

Chemical Analysis Report

SW-DIST-2017-03-09-01

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

Event Description: **SMP RUN 4**
Request ID: **RQ-2017-03-06-21**
Customer: **SW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
13051 N. Telecom Parkway
Temple Terrace, FL 33637-0926
Attn: Judy Ashton

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

Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 06-APR-2017 13:29



Case Narrative

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

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

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

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

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

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

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

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

Precision is reported as relative percent difference unless otherwise noted.

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

QC Codes used in this report may include:

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

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

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

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

Sample Location: PASADENA

Collection Date/Time: 03/08/2017 10:10

Field ID: G5SW0119

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1878964	EPA 180.1 Rev. 2.0	Turbidity	23		NTU	P321299	
	EPA 300.0 Rev. 2.1	Chloride	75		mg Cl/L	P321809	
		Sulfate	11		mg SO4/L	P321813	
	SM 2120 B	Color (true)	58	A	PCU	P321290	
	SM 2320 B-97	Total Alkalinity	94		mg CaCO3/L	P321529	
	SM 2540 C-97	TDS	257		mg/L	P322086	
	SM 2540 D-97	TSS	38		mg/L	P321875	
	SM 4500 F-C-97	Fluoride	0.20		mg F/L	P321533	
1878969	EPA 350.1 Rev. 2.0	Ammonia-N	0.015		mg N/L	P321475	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	3.5		mg N/L	P321579	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P321661	
	EPA 365.1 Rev. 2.0	Total-P	0.30		mg P/L	P321461	
	SM 5310 B-00	Organic Carbon	18		mg C/L	P321336	
1878974	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.015		mg P/L	P321273	

Ref. Method and Comment:

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

SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: PASADENA DUPLICATE

Collection Date/Time: 03/08/2017 10:05

Field ID: G5SW0119

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1878965	EPA 180.1 Rev. 2.0	Turbidity	20	A	NTU	P321300	
	EPA 300.0 Rev. 2.1	Chloride	75		mg Cl/L	P321809	
		Sulfate	11		mg SO4/L	P321813	
	SM 2120 B	Color (true)	58		PCU	P321290	
	SM 2320 B-97	Total Alkalinity	94		mg CaCO3/L	P321529	
	SM 2540 C-97	TDS	255		mg/L	P322087	
	SM 2540 D-97	TSS	39		mg/L	P321876	
	SM 4500 F-C-97	Fluoride	0.21		mg F/L	P321533	
1878970	EPA 350.1 Rev. 2.0	Ammonia-N	0.015		mg N/L	P321475	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	3.4		mg N/L	P321579	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P321661	
	EPA 365.1 Rev. 2.0	Total-P	0.30		mg P/L	P321461	
	SM 5310 B-00	Organic Carbon	18		mg C/L	P321336	
1878975	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.015		mg P/L	P321273	

Ref. Method and Comment:

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

SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: BLANK

Collection Date/Time: 03/08/2017 10:15

Field ID: BLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1878966	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P321300	

Field ID: BLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1878966	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P321809	
		Sulfate	0.20	U	mg SO4/L	P321813	
	SM 2120 B	Color (true)	2.5	U	PCU	P321287	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P321529	
	SM 2540 C-97	TDS	15	U	mg/L	P322087	
	SM 2540 D-97	TSS	2	U	mg/L	P321876	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P321533	
1878971	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P321475	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P321579	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P321661	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P321461	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P321336	
1878976	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P321273	

Ref. Method and Comment:

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

SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: PP Ditch # 5

Collection Date/Time: 03/08/2017 11:05

Field ID: G5SW0118

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1878967	EPA 180.1 Rev. 2.0	Turbidity	2.4		NTU	P321300	
	EPA 300.0 Rev. 2.1	Chloride	170		mg Cl/L	P322111	
		Sulfate	67		mg SO4/L	P321813	
	SM 2120 B	Color (true)	37		PCU	P321287	
	SM 2320 B-97	Total Alkalinity	181		mg CaCO3/L	P321529	
	SM 2540 C-97	TDS	581		mg/L	P322087	
	SM 2540 D-97	TSS	2	I	mg/L	P321876	
1878972	SM 4500 F-C-97	Fluoride	0.28		mg F/L	P321533	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P321475	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.64		mg N/L	P321579	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P321661	
	EPA 365.1 Rev. 2.0	Total-P	0.027		mg P/L	P321461	
1878977	SM 5310 B-00	Organic Carbon	14		mg C/L	P321336	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P321273	

Ref. Method and Comment:

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

SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: McKay Creek

Collection Date/Time: 03/08/2017 11:50

Field ID: G5SW0126

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1878968	EPA 180.1 Rev. 2.0	Turbidity	3.4		NTU	P321300	
	EPA 300.0 Rev. 2.1	Chloride	670		mg Cl/L	P321809	
		Sulfate	110		mg SO4/L	P321813	

Field ID: G5SW0126

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1878968	SM 2120 B	Color (true)	24		PCU	P321287	
	SM 2320 B-97	Total Alkalinity	135		mg CaCO3/L	P321700	
	SM 2540 C-97	TDS	1.22E+03	Q	mg/L	P322646	
	SM 2540 D-97	TSS	8	I	mg/L	P321865	
	SM 4500 F-C-97	Fluoride	0.37		mg F/L	P321870	
1878973	EPA 350.1 Rev. 2.0	Ammonia-N	0.030		mg N/L	P321473	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.47		mg N/L	P321580	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.014		mg N/L	P321731	
	EPA 365.1 Rev. 2.0	Total-P	0.27		mg P/L	P321462	
	SM 5310 B-00	Organic Carbon	8.0		mg C/L	P321418	
1878978	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.21		mg P/L	P321275	

Ref. Method and Comment:

SM 2540 C-97: Sample reanalyzed out of holding time due to an incorrect field conductivity. The laboratory conductivity is 2360 umhos/cm.

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

Sample Location: PP Ditch # 5

Collection Date/Time: 03/08/2017 11:05

Field ID: G5SW0118

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1878997	EPA 8321B	Sucralose**	3.2		ug/L	P321083	
	USGS O-2060-01	2,4-D	0.0040	U	ug/L	P321159	
		Diuron	0.0080	U	ug/L	P321159	
		2,4-DB	0.010	U	ug/L	P321159	
		Fenuron	0.016	U	ug/L	P321159	
		2,4,5-T	0.0040	U	ug/L	P321159	
		Acifluorfen	0.010	U	ug/L	P321159	RPD
		Imidacloprid	0.0080	U	ug/L	P321159	
		Bentazon	0.093		ug/L	P321159	
		Linuron	0.0080	U	ug/L	P321159	
		Dicamba	0.050	U	ug/L	P321159	
		Dichlorprop	0.0040	U	ug/L	P321159	
		Dinoseb	0.020	U	ug/L	P321159	MS, RPD
		MCPA	0.0040	U	ug/L	P321159	
		Acetaminophen**	0.0040	U	ug/L	P321159	
		MCPD	0.0040	U	ug/L	P321159	
		Picloram	0.050	U	ug/L	P321159	RPD
		Carbamazepine**	0.0011	I	ug/L	P321159	
		Silvex	0.0040	U	ug/L	P321159	
		Triclopyr**	0.068		ug/L	P321159	
		Primidone**	0.012	I	ug/L	P321159	
		Fluridone**	0.027		ug/L	P321159	

Ref. Method and Comment:

USGS O-2060-01: MDL elevated due to matrix interference.

Sample Location: McKay Creek

Collection Date/Time: 03/08/2017 11:50

Field ID: G5SW0126

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1878998	EPA 8321B	Sucralose**	1.3		ug/L	P321083	
	USGS O-2060-01	2,4-D	0.0040	U	ug/L	P321159	
		Diuron	0.0040	U	ug/L	P321159	
		2,4-DB	0.010	U	ug/L	P321159	
		Fenuron	0.0080	U	ug/L	P321159	
		2,4,5-T	0.0040	U	ug/L	P321159	
		Acifluorfen	0.010	U	ug/L	P321159	RPD
		Imidacloprid	0.039		ug/L	P321159	
		Bentazon	0.17		ug/L	P321159	
		Linuron	0.0040	U	ug/L	P321159	
		Dicamba	0.050	U	ug/L	P321159	
		Dichlorprop	0.0040	U	ug/L	P321159	
		Dinoseb	0.020	U	ug/L	P321159	MS, RPD
		MCPA	0.0040	U	ug/L	P321159	
		Acetaminophen**	0.0040	U	ug/L	P321159	
		MCPP	0.0061	I	ug/L	P321159	
		Picloram	0.050	U	ug/L	P321159	RPD
		Carbamazepine**	0.0022		ug/L	P321159	
		Silvex	0.0040	U	ug/L	P321159	
		Triclopyr**	0.014	I	ug/L	P321159	
		Primidone**	0.0080	U	ug/L	P321159	
		Fluridone**	0.017		ug/L	P321159	

Sample Location: McKay Creek

Collection Date/Time: 03/08/2017 11:50

Field ID: G5SW0126

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1878992	EPA 200.7 Rev. 4.4	Calcium	71.8		mg/L	P321305	
		Iron	150		ug/L	P321305	
		Magnesium	36.1		mg/L	P321305	
		Potassium	13		mg/L	P321305	
		Sodium	297		mg/L	P321305	
		Zinc	5.0	U	ug/L	P321305	
	EPA 200.8 Rev. 5.4	Arsenic	3.0		ug/L	P321305	
		Cadmium	0.15	U	ug/L	P321305	
		Chromium	0.90	U	ug/L	P321305	
		Copper	1.5	U	ug/L	P321305	
		Lead	0.60	U	ug/L	P321305	
		Nickel	0.75	U	ug/L	P321305	
		Silver	0.075	U	ug/L	P321305	

Ref. Method and Comment:
EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for calcium, magnesium, potassium, and sodium are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report

Method Blank Results

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P321299

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P321300

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P321305

Component	Result	Code	Units
Calcium	0.075	U	mg/L
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L
Potassium	0.30	U	mg/L
Sodium	0.50	U	mg/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P321305

Component	Result	Code	Units
Arsenic	0.25	U	ug/L
Cadmium	0.050	U	ug/L
Chromium	0.30	U	ug/L
Copper	0.50	U	ug/L
Lead	0.20	U	ug/L
Nickel	0.25	U	ug/L
Silver	0.025	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P321809

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P321813

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322111

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P321473

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P321475

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P321579

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P321580

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P321661

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P321731

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P321461

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P321462

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P321273

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P321275

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

Reference Method: EPA 8321B
Batch ID: P321083

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: SM 2120 B
Batch ID: P321287

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P321290

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P321529

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

Reference Method: SM 2320 B-97
Batch ID: P321700

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

Reference Method: SM 2540 C-97
Batch ID: P322086

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P322087

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P322646

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P321865

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P321875

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P321876

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P321533

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P321870

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P321336

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

Reference Method: SM 5310 B-00
Batch ID: P321418

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

Reference Method: USGS O-2060-01
Batch ID: P321159

Component	Result	Code	Units
2,4,5-T	0.0040	U	ug/L
2,4-D	0.0040	U	ug/L
2,4-DB	0.010	U	ug/L
Acetaminophen	0.0040	U	ug/L
Acifluorfen	0.010	U	ug/L
Bentazon	0.0040	U	ug/L
Carbamazepine	4.0E-04	U	ug/L
Dicamba	0.050	U	ug/L
Dichlorprop	0.0040	U	ug/L
Dinoseb	0.020	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: USGS O-2060-01
Batch ID: P321159

Component	Result	Code	Units
Diuron	0.0040	U	ug/L
Fenuron	0.0080	U	ug/L
Fluridone	4.0E-04	U	ug/L
Imidacloprid	0.0040	U	ug/L
Linuron	0.0040	U	ug/L
MCPA	0.0040	U	ug/L
MCPP	0.0040	U	ug/L
Picloram	0.050	U	ug/L
Primidone	0.0080	U	ug/L
Silvex	0.0040	U	ug/L
Triclopyr	0.010	U	ug/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P321305

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

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P321305

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	98.7		P	85 - 115
Cadmium	103		P	85 - 115
Chromium	103		P	85 - 115
Copper	100		P	85 - 115
Lead	104		P	85 - 115
Nickel	94.3		P	85 - 115
Silver	105		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P321809

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P321813

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322111

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P321473

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P321475

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P321579

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	99.8		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P321580

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P321661

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P321731

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P321461

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P321462

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P321273

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P321275

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.0		P	90 - 110

Reference Method: EPA 8321B
Batch ID: P321083

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	99.0		P	40 - 140

Reference Method: SM 2320 B-97
Batch ID: P321529

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

Reference Method: SM 2320 B-97
Batch ID: P321700

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

Reference Method: SM 4500 F-C-97
Batch ID: P321533

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.1		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P321870

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.6		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P321336

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.4		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P321418

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.7		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: USGS O-2060-01
Batch ID: P321159

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4,5-T	83.2		P	40 - 140
2,4-D	96.4		P	40 - 140
2,4-DB	72.0		P	40 - 140
Acetaminophen	94.0		P	40 - 140
Acifluorfen	46.4		P	40 - 140
Bentazon	126		P	40 - 140
Carbamazepine	97.6		P	40 - 140
Dicamba	85.2		P	40 - 140
Dichlorprop	107		P	40 - 140
Dinoseb	66.8		P	40 - 140
Diuron	65.6		P	40 - 140
Fenuron	82.4		P	40 - 140
Fluridone	86.4		P	40 - 140
Imidacloprid	76.4		P	40 - 160
Linuron	67.6		P	40 - 140
MCPA	85.2		P	40 - 140
MCPP	94.8		P	40 - 140
Picloram	79.2		P	40 - 140
Primidone	62.4		P	40 - 140
Silvex	104		P	40 - 140
Triclopyr	123		P	40 - 140

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P321305

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1878215	Iron	96.0		P	70 - 130
1878215	Zinc	93.5		P	70 - 130
1878526	Iron	98.3	97.9	P/P	70 - 130
1878526	Zinc	95.6	96.1	P/P	70 - 130

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P321305

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1878215	Arsenic	101		P	70 - 130
1878215	Cadmium	94.3		P	70 - 130
1878215	Chromium	107		P	80 - 120
1878215	Copper	95.3		P	80 - 120
1878215	Lead	112		P	80 - 120
1878215	Nickel	92.4		P	80 - 120
1878215	Silver	104		P	80 - 120
1878526	Arsenic	102	96.3	P/P	70 - 130
1878526	Cadmium	95.8	87.9	P/P	70 - 130
1878526	Chromium	96.6	98.4	P/P	80 - 120
1878526	Copper	98.6	103	P/P	80 - 120
1878526	Lead	106	104	P/P	80 - 120
1878526	Nickel	97.4	90.9	P/P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P321305

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1878526	Silver	95.9	97.5	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P321809

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1878916	Chloride	99.3		P	90 - 110
1879028	Chloride	106		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P321813

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1878916	Sulfate	93.4		P	90 - 110
1879028	Sulfate	100		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322111

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1881037	Chloride	97.7		P	90 - 110
1881315	Chloride	100	98.9	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P321473

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1878958	Ammonia-N	101	104	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P321475

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1878877	Ammonia-N	96.1	97.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P321579

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1878972	Kjeldahl Nitrogen	108	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P321580

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1879126	Kjeldahl Nitrogen	96.1	97.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P321661

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1878969	NO2NO3-N	102	104	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P321731

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1878973	NO2NO3-N	98.0	99.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P321461

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1878923	Total-P	98.2	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P321462

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1879019	Total-P	96.0	90.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P321273

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1878928	O-Phosphate-P	97.1	98.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P321275

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1878960	O-Phosphate-P	98.3	99.4	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P321083

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1878109	Sucralose	108	123	P/P	40 - 140

Reference Method: SM 4500 F-C-97
Batch ID: P321870

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1880619	Fluoride	95.4	95.4	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P321336

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1879029	Organic Carbon	99.8	97.8	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P321418

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1878727	Organic Carbon	94.3	94.9	P/P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: USGS O-2060-01
Batch ID: P321159

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1878905	2,4,5-T	74.8	82.4	P/P	40 - 140
1878905	2,4-D	84.4	90.8	P/P	40 - 140
1878905	2,4-DB	68.0	74.8	P/P	40 - 140
1878905	Acetaminophen	92.8	89.6	P/P	40 - 140
1878905	Acifluorfen	44.8	66.8	P/P	40 - 140
1878905	Bentazon	129	137	P/P	40 - 140
1878905	Carbamazepine	86.4	87.6	P/P	40 - 140
1878905	Dicamba	68.4	89.2	P/P	40 - 140
1878905	Dichlorprop	88.0	83.6	P/P	40 - 140
1878905	Dinoseb	93.6	6.76	P/F	40 - 140
1878905	Diuron	61.6	62.0	P/P	40 - 140
1878905	Fenuron	63.2	72.4	P/P	40 - 140
1878905	Fluridone	75.6	77.6	P/P	40 - 140
1878905	Imidacloprid	83.6	74.4	P/P	40 - 160
1878905	Linuron	66.4	64.8	P/P	40 - 140
1878905	MCPA	87.2	92.4	P/P	40 - 140
1878905	MCPP	92.0	93.2	P/P	40 - 140
1878905	Picloram	49.6	106	P/P	40 - 140
1878905	Primidone	62.8	67.6	P/P	40 - 140
1878905	Silvex	108	105	P/P	40 - 140
1878905	Triclopyr	112	120	P/P	40 - 140

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P321299

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1878917	Turbidity	5.71	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P321300

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1878965	Turbidity	2.47	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P321305

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1878526	Calcium	1.94	Spike	P	0 - 20
1878526	Iron	0.428	Spike	P	0 - 20
1878526	Magnesium	2.31	Spike	P	0 - 20
1878526	Potassium	2.78	Spike	P	0 - 20
1878526	Sodium	2.61	Spike	P	0 - 20
1878526	Zinc	0.537	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P321305

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1878526	Arsenic	5.21	Spike	P	0 - 20
1878526	Cadmium	8.60	Spike	P	0 - 20
1878526	Chromium	1.81	Spike	P	0 - 20
1878526	Copper	4.36	Spike	P	0 - 20
1878526	Lead	1.37	Spike	P	0 - 20
1878526	Nickel	6.83	Spike	P	0 - 20
1878526	Silver	1.62	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P321809

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1878916	Chloride	0.548	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P321813

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1878916	Sulfate	0.358	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322111

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1881315	Chloride	0.879	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P321473

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1878958	Ammonia-N	2.20	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P321475

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1878877	Ammonia-N	1.77	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P321579

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1878972	Kjeldahl Nitrogen	4.39	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P321580

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1879126	Kjeldahl Nitrogen	1.61	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P321661

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1878969	NO2NO3-N	1.45	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P321731

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1878973	NO2NO3-N	1.41	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P321461

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1878923	Total-P	2.62	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P321462

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1879019	Total-P	6.03	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P321273

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1878928	O-Phosphate-P	1.13	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P321275

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1878960	O-Phosphate-P	1.11	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P321083

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1878109	Sucralose	12.2	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: SM 2120 B
Batch ID: P321287

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1878919	Color (true)	0.215	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P321290

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1878964	Color (true)	0.583	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P321529

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1879042	Total Alkalinity	0.306	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P321700

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1878953	Total Alkalinity	2.96	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P322086

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1878889	TDS	1.97	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P322087

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1879042	TDS	0.506	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P322646

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882303	TDS	3.72	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P321533

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1879042	Fluoride	0.513	Spike	P	0 - 3.0

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
 Batch ID: P321870

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1880619	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
 Batch ID: P321336

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1879029	Organic Carbon	2.02	Spike	P	0 - 20

Reference Method: SM 5310 B-00
 Batch ID: P321418

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1878727	Organic Carbon	0.544	Spike	P	0 - 20

Reference Method: USGS O-2060-01
 Batch ID: P321159

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1878905	2,4,5-T	9.67	Spike	P	0 - 30
1878905	2,4-D	7.31	Spike	P	0 - 30
1878905	2,4-DB	9.52	Spike	P	0 - 30
1878905	Acetaminophen	3.51	Spike	P	0 - 30
1878905	Acifluorfen	39.4	Spike	F	0 - 30
1878905	Bentazon	6.32	Spike	P	0 - 30
1878905	Carbamazepine	1.38	Spike	P	0 - 30
1878905	Dicamba	26.4	Spike	P	0 - 30
1878905	Dichlorprop	5.13	Spike	P	0 - 30
1878905	Dinoseb	173	Spike	F	0 - 30
1878905	Diuron	0.647	Spike	P	0 - 30
1878905	Fenuron	13.6	Spike	P	0 - 30
1878905	Fluridone	2.61	Spike	P	0 - 30
1878905	Imidacloprid	11.6	Spike	P	0 - 30
1878905	Linuron	2.44	Spike	P	0 - 30
1878905	MCPA	5.79	Spike	P	0 - 30
1878905	MCPP	1.30	Spike	P	0 - 30
1878905	Picloram	72.2	Spike	F	0 - 30
1878905	Primidone	7.36	Spike	P	0 - 30
1878905	Silvex	3.01	Spike	P	0 - 30
1878905	Triclopyr	6.92	Spike	P	0 - 30

* Sample, spike and/or laboratory control sample precision (LCS) is reported.
 Replicate spike precision may be reported when sample results are below quantifiable levels.

Quality Assurance Report Surrogates

Quality Assurance Report Surrogates

Lab Sample ID: 1878997
Field Sample ID: G5SW0118

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	85.5	P	40 - 150
USGS O-2060-01	2,4-D-d3	92.0	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	69.2	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	47.6	P	40 - 160
USGS O-2060-01	Diuron-d6	54.0	P	40 - 150
USGS O-2060-01	Primidone-d5	52.8	P	40 - 150

Lab Sample ID: 1878998
Field Sample ID: G5SW0126

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	81.5	P	40 - 150
USGS O-2060-01	2,4-D-d3	102	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	86.0	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	69.6	P	40 - 160
USGS O-2060-01	Diuron-d6	54.6	P	40 - 150
USGS O-2060-01	Primidone-d5	61.6	P	40 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A74989
Included Lab Sample IDs: 1878974, 1878975, 1878976, 1878977, 1878978

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.8	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A74998
Included Lab Sample IDs: 1878964, 1878965, 1878966, 1878967, 1878968

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	97.5	97.4	P/P	85 - 115
Color (true)	97.6	95.9	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A75000
Included Lab Sample IDs: 1878964, 1878965, 1878966, 1878967, 1878968

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

Reference Method: SM 5310 B-00
Run ID: A75011
Included Lab Sample IDs: 1878969, 1878970, 1878971, 1878972

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.4	98.2	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00

Run ID: A75042

Included Lab Sample IDs: 1878973

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.1	96.1	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A75044

Included Lab Sample IDs: 1878997, 1878998

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	70.9	94.8	P/P	60 - 150

Reference Method: USGS O-2060-01

Run ID: A75047

Included Lab Sample IDs: 1878997, 1878998

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4,5-T	100	73.6	P/P	50 - 150
2,4,5-T	93.6	100	P/P	50 - 150
2,4-D	106	112	P/P	50 - 150
2,4-D	112	116	P/P	50 - 150
2,4-DB	89.6	99.8	P/P	50 - 150
2,4-DB	89.8	89.6	P/P	50 - 150
Acifluorfen	80.6	87.0	P/P	50 - 150
Acifluorfen	87.0	77.0	P/P	50 - 150
Bentazon	102	104	P/P	50 - 150
Bentazon	102	102	P/P	50 - 150
Dicamba	113	117	P/P	50 - 150
Dicamba	117	104	P/P	50 - 150
Dichlorprop	110	113	P/P	50 - 150
Dichlorprop	113	115	P/P	50 - 150
Dinoseb	109	98.2	P/P	50 - 150
Dinoseb	115	109	P/P	50 - 150
MCPA	107	113	P/P	50 - 150
MCPA	108	107	P/P	50 - 150
MCPP	111	108	P/P	50 - 150
MCPP	114	111	P/P	50 - 150
Picloram	109	123	P/P	50 - 150
Picloram	123	106	P/P	50 - 150
Silvex	92.4	99.8	P/P	50 - 150
Silvex	97.2	92.4	P/P	50 - 150
Triclopyr	111	114	P/P	50 - 150
Triclopyr	114	108	P/P	50 - 150

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A75063

Included Lab Sample IDs: 1878969, 1878970, 1878971, 1878972, 1878973

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	100	P/P	90 - 110
Ammonia-N	100	99.7	P/P	90 - 110
Ammonia-N	98.8	99.5	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: USGS O-2060-01

Run ID: A75078

Included Lab Sample IDs: 1878997, 1878998

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetaminophen	88.8	89.2	P/P	60 - 150
Acetaminophen	99.6	88.8	P/P	60 - 150
Carbamazepine	120	124	P/P	60 - 150
Carbamazepine	124	125	P/P	60 - 150
Diuron	88.8	84.0	P/P	60 - 150
Fenuron	100	101	P/P	60 - 150
Fluridone	98.0	99.6	P/P	60 - 150
Imidacloprid	94.0	90.8	P/P	60 - 150
Linuron	113	100	P/P	60 - 150
Primidone	80.4	94.8	P/P	60 - 150
Primidone	94.8	99.2	P/P	60 - 150

Reference Method: SM 2320 B-97

Run ID: A75091

Included Lab Sample IDs: 1878964, 1878965, 1878966, 1878967

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A75091

Included Lab Sample IDs: 1878964, 1878965, 1878966, 1878967

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A75100

Included Lab Sample IDs: 1878992

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chromium	94.2	104	P/P	90 - 110
Copper	93.4	102	P/P	90 - 110
Lead	97.4	104	P/P	90 - 110
Silver	99.0	106	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A75109

Included Lab Sample IDs: 1878992

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	99.9	100	P/P	90 - 110
Iron	99.0	99.3	P/P	90 - 110
Magnesium	98.3	99.4	P/P	90 - 110
Zinc	103	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A75140

Included Lab Sample IDs: 1878969, 1878970, 1878971, 1878972

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
-----------	---------	---------	------------	----------------

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A75140

Included Lab Sample IDs: 1878969, 1878970, 1878971, 1878972

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A75142

Included Lab Sample IDs: 1878969, 1878970, 1878973

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	103	100	P/P	90 - 110
Total-P	99.0	99.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A75146

Included Lab Sample IDs: 1878971, 1878972

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.5	100	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A75152

Included Lab Sample IDs: 1878968

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	104	106	P/P	90 - 110

Reference Method: USGS O-2060-01

Run ID: A75159

Included Lab Sample IDs: 1878997

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Diuron	116	122	P/P	60 - 150
Fenuron	117	108	P/P	60 - 150
Fluridone	105	104	P/P	60 - 150
Imidacloprid	138	108	P/P	60 - 150
Linuron	115	121	P/P	60 - 150

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A75166

Included Lab Sample IDs: 1878973

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.0	98.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A75168

Included Lab Sample IDs: 1878969, 1878970, 1878971, 1878972, 1878973

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	108	P/P	90 - 110
Kjeldahl Nitrogen	105	99.8	P/P	90 - 110
Kjeldahl Nitrogen	108	105	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A75193

Included Lab Sample IDs: 1878964, 1878965, 1878966, 1878968

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	109	107	P/P	90 - 110
Sulfate	108	105	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A75223

Included Lab Sample IDs: 1878968

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	97.5	100	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A75256

Included Lab Sample IDs: 1878992

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sodium	101	98.5	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A75292

Included Lab Sample IDs: 1878967

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A75414

Included Lab Sample IDs: 1878992

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	94.7	97.3	P/P	90 - 110
Cadmium	94.1	98.1	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A75417

Included Lab Sample IDs: 1878992

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Nickel	98.9	93.9	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A75571

Included Lab Sample IDs: 1878992

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

* Pass/Fail determinations are made for each bracketing calibration verification check.
Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.
Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			Precision SMP	MS
			LCS				
EPA 180.1 Rev. 2.0	Turbidity					5.71	
	Turbidity					2.47	
EPA 200.7 Rev. 4.4	Calcium	103					1.94
	Iron	103	96.0	98.3	97.9		0.428
	Magnesium	103					2.31
	Potassium	102					2.78
	Sodium	102					2.61
	Zinc	102	93.5	95.6	96.1		0.537
EPA 200.8 Rev. 5.4	Arsenic	98.7	101	102	96.3		5.21
	Cadmium	103	94.3	95.8	87.9		8.60
	Chromium	103	107	96.6	98.4		1.81
	Copper	100	95.3	98.6	103		4.36
	Lead	104	112	106	104		1.37
	Nickel	94.3	92.4	97.4	90.9		6.83
	Silver	105	104	95.9	97.5		1.62
EPA 300.0 Rev. 2.1	Chloride	105	99.3	106		0.548	
	Chloride	101	100	98.9	97.7		0.879
	Sulfate	102	93.4	100		0.358	
EPA 350.1 Rev. 2.0	Ammonia-N	98.2	101	104			2.20
	Ammonia-N	97.7	96.1	97.8			1.77
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.8	108	101			4.39
	Kjeldahl Nitrogen	103	96.1	97.8			1.61
EPA 353.2 Rev. 2.0	NO2NO3-N	103	104	102			1.45
	NO2NO3-N	102	98.0	99.6			1.41
EPA 365.1 Rev. 2.0	Total-P	102	98.2	101			2.62
	Total-P	101	96.0	90.1			6.03
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.7	97.1	98.2			1.13
	O-Phosphate-P	98.0	98.3	99.4			1.11
EPA 8321B	Sucralose	99.0	108	123			12.2
SM 2120 B	Color (true)					0.215	
	Color (true)					0.583	
SM 2320 B-97	Total Alkalinity	104				0.306	
	Total Alkalinity	104				2.96	
SM 2540 C-97	TDS					1.97	
	TDS					0.506	
	TDS					3.72	
SM 4500 F-C-97	Fluoride	97.1					0.513
	Fluoride	95.6	95.4	95.4			0.0
SM 5310 B-00	Organic Carbon	94.4	99.8	97.8			2.02
	Organic Carbon	96.7	94.3	94.9			0.544
USGS O-2060-01	2,4,5-T	83.2	74.8	82.4			9.67
	2,4-D	96.4	84.4	90.8			7.31
	2,4-DB	72.0	68.0	74.8			9.52
	Acetaminophen	94.0	92.8	89.6			3.51
	Acifluorfen	46.4	44.8	66.8			39.4
	Bentazon	126	129	137			6.32
	Carbamazepine	97.6	86.4	87.6			1.38
	Dicamba	85.2	68.4	89.2			26.4
	Dichlorprop	107	88.0	83.6			5.13
	Dinoseb	66.8	93.6	6.76			173
	Diuron	65.6	61.6	62.0			0.647
	Fenuron	82.4	63.2	72.4			13.6
	Fluridone	86.4	75.6	77.6			2.61
	Imidacloprid	76.4	83.6	74.4			11.6

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision LCS	SMP	MS
USGS O-2060-01	Linuron	67.6	66.4	64.8			2.44
	MCPA	85.2	87.2	92.4			5.79
	MCPP	94.8	92.0	93.2			1.30
	Picloram	79.2	49.6	106			72.2
	Primidone	62.4	62.8	67.6			7.36
	Silvex	104	108	105			3.01
	Triclopyr	123	112	120			6.92

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1878964, 1878965, 1878966, 1878967, 1878968
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1878992
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	1878992
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1878964, 1878965, 1878966, 1878967, 1878968
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1878964, 1878965, 1878966, 1878967, 1878968
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1878969, 1878970, 1878971, 1878972, 1878973
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1878969, 1878970, 1878971, 1878972, 1878973
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1878969, 1878970, 1878971, 1878972, 1878973
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1878969, 1878970, 1878971, 1878972, 1878973
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1878974, 1878975, 1878976, 1878977, 1878978
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	1878997, 1878998
SM 2120 B / E31780	True Color measured at 450 nm	1878964, 1878965, 1878966, 1878967, 1878968
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1878964, 1878965, 1878966, 1878967, 1878968
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1878964, 1878965, 1878966, 1878967, 1878968
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1878964, 1878965, 1878966, 1878967, 1878968
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1878964, 1878965, 1878966, 1878967, 1878968
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1878969, 1878970, 1878971, 1878972, 1878973
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1878997, 1878998
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1878997, 1878998

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	03/09/2017			03/09/2017 15:16	Sima Feizi	1878964, 1878965, 1878966, 1878967, 1878968
EPA 200.7 Rev. 4.4	03/09/2017	03/09/2017	Elliott D. Healy	03/14/2017	Martin Acosta	1878992
	03/09/2017	03/09/2017	Elliott D. Healy	03/21/2017	Martin Acosta	1878992
	03/09/2017	03/09/2017	Elliott D. Healy	04/04/2017	Joshua Ayres	1878992
EPA 200.8 Rev. 5.4	03/09/2017	03/09/2017	Elliott D. Healy	03/14/2017	Robert K Palmer	1878992
	03/09/2017	03/09/2017	Elliott D. Healy	03/28/2017	Robert K Palmer	1878992
EPA 300.0 Rev. 2.1	03/09/2017			03/18/2017	Elisa J Lutz	1878964, 1878965, 1878966, 1878967, 1878968
	03/09/2017			03/23/2017	Ping Hua	1878967
EPA 350.1 Rev. 2.0	03/09/2017			03/13/2017	Julie Michelle Frank	1878969, 1878970, 1878971, 1878972, 1878973
EPA 351.2 Rev. 2.0	03/09/2017	03/15/2017	Adrian Shelby	03/17/2017	Joseph Suarez	1878969, 1878970, 1878971, 1878972, 1878973
EPA 353.2 Rev. 2.0	03/09/2017			03/16/2017	Beverly Y. Sanders	1878969, 1878970, 1878971, 1878972
	03/09/2017			03/17/2017	Beverly Y. Sanders	1878973
EPA 365.1 Rev. 2.0	03/09/2017	03/13/2017	Vijayalakshmi Reddy	03/14/2017	Lipi Saha	1878969, 1878970, 1878973
	03/09/2017	03/13/2017	Vijayalakshmi Reddy	03/16/2017	Lipi Saha	1878971, 1878972
EPA 365.1 Rev. 2.0 dissolved	03/09/2017			03/09/2017 13:10	Virginia P. Brown	1878974
	03/09/2017			03/09/2017 13:11	Virginia P. Brown	1878975
	03/09/2017			03/09/2017 13:12	Virginia P. Brown	1878976
	03/09/2017			03/09/2017 13:13	Virginia P. Brown	1878977, 1878978
EPA 8321B	03/09/2017	03/09/2017	Mohammad Ghaffari	03/10/2017	Mohammad Ghaffari	1878997, 1878998
SM 2120 B	03/09/2017			03/09/2017 15:17	Julia Storbeck	1878966
	03/09/2017			03/09/2017 15:18	Julia Storbeck	1878967
	03/09/2017			03/09/2017 15:19	Julia Storbeck	1878968
	03/09/2017			03/09/2017 15:43	Julia Storbeck	1878964
	03/09/2017			03/09/2017 15:44	Julia Storbeck	1878965
SM 2320 B-97	03/09/2017			03/14/2017	Dale L. Simmons	1878964, 1878965, 1878966, 1878967
	03/09/2017			03/16/2017	Dale L. Simmons	1878968
SM 2540 C-97	03/09/2017			03/14/2017	Sima Feizi	1878964, 1878965, 1878966, 1878967
	03/09/2017			03/24/2017	Yijie Li	1878968
SM 2540 D-97	03/09/2017			03/13/2017	Sima Feizi	1878968
	03/09/2017			03/14/2017	Sima Feizi	1878964, 1878965, 1878966, 1878967
SM 4500 F-C-97	03/09/2017			03/14/2017	Dale L. Simmons	1878964, 1878965, 1878966, 1878967
	03/09/2017			03/18/2017	Dale L. Simmons	1878968
SM 5310 B-00	03/09/2017			03/09/2017	Julie Michelle Frank	1878969, 1878970, 1878971, 1878972
	03/09/2017			03/11/2017	Julie Michelle Frank	1878973
USGS O-2060-01	03/09/2017	03/10/2017	Hoor Shaik	03/11/2017	Juyoung Kim	1878997, 1878998
	03/09/2017	03/10/2017	Hoor Shaik	03/12/2017	Juyoung Kim	1878997, 1878998
	03/09/2017	03/10/2017	Hoor Shaik	03/17/2017	Juyoung Kim	1878997