

Chemical Analysis Report

NW-DIST-2019-01-29-01

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

Event Description: **Navarre Run**
Request ID: **RQ-2019-01-14-16**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
160 Government Center
Suite 308
Pensacola, FL 32502-5794
Attn: cheryl Bunch

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Certified by: Colin Wright, Program Administrator

Date Certified: 20-FEB-2019 11:40

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed on a light gray 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 by the Florida Department of Health Environmental Laboratory Certification Program or where accreditation for that field of testing is not applicable.

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

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

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

Precision is reported as relative percent difference unless otherwise noted.

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

QC Codes used in this report may include:

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

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

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

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

**Sample Location: DISCHARGE FROM TIGER POINT GOLF
COURSE AT MAPLEWOOD DRIVE**

Collection Date/Time: 01/28/2019 12:15

Field ID: G4NW0211

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2057446	EPA 180.1 Rev. 2.0	Turbidity	8.8	A	NTU	P357994	
	EPA 300.0	Bromide	0.062		mg Br/L	P358168	
	SM 2320 B-97	Total Alkalinity	35		mg CaCO3/L	P358270	
	SM 2540 D-97	TSS	6	I	mg/L	P358335	
	SM 4500 F-C-97	Fluoride	0.048	I	mg F/L	P358273	
2057447	EPA 350.1 Rev. 2.0	Ammonia-N	0.22		mg N/L	P358188	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.4		mg N/L	P358928	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.077		mg N/L	P358302	
	EPA 365.1 Rev. 2.0	Total-P	0.16		mg P/L	P358096	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P358091	
2057448	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.084		mg P/L	P358007	
2057451	EPA 8270D	Acetochlor	0.56	U	ng/L	P358144	
		Alachlor	0.56	U	ng/L	P358144	
		Ametryn	1.3	U	ng/L	P358144	
		Atrazine	1.6	I	ng/L	P358144	
		Atrazine Desethyl	3.3	U	ng/L	P358144	RPD
		Azinphos Methyl	5.0	U	ng/L	P358144	
		Bromacil	1.1	U	ng/L	P358144	
		Butylate	0.89	U	ng/L	P358144	
		Chlorpyrifos Ethyl	0.56	U	ng/L	P358144	MS
		Chlorpyrifos Methyl	0.22	U	ng/L	P358144	
		Cyanazine	7.2	U	ng/L	P358144	
		Demeton	16	U	ng/L	P358144	
		Diazinon	0.28	U	ng/L	P358144	
		Dimethenamid**	0.22	U	ng/L	P358144	
		Disulfoton	1.1	U	ng/L	P358144	
		Dithiopyr**	1.5		ng/L	P358144	
		EPTC	2.8	U	ng/L	P358144	
		Ethion	0.33	U	ng/L	P358144	RPD
		Ethoprop	0.22	U	ng/L	P358144	
		Fenamiphos	1.1	UJ	ng/L	P358144	RPD
		Fipronil	18		ng/L	P358144	
		Fipronil Desulfinyl**	1.6		ng/L	P358144	
		Fipronil Sulfide	27		ng/L	P358144	
		Fipronil Sulfone	26		ng/L	P358144	
		Fonofos	0.44	U	ng/L	P358144	
		Hexazinone	1.1	I	ng/L	P358144	
		Malathion	0.78	U	ng/L	P358144	MS, RPD
		Metalaxyl	0.56	U	ng/L	P358144	
		Metolachlor	1.1	U	ng/L	P358144	
		Metribuzin	170	J	ng/L	P358144	CCV
		Mevinphos	1.1	U	ng/L	P358144	

Field ID: G4NW0211

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2057451	EPA 8270D	Molinate	0.67	U	ng/L	P358144	
		Norflurazon	1.1	U	ng/L	P358144	
		Oxadiazon**	8.3		ng/L	P358144	
		Parathion Ethyl	0.56	U	ng/L	P358144	
		Parathion Methyl	1.2	U	ng/L	P358144	
		Pendimethalin	2.2	U	ng/L	P358144	
		Phorate	0.56	U	ng/L	P358144	
		Prodiamine**	2.9		ng/L	P358144	
		Prometon	2.0	U	ng/L	P358144	
		Prometryn	0.44	U	ng/L	P358144	
		Simazine	1.1	U	ng/L	P358144	
		Tebuconazole**	1.2	IJ	ng/L	P358144	LCS, RPD
		Terbufos	0.22	U	ng/L	P358144	
		Terbuthylazine	0.94	U	ng/L	P358144	

Ref. Method and Comment:

EPA 300.0: Bromide: 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.

EPA 8270D: Refer to the narrative for an explanation of QC Codes. MDLs elevated due to insufficient sample volume available for analysis.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P357994

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0
Batch ID: P358168

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P358188

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358928

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P358302

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P358096

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P358007

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

Reference Method: EPA 8270D
Batch ID: P358144

Component	Result	Code	Units
Acetochlor	0.25	U	ng/L
Alachlor	0.25	U	ng/L
Ametryn	0.60	U	ng/L
Atrazine	0.25	U	ng/L
Atrazine Desethyl	1.5	U	ng/L
Azinphos Methyl	2.2	U	ng/L
Bromacil	0.50	U	ng/L
Butylate	0.40	U	ng/L
Chlorpyrifos Ethyl	0.25	U	ng/L
Chlorpyrifos Methyl	0.10	U	ng/L

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8270D
Batch ID: P358144

Component	Result	Code	Units
Cyanazine	3.2	U	ng/L
Demeton	7.0	U	ng/L
Diazinon	0.12	U	ng/L
Dimethenamid	0.10	U	ng/L
Disulfoton	0.50	U	ng/L
Dithiopyr	0.10	U	ng/L
EPTC	1.2	U	ng/L
Ethion	0.15	U	ng/L
Ethoprop	0.10	U	ng/L
Fenamiphos	0.50	U	ng/L
Fipronil	0.25	U	ng/L
Fipronil Desulfinyl	0.12	U	ng/L
Fipronil Sulfide	0.15	U	ng/L
Fipronil Sulfone	0.15	U	ng/L
Fonofos	0.20	U	ng/L
Hexazinone	0.50	U	ng/L
Malathion	0.35	U	ng/L
Metalaxyl	0.25	U	ng/L
Metolachlor	0.50	U	ng/L
Metribuzin	0.75	U	ng/L
Mevinphos	0.50	U	ng/L
Molinate	0.30	U	ng/L
Norflurazon	0.50	U	ng/L
Oxadiazon	0.10	U	ng/L
Parathion Ethyl	0.25	U	ng/L
Parathion Methyl	0.55	U	ng/L
Pendimethalin	1.0	U	ng/L
Phorate	0.25	U	ng/L
Prodiamine	0.18	U	ng/L
Prometon	0.90	U	ng/L
Prometryn	0.20	U	ng/L
Simazine	0.50	U	ng/L
Tebuconazole	0.50	U	ng/L
Terbufos	0.10	U	ng/L
Terbutylazine	0.42	U	ng/L

Reference Method: SM 2320 B-97
Batch ID: P358270

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO ₃ /L

Reference Method: SM 2540 D-97
Batch ID: P358335

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P358273

Component	Result	Code	Units
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Quality Assurance Report

Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P358273

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P358091

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0

Batch ID: P358168

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

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P358188

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.4		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P358928

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

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P358302

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	99.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P358096

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P358007

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.4		P	90 - 110

Reference Method: EPA 8270D

Batch ID: P358144

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acetochlor	98.1	93.2	P/P	71 - 121
Alachlor	105	96.5	P/P	72 - 119
Ametryn	96.0	102	P/P	47 - 144
Atrazine	95.3	93.5	P/P	75 - 123
Atrazine Desethyl	76.7	81.7	P/P	45 - 133
Azinphos Methyl	108	111	P/P	66 - 165
Bromacil	74.2	81.1	P/P	43 - 123
Butylate	77.0	67.3	P/P	27 - 83.0
Chlorpyrifos Ethyl	101	90.3	P/P	70 - 117
Chlorpyrifos Methyl	92.4	84.1	P/P	71 - 120
Cyanazine	80.3	84.4	P/P	34 - 264
Demeton	70.5	71.4	P/P	41 - 122
Diazinon	98.3	89.6	P/P	70 - 127
Dimethenamid	104	95.6	P/P	60 - 130
Disulfoton	78.0	82.1	P/P	56 - 127
Dithiopyr	96.9	89.8	P/P	60 - 130

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8270D
Batch ID: P358144

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
EPTC	73.7	70.3	P/P	24 - 84.0
Ethion	107	106	P/P	53 - 132
Ethoprop	98.8	82.8	P/P	57 - 117
Fenamiphos	57.4	86.1	P/P	55 - 136
Fipronil	96.1	101	P/P	64 - 126
Fipronil Desulfinyl	98.2	94.9	P/P	60 - 130
Fipronil Sulfide	99.7	100	P/P	57 - 120
Fipronil Sulfone	99.9	99.0	P/P	52 - 115
Fonofos	80.8	76.4	P/P	61 - 121
Hexazinone	122	93.2	P/P	62 - 131
Malathion	99.8	99.8	P/P	67 - 126
Metaxyl	55.2	59.1	P/P	54 - 128
Metolachlor	104	99.2	P/P	71 - 118
Metribuzin	78.6	76.1	P/P	42 - 221
Mevinphos	87.4	84.4	P/P	45 - 114
Molinate	81.4	75.8	P/P	33 - 91.0
Norflurazon	83.2	104	P/P	60 - 123
Oxadiazon	107	106	P/P	60 - 130
Parathion Ethyl	84.0	91.0	P/P	73 - 111
Parathion Methyl	96.4	96.0	P/P	74 - 126
Pendimethalin	92.1	89.5	P/P	63 - 131
Phorate	72.9	73.8	P/P	54 - 115
Prodiamine	103	98.1	P/P	60 - 130
Prometon	87.3	93.3	P/P	61 - 120
Prometryn	96.1	98.9	P/P	62 - 126
Simazine	110	101	P/P	75 - 126
Tebuconazole	27.9	90.9	F/P	30 - 100
Terbufos	78.6	76.5	P/P	65 - 116
Terbutylazine	106	97.2	P/P	73 - 117

Reference Method: SM 2320 B-97
Batch ID: P358270

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

Reference Method: SM 4500 F-C-97
Batch ID: P358273

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.2		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P358091

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	100		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0
Batch ID: P358168

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2058121	Bromide	92.8	96.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P358188

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2057484	Ammonia-N	100	99.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358928

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2057447	Kjeldahl Nitrogen	99.5	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P358302

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2057436	NO2NO3-N	95.3	95.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P358096

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2057456	Total-P	103	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P358007

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2057477	O-Phosphate-P	99.5	101	P/P	90 - 110

Reference Method: EPA 8270D
Batch ID: P358144

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2057773	Acetochlor	99.0	118	P/P	63 - 129
2057773	Alachlor	106	114	P/P	65 - 127
2057773	Ametryn	130	142	P/P	40 - 164
2057773	Atrazine	93.5	115	P/P	66 - 135
2057773	Atrazine Desethyl	80.3	112	P/P	14 - 157
2057773	Azinphos Methyl	128	157	P/P	49 - 180
2057773	Bromacil	87.5	91.1	P/P	48 - 130
2057773	Butylate	64.1	64.5	P/P	10 - 94.0
2057773	Chlorpyrifos Ethyl	124	102	F/P	58 - 123
2057773	Chlorpyrifos Methyl	101	91.5	P/P	58 - 125
2057773	Cyanazine	90.7	93.1	P/P	24 - 253
2057773	Demeton	93.9	100	P/P	25 - 149
2057773	Diazinon	103	129	P/P	59 - 144
2057773	Dimethenamid	103	107	P/P	60 - 130
2057773	Disulfoton	105	98.6	P/P	54 - 132
2057773	Dithiopyr	89.3	90.1	P/P	60 - 130

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8270D
 Batch ID: P358144

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2057773	EPTC	60.3	67.6	P/P	10 - 92.0
2057773	Ethion	106	54.0	P/P	30 - 148
2057773	Ethoprop	98.4	101	P/P	50 - 130
2057773	Fenamiphos	101	135	P/P	49 - 142
2057773	Fipronil	91.5	104	P/P	46 - 140
2057773	Fipronil Desulfinyl	82.9	83.3	P/P	60 - 130
2057773	Fipronil Sulfide	95.8	99.5	P/P	31 - 136
2057773	Fipronil Sulfone	95.9	76.7	P/P	16 - 136
2057773	Fonofos	91.1	90.1	P/P	55 - 129
2057773	Hexazinone	102	91.0	P/P	56 - 141
2057773	Malathion	105	54.4	P/F	56 - 135
2057773	Metalaxyl	99.0	100	P/P	54 - 135
2057773	Metolachlor	103	110	P/P	51 - 140
2057773	Metribuzin	140	148	P/P	45 - 254
2057773	Mevinphos	95.9	96.3	P/P	33 - 131
2057773	Molinate	83.9	91.1	P/P	14 - 98.0
2057773	Norflurazon	98.9	115	P/P	34 - 136
2057773	Oxadiazon	98.6	92.8	P/P	60 - 130
2057773	Parathion Ethyl	82.8	85.8	P/P	66 - 118
2057773	Parathion Methyl	115	127	P/P	64 - 136
2057773	Pendimethalin	88.7	90.9	P/P	59 - 144
2057773	Phorate	106	94.0	P/P	42 - 130
2057773	Prodiamine	93.5	83.5	P/P	60 - 130
2057773	Prometon	95.8	110	P/P	59 - 134
2057773	Prometryn	88.4	81.6	P/P	54 - 135
2057773	Simazine	111	103	P/P	53 - 156
2057773	Tebuconazole	95.1	43.6	P/P	30 - 100
2057773	Terbufos	98.3	101	P/P	57 - 131
2057773	Terbutylazine	101	103	P/P	68 - 125

Reference Method: SM 4500 F-C-97
 Batch ID: P358273

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2057453	Fluoride	96.8	97.4	P/P	91 - 105

Reference Method: SM 5310 B-00
 Batch ID: P358091

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2057151	Organic Carbon	104	102	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P357994

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2057446	Turbidity	16.6	Sample	P	0 - 20

Reference Method: EPA 300.0
Batch ID: P358168

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2058121	Bromide	2.27	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P358188

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2057484	Ammonia-N	0.740	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358928

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2057447	Kjeldahl Nitrogen	0.304	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P358302

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2057436	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P358096

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2057456	Total-P	2.56	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P358007

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2057477	O-Phosphate-P	1.10	Spike	P	0 - 20

Reference Method: EPA 8270D
Batch ID: P358144

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2057773	Acetochlor	17.1	Spike	P	0 - 30
2057773	Alachlor	6.43	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8270D
Batch ID: P358144

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2057773	Ametryn	8.97	Spike	P	0 - 30
2057773	Atrazine	6.64	Spike	P	0 - 30
2057773	Atrazine Desethyl	32.9	Spike	F	0 - 30
2057773	Azinphos Methyl	20.2	Spike	P	0 - 30
2057773	Bromacil	4.05	Spike	P	0 - 30
2057773	Butylate	0.654	Spike	P	0 - 30
2057773	Chlorpyrifos Ethyl	19.5	Spike	P	0 - 30
2057773	Chlorpyrifos Methyl	10.2	Spike	P	0 - 30
2057773	Cyanazine	2.66	Spike	P	0 - 30
2057773	Demeton	6.72	Spike	P	0 - 30
2057773	Diazinon	22.7	Spike	P	0 - 30
2057773	Dimethenamid	3.08	Spike	P	0 - 30
2057773	Disulfoton	6.17	Spike	P	0 - 30
2057773	Dithiopyr	0.875	Spike	P	0 - 30
2057773	EPTC	11.4	Spike	P	0 - 30
2057773	Ethion	64.7	Spike	F	0 - 30
2057773	Ethoprop	2.71	Spike	P	0 - 30
2057773	Fenamiphos	28.8	Spike	P	0 - 30
2057773	Fipronil	12.7	Spike	P	0 - 30
2057773	Fipronil Desulfinyl	0.481	Spike	P	0 - 30
2057773	Fipronil Sulfide	3.81	Spike	P	0 - 30
2057773	Fipronil Sulfone	20.2	Spike	P	0 - 30
2057773	Fonofos	1.10	Spike	P	0 - 30
2057773	Hexazinone	6.12	Spike	P	0 - 30
2057773	Malathion	63.0	Spike	F	0 - 30
2057773	Metaxyl	0.858	Spike	P	0 - 30
2057773	Metolachlor	5.68	Spike	P	0 - 30
2057773	Metribuzin	5.52	Spike	P	0 - 30
2057773	Mevinphos	0.495	Spike	P	0 - 30
2057773	Molinate	8.18	Spike	P	0 - 30
2057773	Norflurazon	15.1	Spike	P	0 - 30
2057773	Oxadiazon	5.16	Spike	P	0 - 30
2057773	Parathion Ethyl	3.60	Spike	P	0 - 30
2057773	Parathion Methyl	9.26	Spike	P	0 - 30
2057773	Pendimethalin	2.46	Spike	P	0 - 30
2057773	Phorate	12.2	Spike	P	0 - 30
2057773	Prodiamine	11.2	Spike	P	0 - 30
2057773	Prometon	13.7	Spike	P	0 - 30
2057773	Prometryn	7.98	Spike	P	0 - 30
2057773	Simazine	5.76	Spike	P	0 - 30
2057773	Tebuconazole	41.6	Spike	F	0 - 30
2057773	Terbufos	2.27	Spike	P	0 - 30
2057773	Terbutylazine	1.62	Spike	P	0 - 30
LFB	Acetochlor	5.12	LCS	P	0 - 30
LFB	Alachlor	8.11	LCS	P	0 - 30
LFB	Ametryn	6.37	LCS	P	0 - 30
LFB	Atrazine	1.92	LCS	P	0 - 30
LFB	Atrazine Desethyl	6.35	LCS	P	0 - 30
LFB	Azinphos Methyl	2.86	LCS	P	0 - 30
LFB	Bromacil	8.98	LCS	P	0 - 30
LFB	Butylate	13.5	LCS	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8270D
Batch ID: P358144

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
LFB	Chlorpyrifos Ethyl	10.7	LCS	P	0 - 30
LFB	Chlorpyrifos Methyl	9.42	LCS	P	0 - 30
LFB	Cyanazine	4.95	LCS	P	0 - 30
LFB	Demeton	1.27	LCS	P	0 - 30
LFB	Diazinon	9.33	LCS	P	0 - 30
LFB	Dimethenamid	8.60	LCS	P	0 - 30
LFB	Disulfoton	5.07	LCS	P	0 - 30
LFB	Dithiopyr	7.60	LCS	P	0 - 30
LFB	EPTC	4.66	LCS	P	0 - 30
LFB	Ethion	1.68	LCS	P	0 - 30
LFB	Ethoprop	17.6	LCS	P	0 - 30
LFB	Fenamiphos	40.0	LCS	F	0 - 30
LFB	Fipronil	5.22	LCS	P	0 - 30
LFB	Fipronil Desulfinyl	3.38	LCS	P	0 - 30
LFB	Fipronil Sulfide	0.558	LCS	P	0 - 30
LFB	Fipronil Sulfone	0.903	LCS	P	0 - 30
LFB	Fonofos	5.62	LCS	P	0 - 30
LFB	Hexazinone	27.1	LCS	P	0 - 30
LFB	Malathion	0.0194	LCS	P	0 - 30
LFB	Metalaxyl	6.76	LCS	P	0 - 30
LFB	Metolachlor	4.63	LCS	P	0 - 30
LFB	Metribuzin	3.15	LCS	P	0 - 30
LFB	Mevinphos	3.47	LCS	P	0 - 30
LFB	Molinate	7.04	LCS	P	0 - 30
LFB	Norflurazon	22.4	LCS	P	0 - 30
LFB	Oxadiazon	1.11	LCS	P	0 - 30
LFB	Parathion Ethyl	7.94	LCS	P	0 - 30
LFB	Parathion Methyl	0.467	LCS	P	0 - 30
LFB	Pendimethalin	2.92	LCS	P	0 - 30
LFB	Phorate	1.22	LCS	P	0 - 30
LFB	Prodiamine	4.89	LCS	P	0 - 30
LFB	Prometon	6.62	LCS	P	0 - 30
LFB	Prometryn	2.86	LCS	P	0 - 30
LFB	Simazine	8.45	LCS	P	0 - 30
LFB	Tebuconazole	106	LCS	F	0 - 30
LFB	Terbufos	2.78	LCS	P	0 - 30
LFB	Terbutylazine	8.90	LCS	P	0 - 30

Reference Method: SM 2320 B-97
Batch ID: P358270

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2057453	Total Alkalinity	0.248	Sample	P	0 - 1.6

Reference Method: SM 4500 F-C-97
Batch ID: P358273

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2057453	Fluoride	0.476	Spike	P	0 - 3.5

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P358091

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2057151	Organic Carbon	0.901	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: 2057451
Field Sample ID: G4NW0211

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8270D	Simazine-d10	126	P	68 - 130
EPA 8270D	Terbufos-d10	97.8	P	61 - 136

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A89074

Included Lab Sample IDs: 2057446

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.5	100	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A89077

Included Lab Sample IDs: 2057448

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.8	99.1	P/P	90 - 110

Reference Method: EPA 300.0

Run ID: A89080

Included Lab Sample IDs: 2057446

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	96.4	93.4	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A89107

Included Lab Sample IDs: 2057447

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.6	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A89123

Included Lab Sample IDs: 2057447

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A89145

Included Lab Sample IDs: 2057447

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	98.9	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A89166

Included Lab Sample IDs: 2057446

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	99.6	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A89166

Included Lab Sample IDs: 2057446

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	97.6	98.5	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A89167

Included Lab Sample IDs: 2057447

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.5	99.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A89442

Included Lab Sample IDs: 2057447

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.8	107	P/P	90 - 110

Reference Method: EPA 8270D

Run ID: A89457

Included Lab Sample IDs: 2057451

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetochlor	96.5		P	80 - 120
Alachlor	101		P	80 - 120
Ametryn	98.9		P	80 - 120
Atrazine	94.6		P	80 - 120
Atrazine Desethyl	92.0		P	80 - 120
Azinphos Methyl	94.8		P	80 - 120
Bromacil	94.5		P	80 - 120
Butylate	99.6		P	80 - 120
Chlorpyrifos Ethyl	95.4		P	80 - 120
Chlorpyrifos Methyl	98.2		P	80 - 120
Cyanazine	88.5		P	80 - 120
Demeton	97.0		P	80 - 120
Diazinon	97.9		P	80 - 120
Dimethenamid	101		P	80 - 120
Disulfoton	102		P	80 - 120
Dithiopyr	94.1		P	80 - 120
EPTC	97.6		P	80 - 120
Ethion	90.5		P	80 - 120
Ethoprop	99.3		P	80 - 120
Fenamiphos	97.2		P	80 - 120
Fipronil	95.5		P	80 - 120
Fipronil Desulfinyl	100		P	80 - 120
Fipronil Sulfide	98.2		P	80 - 120
Fipronil Sulfone	99.4		P	80 - 120
Fonofos	98.0		P	80 - 120
Hexazinone	97.9		P	80 - 120
Malathion	91.2		P	80 - 120
Metalaxyl	102		P	80 - 120
Metolachlor	99.2		P	80 - 120
Metribuzin	73.1*		F	80 - 120
Mevinphos	100		P	80 - 120
Molinate	98.0		P	80 - 120
Norflurazon	92.6		P	80 - 120
Oxadiazon	99.5		P	80 - 120
Parathion Ethyl	97.2		P	80 - 120
Parathion Methyl	100		P	80 - 120
Pendimethalin	95.6		P	80 - 120

Quality Assurance Report Calibration Verification

Reference Method: EPA 8270D

Run ID: A89457

Included Lab Sample IDs: 2057451

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Phorate	95.4		P	80 - 120
Prodiamine	88.2		P	80 - 120
Prometon	98.8		P	80 - 120
Prometryn	100		P	80 - 120
Simazine	101		P	80 - 120
Tebuconazole	94.1		P	80 - 120
Terbufos	92.8		P	80 - 120
Terbutylazine	98.5		P	80 - 120

* 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						16.6	
EPA 300.0	Bromide	99.5		92.8	96.2			2.27
EPA 350.1 Rev. 2.0	Ammonia-N	97.4		100	99.2			0.740
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	107		99.5	100			0.304
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	99.0		95.3	95.3			0.0
EPA 365.1 Rev. 2.0	Total-P	104		103	100			2.56
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.4		99.5	101			1.10
EPA 8270D	Acetochlor	98.1	93.2	99.0	118	5.12		17.1
	Alachlor	105	96.5	106	114	8.11		6.43
	Ametryn	96.0	102	130	142	6.37		8.97
	Atrazine	95.3	93.5	93.5	115	1.92		6.64
	Atrazine Desethyl	76.7	81.7	80.3	112	6.35		32.9
	Azinphos Methyl	108	111	128	157	2.86		20.2
	Bromacil	74.2	81.1	87.5	91.1	8.98		4.05
	Butylate	77.0	67.3	64.1	64.5	13.5		0.654
	Chlorpyrifos Ethyl	101	90.3	124	102	10.7		19.5
	Chlorpyrifos Methyl	92.4	84.1	101	91.5	9.42		10.2
	Cyanazine	80.3	84.4	90.7	93.1	4.95		2.66
	Demeton	70.5	71.4	93.9	100	1.27		6.72
	Diazinon	98.3	89.6	103	129	9.33		22.7
	Dimethenamid	104	95.6	103	107	8.60		3.08
	Disulfoton	78.0	82.1	105	98.6	5.07		6.17
	Dithiopyr	96.9	89.8	89.3	90.1	7.60		0.875
	EPTC	73.7	70.3	60.3	67.6	4.66		11.4
	Ethion	107	106	106	54.0	1.68		64.7
	Ethoprop	98.8	82.8	98.4	101	17.6		2.71
	Fenamiphos	57.4	86.1	101	135	40.0		28.8
	Fipronil	96.1	101	91.5	104	5.22		12.7
	Fipronil Desulfinyl	98.2	94.9	82.9	83.3	3.38		0.481
	Fipronil Sulfide	99.7	100	95.8	99.5	0.558		3.81
	Fipronil Sulfone	99.9	99.0	95.9	76.7	0.903		20.2
	Fonofos	80.8	76.4	91.1	90.1	5.62		1.10
	Hexazinone	122	93.2	102	91.0	27.1		6.12
	Malathion	99.8	99.8	105	54.4	0.0194		63.0
	Metalaxyl	55.2	59.1	99.0	100	6.76		0.858
	Metolachlor	104	99.2	103	110	4.63		5.68
	Metribuzin	78.6	76.1	140	148	3.15		5.52
	Mevinphos	87.4	84.4	95.9	96.3	3.47		0.495
	Molinate	81.4	75.8	83.9	91.1	7.04		8.18
	Norflurazon	83.2	104	98.9	115	22.4		15.1
	Oxadiazon	107	106	98.6	92.8	1.11		5.16
	Parathion Ethyl	84.0	91.0	82.8	85.8	7.94		3.60
	Parathion Methyl	96.4	96.0	115	127	0.467		9.26
	Pendimethalin	92.1	89.5	88.7	90.9	2.92		2.46
	Phorate	72.9	73.8	106	94.0	1.22		12.2
	Prodiamine	103	98.1	93.5	83.5	4.89		11.2
	Prometon	87.3	93.3	95.8	110	6.62		13.7
	Prometryn	96.1	98.9	88.4	81.6	2.86		7.98
	Simazine	110	101	111	103	8.45		5.76
	Tebuconazole	27.9	90.9	95.1	43.6	106		41.6
	Terbufos	78.6	76.5	98.3	101	2.78		2.27
	Terbutylazine	106	97.2	101	103	8.90		1.62
SM 2320 B-97	Total Alkalinity	102					0.248	
SM 4500 F-C-97	Fluoride	96.2		96.8	97.4			0.476

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision SMP	MS
SM 5310 B-00	Organic Carbon	100	104	102			0.901

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2057446
EPA 300.0 / E31780	Bromide in aqueous matrices	2057446
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2057447
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2057447
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2057447
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2057447
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2057448
EPA 8270D / E31780	Organonitrogen and phosphorus pesticides in water matrices by GC/MS/MS	2057451
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2057446
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2057446
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2057446
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2057447

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	01/29/2019			01/29/2019 16:31	Megan Treadwell	2057446
EPA 300.0	01/29/2019			01/31/2019 19:41	Lipi Saha	2057446
EPA 350.1 Rev. 2.0	01/29/2019			01/31/2019 13:37	Ping Hua	2057447
EPA 351.2 Rev. 2.0	01/29/2019	02/14/2019 12:45	Adrian Shelby	02/15/2019 10:12	Joseph Suarez	2057447
EPA 353.2 Rev. 2.0	01/29/2019			02/04/2019 10:39	Beverly Y. Sanders	2057447
EPA 365.1 Rev. 2.0	01/29/2019	01/31/2019 14:30	Sima Feizi	02/01/2019 11:49	Rosalyn Ballman	2057447
EPA 365.1 Rev. 2.0 dissolved	01/29/2019			01/29/2019 15:46	Jhamieka S. Greenwood	2057448
EPA 8270D	01/29/2019	02/01/2019 08:30	Rasheda Ghaffari	02/04/2019 21:19	Vandana T. Nagar	2057451
SM 2320 B-97	01/29/2019			02/03/2019 17:54	Dale L. Simmons	2057446
SM 2540 D-97	01/29/2019			01/31/2019 14:21	Yijie Li	2057446
SM 4500 F-C-97	01/29/2019			02/03/2019 17:54	Dale L. Simmons	2057446
SM 5310 B-00	01/29/2019			01/30/2019 20:21	Chelsea Hernandez	2057447