

Chemical Analysis Report

NE-DIST-2019-01-25-03

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

Event Description: **Continuous Monitoring**
Request ID: **RQ-2019-01-21-47**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
8800 Baymeadows Way West
Suite 100
Jacksonville, FL 32256
Attn: Brian G Davis

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: Liang Lin, Environmental Administrator

Date Certified: 15-FEB-2019 11:27

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

Case Narrative

Unless otherwise noted, all samples included in this report were received in accordance with protocols referenced in Chapter 62-160, Florida Administrative Code (F.A.C.). Results published in this report pertain only to the samples as submitted to, and received by the laboratory. All times in this report are adjusted to the applicable Eastern Time Zone (EST or EDT).

Results for the following analytical groups are included in this report: Metals, Nutrients and Pesticides.

Scientific notation may be used in reporting very large or small values. Values reported using scientific notation will take the form of the following example: 1.3E+03, which is equivalent to 1.3×10^3 or 1300.

Unless otherwise noted, analytical values for soil and sediment samples are reported on a dry weight basis, and analytical values for waste and tissue samples are reported on a wet weight basis.

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited 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: Big Fishweir Creek at End of Merrimac Ave

Collection Date/Time: 01/24/2019 10:15

Field ID: G2NE1175

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2057009	EPA 180.1 Rev. 2.0	Turbidity	20	A	NTU	P357874	
	EPA 300.0	Bromide	0.013	U	mg Br/L	P358025	
	SM 2320 B-97	Total Alkalinity	38		mg CaCO3/L	P358238	
	SM 2540 D-97	TSS	19		mg/L	P358198	
	SM 4500 F-C-97	Fluoride	0.058	I	mg F/L	P358242	
2057010	EPA 350.1 Rev. 2.0	Ammonia-N	0.045		mg N/L	P358186	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.72		mg N/L	P358032	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.20		mg N/L	P357918	
	EPA 365.1 Rev. 2.0	Total-P	0.33		mg P/L	P358023	
	SM 5310 B-00	Organic Carbon	8.7		mg C/L	P357977	
2057011	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.21		mg P/L	P357854	
2057015	EPA 8321B	2,4-D	0.054		ug/L	P357829	
		Sucralose**	0.081		ug/L	P357881	
		Bentazon	0.0013	I	ug/L	P357829	
		MCP	0.013		ug/L	P357829	
		Triclopyr**	0.0040	U	ug/L	P357829	
		Imidacloprid	0.059		ug/L	P357829	
		Diuron	0.045		ug/L	P357829	
		Pyraclostrobin**	0.0020	U	ug/L	P357829	
		Primidone**	0.0040	U	ug/L	P357829	
		Linuron	0.0040	U	ug/L	P357829	
		Acetaminophen**	0.036		ug/L	P357829	
		Fenuron	0.016	U	ug/L	P357829	
		Imazapyr**	0.21		ug/L	P357829	
		Carbamazepine**	8.0E-04	U	ug/L	P357829	
		Fluridone**	0.0051		ug/L	P357829	
		Hydrocodone**	0.0020	U	ug/L	P357829	
		Naproxen**	0.0080	U	ug/L	P357829	
		Ibuprofen**	0.020	U	ug/L	P357829	
		Glyphosate**	0.61		ug/L	P357881	
		AMPA**	0.14	I	ug/L	P357881	
		Endothall**	0.25	U	ug/L	P357881	
		Glufosinate**	0.10	U	ug/L	P357881	
		Acesulfame K**	0.10	U	ug/L	P357881	MS
2057016	EPA 200.7 Rev. 4.4	Iron	700		ug/L	P357985	
		Magnesium	2.08		mg/L	P357985	
		Zinc	28		ug/L	P357985	
	EPA 200.8 Rev. 5.4	Aluminum	402		ug/L	P357985	
		Antimony	0.30		ug/L	P358447	
		Arsenic	2.27		ug/L	P357985	
		Cadmium	0.039	I	ug/L	P357985	
		Chromium	1.2	I	ug/L	P357985	
		Copper	4.39		ug/L	P357985	

Field ID: G2NE1175

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2057016	EPA 200.8 Rev. 5.4	Lead	3.98		ug/L	P357985	
		Nickel	0.72	I	ug/L	P357985	
		Selenium	0.20	U	ug/L	P357985	
		Silver	0.010	U	ug/L	P357985	
		Thallium	0.10	U	ug/L	P357985	

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: P357874

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P357985

Component	Result	Code	Units
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P357985

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Arsenic	0.050	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Copper	0.40	U	ug/L
Lead	0.20	U	ug/L
Nickel	0.50	U	ug/L
Selenium	0.20	U	ug/L
Silver	0.010	U	ug/L
Thallium	0.10	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P358447

Component	Result	Code	Units
Antimony	0.050	U	ug/L

Reference Method: EPA 300.0
Batch ID: P358025

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P358186

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358032

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357918

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P358023

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P357854

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

Reference Method: EPA 8321B
Batch ID: P357829

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: P357881

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 2320 B-97
Batch ID: P358238

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P358198

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P358242

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P357977

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P357985

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	105		P	85 - 115
Magnesium	104		P	85 - 115
Zinc	103		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P357985

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	100		P	85 - 115
Arsenic	105		P	85 - 115
Cadmium	99.0		P	85 - 115
Chromium	97.7		P	85 - 115
Copper	101		P	85 - 115
Lead	97.6		P	85 - 115
Nickel	101		P	85 - 115
Selenium	102		P	85 - 115
Silver	104		P	85 - 115
Thallium	102		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P358447

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Antimony	109		P	85 - 115

Reference Method: EPA 300.0
Batch ID: P358025

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Bromide	106		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P358186

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.6		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358032

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: P357918

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P358023

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P357854

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

Reference Method: EPA 8321B
 Batch ID: P357829

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	64.0		P	40 - 150
Acetaminophen	79.8		P	30 - 150
Bentazon	70.4		P	30 - 150
Carbamazepine	78.5		P	40 - 150
Diuron	63.3		P	40 - 150
Fenuron	93.2		P	40 - 150
Fluridone	75.9		P	40 - 150
Hydrocodone	82.9		P	40 - 150
Ibuprofen	70.1		P	40 - 150
Imazapyr	79.6		P	40 - 150
Imidacloprid	82.9		P	40 - 160
Linuron	55.7		P	40 - 150
MCPP	91.2		P	40 - 150
Naproxen	53.5		P	40 - 150
Primidone	79.9		P	40 - 150
Pyraclostrobin	44.8		P	40 - 150
Triclopyr	42.5		P	40 - 150

Reference Method: EPA 8321B
 Batch ID: P357881

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	80.3		P	40 - 150
AMPA	106		P	40 - 150
Endothall	110		P	40 - 150
Glufosinate	87.3		P	40 - 150
Glyphosate	103		P	40 - 140
Sucralose	83.2		P	40 - 150

Reference Method: SM 2320 B-97
 Batch ID: P358238

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

Reference Method: SM 4500 F-C-97
 Batch ID: P358242

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.7		P	91 - 105

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P357977

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.4		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
 Batch ID: P357985

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2057021	Iron	102	98.7	P/P	80 - 120
2057021	Magnesium	99.6		P	80 - 120
2057021	Zinc	97.9	98.1	P/P	80 - 120
2057241	Iron	101		P	80 - 120
2057241	Magnesium	98.2		P	80 - 120
2057241	Zinc	96.7		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
 Batch ID: P357985

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2057021	Aluminum	98.0	98.7	P/P	80 - 120
2057021	Arsenic	105	107	P/P	80 - 120
2057021	Cadmium	100	101	P/P	80 - 120
2057021	Chromium	99.1	100	P/P	80 - 120
2057021	Copper	99.7	99.6	P/P	80 - 120
2057021	Lead	98.6	100	P/P	80 - 120
2057021	Nickel	100	100	P/P	80 - 120
2057021	Selenium	101	103	P/P	80 - 120
2057021	Silver	105	105	P/P	80 - 120
2057021	Thallium	105	107	P/P	80 - 120
2057241	Aluminum	100		P	80 - 120
2057241	Arsenic	106		P	80 - 120
2057241	Cadmium	103		P	80 - 120
2057241	Chromium	99.8		P	80 - 120
2057241	Copper	102		P	80 - 120
2057241	Lead	101		P	80 - 120
2057241	Nickel	101		P	80 - 120
2057241	Selenium	99.6		P	80 - 120
2057241	Silver	104		P	80 - 120
2057241	Thallium	108		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
 Batch ID: P358447

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2057467	Antimony	113	97.8	P/P	80 - 120

Reference Method: EPA 300.0
 Batch ID: P358025

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2054875	Bromide	107	92.9	P/P	90 - 110
2056871	Bromide	104	103	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P358186

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2056945	Ammonia-N	100	101	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358032

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2056981	Kjeldahl Nitrogen	102	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357918

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2056944	NO2NO3-N	97.5	97.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P358023

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2057080	Total-P	102	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P357854

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2056983	O-Phosphate-P	98.0	100	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P357829

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2056863	2,4-D	108	118	P/P	40 - 150
2056863	Acetaminophen	88.7	88.2	P/P	30 - 150
2056863	Bentazon	54.9	51.7	P/P	30 - 150
2056863	Carbamazepine	78.0	73.8	P/P	40 - 150
2056863	Diuron	65.4	63.3	P/P	40 - 150
2056863	Fenuron	71.9	72.9	P/P	40 - 150
2056863	Fluridone	103	92.1	P/P	40 - 150
2056863	Hydrocodone	88.2	92.3	P/P	40 - 150
2056863	Ibuprofen	75.6	82.2	P/P	40 - 150
2056863	Imazapyr	114	109	P/P	40 - 150
2056863	Imidacloprid	153	142	P/P	40 - 160
2056863	Linuron	64.0	56.6	P/P	40 - 150
2056863	MCPP	135	140	P/P	40 - 150
2056863	Naproxen	62.6	57.4	P/P	40 - 150
2056863	Primidone	78.3	81.3	P/P	40 - 150
2056863	Pyraclostrobin	70.7	63.8	P/P	40 - 150
2056863	Triclopyr	69.4	85.9	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P357881

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2056968	Acesulfame K	21.1	21.6	F/F	40 - 150
2056968	Endothall	94.9	94.7	P/P	40 - 150
2056968	Sucralose	81.6	81.2	P/P	40 - 150
2057015	AMPA	89.4	104	P/P	40 - 150
2057015	Glufosinate	103	110	P/P	40 - 150
2057015	Glyphosate	113	128	P/P	40 - 140

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P358242

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2056815	Fluoride	95.4	94.9	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P357977

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2056818	Organic Carbon	98.3		P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P357874

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2057009	Turbidity	1.01	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P357985

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2057021	Iron	2.33	Spike	P	0 - 20
2057021	Magnesium	3.13	Spike	P	0 - 20
2057021	Zinc	0.227	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P357985

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2057021	Aluminum	0.796	Spike	P	0 - 20
2057021	Arsenic	1.12	Spike	P	0 - 20
2057021	Cadmium	1.22	Spike	P	0 - 20
2057021	Chromium	1.13	Spike	P	0 - 20
2057021	Copper	0.174	Spike	P	0 - 20
2057021	Lead	1.34	Spike	P	0 - 20
2057021	Nickel	0.214	Spike	P	0 - 20
2057021	Selenium	2.51	Spike	P	0 - 20
2057021	Silver	0.0153	Spike	P	0 - 20
2057021	Thallium	1.79	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P358447

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2057467	Antimony	14.7	Spike	P	0 - 20

Reference Method: EPA 300.0
Batch ID: P358025

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054875	Bromide	14.1	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P358186

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2056945	Ammonia-N	0.674	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358032

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2056981	Kjeldahl Nitrogen	1.72	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357918

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2056944	NO2NO3-N	0.491	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P358023

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2057080	Total-P	1.05	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P357854

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2056983	O-Phosphate-P	2.12	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P357829

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2056863	2,4-D	7.13	Spike	P	0 - 30
2056863	Acetaminophen	0.530	Spike	P	0 - 30
2056863	Bentazon	4.03	Spike	P	0 - 30
2056863	Carbamazepine	5.63	Spike	P	0 - 30
2056863	Diuron	3.27	Spike	P	0 - 30
2056863	Fenuron	1.38	Spike	P	0 - 30
2056863	Fluridone	9.72	Spike	P	0 - 30
2056863	Hydrocodone	4.56	Spike	P	0 - 30
2056863	Ibuprofen	8.34	Spike	P	0 - 30
2056863	Imazapyr	3.53	Spike	P	0 - 30
2056863	Imidacloprid	7.15	Spike	P	0 - 30
2056863	Linuron	12.3	Spike	P	0 - 30
2056863	MCP	3.03	Spike	P	0 - 30
2056863	Naproxen	8.68	Spike	P	0 - 30
2056863	Primidone	3.88	Spike	P	0 - 30
2056863	Pyraclostrobin	10.2	Spike	P	0 - 30
2056863	Triclopyr	21.3	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P357881

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

Quality Assurance Report Precision

Reference Method: EPA 8321B
 Batch ID: P357881

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2056968	Acesulfame K	2.57	Spike	P	0 - 30
2056968	Endothall	0.139	Spike	P	0 - 30
2056968	Sucralose	0.422	Spike	P	0 - 30
2057015	AMPA	13.1	Spike	P	0 - 30
2057015	Glufosinate	5.95	Spike	P	0 - 30
2057015	Glyphosate	8.21	Spike	P	0 - 30

Reference Method: SM 2320 B-97
 Batch ID: P358238

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2056815	Total Alkalinity	0.921	Sample	P	0 - 1.6

Reference Method: SM 4500 F-C-97
 Batch ID: P358242

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2056815	Fluoride	0.516	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
 Batch ID: P357977

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2056818	Organic Carbon	0.0911	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: 2057015

Field Sample ID: G2NE1175

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	87.9	P	30 - 160
EPA 8321B	Acetaminophen-d4	95.0	P	30 - 160
EPA 8321B	Carbamazepine-d10	72.5	P	30 - 160
EPA 8321B	Diuron-d6	67.0	P	30 - 160
EPA 8321B	Endothall-d6	61.9	P	40 - 160
EPA 8321B	Endothall-d6	61.9	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	65.5	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	65.5	P	40 - 160
EPA 8321B	Ibuprofen-d3	82.1	P	30 - 160
EPA 8321B	Primidone-d5	98.4	P	30 - 160
EPA 8321B	Sucralose-d6	77.4	P	40 - 160
EPA 8321B	Sucralose-d6	77.4	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A89025

Included Lab Sample IDs: 2057011

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.6	98.0	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A89028

Included Lab Sample IDs: 2057009

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A89046

Included Lab Sample IDs: 2057010

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

Reference Method: EPA 8321B

Run ID: A89056

Included Lab Sample IDs: 2057015

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	122	103	P/P	60 - 160
Glufosinate	105	96.5	P/P	60 - 160
Glyphosate	107	110	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A89057

Included Lab Sample IDs: 2057015

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	77.3	73.7	P/P	60 - 160
Endothall	104	107	P/P	60 - 160

Reference Method: SM 5310 B-00

Run ID: A89070

Included Lab Sample IDs: 2057010

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	102	99.4	P/P	90 - 110

Reference Method: EPA 300.0

Run ID: A89080

Included Lab Sample IDs: 2057009

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	104	93.6	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A89104

Included Lab Sample IDs: 2057016

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	103	101	P/P	90 - 110
Magnesium	104	102	P/P	90 - 110
Zinc	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A89119

Included Lab Sample IDs: 2057010

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A89120

Included Lab Sample IDs: 2057010

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	107	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A89123

Included Lab Sample IDs: 2057010

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

Reference Method: SM 2320 B-97

Run ID: A89154

Included Lab Sample IDs: 2057009

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A89154

Included Lab Sample IDs: 2057009

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.6	97.6	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A89162

Included Lab Sample IDs: 2057015

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	88.4	91.8	P/P	50 - 150
Acetaminophen	108	108	P/P	60 - 160
Bentazon	105	103	P/P	50 - 160
Carbamazepine	108	106	P/P	60 - 150
Diuron	109	107	P/P	60 - 150
Fenuron	103	105	P/P	60 - 150
Fluridone	104	102	P/P	60 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
 Run ID: A89162
 Included Lab Sample IDs: 2057015

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Hydrocodone	101	99.9	P/P	60 - 150
Ibuprofen	97.9	68.8	P/P	50 - 160
Imazapyr	94.6	87.5	P/P	50 - 150
Imidacloprid	92.1	96.4	P/P	60 - 150
Linuron	106	104	P/P	60 - 150
MCPP	95.3	95.0	P/P	50 - 150
Naproxen	129	136	P/P	50 - 160
Primidone	98.8	106	P/P	60 - 150
Pyraclostrobin	107	102	P/P	60 - 150
Triclopyr	115	116	P/P	50 - 150

Reference Method: EPA 200.8 Rev. 5.4
 Run ID: A89206
 Included Lab Sample IDs: 2057016

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	101	100	P/P	90 - 110
Arsenic	102	102	P/P	90 - 110
Cadmium	99.8	98.8	P/P	90 - 110
Chromium	99.7	100	P/P	90 - 110
Copper	101	102	P/P	90 - 110
Lead	99.1	101	P/P	90 - 110
Nickel	100	101	P/P	90 - 110
Selenium	101	99.7	P/P	90 - 110
Silver	103	102	P/P	90 - 110
Thallium	96.5	96.2	P/P	90 - 110

Reference Method: EPA 8321B
 Run ID: A89207
 Included Lab Sample IDs: 2057015

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	80.6	78.7	P/P	60 - 160

Reference Method: EPA 200.8 Rev. 5.4
 Run ID: A89350
 Included Lab Sample IDs: 2057016

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Antimony	104	106	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						1.01	
EPA 200.7 Rev. 4.4	Iron	105	102	98.7	101			2.33
	Magnesium	104	99.6	98.2				3.13
	Zinc	103	97.9	98.1	96.7			0.227
EPA 200.8 Rev. 5.4	Aluminum	100	98.0	98.7	100			0.796
	Antimony	109	113	97.8				14.7
	Arsenic	105	105	107	106			1.12
	Cadmium	99.0	100	101	103			1.22
	Chromium	97.7	99.1	100	99.8			1.13
	Copper	101	99.7	99.6	102			0.174
	Lead	97.6	98.6	100	101			1.34
	Nickel	101	100	100	101			0.214
	Selenium	102	101	103	99.6			2.51
	Silver	104	105	105	104			0.0153
	Thallium	102	105	107	108			1.79
EPA 300.0	Bromide	106	107	92.9	104			14.1
			103					
EPA 350.1 Rev. 2.0	Ammonia-N	97.6	100	101				0.674
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	102	104				1.72
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	101	97.5	97.0				0.491
EPA 365.1 Rev. 2.0	Total-P	103	102	103				1.05
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	98.0	100				2.12
EPA 8321B	2,4-D	64.0	108	118				7.13
	Acesulfame K	80.3	21.1	21.6				2.57
	Acetaminophen	79.8	88.7	88.2				0.530
	AMPA	106	89.4	104				13.1
	Bentazon	70.4	54.9	51.7				4.03
	Carbamazepine	78.5	78.0	73.8				5.63
	Diuron	63.3	65.4	63.3				3.27
	Endothall	110	94.9	94.7				0.139
	Fenuron	93.2	71.9	72.9				1.38
	Fluridone	75.9	103	92.1				9.72
	Glufosinate	87.3	103	110				5.95
	Glyphosate	103	113	128				8.21
	Hydrocodone	82.9	88.2	92.3				4.56
	Ibuprofen	70.1	75.6	82.2				8.34
	Imazapyr	79.6	114	109				3.53
	Imidacloprid	82.9	153	142				7.15
	Linuron	55.7	64.0	56.6				12.3
	MCPP	91.2	135	140				3.03
	Naproxen	53.5	62.6	57.4				8.68
	Primidone	79.9	78.3	81.3				3.88
	Pyraclostrobin	44.8	70.7	63.8				10.2
	Sucralose	83.2	81.6	81.2				0.422
	Triclopyr	42.5	69.4	85.9				21.3
SM 2320 B-97	Total Alkalinity	101					0.921	
SM 4500 F-C-97	Fluoride	96.7	95.4	94.9				0.516
SM 5310 B-00	Organic Carbon	97.4	98.3					0.0911

Reference Method Descriptions

Method / DoH Cert #

Description

Associated Samples

Reference Method Descriptions

Method / DoH Cert #	Description	<u>Associated Samples</u>
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2057009
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2057016
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2057016
EPA 300.0 / E31780	Bromide in aqueous matrices	2057009
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2057010
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2057010
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2057010
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2057010
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2057011
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2057015
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	2057015
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2057009
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2057009
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2057009
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2057010

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	01/25/2019			01/25/2019 16:40	Megan Treadwell	2057009
EPA 200.7 Rev. 4.4	01/25/2019	01/29/2019 15:05	Elliott D. Healy	01/30/2019 16:54	Betina Topolski	2057016
EPA 200.8 Rev. 5.4	01/25/2019	01/29/2019 15:05	Elliott D. Healy	02/05/2019 17:21	Robert K Palmer	2057016
	01/25/2019	02/06/2019 16:45	Elliott D. Healy	02/09/2019 08:52	Allison Taylor	2057016
EPA 300.0	01/25/2019			01/29/2019 20:55	Lipi Saha	2057009
EPA 350.1 Rev. 2.0	01/25/2019			01/31/2019 11:49	Ping Hua	2057010
EPA 351.2 Rev. 2.0	01/25/2019	01/30/2019 12:30	Adrian Shelby	01/31/2019 12:55	Joseph Suarez	2057010
EPA 353.2 Rev. 2.0	01/25/2019			01/28/2019 11:02	Beverly Y. Sanders	2057010
EPA 365.1 Rev. 2.0	01/25/2019	01/30/2019 13:50	Sima Feizi	01/31/2019 12:00	Rosalyn Ballman	2057010
EPA 365.1 Rev. 2.0 dissolved	01/25/2019			01/25/2019 13:19	Jhamieka S. Greenwood	2057011
EPA 8321B	01/25/2019	01/28/2019 10:30	Rebecca Ware	01/28/2019 14:33	Mohammad Ghaffari	2057015
	01/25/2019	01/28/2019 10:30	Rebecca Ware	01/28/2019 18:33	Mohammad Ghaffari	2057015
	01/25/2019	01/28/2019 10:30	Rebecca Ware	02/05/2019 15:24	Rebecca Ware	2057015
	01/25/2019	01/30/2019 09:00	Hoor Shaik	01/31/2019 14:44	Juyoung Kim	2057015
SM 2320 B-97	01/25/2019			02/02/2019 20:36	Dale L. Simmons	2057009
SM 2540 D-97	01/25/2019			01/28/2019 14:20	Yijie Li	2057009
SM 4500 F-C-97	01/25/2019			02/02/2019 20:36	Dale L. Simmons	2057009
SM 5310 B-00	01/25/2019			01/29/2019 07:01	Chelsea Hernandez	2057010