

Chemical Analysis Report

NW-DIST-2017-06-14-01

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

Event Description: **ENR A WBID 462B,C**
Request ID: **RQ-2017-06-12-35**
Customer: **NW-DIST**
Project ID: **SMP**

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

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Colin Wright, Program Administrator

Date Certified: 11-JUL-2017 16:05

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed on a light-colored rectangular 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: 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: Perdido River (middle)

Collection Date/Time: 06/13/2017 12:20

Field ID: G5NW0034

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1906136	EPA 8321B	Sucralose**	0.036	I	ug/L	P327044	
	USGS O-2060-01	2,4-D	0.0013	I	ug/L	P326835	
		Diuron	0.0046		ug/L	P326835	
		Fenuron	0.0080	U	ug/L	P326835	
		Imidacloprid	0.012		ug/L	P326835	MS
		Bentazon	8.0E-04	U	ug/L	P326835	MS
		Linuron	0.0040	U	ug/L	P326835	
		Acetaminophen**	0.0080	U	ug/L	P326835	
		MCP	0.0020	U	ug/L	P326835	
		Carbamazepine**	4.0E-04	U	ug/L	P326835	
		Triclopyr**	0.0040	U	ug/L	P326835	
		Primidone**	0.0040	U	ug/L	P326835	
		Fluridone**	4.0E-04	U	ug/L	P326835	

Sample Location: Perdido River (middle)

Collection Date/Time: 06/13/2017 12:20

Field ID: G5NW0034

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1906108	EPA 180.1 Rev. 2.0	Turbidity	4.8		NTU	P326838	
	SM 2320 B-97	Total Alkalinity	0.89	I	mg CaCO ₃ /L	P327364	
	SM 2540 D-97	TSS	3	IA	mg/L	P327464	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P327062	RPD
1906109	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P326974	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.41		mg N/L	P326919	
	EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	0.13		mg N/L	P326958	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P326924	
	SM 5310 B-00	Organic Carbon	8.4		mg C/L	P327417	
1906110	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P326827	

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: Perdido River (upper)

Collection Date/Time: 06/13/2017 12:40

Field ID: G5NW0010

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1906105	EPA 180.1 Rev. 2.0	Turbidity	4.2		NTU	P326838	
	EPA 300.0 Rev. 2.1	Chloride	4.8		mg Cl/L	P327213	
		Sulfate	1.1		mg SO ₄ /L	P327215	
	SM 2120 B	Color (true)	94		PCU	P326854	
	SM 2320 B-97	Total Alkalinity	0.80	I	mg CaCO ₃ /L	P327364	
	SM 2540 C-97	TDS	31		mg/L	P327133	
	SM 2540 D-97	TSS	3	I	mg/L	P327462	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P327062	RPD
1906106	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P326973	

Field ID: G5NW0010

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1906106	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.39		mg N/L	P326919	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.12		mg N/L	P326958	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P326924	
	SM 5310 B-00	Organic Carbon	8.4		mg C/L	P327417	
1906107	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	UQ	mg P/L	P327173	

Ref. Method and Comment:
 SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
 EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The sample was reanalyzed out of holding time due to analytical difficulties.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P326838

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P327213

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P327215

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P326973

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

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P326974

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P326919

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P326958

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P326924

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P326827

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327173

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

Reference Method: EPA 8321B
Batch ID: P327044

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: SM 2120 B
Batch ID: P326854

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P327364

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

Reference Method: SM 2540 C-97
Batch ID: P327133

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P327462

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P327464

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 4500 F-C-97
 Batch ID: P327062

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
 Batch ID: P327417

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

Reference Method: USGS O-2060-01
 Batch ID: P326835

Component	Result	Code	Units
2,4-D	8.0E-04	U	ug/L
Acetaminophen	0.0080	U	ug/L
Bentazon	8.0E-04	U	ug/L
Carbamazepine	4.0E-04	U	ug/L
Diuron	8.0E-04	U	ug/L
Fenuron	0.0080	U	ug/L
Fluridone	4.0E-04	U	ug/L
Imidacloprid	8.0E-04	U	ug/L
Linuron	0.0040	U	ug/L
MCPP	0.0020	U	ug/L
Primidone	0.0040	U	ug/L
Triclopyr	0.0040	U	ug/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P327213

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

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P327215

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

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P326973

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

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P326974

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P326919

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	98.2		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P326958

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: P326924

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P326827

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.8		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327173

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

Reference Method: EPA 8321B
Batch ID: P327044

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	89.5		P	40 - 150

Reference Method: SM 2320 B-97
Batch ID: P327364

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

Reference Method: SM 4500 F-C-97
Batch ID: P327062

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.4		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P327417

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.2		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: USGS O-2060-01
Batch ID: P326835

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	70.8		P	40 - 150
Acetaminophen	30.4		P	30 - 150
Bentazon	62.4		P	40 - 150
Carbamazepine	115		P	40 - 150
Diuron	112		P	40 - 150
Fenuron	116		P	40 - 150
Fluridone	101		P	40 - 150
Imidacloprid	100		P	40 - 160
Linuron	107		P	40 - 150
MCPP	84.2		P	40 - 150
Primidone	115		P	40 - 150
Triclopyr	87.8		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P327213

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906143	Chloride	99.2		P	90 - 110
1906231	Chloride	104		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P327215

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906143	Sulfate	95.6		P	90 - 110
1906231	Sulfate	103		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P326973

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906016	Ammonia-N	102	99.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P326974

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906109	Ammonia-N	98.2	98.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P326919

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906028	Kjeldahl Nitrogen	91.9	90.4	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P326958

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906020	NO2NO3-N	106	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P326924

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906016	Total-P	98.7	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P326827

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906024	O-Phosphate-P	97.8	95.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P327173

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1907383	O-Phosphate-P	95.7	95.7	P/P	90 - 110

Reference Method: EPA 8321B
 Batch ID: P327044

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906947	Sucralose	111	93.6	P/P	40 - 150

Reference Method: SM 4500 F-C-97
 Batch ID: P327062

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1905970	Fluoride	94.5	97.9	P/P	91 - 105

Reference Method: SM 5310 B-00
 Batch ID: P327417

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906144	Organic Carbon	93.7	95.5	P/P	85 - 115

Reference Method: USGS O-2060-01
 Batch ID: P326835

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906079	2,4-D	73.2	72.2	P/P	40 - 150
1906079	Acetaminophen	119	115	P/P	40 - 150
1906079	Bentazon	30.0	31.2	F/F	40 - 150
1906079	Carbamazepine	92.0	96.8	P/P	40 - 150
1906079	Diuron	75.2	80.2	P/P	40 - 150
1906079	Fenuron	76.4	82.2	P/P	40 - 150
1906079	Fluridone	58.0	59.6	P/P	40 - 150
1906079	Imidacloprid	157	161	P/F	40 - 160
1906079	Linuron	110	101	P/P	40 - 150
1906079	MCP	59.6	61.4	P/P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: USGS O-2060-01
Batch ID: P326835

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906079	Primidone	88.8	88.0	P/P	40 - 150
1906079	Triclopyr	69.4	64.4	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P326838

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906015	Turbidity	2.93	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P327213

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906143	Chloride	0.157	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P327215

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906143	Sulfate	0.556	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P326973

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906016	Ammonia-N	1.96	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P326974

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906109	Ammonia-N	0.248	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P326919

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906028	Kjeldahl Nitrogen	0.828	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P326958

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906020	NO2NO3-N	0.308	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P326924

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906016	Total-P	1.88	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P326827

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906024	O-Phosphate-P	1.96	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327173

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1907383	O-Phosphate-P	0.0	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P327044

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906947	Sucralose	16.7	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P326854

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906040	Color (true)	2.38	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P327364

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1905970	Total Alkalinity	0.178	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P327133

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906014	TDS	3.76	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
 Batch ID: P327062

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1905970	Fluoride	3.04	Spike	F	0 - 3.0

Reference Method: SM 5310 B-00
 Batch ID: P327417

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906144	Organic Carbon	1.38	Spike	P	0 - 20

Reference Method: USGS O-2060-01
 Batch ID: P326835

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906079	2,4-D	1.38	Spike	P	0 - 30
1906079	Acetaminophen	3.43	Spike	P	0 - 30
1906079	Bentazon	2.70	Spike	P	0 - 30
1906079	Carbamazepine	5.08	Spike	P	0 - 30
1906079	Diuron	6.44	Spike	P	0 - 30
1906079	Fenuron	7.31	Spike	P	0 - 30
1906079	Fluridone	2.72	Spike	P	0 - 30
1906079	Imidacloprid	2.77	Spike	P	0 - 30
1906079	Linuron	8.71	Spike	P	0 - 30
1906079	MCPP	2.98	Spike	P	0 - 30
1906079	Primidone	0.905	Spike	P	0 - 30
1906079	Triclopyr	7.47	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

Lab Sample ID: 1906136
 Field Sample ID: G5NW0034

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	67.5	P	40 - 160
USGS O-2060-01	2,4-D-d3	90.6	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	112	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	117	P	30 - 160
USGS O-2060-01	Diuron-d6	98.0	P	30 - 160
USGS O-2060-01	Primidone-d5	110	P	30 - 150

Quality Assurance Report Calibration Verification

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A77087

Included Lab Sample IDs: 1906110

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A77089

Included Lab Sample IDs: 1906105, 1906108

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	99.0	P/P	95 - 105

Reference Method: SM 2120 B

Run ID: A77095

Included Lab Sample IDs: 1906105

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.2	98.2	P/P	85 - 115

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A77132

Included Lab Sample IDs: 1906106, 1906109

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A77139

Included Lab Sample IDs: 1906106, 1906109

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A77169

Included Lab Sample IDs: 1906106, 1906109

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.5	99.2	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A77172

Included Lab Sample IDs: 1906105, 1906108

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	95.5	96.2	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A77183

Included Lab Sample IDs: 1906105

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.0	102	P/P	90 - 110
Sulfate	99.3	109	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A77202

Included Lab Sample IDs: 1906106, 1906109

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A77215

Included Lab Sample IDs: 1906107

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	101	100	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A77273

Included Lab Sample IDs: 1906136

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	103	85.8	P/P	60 - 160

Reference Method: SM 2320 B-97

Run ID: A77288

Included Lab Sample IDs: 1906105, 1906108

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

Reference Method: SM 5310 B-00

Run ID: A77311

Included Lab Sample IDs: 1906106, 1906109

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	93.6	94.3	P/P	90 - 110

Reference Method: USGS O-2060-01

Run ID: A77371

Included Lab Sample IDs: 1906136

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	94.8	94.0	P/P	50 - 150
Acetaminophen	104	107	P/P	60 - 150
Bentazon	86.4	88.4	P/P	50 - 150
Carbamazepine	112	112	P/P	60 - 150
Diuron	109	111	P/P	60 - 150
Fenuron	110	108	P/P	60 - 150
Fluridone	98.0	103	P/P	60 - 160
Imidacloprid	101	97.2	P/P	60 - 150
Linuron	108	101	P/P	60 - 150
MCP	94.0	88.8	P/P	50 - 150
Primidone	106	112	P/P	60 - 150
Triclopyr	96.8	88.8	P/P	50 - 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	MS
						SMP	
EPA 180.1 Rev. 2.0	Turbidity					2.93	
EPA 300.0 Rev. 2.1	Chloride	101	99.2	104		0.157	
	Sulfate	99.5	95.6	103		0.556	
EPA 350.1 Rev. 2.0	Ammonia-N	103	102	99.5			1.96
	Ammonia-N	103	98.2	98.5			0.248
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.2	91.9	90.4			0.828
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	104	106	105			0.308
EPA 365.1 Rev. 2.0	Total-P	99.0	98.7	101			1.88
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.8	97.8	95.9			1.96
	O-Phosphate-P	101	95.7	95.7			0.0
EPA 8321B	Sucralose	89.5	111	93.6			16.7
SM 2120 B	Color (true)					2.38	
SM 2320 B-97	Total Alkalinity	104				0.178	
SM 2540 C-97	TDS					3.76	
SM 4500 F-C-97	Fluoride	99.4	94.5	97.9			3.04
SM 5310 B-00	Organic Carbon	94.2	93.7	95.5			1.38
USGS O-2060-01	2,4-D	70.8	73.2	72.2			1.38
	Acetaminophen	30.4	119	115			3.43
	Bentazon	62.4	30.0	31.2			2.70
	Carbamazepine	115	92.0	96.8			5.08
	Diuron	112	75.2	80.2			6.44
	Fenuron	116	76.4	82.2			7.31
	Fluridone	101	58.0	59.6			2.72
	Imidacloprid	100	157	161			2.77
	Linuron	107	110	101			8.71
	MCP	84.2	59.6	61.4			2.98
	Primidone	115	88.8	88.0			0.905
	Triclopyr	87.8	69.4	64.4			7.47

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1906105, 1906108
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1906105
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1906105
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1906106, 1906109
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1906106, 1906109
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1906106, 1906109
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1906106, 1906109
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1906107, 1906110
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	1906136
SM 2120 B / E31780	True Color measured at 450 nm	1906105
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1906105, 1906108
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1906105
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1906105, 1906108
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1906105, 1906108
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1906106, 1906109

Reference Method Descriptions

Method / DoH Cert #	Description	<u>Associated Samples</u>
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1906136
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1906136

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	06/14/2017			06/14/2017 16:01	Sima Feizi	1906105, 1906108
EPA 300.0 Rev. 2.1	06/14/2017			06/20/2017	Julia Storbeck	1906105
EPA 350.1 Rev. 2.0	06/14/2017			06/15/2017	Sofia Elnemr	1906106, 1906109
EPA 351.2 Rev. 2.0	06/14/2017	06/15/2017	Adrian Shelby	06/20/2017	Joseph Suarez	1906106, 1906109
EPA 353.2 Rev. 2.0	06/14/2017			06/16/2017	Beverly Y. Sanders	1906106, 1906109
EPA 365.1 Rev. 2.0	06/14/2017	06/15/2017	Adrian Shelby	06/16/2017	Lipi Saha	1906106, 1906109
EPA 365.1 Rev. 2.0 dissolved	06/14/2017			06/14/2017 14:19	Lipi Saha	1906110
	06/14/2017			06/20/2017 15:51	Anthony C. Onicha	1906107
EPA 8321B	06/14/2017	06/19/2017	Mohammad Ghaffari	06/21/2017	Mohammad Ghaffari	1906136
SM 2120 B	06/14/2017			06/14/2017 16:52	Tanya Welborn	1906105
SM 2320 B-97	06/14/2017			06/22/2017	Dale L. Simmons	1906105, 1906108
SM 2540 C-97	06/14/2017			06/16/2017	Yijie Li	1906105
SM 2540 D-97	06/14/2017			06/16/2017	Yijie Li	1906105, 1906108
SM 4500 F-C-97	06/14/2017			06/17/2017	Elisa J Lutz	1906105, 1906108
SM 5310 B-00	06/14/2017			06/23/2017	Ping Hua	1906106, 1906109
USGS O-2060-01	06/14/2017	06/19/2017	Hoor Shaik	06/24/2017	Juyoung Kim	1906136