Chemical Analysis Report

CEN-DIST-2017-03-23-01

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

Event Description: **Reference SCI**
Request ID: **RQ-2017-02-27-60**
Customer: **CEN-DIST**
Project ID: **SCIREF**

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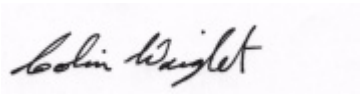
Certified by: Colin Wright, Program Administrator

Date Certified: 14-APR-2017 15:11



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: Metals, Nutrients and Pesticides.

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

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

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited or where accreditation for that field of testing is not applicable.

Any significant anomalies or deviations from established protocols are documented in Non-Conformance Reports, which, where appropriate, are included within this analytical report. Additional comments related to specific analytical tests may be included as remarks following the analytical results for each sample. Such comments and remarks are for informational purposes only and are not intended to convey judgement about the usability of the reported data.

A quality control report on the performance of the test method for the submitted samples is included. Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published quality control acceptance limits for each analytical test. Matrix quality control results (matrix spike recoveries and matrix sample precision) pertain only to the matrix sample tested and do not necessarily reflect test method performance for other samples.

Typical matrix quality control (QC) measurements may include matrix spike recovery, matrix spike duplicate recovery, matrix spike precision and matrix sample precision. Not all matrix QC results may be available or reportable; where they are not an explanation is provided. Typical reasons for unavailable QC results include, but are not limited to, a) insufficient matrix sample to perform some or all QC measurements; b) analyte concentration in the sample replicated was too low for a meaningful measurement of precision and c) analyte concentration in the matrix sample spiked was too high (relative to the amount of analyte spiked) for a meaningful measurement of recovery. Where matrix QC results are unavailable, other method performance metrics (e.g., LCS recovery, LCS precision, surrogate recovery) may be used to assess performance of the method. Comments explaining any missing QC measurements are not intended to convey any adverse conclusions about the quality of the reported data.

Precision is reported as relative percent difference unless otherwise noted.

Quality Control codes as defined below may be used in this report to indicate results that are associated with one or more quality control elements which did not fall within established test method criteria. Such results may be qualified as estimates using a J qualifier as required by 62-160 F.A.C. Explanations are included in the report for any results that were reported as estimates for other reasons.

QC Codes used in this report may include:

LCS – Recovery for the batch Laboratory Control Sample (LCS) was outside existing control limits;
MS – Recovery for the batch matrix spike (MS) was outside existing control limits;
CCV – Recovery for a continuing calibration verification (CCV) standard was outside existing control limits;
SUR – Recovery of a surrogate (SUR) for associated analytes was outside existing control limits;
RPD – The precision, measured as relative percent difference (RPD), of batch replicate measurements was outside existing control limits;
RSD – The precision, measured as relative standard deviation (RSD), of batch replicate measurements was outside existing control limits;
SMP – Sample - used precision derived from replicate analyses of a sample;

The following data qualifiers are used, where applicable, in this report as specified in 62-160 F.A.C.

A - Value reported is the mean of two or more determinations.
B - Results based on colony counts outside the acceptable range.
I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
J - Estimated value and/or the analysis did not meet established quality control criteria.
K - Actual value is known to be less than value given.
L - Actual value is known to be greater than value given.
N - Presumptive evidence of presence of material.
O - Sampled, but analysis lost or not performed.
Q - Sample held beyond normal holding time.
T - Value reported is less than the criterion of detection.
U - Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
V - Analyte was detected in both sample and method blank.
X - Too few individuals to calculate SCI value.
Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
Z - Colonies were too numerous to count (TNTC).

Quality control information from overflow laboratories may not be included in this report. Please refer to the associated report from the overflow laboratory for additional information.

Sample Location: Bear Creek @ Northern way bridge **Collection Date/Time: 03/22/2017 10:44**

Field ID: 20010049 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1882402	EPA 180.1 Rev. 2.0	Turbidity	2.2	A	NTU	P322102	
	EPA 300.0	Bromide**	0.10		mg Br/L	P322108	
	EPA 300.0 Rev. 2.1	Chloride	31		mg Cl/L	P322114	
		Sulfate	12		mg SO4/L	P322112	
	SM 2120 B	Color (true)	50		PCU	P322062	
	SM 2320 B-97	Total Alkalinity	84		mg CaCO3/L	P322480	
	SM 2540 C-97	TDS	183		mg/L	P322729	
	SM 2540 D-97	TSS	4	I	mg/L	P322713	
	SM 4500 F-C-97	Fluoride	0.11		mg F/L	P322483	
1882403	EPA 350.1 Rev. 2.0	Ammonia-N	0.026		mg N/L	P322187	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.48		mg N/L	P322078	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.071		mg N/L	P322235	
	EPA 365.1 Rev. 2.0	Total-P	0.076		mg P/L	P322132	
	SM 5310 B-00	Organic Carbon	9.2		mg C/L	P322165	
1882406	EPA 200.7 Rev. 4.4	Calcium	34.4		mg/L	P322126	
		Magnesium	5.80		mg/L	P322126	
		Potassium	2.1		mg/L	P322126	
		Sodium	17.3		mg/L	P322126	
1882407	EPA 8321B	Sucralose**	0.43		ug/L	P322018	
1882408	USGS O-2060-01	2,4-D	0.037		ug/L	P321946	
		Diuron	0.0040	U	ug/L	P321946	MS
		Fenuron	0.0080	U	ug/L	P321946	MS
		Imidacloprid	0.0064	I	ug/L	P321946	
		Bentazon	0.36		ug/L	P321946	MS
		Linuron	0.0040	UJ	ug/L	P321946	CCV
		Acetaminophen**	0.010	U	ug/L	P321946	
		MCPP	0.0040	U	ug/L	P321946	
		Carbamazepine**	4.0E-04	U	ug/L	P321946	
		Triclopyr**	0.010	U	ug/L	P321946	MS
		Primidone**	0.0080	U	ug/L	P321946	
		Fluridone**	0.019		ug/L	P321946	MS

Ref. Method and Comment:
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
USGS O-2060-01: Refer to the narrative for an explanation of QC Codes.

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P322102

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Quality Assurance Report
Method Blank Results

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P322126

Component	Result	Code	Units
Calcium	0.075	U	mg/L
Magnesium	0.040	U	mg/L
Potassium	0.30	U	mg/L
Sodium	0.50	U	mg/L

Reference Method: EPA 300.0
Batch ID: P322108

Component	Result	Code	Units
Bromide	0.016	U	mg Br/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322112

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322114

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P322187

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P322078

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322235

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322132

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

Reference Method: EPA 8321B
Batch ID: P322018

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Quality Assurance Report
Method Blank Results

Reference Method: SM 2120 B
Batch ID: P322062

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P322480

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

Reference Method: SM 2540 C-97
Batch ID: P322729

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P322713

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P322483

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P322165

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

Reference Method: USGS O-2060-01
Batch ID: P321946

Component	Result	Code	Units
2,4-D	0.0040	U	ug/L
Acetaminophen	0.010	U	ug/L
Bentazon	0.0040	U	ug/L
Carbamazepine	4.0E-04	U	ug/L
Diuron	0.0040	U	ug/L
Fenuron	0.0080	U	ug/L
Fluridone	4.0E-04	U	ug/L
Imidacloprid	0.0040	U	ug/L
Linuron	0.0040	U	ug/L
MCPP	0.0040	U	ug/L
Primidone	0.0080	U	ug/L
Triclopyr	0.010	U	ug/L

Quality Assurance Report
Laboratory Control Sample Accuracy

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P322126

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	102		P	85 - 115
Magnesium	103		P	85 - 115
Potassium	101		P	85 - 115
Sodium	101		P	85 - 115

Reference Method: EPA 300.0
Batch ID: P322108

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322112

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	97.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322114

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P322187

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	105		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P322078

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322235

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322132

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	108		P	90 - 110

Reference Method: EPA 8321B
Batch ID: P322018

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	71.4		P	40 - 140

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P322480

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P322483

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.2		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P322165

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.6		P	85 - 115

Reference Method: USGS O-2060-01
Batch ID: P321946

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	80.4		P	40 - 140
Acetaminophen	52.8		P	40 - 140
Bentazon	101		P	40 - 140
Carbamazepine	122		P	40 - 140
Diuron	111		P	40 - 140
Fenuron	114		P	40 - 140
Fluridone	99.2		P	40 - 140
Imidacloprid	88.4		P	40 - 160
Linuron	102		P	40 - 140
MCPP	85.2		P	40 - 140
Primidone	86.8		P	40 - 140
Triclopyr	122		P	40 - 140

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P322126

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1882374	Calcium	100		P	80 - 120
1882374	Magnesium	104		P	80 - 120
1882374	Potassium	104		P	80 - 120
1882374	Sodium	101		P	80 - 120
1882384	Calcium	101	103	P/P	80 - 120
1882384	Magnesium	103	103	P/P	80 - 120
1882384	Potassium	102	102	P/P	80 - 120
1882384	Sodium	101	102	P/P	80 - 120

Reference Method: EPA 300.0
Batch ID: P322108

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0
Batch ID: P322108

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1882339	Bromide	103	105	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322112

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1882339	Sulfate	98.3	93.8	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322114

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1882339	Chloride	100	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P322187

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1882304	Ammonia-N	101	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P322078

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1882350	Kjeldahl Nitrogen	105	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322235

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1882403	NO2NO3-N	105	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322132

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1882350	Total-P	102	109	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P322018

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1882187	Sucralose	76.0	77.3	P/P	40 - 140

Reference Method: SM 4500 F-C-97
Batch ID: P322483

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1882334	Fluoride	102	105	P/P	91 - 105

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P322165

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1882342	Organic Carbon	93.5	94.6	P/P	85 - 115

Reference Method: USGS O-2060-01
Batch ID: P321946

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1881998	2,4-D	101	109	P/P	40 - 140
1881998	Acetaminophen	42.8	46.8	P/P	40 - 140
1881998	Bentazon	143	146	F/F	40 - 140
1881998	Carbamazepine	43.6	44.8	P/P	40 - 140
1881998	Diuron	36.5	35.8	F/F	40 - 140
1881998	Fenuron	28.7	31.6	F/F	40 - 140
1881998	Fluridone	28.4	34.2	F/F	40 - 140
1881998	Imidacloprid	62.0	69.6	P/P	40 - 160
1881998	Linuron	56.8	61.6	P/P	40 - 140
1881998	MCPP	109	110	P/P	40 - 140
1881998	Primidone	53.6	47.2	P/P	40 - 140
1881998	Triclopyr	120	141	P/F	40 - 140

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P322102

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882402	Turbidity	3.65	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P322126

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882384	Calcium	1.54	Spike	P	0 - 20
1882384	Magnesium	0.306	Spike	P	0 - 20
1882384	Potassium	0.403	Spike	P	0 - 20
1882384	Sodium	0.708	Spike	P	0 - 20

Reference Method: EPA 300.0
Batch ID: P322108

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882339	Bromide	1.71	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322112

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

Quality Assurance Report
Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322112

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882339	Sulfate	4.04	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322114

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882339	Chloride	0.481	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P322187

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882304	Ammonia-N	0.714	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P322078

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882350	Kjeldahl Nitrogen	2.69	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322235

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882403	NO2NO3-N	1.08	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322132

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882350	Total-P	5.79	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P322018

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882187	Sucralose	1.41	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P322062

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882423	Color (true)	12.4	Sample	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2320 B-97
Batch ID: P322480

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882334	Total Alkalinity	0.0435	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P322729

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882335	TDS	3.34	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P322483

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882334	Fluoride	2.39	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P322165

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882342	Organic Carbon	0.967	Spike	P	0 - 20

Reference Method: USGS O-2060-01
Batch ID: P321946

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1881998	2,4-D	5.73	Spike	P	0 - 30
1881998	Acetaminophen	8.93	Spike	P	0 - 30
1881998	Bentazon	1.83	Spike	P	0 - 30
1881998	Carbamazepine	2.71	Spike	P	0 - 30
1881998	Diuron	1.88	Spike	P	0 - 30
1881998	Fenuron	9.56	Spike	P	0 - 30
1881998	Fluridone	18.5	Spike	P	0 - 30
1881998	Imidacloprid	11.6	Spike	P	0 - 30
1881998	Linuron	8.11	Spike	P	0 - 30
1881998	MCPP	1.10	Spike	P	0 - 30
1881998	Primidone	12.7	Spike	P	0 - 30
1881998	Triclopyr	15.9	Spike	P	0 - 30

* 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

Quality Assurance Report
Surrogates

Lab Sample ID: 1882407
Field Sample ID: 20010049

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	76.5	P	40 - 150

Lab Sample ID: 1882408
Field Sample ID: 20010049

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
USGS O-2060-01	2,4-D-d3	103	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	51.4	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	74.2	P	40 - 160
USGS O-2060-01	Diuron-d6	48.4	P	40 - 150
USGS O-2060-01	Primidone-d5	55.4	P	40 - 150

Quality Assurance Report
Calibration Verification

Reference Method: EPA 300.0
Run ID: A75292
Included Lab Sample IDs: 1882402

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	99.6	100	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A75292
Included Lab Sample IDs: 1882402

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	103	103	P/P	90 - 110
Sulfate	97.8	99.1	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A75307
Included Lab Sample IDs: 1882402

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	99.4	P/P	85 - 115

Reference Method: EPA 8321B
Run ID: A75318
Included Lab Sample IDs: 1882407

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	75.6	146	P/P	60 - 150

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A75322
Included Lab Sample IDs: 1882402

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

Quality Assurance Report
Calibration Verification

Reference Method: SM 5310 B-00
Run ID: A75347
Included Lab Sample IDs: 1882403

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A75351
Included Lab Sample IDs: 1882403

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A75366
Included Lab Sample IDs: 1882403

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.0	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A75372
Included Lab Sample IDs: 1882403

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	106	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A75375
Included Lab Sample IDs: 1882403

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

Reference Method: USGS O-2060-01
Run ID: A75408
Included Lab Sample IDs: 1882408

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	95.6	98.8	P/P	50 - 150
Bentazon	95.8	75.2	P/P	50 - 150
MCPP	102	102	P/P	50 - 150
Triclopyr	111	104	P/P	50 - 150

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A75420
Included Lab Sample IDs: 1882406

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	101	99.5	P/P	90 - 110
Magnesium	102	102	P/P	90 - 110
Potassium	101	101	P/P	90 - 110
Sodium	100	98.2	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: USGS O-2060-01
Run ID: A75428
Included Lab Sample IDs: 1882408

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetaminophen	135	132	P/P	60 - 150
Carbamazepine	130	132	P/P	60 - 150
Diuron	130	140	P/P	60 - 150
Fenuron	126	131	P/P	60 - 150
Fluridone	120	120	P/P	60 - 150
Imidacloprid	97.6	99.6	P/P	60 - 150
Linuron	54.8*	42.0*	F/F	60 - 150
Primidone	78.0	82.8	P/P	60 - 150

Reference Method: SM 2320 B-97
Run ID: A75466
Included Lab Sample IDs: 1882402

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

Reference Method: SM 4500 F-C-97
Run ID: A75466
Included Lab Sample IDs: 1882402

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	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	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity						3.65	
EPA 200.7 Rev. 4.4	Calcium	102	100	101	103			1.54
	Magnesium	103	104	103	103			0.306
	Potassium	101	104	102	102			0.403
	Sodium	101	101	101	102			0.708
EPA 300.0	Bromide	105	103	105				1.71
EPA 300.0 Rev. 2.1	Chloride	101	100	101				0.481
	Sulfate	97.8	98.3	93.8				4.04
EPA 350.1 Rev. 2.0	Ammonia-N	105	101	102				0.714
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104	105	102				2.69
EPA 353.2 Rev. 2.0	NO2NO3-N	104	105	103				1.08
EPA 365.1 Rev. 2.0	Total-P	108	102	109				5.79
EPA 8321B	Sucralose	71.4	76.0	77.3				1.41
SM 2120 B	Color (true)						12.4	
SM 2320 B-97	Total Alkalinity	104					0.0435	
SM 2540 C-97	TDS						3.34	
SM 4500 F-C-97	Fluoride	98.2	102	105				2.39
SM 5310 B-00	Organic Carbon	98.6	93.5	94.6				0.967

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
USGS O-2060-01	2,4-D	80.4	101	109			5.73
	Acetaminophen	52.8	42.8	46.8			8.93
	Bentazon	101	143	146			1.83
	Carbamazepine	122	43.6	44.8			2.71
	Diuron	111	36.5	35.8			1.88
	Fenuron	114	28.7	31.6			9.56
	Fluridone	99.2	28.4	34.2			18.5
	Imidacloprid	88.4	62.0	69.6			11.6
	Linuron	102	56.8	61.6			8.11
	MCPP	85.2	109	110			1.10
	Primidone	86.8	53.6	47.2			12.7
	Triclopyr	122	120	141			15.9

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1882402
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1882406
EPA 300.0 / E31780	Bromide in aqueous matrices	1882402
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1882402
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1882402
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1882403
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1882403
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1882403
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1882403
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	1882407
SM 2120 B / E31780	True Color measured at 450 nm	1882402
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1882402
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1882402
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1882402
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1882402
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1882403
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1882408
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1882408

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	03/23/2017			03/23/2017 17:09	Sima Feizi	1882402
EPA 200.7 Rev. 4.4	03/23/2017	03/24/2017	Elliott D. Healy	03/28/2017	Joshua Ayres	1882406
EPA 300.0	03/23/2017			03/23/2017	Ping Hua	1882402
EPA 300.0 Rev. 2.1	03/23/2017			03/23/2017	Ping Hua	1882402
EPA 350.1 Rev. 2.0	03/23/2017			03/24/2017	Julie Michelle Frank	1882403
EPA 351.2 Rev. 2.0	03/23/2017	03/24/2017	Adrian Shelby	03/27/2017	Joseph Suarez	1882403
EPA 353.2 Rev. 2.0	03/23/2017			03/27/2017	Beverly Y. Sanders	1882403
EPA 365.1 Rev. 2.0	03/23/2017	03/24/2017	Vijayalakshmi Reddy	03/27/2017	Lipi Saha	1882403
EPA 8321B	03/23/2017	03/23/2017	Mohammad Ghaffari	03/23/2017	Mohammad Ghaffari	1882407
SM 2120 B	03/23/2017			03/23/2017 16:17	Julia Storbeck	1882402
SM 2320 B-97	03/23/2017			03/30/2017	Dale L. Simmons	1882402
SM 2540 C-97	03/23/2017			03/28/2017	Yijie Li	1882402
SM 2540 D-97	03/23/2017			03/28/2017	Yijie Li	1882402
SM 4500 F-C-97	03/23/2017			03/30/2017	Dale L. Simmons	1882402
SM 5310 B-00	03/23/2017			03/24/2017	Julie Michelle Frank	1882403
USGS O-2060-01	03/23/2017	03/24/2017	Hoor Shaik	03/26/2017	Juyoung Kim	1882408
	03/23/2017	03/24/2017	Hoor Shaik	03/28/2017	Juyoung Kim	1882408