

Chemical Analysis Report

SO-DIST-2018-09-21-01

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

Event Description: **Hudson, North**
Request ID: **RQ-2018-09-17-66**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901-3381
Attn: Maryann Dugan

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Certified by: Liang Lin, Environmental Administrator

Date Certified: 15-OCT-2018 16:32

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: 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: DrainToHudson @ShadeAve

Collection Date/Time: 09/20/2018 11:20

Field ID: G3SD0134

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2027403	EPA 180.1 Rev. 2.0	Turbidity	9.2	A	NTU	P352114	
	EPA 300.0 Rev. 2.1	Chloride	49		mg Cl/L	P352421	
		Sulfate	59		mg SO4/L	P352425	
	SM 2120 B	Color (true)	90	A	PCU	P352098	
	SM 2320 B-97	Total Alkalinity	141		mg CaCO3/L	P352565	
	SM 2540 C-97	TDS	351		mg/L	P352443	
	SM 2540 D-97	TSS	6	I	mg/L	P352514	
	SM 4500 F-C-97	Fluoride	0.47		mg F/L	P352567	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.10		mg N/L	P352539	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.95		mg N/L	P352330	
2027405	EPA 353.2 Rev. 2.0	NO2NO3-N	0.30		mg N/L	P352300	
	EPA 365.1 Rev. 2.0	Total-P	0.29		mg P/L	P352150	
	SM 5310 B-00	Organic Carbon	18		mg C/L	P352348	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.16		mg P/L	P352103	
	dissolved						
2027407	EPA 8321B	2,4-D	0.0036	I	ug/L	P351946	
2027416		Bentazon	8.0E-04	U	ug/L	P351946	
		MCP	0.0025	I	ug/L	P351946	
		Triclopyr**	0.0040	U	ug/L	P351946	
		Imidacloprid	0.018		ug/L	P351946	
		Diuron	0.0020	U	ug/L	P351946	
		Pyraclostrobin**	0.0020	U	ug/L	P351946	
		Primidone**	0.0040	U	ug/L	P351946	
		Linuron	0.0040	U	ug/L	P351946	
		Acetaminophen**	0.051		ug/L	P351946	
		Fenuron	0.016	U	ug/L	P351946	
		Imazapyr**	0.25		ug/L	P351946	
		Carbamazepine**	8.0E-04	U	ug/L	P351946	
		Fluridone**	5.1E-04	I	ug/L	P351946	
		Hydrocodone**	8.0E-04	U	ug/L	P351946	
		Naproxen**	0.0080	U	ug/L	P351946	
		Ibuprofen**	0.020	U	ug/L	P351946	
		Sucralose**	0.30		ug/L	P351945	
		Acesulfame K**	0.10	U	ug/L	P351945	

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: North Creek byOaksCrkCt

Collection Date/Time: 09/20/2018 13:30

Field ID: G3SD0064

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2027404	EPA 180.1 Rev. 2.0	Turbidity	5.7		NTU	P352114	
	EPA 300.0 Rev. 2.1	Chloride	81		mg Cl/L	P352421	
		Sulfate	250		mg SO4/L	P352425	
	SM 2120 B	Color (true)	80		PCU	P352098	
	SM 2320 B-97	Total Alkalinity	288		mg CaCO3/L	P352565	
	SM 2540 C-97	TDS	832		mg/L	P352443	
	SM 2540 D-97	TSS	11		mg/L	P352514	
	SM 4500 F-C-97	Fluoride	0.41		mg F/L	P352567	
2027406	EPA 350.1 Rev. 2.0	Ammonia-N	0.070		mg N/L	P352539	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P352330	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.26		mg N/L	P352300	
	EPA 365.1 Rev. 2.0	Total-P	0.21		mg P/L	P352150	
	SM 5310 B-00	Organic Carbon	18		mg C/L	P352348	
2027408	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.13		mg P/L	P352103	

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: P352114

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P352421

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P352425

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P352539

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P352330

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P352300

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P352150

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P352103

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

Reference Method: EPA 8321B
Batch ID: P351945

Component	Result	Code	Units
Acesulfame K	0.10	U	ug/L
Sucralose	0.010	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B
Batch ID: P351946

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	4.0E-04	U	ug/L
Hydrocodone	8.0E-04	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: SM 2120 B
Batch ID: P352098

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P352565

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

Reference Method: SM 2540 C-97
Batch ID: P352443

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P352514

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P352567

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P352348

Component	Result	Code	Units
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Quality Assurance Report

Method Blank Results

Reference Method: SM 5310 B-00
Batch ID: P352348

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: P352421

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	96.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P352425

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	95.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P352539

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.7		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P352330

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: P352300

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P352150

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P352103

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

Reference Method: EPA 8321B
Batch ID: P351945

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	100		P	40 - 150
Sucralose	110		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P351946

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	92.7		P	40 - 150
Acetaminophen	103		P	30 - 150
Bentazon	98.6		P	30 - 150

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P351946

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Carbamazepine	80.1		P	40 - 150
Diuron	71.0		P	40 - 150
Fenuron	105		P	40 - 150
Fluridone	104		P	40 - 150
Hydrocodone	113		P	40 - 150
Ibuprofen	92.5		P	40 - 150
Imazapyr	78.9		P	40 - 150
Imidacloprid	98.4		P	40 - 160
Linuron	65.0		P	40 - 150
MCPP	101		P	40 - 150
Naproxen	80.9		P	40 - 150
Primidone	98.3		P	40 - 150
Pyraclostrobin	75.9		P	40 - 150
Triclopyr	98.1		P	40 - 150

Reference Method: SM 2120 B
Batch ID: P352098

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	96.3		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P352565

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

Reference Method: SM 4500 F-C-97
Batch ID: P352567

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.8		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P352348

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	93.8		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P352421

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2027327	Chloride	96.3		P	90 - 110
2027468	Chloride	95.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P352425

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2027327	Sulfate	94.5		P	90 - 110
2027468	Sulfate	96.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P352539

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2027354	Ammonia-N	103	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P352330

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2027472	Kjeldahl Nitrogen	104	96.3	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P352300

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2027394	NO2NO3-N	100	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P352150

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2027333	Total-P	97.3	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P352103

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2027577	O-Phosphate-P	95.4	95.9	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P351945

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2027105	Acesulfame K	76.5	75.9	P/P	40 - 150
2027105	Sucralose	119	115	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P351946

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2027603	2,4-D	116	88.0	P/P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P351946

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2027603	Acetaminophen	95.6	116	P/P	30 - 150
2027603	Bentazon	39.3	30.7	P/P	30 - 150
2027603	Carbamazepine	61.9	61.1	P/P	40 - 150
2027603	Diuron	49.5	51.7	P/P	40 - 150
2027603	Fenuron	81.6	94.9	P/P	40 - 150
2027603	Fluridone	94.0	104	P/P	40 - 150
2027603	Hydrocodone	107	126	P/P	40 - 150
2027603	Ibuprofen	77.9	64.4	P/P	40 - 150
2027603	Imazapyr	100	117	P/P	40 - 150
2027603	Imidacloprid	158	154	P/P	40 - 160
2027603	Linuron	50.4	56.0	P/P	40 - 150
2027603	MCP	121	102	P/P	40 - 150
2027603	Naproxen	75.7	70.4	P/P	40 - 150
2027603	Primidone	91.3	104	P/P	40 - 150
2027603	Pyraclostrobin	79.0	92.1	P/P	40 - 150
2027603	Triclopyr	115	98.7	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P352567

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2027329	Fluoride	96.0	96.0	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P352348

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2027354	Organic Carbon	103		P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P352114

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2027403	Turbidity	1.19	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P352421

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2027327	Chloride	0.695	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P352425

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2027327	Sulfate	0.805	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P352539

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2027354	Ammonia-N	0.0654	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P352330

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2027472	Kjeldahl Nitrogen	5.39	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P352300

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2027394	NO2NO3-N	0.717	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P352150

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2027333	Total-P	5.61	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P352103

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2027577	O-Phosphate-P	0.501	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 8321B
 Batch ID: P351945

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2027105	Acesulfame K	0.729	Spike	P	0 - 30
2027105	Sucralose	3.47	Spike	P	0 - 30

Reference Method: EPA 8321B
 Batch ID: P351946

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2027603	2,4-D	27.2	Spike	P	0 - 30
2027603	Acetaminophen	19.3	Spike	P	0 - 30
2027603	Bentazon	24.4	Spike	P	0 - 30
2027603	Carbamazepine	1.39	Spike	P	0 - 30
2027603	Diuron	4.30	Spike	P	0 - 30
2027603	Fenuron	15.1	Spike	P	0 - 30
2027603	Fluridone	9.90	Spike	P	0 - 30
2027603	Hydrocodone	16.4	Spike	P	0 - 30
2027603	Ibuprofen	18.9	Spike	P	0 - 30
2027603	Imazapyr	12.9	Spike	P	0 - 30
2027603	Imidacloprid	2.70	Spike	P	0 - 30
2027603	Linuron	10.7	Spike	P	0 - 30
2027603	MCPP	17.1	Spike	P	0 - 30
2027603	Naproxen	7.16	Spike	P	0 - 30
2027603	Primidone	13.0	Spike	P	0 - 30
2027603	Pyraclostrobin	15.3	Spike	P	0 - 30
2027603	Triclopyr	14.8	Spike	P	0 - 30

Reference Method: SM 2120 B
 Batch ID: P352098

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2027403	Color (true)	1.33	Sample	P	0 - 20

Reference Method: SM 2320 B-97
 Batch ID: P352565

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2027329	Total Alkalinity	1.02	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
 Batch ID: P352443

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2027469	TDS	5.29	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
Batch ID: P352567

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2027329	Fluoride	0.0	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P352348

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2027354	Organic Carbon	1.52	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: 2027416
Field Sample ID: G3SD0134

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	49.3	P	30 - 160
EPA 8321B	Acetaminophen-d4	110	P	30 - 160
EPA 8321B	Carbamazepine-d10	55.1	P	30 - 160
EPA 8321B	Diuron-d6	44.1	P	30 - 160
EPA 8321B	Endothall-d6	141	P	40 - 160
EPA 8321B	Ibuprofen-d3	53.5	P	30 - 160
EPA 8321B	Primidone-d5	78.4	P	30 - 160
EPA 8321B	Sucralose-d6	139	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B

Run ID: A86649

Included Lab Sample IDs: 2027403, 2027404

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	106	103	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A86650

Included Lab Sample IDs: 2027407, 2027408

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.8	98.6	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A86652

Included Lab Sample IDs: 2027416

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	103	98.4	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A86657

Included Lab Sample IDs: 2027416

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	113	115	P/P	60 - 160

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A86658

Included Lab Sample IDs: 2027403, 2027404

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	103	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A86704

Included Lab Sample IDs: 2027405, 2027406

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A86718

Included Lab Sample IDs: 2027403, 2027404

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	99.6	P/P	90 - 110
Sulfate	100	99.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A86728

Included Lab Sample IDs: 2027405, 2027406

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	100	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00

Run ID: A86745

Included Lab Sample IDs: 2027405, 2027406

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.4	93.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A86753

Included Lab Sample IDs: 2027405, 2027406

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

Reference Method: EPA 8321B

Run ID: A86818

Included Lab Sample IDs: 2027416

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	83.8	82.2	P/P	50 - 150
Acetaminophen	104	92.8	P/P	60 - 160
Bentazon	95.9	89.3	P/P	50 - 160
Carbamazepine	100	105	P/P	60 - 160
Diuron	97.0	97.9	P/P	60 - 150
Fenuron	110	113	P/P	60 - 150
Fluridone	120	124	P/P	60 - 160
Hydrocodone	103	91.0	P/P	60 - 150
Ibuprofen	108	81.4	P/P	50 - 160
Imazapyr	90.9	103	P/P	50 - 150
Imidacloprid	95.5	94.5	P/P	60 - 150
Linuron	98.5	97.5	P/P	60 - 150
MCPP	85.4	96.9	P/P	50 - 150
Naproxen	93.3	109	P/P	50 - 160
Primidone	96.4	90.4	P/P	60 - 150
Pyraclostrobin	114	123	P/P	60 - 150
Triclopyr	93.7	97.5	P/P	50 - 160

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A86823

Included Lab Sample IDs: 2027405, 2027406

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

Reference Method: SM 2320 B-97

Run ID: A86829

Included Lab Sample IDs: 2027403, 2027404

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: A86829

Included Lab Sample IDs: 2027403, 2027404

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97

Run ID: A86829

Included Lab Sample IDs: 2027403, 2027404

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	100	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	MS
						SMP	
EPA 180.1 Rev. 2.0	Turbidity					1.19	
EPA 300.0 Rev. 2.1	Chloride	96.3	96.3	95.2		0.695	
	Sulfate	95.6	94.5	96.1		0.805	
EPA 350.1 Rev. 2.0	Ammonia-N	99.7	103	103			0.0654
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104	104	96.3			5.39
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	101	100	101			0.717
EPA 365.1 Rev. 2.0	Total-P	100	97.3	104			5.61
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.2	95.4	95.9			0.501
EPA 8321B	2,4-D	92.7	116	88.0			27.2
	Acesulfame K	100	76.5	75.9			0.729
	Acetaminophen	103	95.6	116			19.3
	Bentazon	98.6	39.3	30.7			24.4
	Carbamazepine	80.1	61.9	61.1			1.39
	Diuron	71.0	49.5	51.7			4.30
	Fenuron	105	81.6	94.9			15.1
	Fluridone	104	94.0	104			9.90
	Hydrocodone	113	107	126			16.4
	Ibuprofen	92.5	77.9	64.4			18.9
	Imazapyr	78.9	100	117			12.9
	Imidacloprid	98.4	158	154			2.70
	Linuron	65.0	50.4	56.0			10.7
	MCP	101	121	102			17.1
	Naproxen	80.9	75.7	70.4			7.16
	Primidone	98.3	91.3	104			13.0
	Pyraclostrobin	75.9	79.0	92.1			15.3
	Sucralose	110	119	115			3.47
	Triclopyr	98.1	115	98.7			14.8
SM 2120 B	Color (true)	96.3				1.33	
SM 2320 B-97	Total Alkalinity	102				1.02	
SM 2540 C-97	TDS					5.29	
SM 4500 F-C-97	Fluoride	97.8	96.0	96.0			0.0
SM 5310 B-00	Organic Carbon	93.8	103				1.52

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2027403, 2027404
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2027403, 2027404
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2027403, 2027404
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2027405, 2027406
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2027405, 2027406
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2027405, 2027406
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2027405, 2027406
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2027407, 2027408
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2027416
SM 2120 B / E31780	True Color measured at 450 nm	2027403, 2027404
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2027403, 2027404

Reference Method Descriptions

Method / DoH Cert #	Description	<u>Associated Samples</u>
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2027403, 2027404
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2027403, 2027404
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2027403, 2027404
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2027405, 2027406

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	09/21/2018			09/21/2018 16:28	Megan Treadwell	2027403, 2027404
EPA 300.0 Rev. 2.1	09/21/2018			09/27/2018 18:56	Lipi Saha	2027403
	09/21/2018			09/27/2018 19:08	Lipi Saha	2027404
EPA 350.1 Rev. 2.0	09/21/2018			09/27/2018 13:47	Ping Hua	2027405
	09/21/2018			09/27/2018 13:48	Ping Hua	2027406
EPA 351.2 Rev. 2.0	09/21/2018	09/26/2018 15:45	Adrian Shelby	09/27/2018 12:35	Joseph Suarez	2027405
	09/21/2018	09/26/2018 15:45	Adrian Shelby	09/27/2018 12:37	Joseph Suarez	2027406
EPA 353.2 Rev. 2.0	09/21/2018			09/26/2018 13:32	Lauren Bottorf	2027405
	09/21/2018			09/26/2018 13:33	Lauren Bottorf	2027406
EPA 365.1 Rev. 2.0	09/21/2018	09/24/2018 12:05	Sima Feizi	09/25/2018 10:51	Beverly Y. Sanders	2027405
	09/21/2018	09/24/2018 12:05	Sima Feizi	09/25/2018 10:52	Beverly Y. Sanders	2027406
EPA 365.1 Rev. 2.0 dissolved	09/21/2018			09/21/2018 16:14	Julia Storbeck	2027407
	09/21/2018			09/21/2018 16:15	Julia Storbeck	2027408
EPA 8321B	09/21/2018	09/21/2018 15:00	Mohammad Ghaffari	09/22/2018 08:41	Mohammad Ghaffari	2027416
	09/21/2018	09/21/2018 15:00	Mohammad Ghaffari	09/23/2018 19:29	Mohammad Ghaffari	2027416
	09/21/2018	09/26/2018 09:00	Hoor Shaik	09/29/2018 08:29	Juyoung Kim	2027416
	09/21/2018	09/26/2018 09:00	Hoor Shaik	10/01/2018 14:43	Juyoung Kim	2027416
SM 2120 B	09/21/2018			09/21/2018 15:29	DeAsia Armster	2027403
	09/21/2018			09/21/2018 15:30	DeAsia Armster	2027404
SM 2320 B-97	09/21/2018			09/28/2018 06:43	Dale L. Simmons	2027403
	09/21/2018			09/28/2018 06:55	Dale L. Simmons	2027404
SM 2540 C-97	09/21/2018			09/25/2018 15:05	Yijie Li	2027403, 2027404
SM 2540 D-97	09/21/2018			09/25/2018 15:05	Yijie Li	2027403, 2027404
SM 4500 F-C-97	09/21/2018			09/28/2018 06:43	Dale L. Simmons	2027403
	09/21/2018			09/28/2018 06:55	Dale L. Simmons	2027404
SM 5310 B-00	09/21/2018			09/26/2018 16:01	Megan Treadwell	2027405
	09/21/2018			09/26/2018 16:28	Megan Treadwell	2027406