

Chemical Analysis Report

WQAP-2018-04-20-04

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

Event Description: **2017 SMP Kit Template 1**

Request ID: **RQ-2018-04-16-45**

Customer: **WQAP**

Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
2600 Blair Stone Rd
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Tallahassee, FL 32399-2400
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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator

Date Certified: 15-MAY-2018 14:35



Case Narrative

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

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

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

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

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

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

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

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

Precision is reported as relative percent difference unless otherwise noted.

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

QC Codes used in this report may include:

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

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

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

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

Sample Location: MCCOYS CR AT LELAND ST

Collection Date/Time: 04/19/2018 10:15

Field ID: 20030725

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1986502	EPA 180.1 Rev. 2.0	Turbidity	4.5		NTU	P343843	
	EPA 300.0 Rev. 2.1	Chloride	22	A	mg Cl/L	P344132	
		Sulfate	39	A	mg SO4/L	P344134	
	SM 2120 B	Color (true)	21		PCU	P343823	
	SM 2320 B-97	Total Alkalinity	164		mg CaCO3/L	P344517	
	SM 2540 C-97	TDS	279		mg/L	P344260	
	SM 2540 D-97	TSS	3	I	mg/L	P344266	
	SM 4500 F-C-97	Fluoride	0.19		mg F/L	P344456	
1986503	EPA 350.1 Rev. 2.0	Ammonia-N	0.099		mg N/L	P344183	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.49		mg N/L	P343890	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.16		mg N/L	P343946	
	EPA 365.1 Rev. 2.0	Total-P	0.12		mg P/L	P344041	
	SM 5310 B-00	Organic Carbon	7.0		mg C/L	P344289	
1986504	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.028		mg P/L	P343834	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.

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

Sample Location: MCCOYS CR AT LELAND ST

Collection Date/Time: 04/19/2018 10:15

Field ID: 20030725

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1986524	EPA 8321B	2,4-D	0.013		ug/L	P343931	
		Bentazon	0.020		ug/L	P343931	
		MCP	0.0045	I	ug/L	P343931	
		Triclopyr**	0.0040	U	ug/L	P343931	
		Imidacloprid	0.11		ug/L	P343931	
		Diuron	0.022		ug/L	P343931	
		Pyraclostrobin**	0.0020	U	ug/L	P343931	
		Primidone**	0.0040	U	ug/L	P343931	
		Linuron	0.0040	U	ug/L	P343931	
		Acetaminophen**	0.0080	U	ug/L	P343931	
		Fenuron	0.016	U	ug/L	P343931	
		Imazapyr**	1.3		ug/L	P343931	
		Carbamazepine**	5.7E-04	I	ug/L	P343931	
		Fluridone**	0.0012	I	ug/L	P343931	
		Hydrocodone**	8.0E-04	U	ug/L	P343931	
		Sucralose**	0.14	I	ug/L	P343719	

Ref. Method and Comment:

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

Sample Location: GOODBYS CREEK AT BAYMEADOWS ROAD

Collection Date/Time: 04/19/2018 11:55

Field ID: 20030593

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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Field ID: 20030593

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1986505	EPA 180.1 Rev. 2.0	Turbidity	9.8		NTU	P343843	
	SM 2320 B-97	Total Alkalinity	91		mg CaCO3/L	P344517	
	SM 2540 D-97	TSS	16		mg/L	P344266	
	SM 4500 F-C-97	Fluoride	0.12		mg F/L	P344456	
1986506	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P344183	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.81		mg N/L	P343890	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P343946	
	EPA 365.1 Rev. 2.0	Total-P	0.12		mg P/L	P344041	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P344289	
1986507	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.013		mg P/L	P343834	
	dissolved						

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: GOODBYS CREEK AT BAYMEADOWS ROAD Collection Date/Time: 04/19/2018 11:55

Field ID: 20030593

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1986525	EPA 8321B	2,4-D	0.065		ug/L	P343931	
		Bentazon	0.072		ug/L	P343931	
		MCP	0.0078	I	ug/L	P343931	
		Triclopyr**	0.0040	U	ug/L	P343931	
		Imidacloprid	0.065		ug/L	P343931	
		Diuron	0.012		ug/L	P343931	
		Pyraclostrobin**	0.0020	U	ug/L	P343931	
		Primidone**	0.0040	U	ug/L	P343931	
		Linuron	0.0040	U	ug/L	P343931	
		Acetaminophen**	0.0080	U	ug/L	P343931	
		Fenuron	0.016	U	ug/L	P343931	
		Imazapyr**	0.39		ug/L	P343931	
		Carbamazepine**	8.2E-04	I	ug/L	P343931	
		Fluridone**	0.17		ug/L	P343931	
		Hydrocodone**	8.0E-04	U	ug/L	P343931	
		Sucralose**	0.15	I	ug/L	P343719	

Ref. Method and Comment:

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P343843

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P344132

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P344134

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P344183

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P343890

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P343946

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P344041

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P343834

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

Reference Method: EPA 8321B
Batch ID: P343719

Component	Result	Code	Units
Sucralose	0.10	U	ug/L

Reference Method: EPA 8321B
Batch ID: P343931

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	4.0E-04	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B
Batch ID: P343931

Component	Result	Code	Units
Diuron	0.0020	U	ug/L
Fenuron	0.016	U	ug/L
Fluridone	8.0E-04	U	ug/L
Hydrocodone	8.0E-04	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
Primidone	0.0040	U	ug/L
Pyraclostrobin	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Reference Method: SM 2120 B
Batch ID: P343823

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P344517

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

Reference Method: SM 2540 C-97
Batch ID: P344260

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P344266

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P344456

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P344289

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: P344132

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	97.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P344134

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	97.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P344183

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P343890

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P343946

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

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P344041

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: P343834

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

Reference Method: EPA 8321B
 Batch ID: P343719

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	88.0		P	40 - 150

Reference Method: EPA 8321B
 Batch ID: P343931

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	88.8		P	40 - 150
Acetaminophen	93.1		P	30 - 150
Bentazon	117		P	30 - 150
Carbamazepine	96.8		P	40 - 150

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
 Batch ID: P343931

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Diuron	90.4		P	40 - 150
Fenuron	110		P	40 - 150
Fluridone	87.8		P	40 - 150
Hydrocodone	115		P	40 - 150
Imazapyr	104		P	40 - 150
Imidacloprid	104		P	40 - 160
Linuron	90.8		P	40 - 150
MCPP	103		P	40 - 150
Primidone	97.8		P	40 - 150
Pyraclostrobin	83.1		P	40 - 150
Triclopyr	106		P	40 - 150

Reference Method: SM 2320 B-97
 Batch ID: P344517

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

Reference Method: SM 4500 F-C-97
 Batch ID: P344456

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.2		P	91 - 105

Reference Method: SM 5310 B-00
 Batch ID: P344289

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.1		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P344132

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1986502	Chloride	95.1		P	90 - 110
1986606	Chloride	95.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P344134

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1986606	Sulfate	90.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P344183

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1986478	Ammonia-N	104	103	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P343890

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1986478	Kjeldahl Nitrogen	102	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P343946

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1986478	NO2NO3-N	102	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P344041

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1986503	Total-P	101	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P343834

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1986480	O-Phosphate-P	97.3	98.6	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P343719

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1986060	Sucralose	46.4	49.1	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P343931

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1986950	2,4-D	80.1	76.0	P/P	40 - 150
1986950	Acetaminophen	128	117	P/P	30 - 150
1986950	Bentazon	75.6	68.5	P/P	30 - 150
1986950	Carbamazepine	116	108	P/P	40 - 150
1986950	Diuron	96.5	88.5	P/P	40 - 150
1986950	Fenuron	121	108	P/P	40 - 150
1986950	Fluridone	88.8	80.4	P/P	40 - 150
1986950	Hydrocodone	146	135	P/P	40 - 150
1986950	Imazapyr	119	87.0	P/P	40 - 150
1986950	Linuron	100	89.9	P/P	40 - 150
1986950	MCP	92.7	84.2	P/P	40 - 150
1986950	Primidone	131	110	P/P	40 - 150
1986950	Pyraclostrobin	103	97.6	P/P	40 - 150
1986950	Triclopyr	96.1	88.3	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P344456

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1986604	Fluoride	94.7	95.2	P/P	91 - 105

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P344289

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1986322	Organic Carbon	101		P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P343843

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1986474	Turbidity	0.749	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P344132

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1986502	Chloride	0.464	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P344134

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1986502	Sulfate	0.610	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P344183

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1986478	Ammonia-N	0.478	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P343890

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1986478	Kjeldahl Nitrogen	1.09	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P343946

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1986478	NO2NO3-N	0.763	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P344041

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1986503	Total-P	0.173	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P343834

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1986480	O-Phosphate-P	1.19	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P343719

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1986060	Sucralose	4.17	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P343931

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1986950	2,4-D	5.24	Spike	P	0 - 30
1986950	Acetaminophen	8.51	Spike	P	0 - 30
1986950	Bentazon	7.81	Spike	P	0 - 30
1986950	Carbamazepine	7.17	Spike	P	0 - 30
1986950	Diuron	7.50	Spike	P	0 - 30
1986950	Fenuron	10.8	Spike	P	0 - 30
1986950	Fluridone	8.24	Spike	P	0 - 30
1986950	Hydrocodone	8.33	Spike	P	0 - 30
1986950	Imazapyr	11.2	Spike	P	0 - 30
1986950	Imidacloprid	11.5	Spike	P	0 - 30
1986950	Linuron	11.1	Spike	P	0 - 30
1986950	MCP	9.64	Spike	P	0 - 30
1986950	Primidone	17.4	Spike	P	0 - 30
1986950	Pyraclostrobin	5.76	Spike	P	0 - 30
1986950	Triclopyr	8.54	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P343823

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1986475	Color (true)	4.48	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P344517

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1986604	Total Alkalinity	0.603	Sample	P	0 - 1.6

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
Batch ID: P344260

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1986473	TDS	7.00	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P344456

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1986604	Fluoride	0.479	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P344289

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1986322	Organic Carbon	0.376	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: 1986524
Field Sample ID: 20030725

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	63.7	P	30 - 160
EPA 8321B	2,4-D-d3	63.7	P	30 - 160
EPA 8321B	Acetaminophen-d4	127	P	30 - 160
EPA 8321B	Acetaminophen-d4	127	P	30 - 160
EPA 8321B	Carbamazepine-d10	112	P	30 - 160
EPA 8321B	Carbamazepine-d10	112	P	30 - 160
EPA 8321B	Diuron-d6	82.2	P	30 - 160
EPA 8321B	Diuron-d6	82.2	P	30 - 160
EPA 8321B	Primidone-d5	115	P	30 - 160
EPA 8321B	Primidone-d5	115	P	30 - 160
EPA 8321B	Sucralose-d6	92.3	P	40 - 160
EPA 8321B	Sucralose-d6	92.3	P	40 - 160

Lab Sample ID: 1986525
Field Sample ID: 20030593

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	84.3	P	30 - 160
EPA 8321B	2,4-D-d3	84.3	P	30 - 160
EPA 8321B	Acetaminophen-d4	117	P	30 - 160
EPA 8321B	Acetaminophen-d4	117	P	30 - 160
EPA 8321B	Carbamazepine-d10	100	P	30 - 160
EPA 8321B	Carbamazepine-d10	100	P	30 - 160
EPA 8321B	Diuron-d6	78.8	P	30 - 160

Quality Assurance Report Surrogates

Lab Sample ID: 1986525
Field Sample ID: 20030593

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Diuron-d6	78.8	P	30 - 160
EPA 8321B	Primidone-d5	110	P	30 - 160
EPA 8321B	Primidone-d5	110	P	30 - 160
EPA 8321B	Sucralose-d6	80.7	P	40 - 160
EPA 8321B	Sucralose-d6	80.7	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B
Run ID: A83378
Included Lab Sample IDs: 1986502

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.0	100	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A83379
Included Lab Sample IDs: 1986504, 1986507

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.1	97.9	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A83380
Included Lab Sample IDs: 1986502, 1986505

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	99.5	P/P	95 - 105

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A83415
Included Lab Sample IDs: 1986502

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	105	102	P/P	90 - 110
Sulfate	104	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A83419
Included Lab Sample IDs: 1986503, 1986506

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO ₂ NO ₃ -N	100	101	P/P	90 - 110

Reference Method: EPA 8321B
Run ID: A83449
Included Lab Sample IDs: 1986524, 1986525

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	84.3	87.6	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A83459

Included Lab Sample IDs: 1986503, 1986506

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.8	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A83494

Included Lab Sample IDs: 1986503, 1986506

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

Reference Method: SM 5310 B-00

Run ID: A83539

Included Lab Sample IDs: 1986503, 1986506

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.4	98.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A83540

Included Lab Sample IDs: 1986503, 1986506

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	103	103	P/P	90 - 110
Total-P	103	104	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A83593

Included Lab Sample IDs: 1986502, 1986505

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.5	99.0	P/P	90 - 110
Fluoride	99.0	99.0	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A83608

Included Lab Sample IDs: 1986502, 1986505

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	99.7	P/P	90 - 110
Total Alkalinity	99.7	103	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A83753

Included Lab Sample IDs: 1986524, 1986525

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	106	99.7	P/P	50 - 150
Bentazon	130	134	P/P	50 - 150
MCP	105	104	P/P	50 - 150
Triclopyr	115	104	P/P	50 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A83769

Included Lab Sample IDs: 1986524, 1986525

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetaminophen	113	112	P/P	60 - 150
Carbamazepine	111	110	P/P	60 - 150
Diuron	118	115	P/P	60 - 150
Fenuron	113	115	P/P	60 - 150
Fluridone	105	105	P/P	60 - 160
Fluridone	115	111	P/P	60 - 160
Hydrocodone	121	122	P/P	60 - 150
Imazapyr	102	103	P/P	50 - 150
Imazapyr	113	111	P/P	50 - 150
Imidacloprid	111	106	P/P	60 - 150
Linuron	118	123	P/P	60 - 150
Primidone	104	106	P/P	60 - 150
Pyraclostrobin	113	114	P/P	60 - 150

* 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					0.749	
EPA 300.0 Rev. 2.1	Chloride	97.7	95.1	95.9		0.464	
	Sulfate	97.7	90.6			0.610	
EPA 350.1 Rev. 2.0	Ammonia-N	103	104	103			0.478
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	100	102	103			1.09
EPA 353.2 Rev. 2.0	NO2NO3-N	103	102	103			0.763
EPA 365.1 Rev. 2.0	Total-P	103	101	101			0.173
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	97.3	98.6			1.19
EPA 8321B	2,4-D	88.8	80.1	76.0			5.24
	Acetaminophen	93.1	128	117			8.51
	Bentazon	117	75.6	68.5			7.81
	Carbamazepine	96.8	116	108			7.17
	Diuron	90.4	96.5	88.5			7.50
	Fenuron	110	121	108			10.8
	Fluridone	87.8	88.8	80.4			8.24
	Hydrocodone	115	146	135			8.33
	Imazapyr	104	119	87.0			11.2
	Imidacloprid	104					11.5
	Linuron	90.8	100	89.9			11.1
	MCP	103	92.7	84.2			9.64
	Primidone	97.8	131	110			17.4
	Pyraclostrobin	83.1	103	97.6			5.76
	Sucralose	88.0	46.4	49.1			4.17
	Triclopyr	106	96.1	88.3			8.54
SM 2120 B	Color (true)					4.48	
SM 2320 B-97	Total Alkalinity	102				0.603	
SM 2540 C-97	TDS					7.00	

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	SMP
SM 4500 F-C-97	Fluoride	95.2	94.7	95.2		
SM 5310 B-00	Organic Carbon	96.1	101			0.479
						0.376

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1986502, 1986505
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1986502
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1986502
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1986503, 1986506
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1986503, 1986506
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1986503, 1986506
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1986503, 1986506
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1986504, 1986507
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	1986524, 1986525
SM 2120 B / E31780	True Color measured at 450 nm	1986502
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1986502, 1986505
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1986502
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1986502, 1986505
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1986502, 1986505
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1986503, 1986506

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	04/20/2018			04/20/2018 16:58	Tanya Welborn	1986502, 1986505
EPA 300.0 Rev. 2.1	04/20/2018			04/25/2018 13:59	Lipi Saha	1986502
EPA 350.1 Rev. 2.0	04/20/2018			04/25/2018 11:52	Ping Hua	1986503
	04/20/2018			04/25/2018 11:53	Ping Hua	1986506
EPA 351.2 Rev. 2.0	04/20/2018	04/23/2018 16:00	Adrian Shelby	04/25/2018 14:13	Tanya Welborn	1986503
	04/20/2018	04/23/2018 16:00	Adrian Shelby	04/25/2018 14:15	Tanya Welborn	1986506
EPA 353.2 Rev. 2.0	04/20/2018			04/24/2018 12:44	Lauren Bottorf	1986503
	04/20/2018			04/24/2018 12:46	Lauren Bottorf	1986506
EPA 365.1 Rev. 2.0	04/20/2018	04/25/2018 13:20	Sima Feizi	04/30/2018 10:26	Beverly Y. Sanders	1986503
	04/20/2018	04/25/2018 13:20	Sima Feizi	04/30/2018 10:33	Beverly Y. Sanders	1986506
EPA 365.1 Rev. 2.0 dissolved	04/20/2018			04/20/2018 15:41	Megan Treadwell	1986504
	04/20/2018			04/20/2018 15:42	Megan Treadwell	1986507
EPA 8321B	04/20/2018	04/24/2018 15:30	Juyoung Kim	04/24/2018 23:45	Juyoung Kim	1986524
	04/20/2018	04/24/2018 15:30	Juyoung Kim	04/25/2018 00:01	Juyoung Kim	1986525
	04/20/2018	04/25/2018 14:00	Hoor Shaik	05/04/2018 17:47	Juyoung Kim	1986524
	04/20/2018	04/25/2018 14:00	Hoor Shaik	05/04/2018 18:21	Juyoung Kim	1986525
	04/20/2018	04/25/2018 14:00	Hoor Shaik	05/05/2018 18:08	Juyoung Kim	1986524
	04/20/2018	04/25/2018 14:00	Hoor Shaik	05/05/2018 18:42	Juyoung Kim	1986525
	04/20/2018	04/25/2018 14:00	Hoor Shaik	05/08/2018 07:44	Juyoung Kim	1986524
	04/20/2018	04/25/2018 14:00	Hoor Shaik	05/08/2018 08:19	Juyoung Kim	1986525
SM 2120 B	04/20/2018			04/20/2018 15:24	Tanya Welborn	1986502
SM 2320 B-97	04/20/2018			05/02/2018 19:53	Dale L. Simmons	1986502
	04/20/2018			05/02/2018 21:15	Dale L. Simmons	1986505
SM 2540 C-97	04/20/2018			04/24/2018 15:21	Yijie Li	1986502
SM 2540 D-97	04/20/2018			04/24/2018 15:21	Yijie Li	1986502, 1986505
SM 4500 F-C-97	04/20/2018			05/02/2018 02:18	Dale L. Simmons	1986502
	04/20/2018			05/02/2018 04:06	Dale L. Simmons	1986505
SM 5310 B-00	04/20/2018			04/27/2018 23:35	Julia Storbeck	1986503
	04/20/2018			04/27/2018 23:50	Julia Storbeck	1986506