

Chemical Analysis Report

TLH-ROC-2019-01-23-02

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

Event Description: **Run 3**
Request ID: **RQ-2018-12-31-30**
Customer: **TLH-ROC**
Project ID: **SMP**

Send Reports to:
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Date Certified: 11-FEB-2019 15:41



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 by the Florida Department of Health Environmental Laboratory Certification Program 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: MT SANAI SLOUGH @ WEEPING WILLOW WAY

Collection Date/Time: 01/23/2019 09:00

Field ID: G1TLHR0076

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2056403	EPA 180.1 Rev. 2.0	Turbidity	4.4		NTU	P357796	
	EPA 300.0 Rev. 2.1	Chloride	5.7		mg Cl/L	P358034	
		Sulfate	0.70		mg SO4/L	P358035	
	SM 2120 B	Color (true)	84		PCU	P357802	
	SM 2320 B-97	Total Alkalinity	5.9		mg CaCO3/L	P358236	
	SM 2540 C-97	TDS	25		mg/L	P358050	
	SM 2540 D-97	TSS	8	I	mg/L	P358062	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P358240	
2056405	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P357944	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.69		mg N/L	P357928	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.008	I	mg N/L	P357853	
	EPA 365.1 Rev. 2.0	Total-P	0.094		mg P/L	P357787	
	SM 5310 B-00	Organic Carbon	7.4		mg C/L	P357910	
2056407	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.031		mg P/L	P357731	

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: WOODS CREEK AT OSTEEN RD

Collection Date/Time: 01/23/2019 10:30

Field ID: G1TLHR0067

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2056400	EPA 180.1 Rev. 2.0	Turbidity	2.0		NTU	P357796	
	EPA 300.0 Rev. 2.1	Chloride	6.3		mg Cl/L	P358034	
		Sulfate	2.8		mg SO4/L	P358035	
	SM 2120 B	Color (true)	280		PCU	P357802	
	SM 2320 B-97	Total Alkalinity	123		mg CaCO3/L	P358236	
	SM 2540 C-97	TDS	161		mg/L	P358050	
	SM 2540 D-97	TSS	2	I	mg/L	P358062	
	SM 4500 F-C-97	Fluoride	0.13		mg F/L	P358240	
2056401	EPA 350.1 Rev. 2.0	Ammonia-N	0.016		mg N/L	P357944	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.57		mg N/L	P357928	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.17		mg N/L	P357853	
	EPA 365.1 Rev. 2.0	Total-P	0.13		mg P/L	P357787	
	SM 5310 B-00	Organic Carbon	20		mg C/L	P357910	
2056402	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.098		mg P/L	P357731	
2056416	EPA 8321B	2,4-D	0.0020	U	ug/L	P357299	
		Sucralose**	0.018	I	ug/L	P357752	
		Bentazon	8.0E-04	U	ug/L	P357299	
		MCP	0.0020	U	ug/L	P357299	
		Triclopyr**	0.0040	U	ug/L	P357299	
		Imidacloprid	0.0020	U	ug/L	P357299	MS
		Diuron	0.0020	U	ug/L	P357299	
		Pyraclostrobin**	0.0020	U	ug/L	P357299	
		Primidone**	0.0040	U	ug/L	P357299	
		Linuron	0.0040	U	ug/L	P357299	
		Acetaminophen**	0.0080	U	ug/L	P357299	
		Fenuron	0.016	U	ug/L	P357299	
		Imazapyr**	0.013	I	ug/L	P357299	
		Carbamazepine**	8.0E-04	U	ug/L	P357299	
		Fluridone**	8.0E-04	U	ug/L	P357299	
		Hydrocodone**	0.0020	U	ug/L	P357299	
		Naproxen**	0.0080	U	ug/L	P357299	
		Ibuprofen**	0.020	U	ug/L	P357299	
		Glyphosate**	0.10	U	ug/L	P357752	
		AMPA**	0.10	U	ug/L	P357752	
		Endothall**	0.25	U	ug/L	P357752	
		Glufosinate**	0.10	U	ug/L	P357752	
		Acesulfame K**	0.10	U	ug/L	P357752	

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: SPRING CREEK AT US98

Collection Date/Time: 01/23/2019 10:45

Field ID: G1TLHR0084

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2056404	EPA 180.1 Rev. 2.0	Turbidity	1.8		NTU	P357796	
	EPA 300.0 Rev. 2.1	Chloride	5.9		mg Cl/L	P358034	
		Sulfate	7.8		mg SO4/L	P358035	
	SM 2120 B	Color (true)	240		PCU	P357802	
	SM 2320 B-97	Total Alkalinity	135		mg CaCO3/L	P358236	
	SM 2540 C-97	TDS	174		mg/L	P358050	
	SM 2540 D-97	TSS	3	I	mg/L	P358062	
	SM 4500 F-C-97	Fluoride	0.13		mg F/L	P358240	
2056406	EPA 350.1 Rev. 2.0	Ammonia-N	0.023		mg N/L	P357944	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.50		mg N/L	P357928	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.074		mg N/L	P357855	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P357787	
	SM 5310 B-00	Organic Carbon	16		mg C/L	P357910	
2056408	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.087		mg P/L	P357731	

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: P357796

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P358034

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P358035

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P357944

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P357928

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357853

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357855

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: P357787

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P357731

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B
Batch ID: P357299

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	8.0E-04	U	ug/L
Hydrocodone	0.0020	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: P357752

Component	Result	Code	Units
Acesulfame K	0.10	U	ug/L
AMPA	0.10	U	ug/L
Endothall	0.25	U	ug/L
Glufosinate	0.10	U	ug/L
Glyphosate	0.10	U	ug/L
Sucralose	0.010	U	ug/L

Reference Method: SM 2120 B
Batch ID: P357802

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P358236

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

Reference Method: SM 2540 C-97
Batch ID: P358050

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P358062

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P358240

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P357910

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: P358034

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P358035

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P357944

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: P357928

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	99.5		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357853

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357855

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: P357787

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P357731

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.0		P	90 - 110

Reference Method: EPA 8321B
Batch ID: P357299

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	85.7		P	40 - 150
Acetaminophen	94.2		P	30 - 150
Bentazon	78.9		P	30 - 150
Carbamazepine	90.0		P	40 - 150

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P357299

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Diuron	73.5		P	40 - 150
Fenuron	105		P	40 - 150
Fluridone	100		P	40 - 150
Hydrocodone	99.5		P	40 - 150
Ibuprofen	71.3		P	40 - 150
Imazapyr	83.3		P	40 - 150
Imidacloprid	102		P	40 - 160
Linuron	81.1		P	40 - 150
MCPP	105		P	40 - 150
Naproxen	69.3		P	40 - 150
Primidone	99.9		P	40 - 150
Pyraclostrobin	69.7		P	40 - 150
Triclopyr	56.8		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P357752

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	87.0		P	40 - 150
AMPA	101		P	40 - 150
Endothall	97.4		P	40 - 150
Glufosinate	95.1		P	40 - 150
Glyphosate	90.8		P	40 - 140
Sucralose	79.4		P	40 - 150

Reference Method: SM 2120 B
Batch ID: P357802

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	101		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P358236

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

Reference Method: SM 4500 F-C-97
Batch ID: P358240

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.3		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P357910

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	100		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P358034

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2056361	Chloride	97.8		P	90 - 110
2056423	Chloride	94.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P358035

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2056361	Sulfate	100		P	90 - 110
2056423	Sulfate	100		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P357944

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2056426	Ammonia-N	102	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P357928

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2056362	Kjeldahl Nitrogen	102	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357853

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2056308	NO2NO3-N	100	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357855

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2056406	NO2NO3-N	99.8	99.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P357787

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2056425	Total-P	106	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P357731

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2056363	O-Phosphate-P	94.6	97.0	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P357299

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2055519	2,4-D	86.1	86.3	P/P	40 - 150
2055519	Acetaminophen	119	118	P/P	30 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P357299

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2055519	Bentazon	65.6	61.7	P/P	30 - 150
2055519	Carbamazepine	92.0	86.8	P/P	40 - 150
2055519	Diuron	74.1	68.7	P/P	40 - 150
2055519	Fenuron	102	97.5	P/P	40 - 150
2055519	Fluridone	112	99.0	P/P	40 - 150
2055519	Hydrocodone	117	110	P/P	40 - 150
2055519	Ibuprofen	73.8	72.9	P/P	40 - 150
2055519	Imazapyr	120	117	P/P	40 - 150
2055519	Imidacloprid	163	152	F/P	40 - 160
2055519	Linuron	77.1	71.1	P/P	40 - 150
2055519	MCPP	114	112	P/P	40 - 150
2055519	Naproxen	64.6	53.1	P/P	40 - 150
2055519	Primidone	106	98.6	P/P	40 - 150
2055519	Pyraclostrobin	73.2	69.1	P/P	40 - 150
2055519	Triclopyr	62.4	58.3	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P357752

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2055989	Acesulfame K	76.1	68.6	P/P	40 - 150
2055989	AMPA	93.5	99.0	P/P	40 - 150
2055989	Endothall	103	91.1	P/P	40 - 150
2055989	Glufosinate	78.0	81.6	P/P	40 - 150
2055989	Glyphosate	83.4	83.5	P/P	40 - 140
2055989	Sucralose	79.9	71.6	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P358240

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2057237	Fluoride	97.7	97.1	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P357910

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2056386	Organic Carbon	97.0		P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P357796

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2056533	Turbidity	1.62	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P358034

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2056361	Chloride	1.18	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P358035

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2056361	Sulfate	1.63	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P357944

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2056426	Ammonia-N	0.723	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P357928

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2056362	Kjeldahl Nitrogen	2.14	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357853

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2056308	NO2NO3-N	2.39	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357855

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2056406	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P357787

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2056425	Total-P	0.309	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P357731

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2056363	O-Phosphate-P	1.97	Spike	P	0 - 20

Reference Method: EPA 8321B

Batch ID: P357299

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2055519	2,4-D	0.322	Spike	P	0 - 30
2055519	Acetaminophen	0.985	Spike	P	0 - 30
2055519	Bentazon	5.53	Spike	P	0 - 30
2055519	Carbamazepine	5.17	Spike	P	0 - 30
2055519	Diuron	7.22	Spike	P	0 - 30
2055519	Fenuron	4.98	Spike	P	0 - 30
2055519	Fluridone	11.9	Spike	P	0 - 30
2055519	Hydrocodone	6.16	Spike	P	0 - 30
2055519	Ibuprofen	1.21	Spike	P	0 - 30
2055519	Imazapyr	1.54	Spike	P	0 - 30
2055519	Imidacloprid	6.58	Spike	P	0 - 30
2055519	Linuron	8.13	Spike	P	0 - 30
2055519	MCP	2.06	Spike	P	0 - 30
2055519	Naproxen	19.6	Spike	P	0 - 30
2055519	Primidone	7.45	Spike	P	0 - 30
2055519	Pyraclostrobin	5.78	Spike	P	0 - 30
2055519	Triclopyr	6.88	Spike	P	0 - 30

Reference Method: EPA 8321B

Batch ID: P357752

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2055989	Acesulfame K	9.79	Spike	P	0 - 30
2055989	AMPA	4.28	Spike	P	0 - 30
2055989	Endothall	12.4	Spike	P	0 - 30
2055989	Glufosinate	4.47	Spike	P	0 - 30
2055989	Glyphosate	0.0757	Spike	P	0 - 30
2055989	Sucralose	9.69	Spike	P	0 - 30

Reference Method: SM 2120 B

Batch ID: P357802

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2056420	Color (true)	0.0521	Sample	P	0 - 20

Reference Method: SM 2320 B-97

Batch ID: P358236

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2057237	Total Alkalinity	0.0203	Sample	P	0 - 1.6

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
Batch ID: P358050

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2056220	TDS	2.72	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P358240

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2057237	Fluoride	0.477	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P357910

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2056386	Organic Carbon	0.626	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: 2056416

Field Sample ID: G1TLHR0067

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	91.6	P	30 - 160
EPA 8321B	Acetaminophen-d4	118	P	30 - 160
EPA 8321B	Carbamazepine-d10	98.4	P	30 - 160
EPA 8321B	Diuron-d6	87.1	P	30 - 160
EPA 8321B	Endothall-d6	67.6	P	40 - 160
EPA 8321B	Endothall-d6	67.6	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	48.7	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	48.7	P	40 - 160
EPA 8321B	Ibuprofen-d3	83.8	P	30 - 160
EPA 8321B	Primidone-d5	110	P	30 - 160
EPA 8321B	Sucralose-d6	91.2	P	40 - 160
EPA 8321B	Sucralose-d6	91.2	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A88975

Included Lab Sample IDs: 2056402, 2056407, 2056408

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.9	98.7	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A89003

Included Lab Sample IDs: 2056400, 2056403, 2056404

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.5	99.5	P/P	95 - 105

Reference Method: SM 2120 B

Run ID: A89005

Included Lab Sample IDs: 2056400, 2056403, 2056404

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	101	P/P	90 - 115
Color (true)	99.1	101	P/P	90 - 115

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A89022

Included Lab Sample IDs: 2056401, 2056405, 2056406

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	102	P/P	90 - 110
NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A89039

Included Lab Sample IDs: 2056401, 2056405, 2056406

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.0	100	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A89043

Included Lab Sample IDs: 2056401, 2056405, 2056406

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.6	101	P/P	90 - 110
Organic Carbon	99.8	99.6	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A89044

Included Lab Sample IDs: 2056416

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	82.8	80.8	P/P	50 - 150
Acetaminophen	115	115	P/P	60 - 160
Bentazon	103	104	P/P	50 - 160
Carbamazepine	98.3	104	P/P	60 - 150
Diuron	106	105	P/P	60 - 150
Fenuron	107	109	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A89044
Included Lab Sample IDs: 2056416

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluridone	111	114	P/P	60 - 160
Hydrocodone	109	103	P/P	60 - 150
Ibuprofen	99.8	93.7	P/P	50 - 160
Imazapyr	99.1	97.3	P/P	50 - 150
Imidacloprid	100	102	P/P	60 - 150
Linuron	116	115	P/P	60 - 150
MCPP	86.3	87.9	P/P	50 - 150
Naproxen	76.4	98.6	P/P	50 - 160
Primidone	104	104	P/P	60 - 150
Pyraclostrobin	106	103	P/P	60 - 150
Triclopyr	92.2	90.2	P/P	50 - 150

Reference Method: EPA 8321B
Run ID: A89056
Included Lab Sample IDs: 2056416

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	117	150	P/P	60 - 160
Glufosinate	90.6	102	P/P	60 - 160
Glyphosate	86.8	104	P/P	60 - 160

Reference Method: EPA 8321B
Run ID: A89057
Included Lab Sample IDs: 2056416

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	89.7	72.1	P/P	60 - 160
Endothall	80.3	110	P/P	60 - 160

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A89059
Included Lab Sample IDs: 2056401, 2056405, 2056406

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A89065
Included Lab Sample IDs: 2056401, 2056405, 2056406

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	98.0	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A89089
Included Lab Sample IDs: 2056400, 2056403, 2056404

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	103	P/P	90 - 110
Chloride	101	101	P/P	90 - 110
Sulfate	102	102	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A89089

Included Lab Sample IDs: 2056400, 2056403, 2056404

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sulfate	102	105	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A89154

Included Lab Sample IDs: 2056400, 2056403, 2056404

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	99.8	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A89154

Included Lab Sample IDs: 2056400, 2056403, 2056404

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.5	98.1	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A89207

Included Lab Sample IDs: 2056416

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	81.0	77.5	P/P	60 - 160

* 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				1.62	
EPA 300.0 Rev. 2.1	Chloride	101	97.8	94.2	1.18	
	Sulfate	102	100	100	1.63	
EPA 350.1 Rev. 2.0	Ammonia-N	100	102	103		0.723
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.5	102	105		2.14
EPA 353.2 Rev. 2.0	NO2NO3-N	102	100	103		2.39
	NO2NO3-N	102	99.8	99.8		0.0
EPA 365.1 Rev. 2.0	Total-P	107	106	106		0.309
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.0	94.6	97.0		1.97
EPA 8321B	2,4-D	85.7	86.1	86.3		0.322
	Acesulfame K	87.0	76.1	68.6		9.79
	Acetaminophen	94.2	119	118		0.985
	AMPA	101	93.5	99.0		4.28
	Bentazon	78.9	65.6	61.7		5.53
	Carbamazepine	90.0	92.0	86.8		5.17
	Diuron	73.5	74.1	68.7		7.22
	Endothall	97.4	103	91.1		12.4
	Fenuron	105	102	97.5		4.98
	Fluridone	100	112	99.0		11.9
	Glufosinate	95.1	78.0	81.6		4.47
	Glyphosate	90.8	83.4	83.5		0.0757
	Hydrocodone	99.5	117	110		6.16
	Ibuprofen	71.3	73.8	72.9		1.21
	Imazapyr	83.3	120	117		1.54
	Imidacloprid	102	163	152		6.58
	Linuron	81.1	77.1	71.1		8.13
	MCPP	105	114	112		2.06
	Naproxen	69.3	64.6	53.1		19.6
	Primidone	99.9	106	98.6		7.45
	Pyraclostrobin	69.7	73.2	69.1		5.78
	Sucralose	79.4	79.9	71.6		9.69
	Triclopyr	56.8	62.4	58.3		6.88
SM 2120 B	Color (true)	101			0.0521	
SM 2320 B-97	Total Alkalinity	102			0.0203	
SM 2540 C-97	TDS				2.72	
SM 4500 F-C-97	Fluoride	95.3	97.7	97.1		0.477
SM 5310 B-00	Organic Carbon	100	97.0			0.626

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2056400, 2056403, 2056404
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2056400, 2056403, 2056404
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2056400, 2056403, 2056404
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2056401, 2056405, 2056406
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2056401, 2056405, 2056406
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2056401, 2056405, 2056406

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2056401, 2056405, 2056406
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2056402, 2056407, 2056408
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2056416
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	2056416
SM 2120 B / E31780	True Color measured at 450 nm	2056400, 2056403, 2056404
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2056400, 2056403, 2056404
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2056400, 2056403, 2056404
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2056400, 2056403, 2056404
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2056400, 2056403, 2056404
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2056401, 2056405, 2056406

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	01/23/2019			01/24/2019 16:10	Megan Treadwell	2056400, 2056403, 2056404
EPA 300.0 Rev. 2.1	01/23/2019			01/25/2019 19:16	Lipi Saha	2056400
	01/23/2019			01/25/2019 19:52	Lipi Saha	2056403
	01/23/2019			01/25/2019 20:04	Lipi Saha	2056404
EPA 350.1 Rev. 2.0	01/23/2019			01/28/2019 12:04	Ping Hua	2056401
	01/23/2019			01/28/2019 12:05	Ping Hua	2056405
	01/23/2019			01/28/2019 12:07	Ping Hua	2056406
EPA 351.2 Rev. 2.0	01/23/2019	01/28/2019 12:15	Adrian Shelby	01/29/2019 10:50	Joseph Suarez	2056401
	01/23/2019	01/28/2019 12:15	Adrian Shelby	01/29/2019 10:52	Joseph Suarez	2056405
	01/23/2019	01/28/2019 12:15	Adrian Shelby	01/29/2019 10:53	Joseph Suarez	2056406
EPA 353.2 Rev. 2.0	01/23/2019			01/25/2019 11:50	Beverly Y. Sanders	2056401
	01/23/2019			01/25/2019 11:51	Beverly Y. Sanders	2056405
	01/23/2019			01/25/2019 11:58	Beverly Y. Sanders	2056406
EPA 365.1 Rev. 2.0	01/23/2019	01/24/2019 12:50	Sima Feizi	01/25/2019 22:34	Rosalyn Ballman	2056401
	01/23/2019	01/24/2019 12:50	Sima Feizi	01/25/2019 22:35	Rosalyn Ballman	2056405
	01/23/2019	01/24/2019 12:50	Sima Feizi	01/25/2019 22:36	Rosalyn Ballman	2056406
EPA 365.1 Rev. 2.0 dissolved	01/23/2019			01/23/2019 17:21	Jhamieka S. Greenwood	2056402
	01/23/2019			01/23/2019 17:22	Jhamieka S. Greenwood	2056407
	01/23/2019			01/23/2019 17:23	Jhamieka S. Greenwood	2056408
EPA 8321B	01/23/2019	01/24/2019 11:40	Hoor Shaik	01/24/2019 19:27	Juyoung Kim	2056416
	01/23/2019	01/28/2019 09:15	Mohammad Ghaffari	01/28/2019 10:07	Mohammad Ghaffari	2056416
	01/23/2019	01/28/2019 09:15	Mohammad Ghaffari	01/28/2019 12:36	Mohammad Ghaffari	2056416
	01/23/2019	01/28/2019 09:15	Mohammad Ghaffari	02/05/2019 09:25	Rebecca Ware	2056416
SM 2120 B	01/23/2019			01/24/2019 14:44	Chelsea Hernandez	2056403
	01/23/2019			01/24/2019 15:11	Chelsea Hernandez	2056400, 2056404
SM 2320 B-97	01/23/2019			02/02/2019 09:23	Dale L. Simmons	2056400
	01/23/2019			02/02/2019 09:35	Dale L. Simmons	2056403
	01/23/2019			02/02/2019 09:48	Dale L. Simmons	2056404
SM 2540 C-97	01/23/2019			01/25/2019 14:17	Yijie Li	2056400, 2056403, 2056404
SM 2540 D-97	01/23/2019			01/25/2019 14:17	Yijie Li	2056400, 2056403, 2056404
SM 4500 F-C-97	01/23/2019			02/02/2019 09:23	Dale L. Simmons	2056400
	01/23/2019			02/02/2019 09:35	Dale L. Simmons	2056403
	01/23/2019			02/02/2019 09:48	Dale L. Simmons	2056404
SM 5310 B-00	01/23/2019			01/25/2019 15:31	Megan Treadwell	2056401
	01/23/2019			01/25/2019 15:43	Megan Treadwell	2056405
	01/23/2019			01/25/2019 16:20	Megan Treadwell	2056406