

Chemical Analysis Report

NW-DIST-2018-11-08-01

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

Event Description: **Laurel Hill East**
Request ID: **RQ-2018-11-05-29**
Customer: **NW-DIST**
Project ID: **SMP**

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

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Kerry Tate, Ph.D.
Dr. rer. nat. Bettina Steinbock
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator

Date Certified: 30-NOV-2018 11:11



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: GUM CREEK

Collection Date/Time: 11/07/2018 10:10

Field ID: G4NW0382

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2040414	EPA 180.1 Rev. 2.0	Turbidity	4.6		NTU	P354522	
	EPA 300.0 Rev. 2.1	Chloride	4.0		mg Cl/L	P355117	
		Sulfate	0.62		mg SO4/L	P355120	
	SM 2120 B	Color (true)	82	A	PCU	P354456	
	SM 2320 B-97	Total Alkalinity	1.5	I	mg CaCO3/L	P354580	
	SM 2540 C-97	TDS	32		mg/L	P354848	
	SM 2540 D-97	TSS	7	I	mg/L	P354795	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P354583	
2040418	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P354694	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.45		mg N/L	P354715	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.30		mg N/L	P354675	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P354826	
	SM 5310 B-00	Organic Carbon	8.2		mg C/L	P354625	
2040422	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P354458	

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: SHOAL RIVER ABV LAIRD ROAD

Collection Date/Time: 11/07/2018 11:00

Field ID: G4NW0375

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2040426	EPA 180.1 Rev. 2.0	Turbidity	7.7		NTU	P354522	
	EPA 300.0 Rev. 2.1	Chloride	4.4		mg Cl/L	P355117	
		Sulfate	0.96		mg SO4/L	P355120	
	SM 2120 B	Color (true)	73		PCU	P354456	
	SM 2320 B-97	Total Alkalinity	2.6		mg CaCO3/L	P354580	
	SM 2540 C-97	TDS	34		mg/L	P354849	
	SM 2540 D-97	TSS	9	I	mg/L	P354796	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P354583	
2040427	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P354694	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.36		mg N/L	P354715	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.31		mg N/L	P354675	
	EPA 365.1 Rev. 2.0	Total-P	0.024		mg P/L	P354826	
	SM 5310 B-00	Organic Carbon	6.9		mg C/L	P354625	
2040428	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P354458	
2040440	EPA 8321B	2,4-D	0.0020	U	ug/L	P354331	
		Bentazon	9.5E-04	I	ug/L	P354331	
		MCP	0.0020	U	ug/L	P354331	
		Triclopyr**	0.0040	U	ug/L	P354331	
		Imidacloprid	0.0084		ug/L	P354331	
		Diuron	0.0020	U	ug/L	P354331	
		Pyraclostrobin**	0.0020	U	ug/L	P354331	
		Primidone**	0.0040	U	ug/L	P354331	
		Linuron	0.0040	U	ug/L	P354331	
		Acetaminophen**	0.0080	U	ug/L	P354331	
		Fenuron	0.016	U	ug/L	P354331	
		Imazapyr**	0.023		ug/L	P354331	
		Carbamazepine**	8.0E-04	U	ug/L	P354331	
		Fluridone**	4.0E-04	U	ug/L	P354331	
		Hydrocodone**	8.0E-04	U	ug/L	P354331	
		Naproxen**	0.0080	U	ug/L	P354331	
		Ibuprofen**	0.020	U	ug/L	P354331	
		Sucralose**	0.080		ug/L	P354426	
		Acesulfame K**	0.10	U	ug/L	P354426	

Ref. Method and Comment:

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

EPA 8321B: MS accuracy for imazapyr could not be assessed due to high concentration of parameter in the spiked sample.

Sample Location: Pine Log Creek upstream of Long Road

Collection Date/Time: 11/07/2018 11:35

Field ID: G4NW0315

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2040415	EPA 180.1 Rev. 2.0	Turbidity	4.8		NTU	P354522	
	EPA 300.0 Rev. 2.1	Chloride	3.8		mg Cl/L	P355117	
		Sulfate	0.71		mg SO4/L	P355120	
	SM 2120 B	Color (true)	76		PCU	P354456	
	SM 2320 B-97	Total Alkalinity	3.8		mg CaCO3/L	P354580	
	SM 2540 C-97	TDS	28		mg/L	P354849	
	SM 2540 D-97	TSS	7	I	mg/L	P354796	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P354583	
2040419	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P354694	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.35		mg N/L	P354715	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.071		mg N/L	P354675	
	EPA 365.1 Rev. 2.0	Total-P	0.018		mg P/L	P354826	
	SM 5310 B-00	Organic Carbon	8.2		mg C/L	P354625	
2040423	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P354458	

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: Big Horse Creek upstream of Old River Road

Collection Date/Time: 11/07/2018 12:15

Field ID: G4NW0298

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2040416	EPA 180.1 Rev. 2.0	Turbidity	8.1		NTU	P354522	
	EPA 300.0 Rev. 2.1	Chloride	3.6		mg Cl/L	P355117	
		Sulfate	0.95		mg SO4/L	P355120	
	SM 2120 B	Color (true)	47		PCU	P354456	
	SM 2320 B-97	Total Alkalinity	2.7		mg CaCO3/L	P354580	
	SM 2540 C-97	TDS	16	I	mg/L	P354849	
	SM 2540 D-97	TSS	6	I	mg/L	P354796	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P354583	
2040420	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P354694	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.21		mg N/L	P354715	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.068		mg N/L	P354675	
	EPA 365.1 Rev. 2.0	Total-P	0.036		mg P/L	P354826	
	SM 5310 B-00	Organic Carbon	3.6		mg C/L	P354625	
2040424	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.016		mg P/L	P354458	

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: Panther Creek above Sherman Kennedy Road Collection Date/Time: 11/07/2018 13:00

Field ID: G4NW0417

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2040417	EPA 180.1 Rev. 2.0	Turbidity	9.9	A	NTU	P354522	
	EPA 300.0 Rev. 2.1	Chloride	3.4		mg Cl/L	P355117	
		Sulfate	0.87		mg SO4/L	P355120	
	SM 2120 B	Color (true)	50		PCU	P354456	
	SM 2320 B-97	Total Alkalinity	2.6		mg CaCO3/L	P354580	
	SM 2540 C-97	TDS	30		mg/L	P354849	
	SM 2540 D-97	TSS	6	I	mg/L	P354796	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P354583	
2040421	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P354694	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.22		mg N/L	P354715	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.17		mg N/L	P354675	
	EPA 365.1 Rev. 2.0	Total-P	0.013		mg P/L	P354826	
	SM 5310 B-00	Organic Carbon	3.9		mg C/L	P354625	
2040425	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P354458	

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: P354522

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P355117

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P355120

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P354694

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P354715

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P354675

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P354826

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P354458

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

Reference Method: EPA 8321B
Batch ID: P354331

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B
Batch ID: P354331

Component	Result	Code	Units
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
Triclopyr	0.0040	U	ug/L

Reference Method: EPA 8321B
Batch ID: P354426

Component	Result	Code	Units
Acesulfame K	0.10	U	ug/L
Sucralose	0.010	U	ug/L

Reference Method: SM 2120 B
Batch ID: P354456

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P354580

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

Reference Method: SM 2540 C-97
Batch ID: P354848

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P354849

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P354795

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P354796

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P354583

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P354625

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: P355117

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	99.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P355120

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P354694

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P354715

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P354675

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: P354826

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P354458

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

Reference Method: EPA 8321B
Batch ID: P354331

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	97.6		P	40 - 150
Acetaminophen	71.6		P	30 - 150
Bentazon	81.6		P	30 - 150
Carbamazepine	83.9		P	40 - 150
Diuron	67.3		P	40 - 150
Fenuron	95.9		P	40 - 150
Fluridone	83.4		P	40 - 150
Hydrocodone	93.1		P	40 - 150
Ibuprofen	105		P	40 - 150
Imazapyr	91.4		P	40 - 150

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P354331

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Imidacloprid	90.9		P	40 - 160
Linuron	70.7		P	40 - 150
MCPP	103		P	40 - 150
Naproxen	122		P	40 - 150
Primidone	87.7		P	40 - 150
Pyraclostrobin	68.1		P	40 - 150
Triclopyr	105		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P354426

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	80.3		P	40 - 150
Sucralose	98.5		P	40 - 150

Reference Method: SM 2120 B
Batch ID: P354456

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	97.3		P	90 - 110

Reference Method: SM 2320 B-97
Batch ID: P354580

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

Reference Method: SM 4500 F-C-97
Batch ID: P354583

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	102		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P354625

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P355117

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2040257	Chloride	98.5		P	90 - 110
2040258	Chloride	101		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P355120

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2040257	Sulfate	96.5		P	90 - 110
2040258	Sulfate	98.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P354694

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2040273	Ammonia-N	100	94.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P354715

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2040418	Kjeldahl Nitrogen	97.8	99.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P354675

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2040418	NO2NO3-N	101		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P354826

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2040271	Total-P	98.9	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P354458

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2040425	O-Phosphate-P	99.1	101	P/P	90 - 110

Reference Method: EPA 8321B
 Batch ID: P354331

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2040338	2,4-D	125	138	P/P	40 - 150
2040338	Acetaminophen	73.7	81.4	P/P	30 - 150
2040338	Bentazon	45.4	46.2	P/P	30 - 150
2040338	Carbamazepine	65.1	74.2	P/P	40 - 150
2040338	Diuron	57.3	58.6	P/P	40 - 150
2040338	Fenuron	78.0	88.1	P/P	40 - 150
2040338	Fluridone	85.0	88.1	P/P	40 - 150
2040338	Hydrocodone	96.8	102	P/P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P354331

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2040338	Ibuprofen	81.4	69.5	P/P	40 - 150
2040338	Imidacloprid	154	144	P/P	40 - 160
2040338	Linuron	61.9	62.6	P/P	40 - 150
2040338	MCP	144	134	P/P	40 - 150
2040338	Naproxen	87.4	90.5	P/P	40 - 150
2040338	Primidone	88.8	77.7	P/P	40 - 150
2040338	Pyraclostrobin	70.3	73.5	P/P	40 - 150
2040338	Triclopyr	139	143	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P354426

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2040338	Acesulfame K	103	95.0	P/P	40 - 150
2040338	Sucralose	113	114	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P354583

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2040256	Fluoride	101	102	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P354625

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2040262	Organic Carbon	98.2	98.2	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P354522

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2040417	Turbidity	2.94	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P355117

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2040257	Chloride	0.381	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P355120

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2040257	Sulfate	0.822	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P354694

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2040273	Ammonia-N	5.29	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P354715

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2040418	Kjeldahl Nitrogen	0.948	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P354675

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2040418	NO2NO3-N	0.200	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P354826

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2040271	Total-P	1.40	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P354458

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2040425	O-Phosphate-P	1.70	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P354331

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2040338	2,4-D	7.21	Spike	P	0 - 30
2040338	Acetaminophen	9.89	Spike	P	0 - 30
2040338	Bentazon	0.973	Spike	P	0 - 30
2040338	Carbamazepine	12.8	Spike	P	0 - 30
2040338	Diuron	2.15	Spike	P	0 - 30
2040338	Fenuron	12.2	Spike	P	0 - 30
2040338	Fluridone	3.39	Spike	P	0 - 30
2040338	Hydrocodone	4.90	Spike	P	0 - 30
2040338	Ibuprofen	15.7	Spike	P	0 - 30
2040338	Imazapyr	2.48	Spike	P	0 - 30
2040338	Imidacloprid	5.71	Spike	P	0 - 30
2040338	Linuron	1.09	Spike	P	0 - 30
2040338	MCP	7.39	Spike	P	0 - 30
2040338	Naproxen	3.49	Spike	P	0 - 30
2040338	Primidone	12.6	Spike	P	0 - 30
2040338	Pyraclostrobin	4.41	Spike	P	0 - 30
2040338	Triclopyr	2.80	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P354426

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2040338	Acesulfame K	8.09	Spike	P	0 - 30
2040338	Sucralose	0.468	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P354456

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2040414	Color (true)	0.0500	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P354580

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2040256	Total Alkalinity	0.189	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P354848

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2040259	TDS	6.50	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
Batch ID: P354849

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2040404	TDS	7.71	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P354583

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2040256	Fluoride	0.467	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P354625

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2040262	Organic Carbon	0.0496	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: 2040440
Field Sample ID: G4NW0375

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	133	P	30 - 160
EPA 8321B	Acetaminophen-d4	96.7	P	30 - 160
EPA 8321B	Carbamazepine-d10	74.9	P	30 - 160
EPA 8321B	Diuron-d6	67.8	P	30 - 160
EPA 8321B	Endothall-d6	95.7	P	40 - 160
EPA 8321B	Ibuprofen-d3	116	P	30 - 160
EPA 8321B	Primidone-d5	97.4	P	30 - 160
EPA 8321B	Sucralose-d6	108	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B

Run ID: A87644

Included Lab Sample IDs: 2040414, 2040415, 2040416, 2040417, 2040426

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	99.3	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A87645

Included Lab Sample IDs: 2040422, 2040423, 2040424, 2040425, 2040428

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A87677

Included Lab Sample IDs: 2040414, 2040415, 2040416, 2040417, 2040426

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	101	P/P	95 - 105

Reference Method: EPA 8321B

Run ID: A87692

Included Lab Sample IDs: 2040440

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	112	114	P/P	60 - 160

Reference Method: SM 2320 B-97

Run ID: A87712

Included Lab Sample IDs: 2040414, 2040415, 2040416, 2040417, 2040426

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	99.9	P/P	90 - 110
Total Alkalinity	99.5	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A87712

Included Lab Sample IDs: 2040414, 2040415, 2040416, 2040417, 2040426

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

Reference Method: EPA 8321B

Run ID: A87732

Included Lab Sample IDs: 2040440

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	72.4	62.6	P/P	60 - 160

Reference Method: SM 5310 B-00

Run ID: A87733

Included Lab Sample IDs: 2040418, 2040419, 2040420, 2040421, 2040427

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00

Run ID: A87733

Included Lab Sample IDs: 2040418, 2040419, 2040420, 2040421, 2040427

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.7	98.2	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A87745

Included Lab Sample IDs: 2040440

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	90.4	105	P/P	50 - 150
Acetaminophen	75.0	77.3	P/P	60 - 160
Bentazon	91.9	82.1	P/P	50 - 160
Carbamazepine	106	105	P/P	60 - 160
Diuron	99.1	97.1	P/P	60 - 150
Fenuron	91.1	91.6	P/P	60 - 150
Fluridone	95.3	98.7	P/P	60 - 160
Hydrocodone	99.0	79.0	P/P	60 - 150
Ibuprofen	129	140	P/P	50 - 160
Imazapyr	107	84.9	P/P	50 - 150
Imidacloprid	73.4	85.7	P/P	60 - 160
Linuron	101	96.5	P/P	60 - 150
MCPP	94.6	96.2	P/P	50 - 150
Naproxen	85.7	134	P/P	50 - 160
Primidone	94.9	101	P/P	60 - 160
Pyraclostrobin	105	103	P/P	60 - 150
Triclopyr	105	99.2	P/P	50 - 160

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A87753

Included Lab Sample IDs: 2040418, 2040419, 2040420, 2040421, 2040427

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A87762

Included Lab Sample IDs: 2040418, 2040419, 2040420, 2040421, 2040427

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.3	98.6	P/P	90 - 110
Ammonia-N	98.6	99.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A87842

Included Lab Sample IDs: 2040418, 2040419, 2040420, 2040421, 2040427

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	101	P/P	90 - 110
Kjeldahl Nitrogen	101	105	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A87863

Included Lab Sample IDs: 2040418, 2040419, 2040420, 2040421, 2040427

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A87936

Included Lab Sample IDs: 2040414, 2040415, 2040416, 2040417, 2040426

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

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

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.
Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 180.1 Rev. 2.0	Turbidity				2.94	
EPA 300.0 Rev. 2.1	Chloride	99.2	98.5	101	0.381	
	Sulfate	98.5	96.5	98.0	0.822	
EPA 350.1 Rev. 2.0	Ammonia-N	100	100	94.7		5.29
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	97.8	99.1		0.948
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	102	101			0.200
EPA 365.1 Rev. 2.0	Total-P	101	98.9	100		1.40
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	99.1	101		1.70
EPA 8321B	2,4-D	97.6	125	138		7.21
	Acesulfame K	80.3	103	95.0		8.09
	Acetaminophen	71.6	73.7	81.4		9.89
	Bentazon	81.6	45.4	46.2		0.973
	Carbamazepine	83.9	65.1	74.2		12.8
	Diuron	67.3	57.3	58.6		2.15
	Fenuron	95.9	78.0	88.1		12.2
	Fluridone	83.4	85.0	88.1		3.39
	Hydrocodone	93.1	96.8	102		4.90
	Ibuprofen	105	81.4	69.5		15.7
	Imazapyr	91.4				2.48
	Imidacloprid	90.9	154	144		5.71
	Linuron	70.7	61.9	62.6		1.09
	MCP	103	144	134		7.39
	Naproxen	122	87.4	90.5		3.49
	Primidone	87.7	88.8	77.7		12.6
	Pyraclostrobin	68.1	70.3	73.5		4.41
	Sucralose	98.5	113	114		0.468
	Triclopyr	105	139	143		2.80
SM 2120 B	Color (true)	97.3			0.0500	
SM 2320 B-97	Total Alkalinity	102			0.189	
SM 2540 C-97	TDS				6.50	
	TDS				7.71	
SM 4500 F-C-97	Fluoride	102	101	102		0.467
SM 5310 B-00	Organic Carbon	96.8	98.2	98.2		0.0496

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2040414, 2040415, 2040416, 2040417, 2040426
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2040414, 2040415, 2040416, 2040417, 2040426
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2040414, 2040415, 2040416, 2040417, 2040426
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2040418, 2040419, 2040420, 2040421, 2040427
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2040418, 2040419, 2040420, 2040421, 2040427
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2040418, 2040419, 2040420, 2040421, 2040427
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2040418, 2040419, 2040420, 2040421, 2040427
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2040422, 2040423, 2040424, 2040425, 2040428
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2040440

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 2120 B / E31780	True Color measured at 450 nm	2040414, 2040415, 2040416, 2040417, 2040426
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2040414, 2040415, 2040416, 2040417, 2040426
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2040414, 2040415, 2040416, 2040417, 2040426
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2040414, 2040415, 2040416, 2040417, 2040426
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2040414, 2040415, 2040416, 2040417, 2040426
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2040418, 2040419, 2040420, 2040421, 2040427

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	11/08/2018			11/09/2018 09:35	Megan Treadwell	2040414
	11/08/2018			11/09/2018 09:36	Megan Treadwell	2040415
	11/08/2018			11/09/2018 09:38	Megan Treadwell	2040416
	11/08/2018			11/09/2018 09:40	Megan Treadwell	2040426
	11/08/2018			11/09/2018 09:42	Megan Treadwell	2040417
EPA 300.0 Rev. 2.1	11/08/2018			11/27/2018 03:10	Lipi Saha	2040414
	11/08/2018			11/27/2018 03:22	Lipi Saha	2040415
	11/08/2018			11/27/2018 03:34	Lipi Saha	2040416
	11/08/2018			11/27/2018 03:46	Lipi Saha	2040417
	11/08/2018			11/27/2018 03:58	Lipi Saha	2040426
EPA 350.1 Rev. 2.0	11/08/2018			11/14/2018 12:14	Ping Hua	2040419
	11/08/2018			11/14/2018 12:22	Ping Hua	2040420
	11/08/2018			11/14/2018 12:23	Ping Hua	2040421
	11/08/2018			11/14/2018 12:25	Ping Hua	2040427
	11/08/2018			11/14/2018 12:28	Ping Hua	2040418
EPA 351.2 Rev. 2.0	11/08/2018	11/15/2018 11:30	Adrian Shelby	11/16/2018 23:49	Joseph Suarez	2040418
	11/08/2018	11/15/2018 11:30	Adrian Shelby	11/16/2018 23:54	Joseph Suarez	2040419
	11/08/2018	11/15/2018 11:30	Adrian Shelby	11/16/2018 23:55	Joseph Suarez	2040420
	11/08/2018	11/15/2018 11:30	Adrian Shelby	11/16/2018 23:57	Joseph Suarez	2040421
	11/08/2018	11/15/2018 11:30	Adrian Shelby	11/17/2018 00:02	Joseph Suarez	2040427
EPA 353.2 Rev. 2.0	11/08/2018			11/14/2018 13:48	Lauren Bottorf	2040418
	11/08/2018			11/14/2018 13:59	Lauren Bottorf	2040420
	11/08/2018			11/14/2018 14:00	Lauren Bottorf	2040421
	11/08/2018			11/14/2018 14:01	Lauren Bottorf	2040427
	11/08/2018			11/14/2018 14:49	Lauren Bottorf	2040419
EPA 365.1 Rev. 2.0	11/08/2018	11/16/2018 12:50	Sima Feizi	11/19/2018 12:30	Beverly Y. Sanders	2040418
	11/08/2018	11/16/2018 12:50	Sima Feizi	11/19/2018 12:31	Beverly Y. Sanders	2040419
	11/08/2018	11/16/2018 12:50	Sima Feizi	11/19/2018 12:32	Beverly Y. Sanders	2040420
	11/08/2018	11/16/2018 12:50	Sima Feizi	11/19/2018 12:33	Beverly Y. Sanders	2040421
	11/08/2018	11/16/2018 12:50	Sima Feizi	11/19/2018 12:34	Beverly Y. Sanders	2040427
EPA 365.1 Rev. 2.0 dissolved	11/08/2018			11/08/2018 15:58	Jhamieka S. Greenwood	2040425
	11/08/2018			11/08/2018 16:01	Jhamieka S. Greenwood	2040422
	11/08/2018			11/08/2018 16:02	Jhamieka S. Greenwood	2040423, 2040428
	11/08/2018			11/08/2018 16:04	Jhamieka S. Greenwood	2040424
	11/08/2018	11/09/2018 07:45	Mohammad Ghaffari	11/09/2018 10:26	Mohammad Ghaffari	2040440
EPA 8321B	11/08/2018	11/09/2018 07:45	Mohammad Ghaffari	11/13/2018 14:45	Rebecca Ware	2040440
	11/08/2018	11/13/2018 10:00	Hoor Shaik	11/14/2018 10:39	Juyoung Kim	2040440
	11/08/2018	11/13/2018 10:00	Hoor Shaik	11/14/2018 23:54	Juyoung Kim	2040440
SM 2120 B	11/08/2018			11/08/2018 15:33	Chelsea Hernandez	2040414
	11/08/2018			11/08/2018 15:34	Chelsea Hernandez	2040415

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2120 B	11/08/2018			11/08/2018 15:35	Chelsea Hernandez	2040416, 2040417
	11/08/2018			11/08/2018 15:36	Chelsea Hernandez	2040426
SM 2320 B-97	11/08/2018			11/10/2018 14:38	Dale L. Simmons	2040414
	11/08/2018			11/10/2018 15:30	Dale L. Simmons	2040415
	11/08/2018			11/10/2018 15:42	Dale L. Simmons	2040416
	11/08/2018			11/10/2018 15:55	Dale L. Simmons	2040417
	11/08/2018			11/10/2018 16:07	Dale L. Simmons	2040426
SM 2540 C-97	11/08/2018			11/09/2018 16:54	Yijie Li	2040414, 2040415, 2040416, 2040417, 2040426
SM 2540 D-97	11/08/2018			11/09/2018 16:54	Yijie Li	2040414, 2040415, 2040416, 2040417, 2040426
SM 4500 F-C-97	11/08/2018			11/10/2018 14:38	Dale L. Simmons	2040414
	11/08/2018			11/10/2018 15:30	Dale L. Simmons	2040415
	11/08/2018			11/10/2018 15:42	Dale L. Simmons	2040416
	11/08/2018			11/10/2018 15:55	Dale L. Simmons	2040417
	11/08/2018			11/10/2018 16:07	Dale L. Simmons	2040426
SM 5310 B-00	11/08/2018			11/14/2018 01:04	Megan Treadwell	2040427
	11/08/2018			11/14/2018 12:15	Megan Treadwell	2040418
	11/08/2018			11/14/2018 12:28	Megan Treadwell	2040419
	11/08/2018			11/14/2018 12:40	Megan Treadwell	2040420
	11/08/2018			11/14/2018 12:52	Megan Treadwell	2040421