVE**

Collection Date/Time: 08/09/2018 10:40

Field ID: 20030617

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2016251	EPA 8321B	2,4-D	0.074		ug/L	P349855	
		Bentazon	0.0063		ug/L	P349855	
		MCP	0.0038	I	ug/L	P349855	
		Triclopyr**	0.0040	U	ug/L	P349855	
		Imidacloprid	0.031		ug/L	P349855	
		Diuron	0.019		ug/L	P349855	
		Pyraclostrobin**	0.0020	U	ug/L	P349855	
		Primidone**	0.0040	U	ug/L	P349855	
		Linuron	0.0040	U	ug/L	P349855	
		Acetaminophen**	0.0080	U	ug/L	P349855	
		Fenuron	0.016	U	ug/L	P349855	
		Imazapyr**	0.11		ug/L	P349855	
		Carbamazepine**	8.0E-04	U	ug/L	P349855	
		Fluridone**	0.046		ug/L	P349855	
		Hydrocodone**	8.0E-04	U	ug/L	P349855	
		Naproxen**	0.0080	U	ug/L	P349855	
		Ibuprofen**	0.020	U	ug/L	P349855	
		Sucralose**	0.24		ug/L	P349904	

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P349937

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P350240

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P350200

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P350359

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: P350354

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P349929

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

Reference Method: EPA 8321B
Batch ID: P349855

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	8.0E-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
Ibuprofen	0.020	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
Naproxen	0.0080	U	ug/L
Primidone	0.0040	U	ug/L
Pyraclostrobin	0.0020	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B
Batch ID: P349855

Component	Result	Code	Units
Triclopyr	0.0040	U	ug/L

Reference Method: EPA 8321B
Batch ID: P349904

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: SM 2320 B-97
Batch ID: P350148

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

Reference Method: SM 2320 B-97
Batch ID: P350149

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

Reference Method: SM 2540 D-97
Batch ID: P350400

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P350151

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P350152

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P350253

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

Reference Method: SM 5310 B-00
Batch ID: P350385

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P350240

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	96.8		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P350200

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P350359

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P350354

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P349929

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

Reference Method: EPA 8321B
Batch ID: P349855

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	94.9		P	40 - 150
Acetaminophen	89.9		P	30 - 150
Bentazon	83.9		P	30 - 150
Carbamazepine	76.0		P	40 - 150
Diuron	67.0		P	40 - 150
Fenuron	92.7		P	40 - 150
Fluridone	75.1		P	40 - 150
Hydrocodone	78.4		P	40 - 150
Ibuprofen	86.4		P	40 - 150
Imazapyr	68.9		P	40 - 150
Imidacloprid	101		P	40 - 160
Linuron	60.2		P	40 - 150
MCPP	94.8		P	40 - 150
Naproxen	93.2		P	40 - 150
Primidone	82.1		P	40 - 150
Pyraclostrobin	67.5		P	40 - 150
Triclopyr	103		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P349904

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: P349904

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	99.5		P	40 - 150

Reference Method: SM 2320 B-97
Batch ID: P350148

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	98 - 107

Reference Method: SM 2320 B-97
Batch ID: P350149

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P350151

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.5		P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P350152

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.4		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P350253

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

Reference Method: SM 5310 B-00
Batch ID: P350385

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.0		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P350240

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2016139	Ammonia-N	95.8	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P350200

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2016728	Kjeldahl Nitrogen	97.1	91.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P350359

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2016221	NO2NO3-N	94.6	95.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P350354

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2016183	Total-P	95.8	95.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P349929

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2016229	O-Phosphate-P	96.2	96.1	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P349855

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2015801	2,4-D	136	113	P/P	40 - 150
2015801	Acetaminophen	91.3	94.3	P/P	30 - 150
2015801	Bentazon	43.5	36.8	P/P	30 - 150
2015801	Carbamazepine	69.2	66.0	P/P	40 - 150
2015801	Diuron	54.3	50.9	P/P	40 - 150
2015801	Fenuron	80.3	70.7	P/P	40 - 150
2015801	Fluridone	70.1	72.1	P/P	40 - 150
2015801	Hydrocodone	65.1	68.0	P/P	40 - 150
2015801	Ibuprofen	58.2	53.1	P/P	40 - 150
2015801	Imazapyr	77.8	81.2	P/P	40 - 150
2015801	Imidacloprid	130	130	P/P	40 - 160
2015801	Linuron	52.3	53.3	P/P	40 - 150
2015801	MCP	111	102	P/P	40 - 150
2015801	Naproxen	89.8	79.0	P/P	40 - 150
2015801	Primidone	77.7	78.8	P/P	40 - 150
2015801	Pyraclostrobin	68.5	74.6	P/P	40 - 150
2015801	Triclopyr	148	136	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P349904

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

Reference Method: EPA 8321B
Batch ID: P349904

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2016146	Sucralose	97.2	92.5	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P350151

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2016260	Fluoride	99.4	98.0	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P350152

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2016384	Fluoride	98.9	98.2	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P350253

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2016177	Organic Carbon	95.2	96.8	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P350385

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2016264	Organic Carbon	95.8	95.9	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P349937

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2016218	Turbidity	4.20	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P350240

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2016139	Ammonia-N	2.59	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P350200

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2016728	Kjeldahl Nitrogen	5.42	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P350359

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2016221	NO2NO3-N	0.384	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P350354

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2016183	Total-P	0.110	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P349929

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2016229	O-Phosphate-P	0.0663	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P349855

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2015801	2,4-D	17.3	Spike	P	0 - 30
2015801	Acetaminophen	3.18	Spike	P	0 - 30
2015801	Bentazon	15.3	Spike	P	0 - 30
2015801	Carbamazepine	4.76	Spike	P	0 - 30
2015801	Diuron	5.74	Spike	P	0 - 30
2015801	Fenuron	12.7	Spike	P	0 - 30
2015801	Fluridone	2.75	Spike	P	0 - 30
2015801	Hydrocodone	4.37	Spike	P	0 - 30
2015801	Ibuprofen	8.99	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P349855

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2015801	Imazapyr	2.10	Spike	P	0 - 30
2015801	Imidacloprid	0.358	Spike	P	0 - 30
2015801	Linuron	1.86	Spike	P	0 - 30
2015801	MCP	8.17	Spike	P	0 - 30
2015801	Naproxen	12.8	Spike	P	0 - 30
2015801	Primidone	1.36	Spike	P	0 - 30
2015801	Pyraclostrobin	8.42	Spike	P	0 - 30
2015801	Triclopyr	8.20	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P349904

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2016146	Sucralose	4.98	Spike	P	0 - 30

Reference Method: SM 2320 B-97
Batch ID: P350148

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2016260	Total Alkalinity	0.622	Sample	P	0 - 1.6

Reference Method: SM 2320 B-97
Batch ID: P350149

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2016384	Total Alkalinity	0.421	Sample	P	0 - 1.6

Reference Method: SM 4500 F-C-97
Batch ID: P350151

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2016260	Fluoride	0.953	Spike	P	0 - 3.5

Reference Method: SM 4500 F-C-97
Batch ID: P350152

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2016384	Fluoride	0.516	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P350253

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2016177	Organic Carbon	0.875	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P350385

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2016264	Organic Carbon	0.122	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: 2016248
Field Sample ID: G2NE1138

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	81.6	P	30 - 160
EPA 8321B	Acetaminophen-d4	95.4	P	30 - 160
EPA 8321B	Carbamazepine-d10	65.1	P	30 - 160
EPA 8321B	Diuron-d6	44.6	P	30 - 160
EPA 8321B	Ibuprofen-d3	65.3	P	30 - 160
EPA 8321B	Primidone-d5	70.1	P	30 - 160
EPA 8321B	Sucralose-d6	105	P	40 - 160

Lab Sample ID: 2016249
Field Sample ID: 20030115

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	89.3	P	30 - 160
EPA 8321B	Acetaminophen-d4	81.1	P	30 - 160
EPA 8321B	Carbamazepine-d10	58.5	P	30 - 160
EPA 8321B	Diuron-d6	53.4	P	30 - 160
EPA 8321B	Ibuprofen-d3	80.0	P	30 - 160
EPA 8321B	Primidone-d5	73.1	P	30 - 160
EPA 8321B	Sucralose-d6	92.7	P	40 - 160

Lab Sample ID: 2016250
Field Sample ID: 20030121

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	87.8	P	30 - 160
EPA 8321B	Acetaminophen-d4	87.2	P	30 - 160
EPA 8321B	Carbamazepine-d10	57.0	P	30 - 160
EPA 8321B	Diuron-d6	54.3	P	30 - 160
EPA 8321B	Ibuprofen-d3	95.6	P	30 - 160
EPA 8321B	Primidone-d5	70.9	P	30 - 160
EPA 8321B	Sucralose-d6	86.8	P	40 - 160

Lab Sample ID: 2016251
Field Sample ID: 20030617

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	93.6	P	30 - 160
EPA 8321B	Acetaminophen-d4	84.5	P	30 - 160
EPA 8321B	Carbamazepine-d10	53.0	P	30 - 160
EPA 8321B	Diuron-d6	53.0	P	30 - 160
EPA 8321B	Ibuprofen-d3	82.5	P	30 - 160
EPA 8321B	Primidone-d5	69.7	P	30 - 160
EPA 8321B	Sucralose-d6	94.9	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A855929

Included Lab Sample IDs: 2016248, 2016249, 2016250, 2016251

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	79.0	87.4	P/P	50 - 150
2,4-D	87.4	116	P/P	50 - 150
Bentazon	75.9	82.0	P/P	50 - 160
Bentazon	82.0	126	P/P	50 - 160
Ibuprofen	107	103	P/P	50 - 160
Ibuprofen	116	107	P/P	50 - 160
MCP	74.0	80.8	P/P	50 - 150
MCP	80.8	125	P/P	50 - 150
Naproxen	90.7	144	P/P	50 - 160
Naproxen	98.2	90.7	P/P	50 - 160
Triclopyr	81.7	134	P/P	50 - 160
Triclopyr	90.0	81.7	P/P	50 - 160

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A85808

Included Lab Sample IDs: 2016224, 2016225, 2016226, 2016229

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A85811

Included Lab Sample IDs: 2016218, 2016219, 2016220, 2016227

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	102	102	P/P	95 - 105

Reference Method: EPA 8321B

Run ID: A85816

Included Lab Sample IDs: 2016248, 2016249, 2016250, 2016251

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	96.0	86.6	P/P	60 - 160

Reference Method: SM 2320 B-97

Run ID: A85893

Included Lab Sample IDs: 2016218, 2016219, 2016220, 2016227

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

Reference Method: SM 4500 F-C-97

Run ID: A85893

Included Lab Sample IDs: 2016218, 2016219, 2016220, 2016227

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A85932

Included Lab Sample IDs: 2016221, 2016222, 2016223, 2016228

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.2	99.0	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A85935

Included Lab Sample IDs: 2016221

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.8	97.6	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A85967

Included Lab Sample IDs: 2016248, 2016249, 2016250, 2016251

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetaminophen	107	102	P/P	60 - 150
Carbamazepine	109	107	P/P	60 - 150
Diuron	94.3	90.4	P/P	60 - 150
Fenuron	104	103	P/P	60 - 150
Fluridone	96.2	97.3	P/P	60 - 160
Hydrocodone	95.4	94.9	P/P	60 - 150
Imazapyr	80.7	86.8	P/P	50 - 150
Imidacloprid	107	106	P/P	60 - 150
Linuron	93.1	89.7	P/P	60 - 150
Primidone	106	97.0	P/P	60 - 150
Pyraclostrobin	93.5	92.6	P/P	60 - 150

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A85973

Included Lab Sample IDs: 2016221, 2016222, 2016223, 2016228

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.5	99.5	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A85977

Included Lab Sample IDs: 2016222, 2016223, 2016228

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.4	96.4	P/P	90 - 110
Organic Carbon	96.6	96.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A85982

Included Lab Sample IDs: 2016221, 2016222, 2016223, 2016228

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	102	93.4	P/P	90 - 110
Kjeldahl Nitrogen	93.4	95.1	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A85998

Included Lab Sample IDs: 2016221, 2016222, 2016223, 2016228

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	99.9	P/P	90 - 110
Total-P	99.9	101	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity				4.20	
EPA 350.1 Rev. 2.0	Ammonia-N	96.8	95.8 100			2.59
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	97.1 91.1			5.42
EPA 353.2 Rev. 2.0	NO2NO3-N	99.0	94.6 95.2			0.384
EPA 365.1 Rev. 2.0	Total-P	98.6	95.8 95.7			0.110
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	103	96.2 96.1			0.0663
EPA 8321B	2,4-D	94.9	136 113			17.3
	Acetaminophen	89.9	91.3 94.3			3.18
	Bentazon	83.9	43.5 36.8			15.3
	Carbamazepine	76.0	69.2 66.0			4.76
	Diuron	67.0	54.3 50.9			5.74
	Fenuron	92.7	80.3 70.7			12.7
	Fluridone	75.1	70.1 72.1			2.75
	Hydrocodone	78.4	65.1 68.0			4.37
	Ibuprofen	86.4	58.2 53.1			8.99
	Imazapyr	68.9	77.8 81.2			2.10
	Imidacloprid	101	130 130			0.358
	Linuron	60.2	52.3 53.3			1.86
	MCPP	94.8	111 102			8.17
	Naproxen	93.2	89.8 79.0			12.8
	Primidone	82.1	77.7 78.8			1.36
	Pyraclostrobin	67.5	68.5 74.6			8.42
	Sucralose	99.5	97.2 92.5			4.98
	Triclopyr	103	148 136			8.20
SM 2320 B-97	Total Alkalinity	103			0.622	
	Total Alkalinity	103			0.421	
SM 4500 F-C-97	Fluoride	98.5	99.4 98.0			0.953
	Fluoride	99.4	98.9 98.2			0.516
SM 5310 B-00	Organic Carbon	95.8	95.2 96.8			0.875
	Organic Carbon	98.0	95.8 95.9			0.122

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2016218, 2016219, 2016220, 2016227
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2016221, 2016222, 2016223, 2016228
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2016221, 2016222, 2016223, 2016228
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2016221, 2016222, 2016223, 2016228
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2016221, 2016222, 2016223, 2016228
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2016224, 2016225, 2016226, 2016229
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2016248, 2016249, 2016250, 2016251
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2016218, 2016219, 2016220, 2016227
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2016218, 2016219, 2016220, 2016227
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2016218, 2016219, 2016220, 2016227
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2016221, 2016222, 2016223, 2016228

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	08/10/2018			08/10/2018 15:00	Tanya Welborn	2016218, 2016219, 2016220, 2016227
EPA 350.1 Rev. 2.0	08/10/2018			08/16/2018 12:07	Ping Hua	2016221
	08/10/2018			08/16/2018 12:09	Ping Hua	2016222
	08/10/2018			08/16/2018 12:10	Ping Hua	2016223
	08/10/2018			08/16/2018 12:12	Ping Hua	2016228
EPA 351.2 Rev. 2.0	08/10/2018	08/16/2018 15:30	Adrian Shelby	08/17/2018 11:45	Joseph Suarez	2016221
	08/10/2018	08/16/2018 15:30	Adrian Shelby	08/17/2018 11:47	Joseph Suarez	2016222
	08/10/2018	08/16/2018 15:30	Adrian Shelby	08/17/2018 11:48	Joseph Suarez	2016223
	08/10/2018	08/16/2018 15:30	Adrian Shelby	08/17/2018 11:53	Joseph Suarez	2016228
EPA 353.2 Rev. 2.0	08/10/2018			08/17/2018 11:35	Lauren Bottorf	2016221
	08/10/2018			08/17/2018 11:43	Lauren Bottorf	2016222
	08/10/2018			08/17/2018 11:44	Lauren Bottorf	2016223
	08/10/2018			08/17/2018 11:45	Lauren Bottorf	2016228
EPA 365.1 Rev. 2.0	08/10/2018	08/17/2018 14:01	Sima Feizi	08/20/2018 09:59	Beverly Y. Sanders	2016221
	08/10/2018	08/17/2018 14:01	Sima Feizi	08/20/2018 10:03	Beverly Y. Sanders	2016222
	08/10/2018	08/17/2018 14:01	Sima Feizi	08/20/2018 10:04	Beverly Y. Sanders	2016223
	08/10/2018	08/17/2018 14:01	Sima Feizi	08/20/2018 10:05	Beverly Y. Sanders	2016228
EPA 365.1 Rev. 2.0 dissolved	08/10/2018			08/10/2018 14:50	Megan Treadwell	2016229
	08/10/2018			08/10/2018 15:13	Megan Treadwell	2016224
	08/10/2018			08/10/2018 15:14	Megan Treadwell	2016225
	08/10/2018			08/10/2018 15:15	Megan Treadwell	2016226
EPA 8321B	08/10/2018	08/10/2018 16:00	Hoor Shaik	08/12/2018 03:38	Mohammad Ghaffari	2016248
	08/10/2018	08/10/2018 16:00	Hoor Shaik	08/12/2018 03:53	Mohammad Ghaffari	2016249
	08/10/2018	08/10/2018 16:00	Hoor Shaik	08/12/2018 04:08	Mohammad Ghaffari	2016250
	08/10/2018	08/10/2018 16:00	Hoor Shaik	08/12/2018 04:22	Mohammad Ghaffari	2016251
	08/10/2018	08/13/2018 10:00	Hoor Shaik	08/15/2018 08:23	Juyoung Kim	2016248
	08/10/2018	08/13/2018 10:00	Hoor Shaik	08/15/2018 08:57	Juyoung Kim	2016249
	08/10/2018	08/13/2018 10:00	Hoor Shaik	08/15/2018 09:32	Juyoung Kim	2016250
	08/10/2018	08/13/2018 10:00	Hoor Shaik	08/15/2018 10:06	Juyoung Kim	2016251
	08/10/2018	08/13/2018 10:00	Hoor Shaik	08/16/2018 13:51	Juyoung Kim	2016248
	08/10/2018	08/13/2018 10:00	Hoor Shaik	08/16/2018 15:01	Juyoung Kim	2016249
	08/10/2018	08/13/2018 10:00	Hoor Shaik	08/16/2018 15:35	Juyoung Kim	2016250
	08/10/2018	08/13/2018 10:00	Hoor Shaik	08/16/2018 16:10	Juyoung Kim	2016251
SM 2320 B-97	08/10/2018			08/15/2018 08:03	Dale L. Simmons	2016218
	08/10/2018			08/15/2018 08:13	Dale L. Simmons	2016219
	08/10/2018			08/15/2018 10:07	Dale L. Simmons	2016227
	08/10/2018			08/15/2018 12:09	Dale L. Simmons	2016220
SM 2540 D-97	08/10/2018			08/15/2018 15:06	Yijie Li	2016218, 2016219, 2016220, 2016227
SM 4500 F-C-97	08/10/2018			08/15/2018 08:03	Dale L. Simmons	2016218
	08/10/2018			08/15/2018 08:13	Dale L. Simmons	2016219

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 4500 F-C-97	08/10/2018			08/15/2018 10:07	Dale L. Simmons	2016227
	08/10/2018			08/15/2018 12:09	Dale L. Simmons	2016220
SM 5310 B-00	08/10/2018			08/16/2018 07:39	Megan Treadwell	2016221
	08/10/2018			08/16/2018 23:32	Megan Treadwell	2016222
	08/10/2018			08/16/2018 23:46	Megan Treadwell	2016223
	08/10/2018			08/17/2018 00:30	Megan Treadwell	2016228