



Data Report and Quality Assurance Evaluation

For Current Use Pesticides Monitoring during
the 2024 Water Year

Version 1.0

Approved by the DRMP Board of Directors on April 22, 2025

Prepared By:



In Cooperation with:



TABLE OF CONTENTS

Table of Contents.....	2
List of Tables.....	4
List of Figures.....	5
List of Appendices.....	6
List of Acronyms.....	7
List of Units.....	9
Introduction.....	10
Background.....	10
Analytical Scope.....	10
Toxicity Identification Evaluations.....	11
Involved Organizations.....	12
Sampling Overview.....	13
Study Background.....	17
Sampling Methods.....	23
Sample Collection Completeness.....	23
Field Activities.....	24
Event 1.....	25
Event 2.....	29
Event 3.....	34
Event 4.....	38
Event 5.....	42
Event 6.....	46
Analytical Overview.....	50
Field Measurements.....	50
Field Measurement Completeness.....	50
Analytical Laboratory Methods.....	50
Analytical Methods – USGS OCRL.....	51
Analytical Methods – Babcock.....	52
Toxicity Methods – PER.....	52
Analytical Completeness.....	53
Data Verification Overview.....	53

Verification Process	53
Verified Datasets	54
Data Verification: Sample Handling	63
Data Verification: USGS California Water Science Center	69
Data Verification: USGS Organic Chemistry Research Laboratory	70
Contamination	70
Field Blanks.....	70
Laboratory Blanks.....	70
Accuracy	71
Matrix Spikes	71
Laboratory Control Samples	71
Surrogates.....	72
Precision	72
Field Duplicates	72
Laboratory Duplicates	73
Matrix Spike Duplicates	73
Data Verification: Babcock Laboratories.....	74
Contamination	74
Field Blanks.....	74
Laboratory Blanks.....	74
Accuracy	77
Matrix Spikes	77
Laboratory Control Samples	77
Additional Qualification	78
Precision	79
Field Duplicates	79
Laboratory Duplicates	80
Matrix Spike Duplicates	80
Data Verification: Pacific EcoRisk	81
Negative Controls	81
Positive Controls	81
Reference Toxicant Test	81
Test Acceptability Criteria	82

Field Duplicates.....	90
Water Quality Parameters	90
Summary	92
Chemistry Results	92
Pesticides.....	92
Trace Metals.....	93
Ancillary Parameters.....	93
Water Quality Metrics.....	94
Toxicity Testing	95
Field Measurements.....	100
Data Availability.....	100
Deviations and Corrective Actions	103
References	132

LIST OF TABLES

Table 1. Analytical scope of WY 2024 monitoring.....	11
Table 2. Involved organizations for WY 2024 monitoring.....	12
Table 3. Sampling event information for Events 1-6 of CUP WY 2024 monitoring.....	13
Table 4. Count of sites in each Subregion by WY and event.	19
Table 5. Analytical laboratory methods for WY 2024 monitoring.....	50
Table 6. Verified datasets associated with WY 2024 monitoring.	55
Table 7. Sample handling requirements defined in the CUP QAPP.....	63
Table 8. Sample handling qualification WY 2024 monitoring.	65
Table 9. Field duplicates for WY 2024 samples analyzed by USGS OCRL.....	72
Table 10. Laboratory duplicate precision qualification for WY 2024 samples analyzed by USGS OCRL.	73
Table 11. Field blank qualification for WY 2024 samples analyzed by Babcock.....	74
Table 12. Laboratory blank qualification for WY 2024 samples analyzed by Babcock.....	75
Table 13. Laboratory blank qualification: associated environmental samples for WY 2024 samples analyzed by Babcock.	76
Table 14. Matrix spike/matrix spike duplicate accuracy qualification for WY 2024 samples analyzed by Babcock.....	77
Table 15. Laboratory control sample qualification for WY 2024 samples analyzed by Babcock.	78
Table 16. Calibration-related qualification for WY 2024 samples analyzed by Babcock. .	78
Table 17. Field duplicates for WY 2024 samples analyzed by Babcock.....	79
Table 18. Field duplicate qualification for WY 2024 samples analyzed by Babcock.....	79

Table 19. Organism and survival qualifications for WY 2024 toxicity samples.....	83
Table 20. Field duplicates for WY 2024 toxicity samples.	90
Table 21. Water quality parameter qualifications for WY 2024 toxicity samples.	90
Table 22. Summary of verified chemistry results for WY 2024 monitoring.....	93
Table 23. Summary of WY 2024 results above the Water Quality Metrics provided by the CVRWQCB.	94
Table 24. Summary of verified toxicity test results for WY 2024 monitoring.	96
Table 25. Samples with toxicity endpoints significantly different from controls in WY 2024.	98
Table 26. Sampling event information and basic water quality parameters measured during sample collection.....	101
Table 27. Referenced deviations from the CUP QAPP for WY 2024.	116

LIST OF FIGURES

Figure 1. Delta subregions with fixed and GRTS sampling sites in WY 2024.	21
Figure 2. Fixed and GRTS sites sampled in WY 2024 (detailed map).	22
Figure 3. Sacramento River rainfall amounts and tidally filtered daily discharge for WY 2024 ¹	24
Figure 4. San Joaquin River rainfall amounts and tidally filtered daily discharge for WY 2024 ¹	25
Figure 5. Map of sampling locations for Event 1 of WY 2024.	27
Figure 6. Streamflow for the San Joaquin River at Vernalis (dashed line is historical median flow for the period, and dot is the sampling date).	28
Figure 7. Streamflow for the Sacramento River at Freeport (dashed line is historical median flow for the period and dot is the sampling date).	28
Figure 8. Map of sampling locations for Event 2 of WY 2024.	31
Figure 9. Stage at Ulati Creek during Event 2 ¹ . The dot on the figure indicates the approximate sampling time.....	32
Figure 10. Streamflow for the San Joaquin River at Vernalis (dashed line is historical median flow for the period, and dot is the sampling date).	33
Figure 11. Streamflow for the Sacramento River at Freeport (dashed line is historical median flow for the period, and dot is the sampling date).	33
Figure 12. Map of sampling locations for Event 3 of WY 2024.....	36
Figure 13. Streamflow for the San Joaquin River at Vernalis during Event 3.....	37
Figure 14. Streamflow for the Sacramento River at Freeport during Event 3.	37
Figure 15. Map of sampling locations for Event 4 of WY 2024.....	40
Figure 16. Streamflow for the San Joaquin River at Vernalis during Event 4.....	41
Figure 17. Streamflow for the Sacramento River at Freeport during Event 4.	41
Figure 18. Map of sampling locations for Event 5 of WY 2024.....	44
Figure 19. Streamflow for the San Joaquin River at Vernalis during Event 5.....	45
Figure 20. Streamflow for the Sacramento River at Freeport during Event 5.	45
Figure 21. Map of sampling locations for Event 6 of WY 2024.....	47
Figure 22. Streamflow for the San Joaquin River at Vernalis during Event 6.....	48

Figure 23. Streamflow for the Sacramento River at Freeport during Event 6.	48
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LIST OF APPENDICES

Appendix A. Sampling Photos for WY 2024 Monitoring (Current Use Pesticides Year 4)	133
Event 1 – December 11 and 12, 2023.....	133
Event 2 – January 22 and 23, 2024.....	138
Event 3 – April 29 and 30, 2024	142
Event 4 – June 24 and 25, 2024.....	146
Event 5 – July 22 and 23, 2024	151
Event 6 – September 10 and 11, 2024.....	155
Appendix B. List of Current Use Pesticide Constituents.....	160
Constituents Analyzed	161
Water Quality Metrics	174
Appendix C. Summary of Completeness and Quality Control Sample Acceptability for WY 2024.....	182
Summary of Completeness.....	183
Sample Completeness	184
Field Measurement Completeness.....	198
Field Quality Control Frequency	199
Summary of Sample Handling Acceptability	213
Hold Time Evaluations	213
Quality Control Sample Acceptability: Contamination	228
Field Blanks Samples	228
Laboratory Blank Samples.....	242
Quality Control Sample Acceptability: Accuracy	256
Matrix Spike Samples	256
Laboratory Control Spike Samples	270
Surrogate Samples.....	284
Quality Control Sample Acceptability: Precision.....	285
Field Duplicate Samples	285
Laboratory Duplicate Samples	299
Matrix Spike Duplicate Samples	313

Toxicity Control Samples.....	327
Appendix D. Deviation Forms.....	328
2023-03: Event 1 (WY 2024) Chironomus larvae initial weights greater than 0.012 mg/ individual AFDW.....	328
2023-06: Event 1 (WY 2024) Missed Tests Due to High Salinity.....	329
2023-07: Event 2 (WY 2024) Chironomus 10-day Toxicity Test Missed Hold Time.....	330
2023-10: Event 2 (WY 2024) USGS Missed Turbidity on Sampling Day 1	331
2023-11: Event 2 (WY 2024) Chironomus larvae initial weights greater than 0.012 mg/ individual AFDW.....	332
2023-12: Event 1 (WY 2024) Babcock Lab Blank Contamination for TOC.....	333
2023-13: Event 3 (WY 2024) Pimephales 7-day Toxicity Test Missed Hold Time	334
2023-14: Event 3 (WY 2024) Ceriodaphnia Toxicity Test Lost Control.....	335
2023-15: Event 3 (WY 2024) Chironomus larvae final ash-free dry weights measured incorrectly; t(0) AFDW not calculated.....	336
2023-16: CUP Event 3 (WY 2024) Chironomus larvae initial weights greater than 0.012 mg/individual AFDW.....	337
2023-17: Event 3 (WY 2024) Babcock Missed Hold Time for TKN	338
2023-18: Events 1 and 3 (WY 2024) PER Missing Required WQ Measures.....	339
2023-20: Event 5 (WY 2024) PER Missing Required WQ Measures	340
2023-21: Event 5 (WY 2024) Babcock Missed Hold Time TKN dissolved.....	341
2023-22: Event 4 (WY 2024) Babcock Lab Blank Contamination for Copper	342
2023-23: Event 6 (WY 2024) PER Chironomus; final ash-free dry weights measured incorrectly; No t(0) AFDW for Control Batch 1 and 2	343
2023-24: Event 6 (WY 2024) PER Hyalella; Missing Required Final WQ Measurement Ammonia	344
2023-25: Event 6 (WY 2024) USGS Field Blank Contamination on DOC.....	345

LIST OF ACRONYMS

ACRONYM	DEFINITION
AFDW	Ash Free Dry Weight
CDEC	California Data Exchange Center
CEDEN	California Environmental Data Exchange Network
CUP	Current Use Pesticide
CV RDC	Central Valley Regional Data Center

CVRWQCB	Central Valley Regional Water Quality Control Board
CWSC	California Water Science Center
DO	Dissolved Oxygen
DOC	Dissolved Organic Carbon
DRMP	Delta Regional Monitoring Program
EC50	Half Maximal Effective Concentration
EDD	Electronic Data Deliverable
EPA	U.S. Environmental Protection Agency
GRTS	Generalized Random Tessellation Stratified
GC/MS/MS	Gas Chromatography/Tandem Mass Spectrometry
HLB	Hydrophilic Lipophilic Balance
LC50	Lethal Concentration 50
LC/MS/MS	Liquid Chromatography/Tandem Mass Spectrometry
LCS	Laboratory Control Spike
MDL	Method Detection Limit
MPSL-MLML	Marine Pollution Studies Laboratory at Moss Landing Marine Laboratories
MQO	Measurement Quality Objective
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N	Nitrogen
OCRL	Organic Chemistry Research Laboratory
PER	Pacific EcoRisk
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QAPrP	Quality Assurance Program Plan
QC	Quality Control
RL	Reporting Limit
RPD	Relative Percent Difference
SAL	San Andreas Landing
SD	Standard Deviation
SM	Standard Methods
SOP	Standard Operating Procedure
SPE	Solid Phase Extraction
SWAMP	Surface Water Ambient Monitoring Program
SWRCB	State Water Resources Control Board
TAC	Technical Advisory Committee
TIE	Toxicity Identification Evaluation

TKN	Total Kjeldahl Nitrogen
TOC	Total Organic Carbon
TN	Total Nitrogen
TSS	Total Suspended Solids
USGS	U.S. Geological Survey
WY	Water Year

LIST OF UNITS

°C	degrees Celsius
cm	centimeter
L	liter
m	meter
mg	milligram
mL	milliliter
ng	nanogram
NTU	Nephelometric Turbidity Unit
µg	microgram
µm	micrometer (micron)
µS	microsiemen

INTRODUCTION

BACKGROUND

This report summarizes monitoring conducted by the Delta Regional Monitoring Program (DRMP) during Water Year (WY) 2024 for the [Current Use Pesticides \(CUP\) project](#). Included are descriptions of monitoring locations, sample collection activities, weather and streamflow conditions, field and laboratory analytical methods, analytical and test results, and data verification of the WY 2024 data. These data represent the first and second year of sampling of the Confluence and Central Delta subregions respectively, and the fourth year of monitoring under the revised CUP monitoring design approved by the DRMP Steering Committee in 2018 (see **Study Background**).

A Quality Assurance Project Plan (QAPP, version 1.0) for the CUP project was submitted to the Central Valley Regional Water Quality Control Board (CVRWQCB) for review and approval on June 1, 2022. A revised QAPP was conditionally approved by the CVRWQCB on October 12, 2022; the final version (version 1.3) of the QAPP was approved on January 23, 2023. An amended QAPP (version 1.4) including updates to the analytical requirements and standard operating procedures (SOPs) was approved by the CVRWQCB on October 25, 2023. The current approved version of the QAPP (version 1.5) was amended and approved by the CVRWQCB on May 7, 2024, and includes updated procedures for high salinity toxicity testing and updated Method Detection Limits (MDL) for copper.

ANALYTICAL SCOPE

The WY 2024 DRMP CUP monitoring included the sampling and analysis of numerous pesticides, ancillary parameters, and a single heavy metal (copper). During the sampling for these analytes, field measurements were performed for a suite of water quality parameters. Potential biological impacts of the above analytes were assessed with the performance of five toxicity tests, conducted on the full-strength ambient samples. The analyses conducted for WY 2024 are defined in **Table 1**.

Table 1. Analytical scope of WY 2024 monitoring.

ANALYTE CATEGORY	ANALYTE/PARAMETER	MATRIX	FRACTIONS/ ENDPOINTS
Field Measures	Dissolved Oxygen	Water	--
	Oxygen Saturation	Water	--
	pH	Water	--
	Salinity	Water	--
	Specific Conductivity	Water	--
	Temperature	Air, Water	--
	Turbidity	Water	--
Current Use Pesticides	Pesticide Suite ¹	Water	Dissolved, Particulate
Trace Metals	Copper	Water	Dissolved
Ancillary Parameters	Total Suspended Solids	Water	Particulate
	Dissolved Organic Carbon ²	Water	Dissolved
	Total Organic Carbon ²	Water	Total
	Hardness ³	Water	Dissolved
	Calcium ³	Water	Dissolved
	Magnesium ³	Water	Dissolved
	Nitrate + Nitrite as N ⁴	Water	Total
	Nitrogen, Total Kjeldahl ⁴	Water	Dissolved, Total
	Nitrogen, Total ⁴	Water	Dissolved, Total
Aquatic Toxicity	<i>Ceriodaphnia dubia</i> (6-8 day Chronic)	Water	Reproduction, Survival
	<i>Chironomus dilutus</i> (10-day Chronic)	Water	Growth, Survival
	<i>Hyalella azteca</i> (96-hour Acute)	Water	Survival
	<i>Pimephales promelas</i> (7-day Chronic)	Water	Growth, Survival
	<i>Selenastrum capricornutum</i> (96-hour Chronic)	Water	Growth

¹ See **Appendix B** for the complete list of CUP constituents.

² Total and dissolved organic carbon measurements are used to calculate the particulate fraction of organic carbon.

³ Hardness by calculation (SM 2340 B) is derived from the sum of calcium and magnesium measurements (EPA 200.7).

⁴ Nitrate + nitrite as N, total Kjeldahl nitrogen, and dissolved Kjeldahl nitrogen are used to calculate the total and dissolved fractions of total nitrogen present.

Toxicity Identification Evaluations

Toxicity Identification Evaluations (TIEs) are follow-up toxicity tests recommended by the TIE Advisory Committee (a select group of appropriate CUP Technical Advisory Committee (TAC) representatives). The toxicity laboratory notifies the TIE Advisory

Committee by telephone, text message, and email within 24 hours of observation that a sample (or samples) exceeds the TIE triggers outlined in the CUP QAPP (v1.5).

The DRMP TIE testing (as described in the CUP QAPP section 13.3) has the primary goal of identifying whether pesticides are causing or contributing to toxic effects. This includes identification (or exclusion) of other factors (i.e., water quality conditions or other toxicants) contributing to reduced survival, growth, or reproduction. A phased TIE approach is used, to the extent possible, to achieve these goals by initially focusing on treatments that identify major classes of contaminants including pesticides. If the cause of an observed effect is not clear after initial TIE testing, or if further detail describing the type or specific toxicant is desired, then the TIE Advisory Committee may choose to have the laboratory conduct additional TIE treatments. TIEs are expected to use the minimum number of test replicates and organisms per replicate required by the method, unless otherwise determined in consultation with the TIE Advisory Committee.

INVOLVED ORGANIZATIONS

The WY 2024 DRMP CUP monitoring involved six organizations performing administrative, laboratory, and/or field tasks. Organization details are included in **Table 2**.

Table 2. Involved organizations for WY 2024 monitoring.

ORGANIZATION	TASK(S)
Marine Pollution Studies Laboratory at Moss Landing Marine Laboratories (MPSL-MLML)	Data Management, Quality Assurance
MLJ Environmental	Project Management, Data Management, Quality Assurance
U.S. Geological Survey (USGS) California Water Science Center (CWSC)	Sample Collection
USGS Organic Chemistry Research Laboratory (OCRL)	Sample Analysis
Babcock Laboratories	Sample Analysis
Pacific EcoRisk (PER)	Toxicity Testing

SAMPLING OVERVIEW

Sampling logistics for WY 2024 DRMP CUP monitoring are summarized in **Table 3** and detailed in the sections that follow.

Table 3. Sampling event information for Events 1-6 of CUP WY 2024 monitoring.

EVENT	SEASON	CEDEN CODE	STATION NAME	USGS SITE NUMBER	TARGET LATITUDE	TARGET LONGITUDE	DATE	TIME
1	Winter Runoff	511ULCABR	Ulati Creek at Brown Road	11455261	38.307	-121.7942	12/11/2023	09:20
1	Winter Runoff	544LSAC13	San Joaquin R at Buckley Cove	375831121223701	37.971833	-121.373619	12/11/2023	13:25
1	Winter Runoff	Cent-013	Central Delta Subregion - Cent-013	375633121333301	37.94248	-121.559	12/11/2023	11:30
1	Winter Runoff	Cent-014	Central Delta Subregion - Cent-014	380347121334	38.06307	-121.561	12/11/2023	12:30
1	Winter Runoff	Conf-001	Delta Confluence Subregion - Conf-001	380228121492901	38.04107	-121.825	12/12/2023	12:00
1	Winter Runoff	Conf-002	Delta Confluence Subregion - Conf-002	380333121492001	38.05926	-121.822	12/12/2023	11:30
1	Winter Runoff	Conf-003	Delta Confluence Subregion - Conf-003	380146121451401	38.02936	-121.754	12/12/2023	10:25
1	Winter Runoff	Conf-004	Delta Confluence Subregion - Conf-004	380118121440701	38.0217	-121.735	12/12/2023	10:45
2	Winter Storm 1	511ULCABR	Ulati Creek at Brown Road	11455261	38.307	-121.7942	1/22/2024	08:45
2	Winter Storm 1	544LSAC13	San Joaquin R at Buckley Cove	375831121223701	37.971833	-121.373619	1/22/2024	12:30

EVENT	SEASON	CEDEN CODE	STATION NAME	USGS SITE NUMBER	TARGET LATITUDE	TARGET LONGITUDE	DATE	TIME
2	Winter Storm 1	Cent-015	Central Delta Subregion - Cent-015	380325121363101	38.05692	-121.609	1/23/2024	12:40
2	Winter Storm 1	Cent-016	Central Delta Subregion - Cent-016	380615121353501	38.1042	-121.593	1/23/2024	13:10
2	Winter Storm 1	Conf-005	Delta Confluence Subregion - Conf-005	380126121485801	38.02386	-121.816	1/23/2024	10:45
2	Winter Storm 1	Conf-006	Delta Confluence Subregion - Conf-006	380344121503501	38.06217	-121.843	1/23/2024	11:20
2	Winter Storm 1	Conf-007	Delta Confluence Subregion - Conf-007	380441121405701	38.07803	-121.683	1/23/2024	10:10
2	Winter Storm 1	Conf-008	Delta Confluence Subregion - Conf-008	380236121423301	38.04345	-121.709	1/23/2024	12:00
3	Spring Snow Melt	511ULCABR	Ulatis Creek at Brown Road	11455261	38.307	-121.7942	4/29/2024	08:45
3	Spring Snow Melt	544LSAC13	San Joaquin R at Buckley Cove	375831121223701	37.971833	-121.373619	4/29/2024	14:40
3	Spring Snow Melt	Cent-017	Central Delta Subregion - Cent-017	375513121332101	37.92026	-121.556	4/29/2024	12:45
3	Spring Snow Melt	Cent-018	Central Delta Subregion - Cent-018	375930121305501	37.99156	-121.515	4/29/2024	13:45
3	Spring Snow Melt	Conf-009	Delta Confluence Subregion - Conf-009	380206121495201	38.03502	-121.831	4/30/2024	11:15
3	Spring Snow Melt	Conf-010	Delta Confluence Subregion - Conf-010	380131121445401	38.0252	-121.748	4/30/2024	10:35
3	Spring Snow Melt	Conf-011	Delta Confluence Subregion - Conf-011	380600121430801	38.10005	-121.719	4/30/2024	12:45
3	Spring Snow Melt	Conf-012	Delta Confluence Subregion - Conf-012	380635121423601	38.10961	-121.71	4/30/2024	12:30

EVENT	SEASON	CEDEN CODE	STATION NAME	USGS SITE NUMBER	TARGET LATITUDE	TARGET LONGITUDE	DATE	TIME
4	Early Summer	511ULCABR	Ulati Creek at Brown Road	11455261	38.307	-121.7942	6/25/2024	13:50
4	Early Summer	544LSAC13	San Joaquin R at Buckley Cove	375831121223701	37.971833	-121.373619	6/24/2024	09:10
4	Early Summer	Cent-019	Central Delta Subregion - Cent-019	380342121370901	38.06157	-121.619	6/25/2024	10:25
4	Early Summer	Cent-020	Central Delta Subregion - Cent-020	380145121350001	38.02919	-121.583	6/25/2024	10:55
4	Early Summer	Conf-013	Delta Confluence Subregion - Conf-013	380428121462201	38.07439	-121.773	6/24/2024	12:05
4	Early Summer	Conf-014	Delta Confluence Subregion - Conf-014	380252121474201	38.04787	-121.795	6/24/2024	11:40
4	Early Summer	Conf-016	Delta Confluence Subregion - Conf-016	380812121411201	38.13653	-121.687	6/24/2024	12:45
4	Early Summer	Conf-025	Delta Confluence Subregion - Conf-025	380357121473601	38.06592	-121.793	6/25/2024	12:00
5	Mid-Summer	511ULCABR	Ulati Creek at Brown Road	11455261	38.307	-121.7942	7/22/2024	09:15
5	Mid-Summer	544LSAC13	San Joaquin R at Buckley Cove	375831121223701	37.971833	-121.373619	7/23/2024	09:35
5	Mid-Summer	Cent-021	Central Delta Subregion - Cent-021	375322121342901	37.8893	-121.575	7/23/2024	10:55
5	Mid-Summer	Cent-022	Central Delta Subregion - Cent-022	380013121314401	38.00364	-121.529	7/23/2024	11:20
5	Mid-Summer	Conf-017	Delta Confluence Subregion - Conf-017	380242121480801	38.04499	-121.802	7/22/2024	11:45
5	Mid-Summer	Conf-018	Delta Confluence Subregion - Conf-018	380322121482601	38.05608	-121.807	7/22/2024	11:10

EVENT	SEASON	CEDEN CODE	STATION NAME	USGS SITE NUMBER	TARGET LATITUDE	TARGET LONGITUDE	DATE	TIME
5	Mid-Summer	Conf-019	Delta Confluence Subregion - Conf-019	380333121404001	38.05904	-121.678	7/22/2024	12:55
5	Mid-Summer	Conf-026	Delta Confluence Subregion - Conf-026	380209121463701	38.03582	-121.777	7/22/2024	12:15
6	Late Summer	511ULCABR	Ulati Creek at Brown Road	11455261	38.307	-121.7942	9/10/2024	15:00
6	Late Summer	544LSAC13	San Joaquin R at Buckley Cove	375831121223701	37.971833	-121.373619	9/11/2024	12:15
6	Late Summer	Cent-023	Central Delta Subregion - Cent-023	380306121380301	38.05159	-121.634	9/11/2024	10:10
6	Late Summer	Cent-024	Central Delta Subregion - Cent-024	380220121341101	38.03892	-121.57	9/11/2024	11:00
6	Late Summer	Conf-021	Delta Confluence Subregion - Conf-021	380138121484001	38.02724	-121.811	9/10/2024	10:20
6	Late Summer	Conf-023	Delta Confluence Subregion - Conf-023	380504121423601	38.08438	-121.71	9/10/2024	12:10
6	Late Summer	Conf-024	Delta Confluence Subregion - Conf-024	380221121432801	38.03909	-121.725	9/10/2024	13:30
6	Late Summer	Conf-027	Delta Confluence Subregion - Conf-027	380306121413001	38.05161	-121.692	9/10/2024	12:50

STUDY BACKGROUND

The current monitoring design is focused on understanding pesticide occurrence and toxicity within the Sacramento/San Joaquin Delta by sampling a large number of sites (i.e., 36 per year), selected using a Generalized Random Tessellation Stratified (GRTS) approach. The GRTS approach generates a random sample of points across the Delta, helping to eliminate site selection bias and increasing the likelihood that cumulatively the data will be representative of the Delta as a whole. The DRMP can analyze CUP data across regions or over time to evaluate status and trends within the Delta.

For logistical reasons, this revised design divides the Delta into six sub-regions based on water source (**Figure 1** and **Figure 2**), and only two adjacent sub-regions are sampled in any WY (**Table 4**). For the two sub-regions sampled, one sub-region is sampled completely (i.e., 24 GRTS sites) within a WY and the other sub-region is partially sampled (i.e., 12 GRTS sites). The remaining 12 GRTS sites within the partially sampled sub-region are sampled in the following WY.

In addition to the GRTS sites, two Delta input sites sampled during the 2015-2017 DRMP monitoring (i.e., Ulati Creek at Brown Road and San Joaquin River at Buckley Cove) continue to be sampled as part of the current CUP monitoring program. It was decided to continue sampling at the two fixed sites to provide an ongoing, long-term monitoring data record. Additionally, these sites were chosen because they generally had the highest concentrations of pesticides and the most instances of aquatic toxicity of the five sites sampled in 2015-2017.

Under the current monitoring design, samples are to be collected during six targeted events during each monitoring year, to include two fall/winter storms; either a third storm event or dry weather during spring runoff; and the spring, summer, and fall irrigation periods. A total of 48 environmental water samples are planned per year (i.e., 24 in one completely sampled sub-region, 12 in the partially sampled sub-region, and 12 samples collected at the fixed sites; see **Table 4**).

The rotating sub-regional strategy is designed to complete sampling of the entire Delta over four years of monitoring. Water Year 2024 constituted the fourth year of monitoring according to this strategy and as such included sampling of both Subregion 5 in the Central Delta and Subregion 6 in the Confluence Delta.

Table 4 displays the numbers of GRTS sites sampled in each sub-region by WY and event, along with the fixed sites sampled during the first three years of the current CUP monitoring program, together with the sites planned for sampling during WY 2024 (Year 4 of the current program). Year 1 monitoring was accomplished during WY 2019; Year 2

monitoring extended throughout WY 2020 and 2021; Year 3 monitoring was completed during WY 2023. Year 4 monitoring was completed in WY 2024.

Table 4. Count of sites in each Subregion by WY and event.

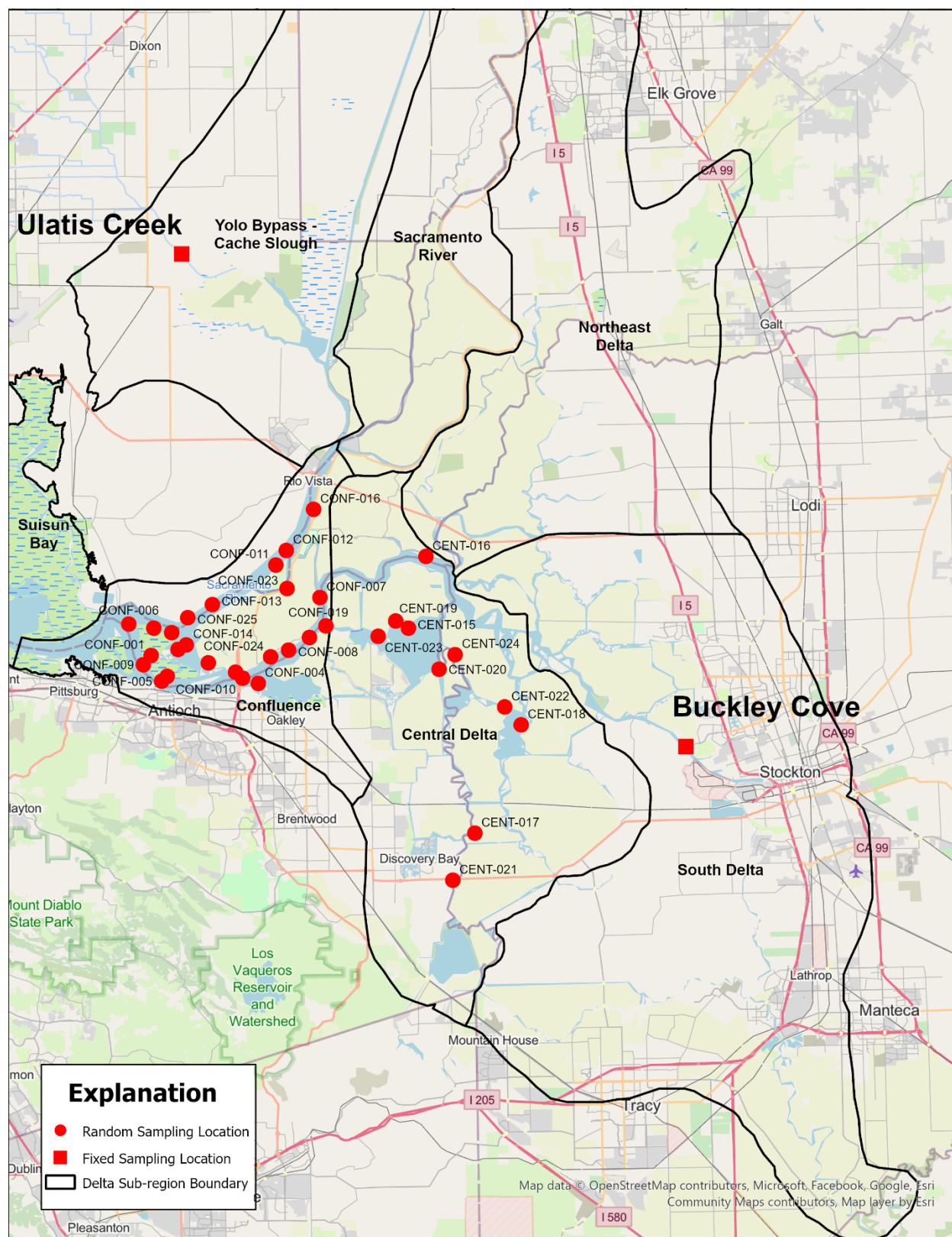
WY	EVENT	EVENT TYPE	GRTS SITES SUBREGION 1	GRTS SITES SUBREGION 2	GRTS SITES SUBREGION 3	GRTS SITES SUBREGION 4	GRTS SITES SUBREGION 5	GRTS SITES SUBREGION 6	FIXED SITE 1	FIXED SITE 2	TOTAL
WY 2019 (Year 1)	Event 1	Storm	4	2	--	--	--	--	1	1	8
	Event 2	Storm	4	2	--	--	--	--	1	1	8
	Event 3	Storm	4	2	--	--	--	--	1	1	8
	Event 4	Irrigation	4	2	--	--	--	--	1	1	8
	Event 5	Irrigation	4	2	--	--	--	--	1	1	8
	Event 6	Irrigation	4	2	--	--	--	--	1	1	8
WY 2020 (Year 2)	Event 1	Storm	--	2	4	--	--	--	1	1	8
	Event 2	Storm	--	2	4	--	--	--	1	1	8
WY 2021 (Year 2)	Event 3 ¹	Spring Snowmelt	--	2	4	--	--	--	1	1	8
	Event 4	Irrigation	--	2	4	--	--	--	1	1	8
	Event 5	Irrigation	--	2	4	--	--	--	1	1	8
	Event 6	Irrigation	--	2	4	--	--	--	1	1	8
WY 2023 (Year 3)	Event 1	Storm	--	--	--	4	2	--	1	1	8
	Event 2	Storm	--	--	--	4	2	--	1	1	8
	Event 3	Spring Snowmelt	--	--	--	4	2	--	1	1	8
	Event 4	Irrigation	--	--	--	4	2	--	1	1	8
	Event 5	Irrigation	--	--	--	4	2	--	1	1	8
	Event 6	Irrigation	--	--	--	4	2	--	1	1	8
WY 2024 (Year 4)	Event 1 ²	Winter Runoff	--	--	--	--	2	4	1	1	8
	Event 2	Storm	--	--	--	--	2	4	1	1	8
	Event 3	Spring Snowmelt	--	--	--	--	2	4	1	1	8
	Event 4	Irrigation	--	--	--	--	2	4	1	1	8

WY	EVENT	EVENT TYPE	GRTS SITES SUBREGION 1	GRTS SITES SUBREGION 2	GRTS SITES SUBREGION 3	GRTS SITES SUBREGION 4	GRTS SITES SUBREGION 5	GRTS SITES SUBREGION 6	FIXED SITE 1	FIXED SITE 2	TOTAL
	Event 5	Irrigation	--	--	--	--	2	4	1	1	8
	Event 6	Irrigation	--	--	--	--	2	4	1	1	8
Total Samples			24	24	24	24	24	24	24	24	192

¹ Samples were collected from subregions 2 and 3 in March 2020 but were not tested for toxicity due to COVID-19 restrictions. Chemical analyses were run on the March 2020 samples; however, all sites scheduled for Event 3 in Year 2 were resampled and analyzed for both chemical constituents and toxicity in March of 2021.

² The first event of the WY is ideally a First Flush event First Flush not triggered (0.5" of precipitation in 24 hours); however, there were no storms that met this trigger between October and December and a Winter Runoff event was initiated as prescribed in the QAPP.

Figure 2. Fixed and GRTS sites sampled in WY 2024 (detailed map).



SAMPLING METHODS

Sampling for WY 2024 was conducted by personnel from the U.S. Geological Survey (USGS) California Water Science Center (CWSC) at sites shown in **Figure 1** and **Figure 2** and following procedures described in the CUP QAPP (v1.5). Water samples were collected concurrently for the analyses of pesticides, metals, ancillary parameters, and aquatic toxicity testing as listed in **Table 1**. Monitoring photos taken by field crews during each event are provided in **Appendix A**.

All samples were collected as grab samples and all sites were accessed by boat with the exception of the fixed sampling station, Ulati Creek at Browns Road. The study design approved by the DRMP called for grab samples because of the large volume of water required for collecting toxicity and pesticide samples concurrently. Samples were collected by submerging narrow-mouthed bottles at mid-channel to a depth of 0.5 meters (m), and on the ebb tide (between the high and low tide) for tidally influenced sites.

Pesticide samples were collected in pre-cleaned, baked amber-glass bottles and transported on ice to the USGS Organic Chemistry Research Laboratory (OCRL) in Sacramento, California. Samples for analysis by Babcock Laboratories were collected in Teflon bottles, processed at the USGS CWSC, and shipped on ice to the laboratory in Riverside, California. Teflon bottles were cleaned prior to each sampling event according to the procedures outlined in the CUP QAPP (v1.5) and were triple rinsed with native water prior to sample collection. Water samples for toxicity analyses were collected in 4-liter, amber-glass bottles provided by Pacific EcoRisk (PER). Bottles were triple rinsed with native water on-site before sample collection. Ten bottles were collected at each site and transported on ice to the USGS CWSC where they were picked up by a PER courier at the end of each sampling day.

SAMPLE COLLECTION COMPLETENESS

Sample collection completeness is based on the number of expected samples successfully collected and transported to the laboratories for analysis. Sample completeness is assessed as each analysis scheduled for each site over all events in the year; sample completeness counts by individual constituent are provided in **Appendix C, Table C.2**. All 17,808 analyses scheduled for WY 2024 monitoring were successfully collected and transferred to the appropriate laboratories; sample collection completeness was 100% for WY 2024.

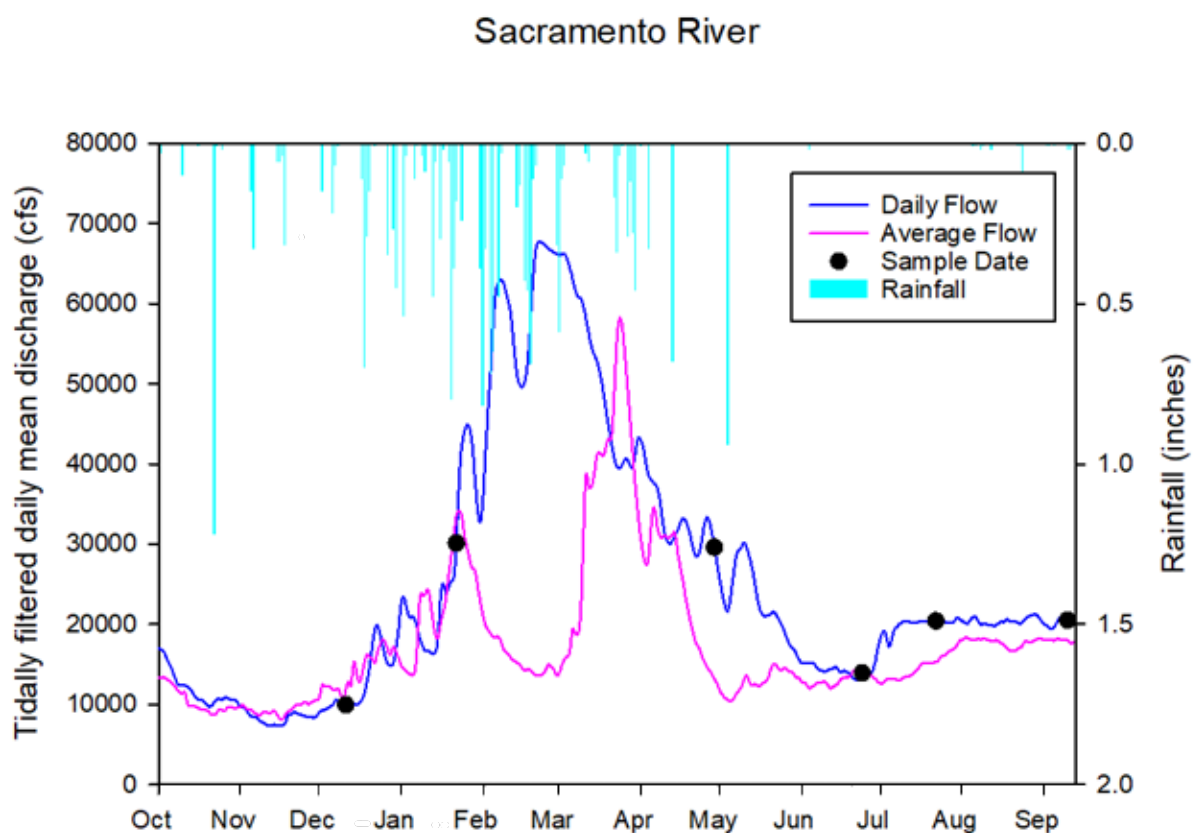
Field Quality Control (QC) samples are required to be collected at an annual rate of 5% of the environmental samples according to the CUP QAPP (v1.5). Field duplicate and field blank samples each comprised 6.3% of the total environmental samples for which they were required during WY 2024. Field QC percentages by individual analyte are provided

in **Appendix C, Table C.4**. Without exception, all field QC individual analyte percentages were 5% or greater for WY 2024.

FIELD ACTIVITIES

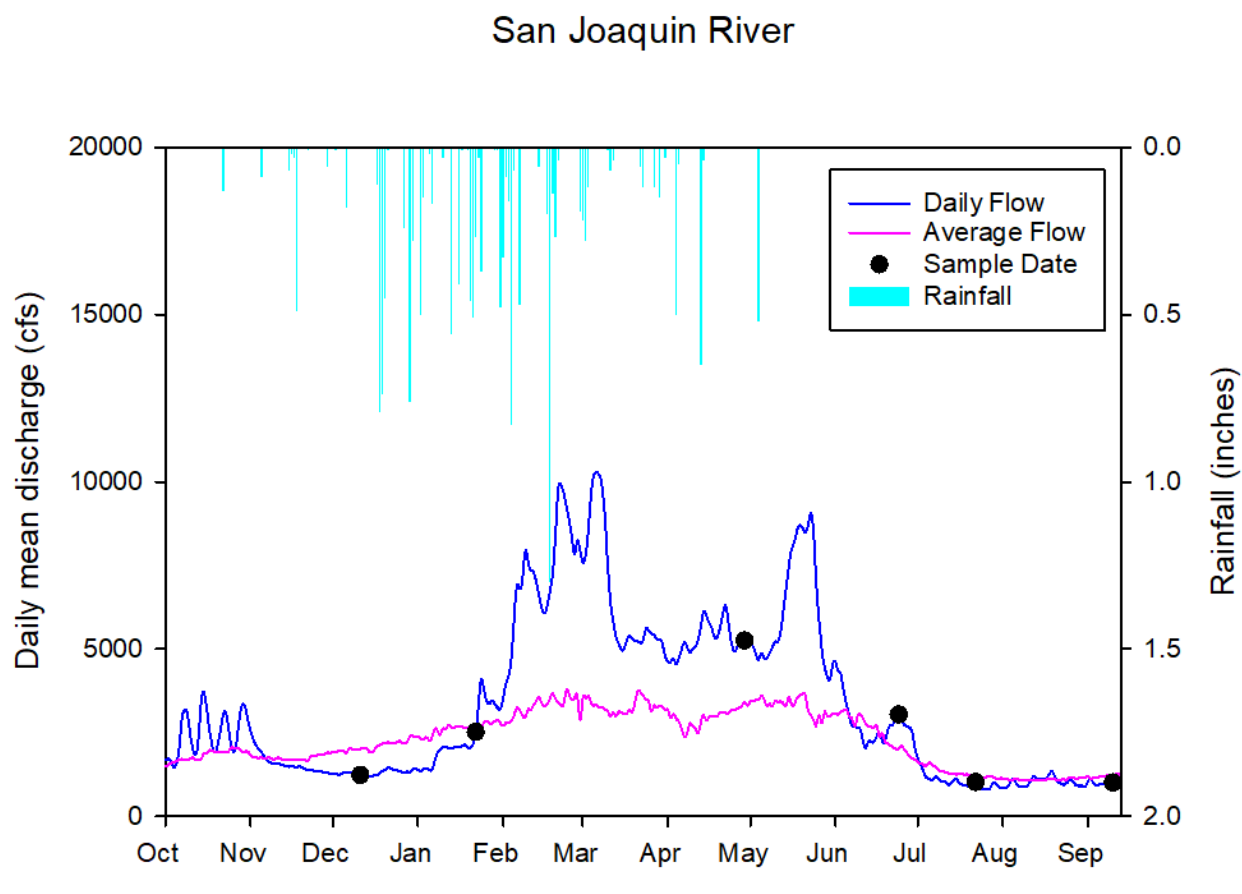
Summaries for each event are described below. Additional details regarding weather, temperature, and habitat information are included in **Appendix A** and noted on field sheets. Rainfall and discharge for WY 2024 are shown in **Figure 3** for the Sacramento River and **Figure 4** for the San Joaquin River.

Figure 3. Sacramento River rainfall amounts and tidally filtered daily discharge for WY 2024¹.



¹Tidally filtered daily mean discharge as recorded at USGS gage 11447650 Sacramento River at Freeport, CA. Historical mean daily flow at this station is based on 8 years of data (2016-2023). Rainfall data was acquired from the California Irrigation and Management Information System (CIMIS) <https://cimis.water.ca.gov>

Figure 4. San Joaquin River rainfall amounts and tidally filtered daily discharge for WY 2024 ¹.



¹Daily mean discharge as recorded at USGS gage 11303500 San Joaquin River near Vernalis, CA. Historical mean daily flow at this station is based on 95 years of data (1924-2023). Rainfall data was acquired from the California Irrigation and Management Information System (CIMIS) <https://cimis.water.ca.gov/>

Event 1

Event 1 samples were collected December 11 and 12, 2023. This was the first sampling event of WY 2024 and is Event 1 of the fourth year of sampling under the current monitoring design. Normally this would be a first flush sampling event however no storms which met the sampling trigger (0.5" of precipitation in 24 hours) occurred between October 1, 2023, and the sampling dates. The Delta RMP QAPP requires Event 1 of the WY to be collected prior to December 31st regardless of rainfall. No significant precipitation events were in the forecast when this sampling event was scheduled with the project laboratories. Additionally, logistical considerations regarding shipping of organisms for toxicity testing and personnel availability over the December holiday

season factored into the scheduling of this sampling event. Sampling sites for Event 1 are shown in **Figure 5**. Flows on the San Joaquin River and Sacramento River were below the historical average for the time of year (**Figure 6** and **Figure 7**).

Figure 5. Map of sampling locations for Event 1 of WY 2024.

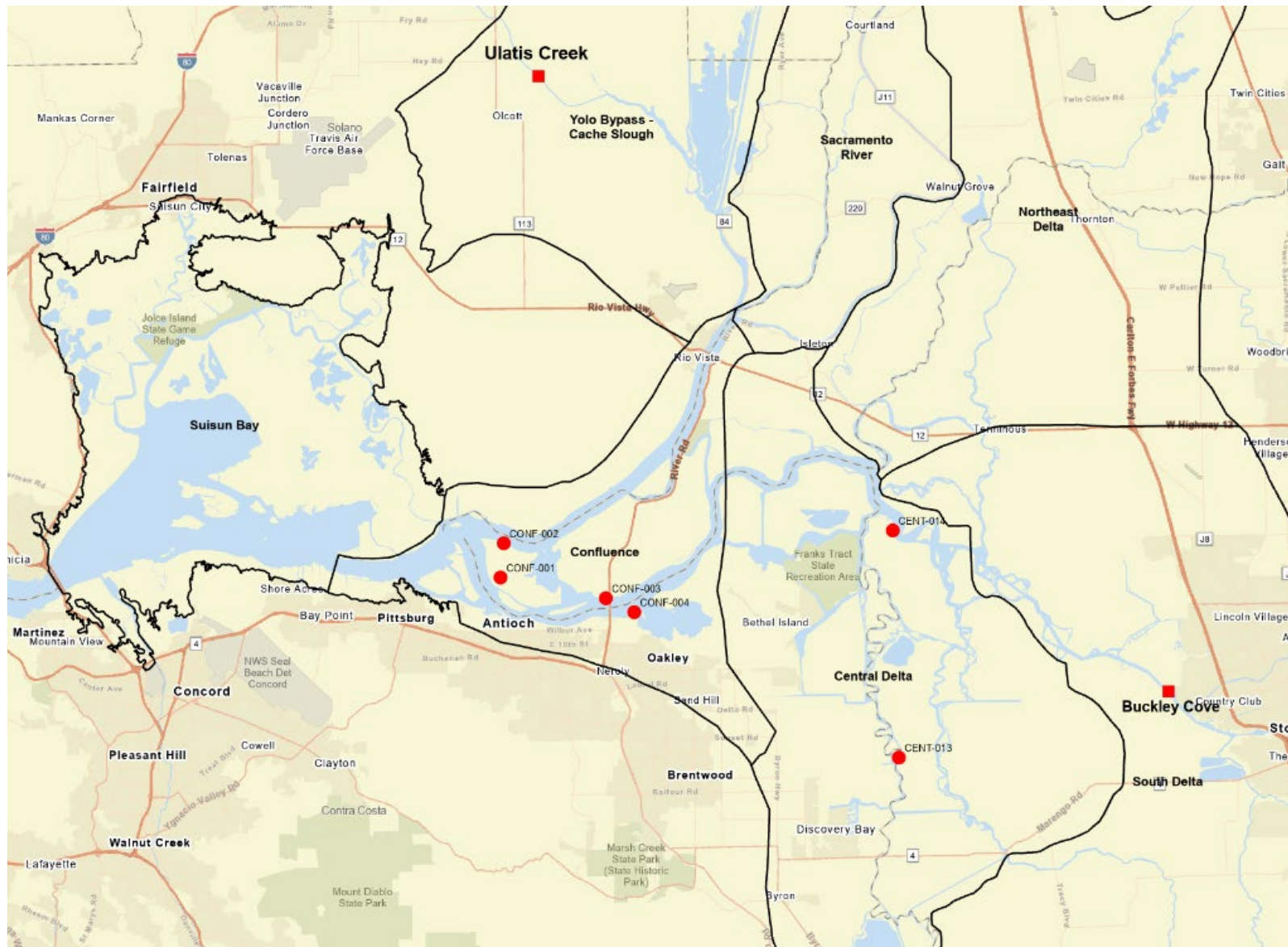


Figure 6. Streamflow for the San Joaquin River at Vernalis during Event 1. The dashed line indicates the historical median flow for the period. The vertical dashed line and dot on the figure indicates the approximate sampling time.

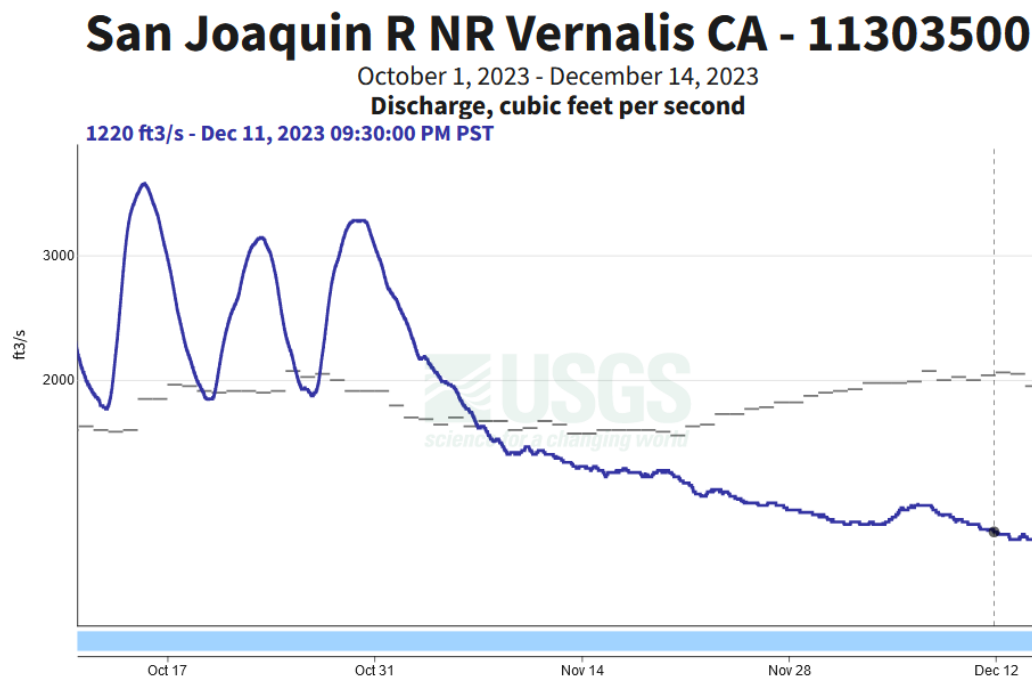
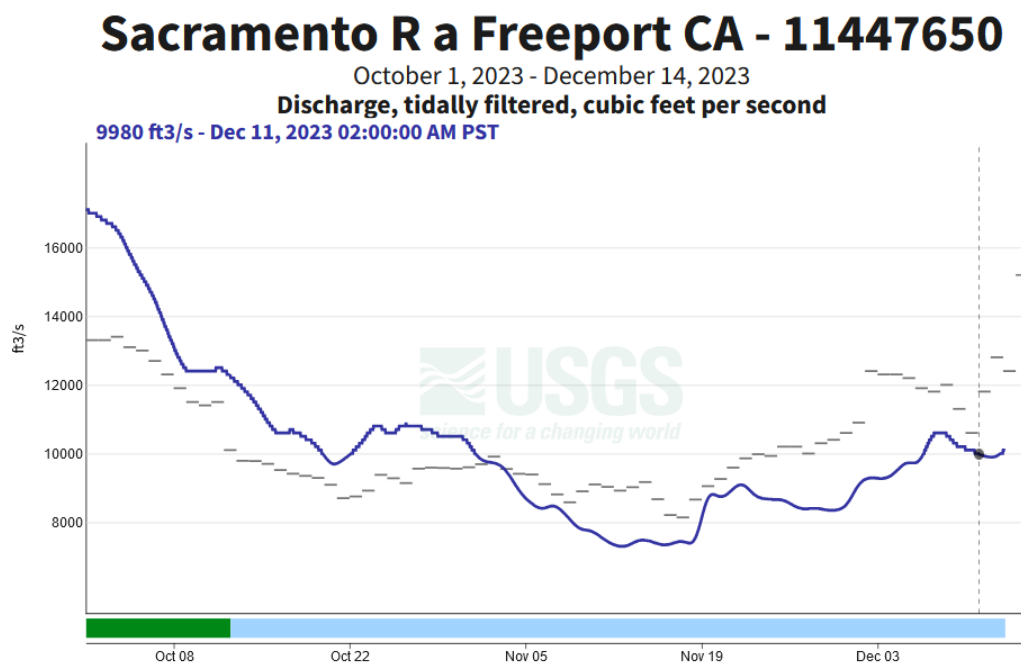


Figure 7. Streamflow for the Sacramento River at Freeport during Event 1. The dashed line indicates the historical median flow for the period. The vertical dashed line and dot on the figure indicates the approximate sampling time.



The USGS personnel for DRMP sampling Event 1 WY 2024 consisted of Jim Orlando, Matt De Parsia, and Matt Uychutin. The weather on both days was clear and cold.

On December 11, 2023, the crew picked up the boat in Sacramento and drove to the Ulatis Creek at Brown Road sampling site. Flows were low and the crew collected samples at 09:20 by wading (Appendix, **Figure A.1**). The crew then drove to Discovery Bay, launched the boat, and motored north to site CENT-013 on Old River. Samples were collected at the target coordinates at 11:30 (**Figure A.2**). The crew then continued motoring north to site CENT-014 on the San Joaquin River (**Figure A.3**). Samples (including a toxicity replicate sample) were collected at the target coordinates at 12:30. It was noted that channel dredging was occurring in the San Joaquin River Ship Channel near the sampling site and that dredging spoils were being pumped onto Mandeville Island adjacent to the sampling site. Water from the dredging operation was then being pumped back into the channel about 200 meters south of the sampling site. Water and suspended sediments from this pumping were likely moving toward the sampling site at the time of collection (**Figure A.4**). The crew next motored south to the Buckley Cove site. Samples were collected at Buckley Cove at 13:25 (**Figure A.5**). The crew then motored back to Discovery Bay, pulled the boat, and returned to Sacramento. Toxicity samples were picked up by PER courier at approximately 17:00.

On December 12, 2023, USGS personnel (Jim Orlando, Matt DeParsia, and Matt Uychutin) collected samples from four sites in the Confluence sub-region. These were the first samples to be collected from this area during the current project. The crew picked up the boat in Sacramento and drove to Antioch where the boat was launched from the public dock. The crew motored east to site CONF-003 where samples were collected at the target coordinates on the San Joaquin River at the Antioch bridge at 10:25 (**Figure A.6**). The crew then motored about 1800 meters southeast to site CONF-004 where samples were collected at 10:45 (**Figure A.7**). The crew then proceeded northwest through Sherman Lake to site CONF-002 on the Sacramento River where samples were collected at 11:30 (**Figure A.8**). The crew then navigated through shallow water and tules in Sherman Lake to site CONF-001 (**Figure A.9**). The crew was able to reach the target coordinates (but this could not have been accomplished at low tide). Samples were collected at 12:00. The crew returned to the marina, pulled the boat, and drove back to Sacramento. Toxicity samples were picked up by PER courier at approximately 15:00.

Event 2

This was the second sampling event of WY 2024 and is considered Event 2 of the fourth year of sampling under the current monitoring design. Samples were collected January 22 and 23, 2024. This was a storm sampling event. Sampling sites for Event 2 are shown in **Figure 8**. Since the last sampling event in mid-December 2023, two storm systems

dropped significant precipitation ($> 0.5''$ in 24 hours) in the south Delta area. The first storm took place on December 18 and 19, 2023 and was not sampled because it was within 2 weeks of the previous sampling event. The storm did not meet the Event 2 storm sampling trigger of increasing flows 2x on major Delta inputs. The second storm took place on December 30, 2023, and was not sampled because toxicity test organisms could not be ordered over the holiday period and there were not 10 days of dry weather since the previous storm on December 18 and 19, 2023.

The storm sequence that was sampled at Event 2 began on January 20, 2024, with a few tenths of an inch of rain falling in the Delta region. Rainfall totals on January 21, 2024, increased to near $0.5''$ in Stockton and up to $0.75''$ in the Dixon/Vacaville area (Ulati Creek). Precipitation on January 22, 2024, was $1.5''$ in Stockton and roughly $1.25''$ in the Dixon/Vacaville area. This storm sequence resulted in significant runoff from Ulati Creek which peaked on the morning of January 22, 2024, after a stage increase of just over 5 feet (**Figure 9**). The Event 2 storm sequence also caused significant increases in flow on both the Sacramento and San Joaquin Rivers (**Figure 10** and **Figure 11**).

Figure 8. Map of sampling locations for Event 2 of WY 2024.

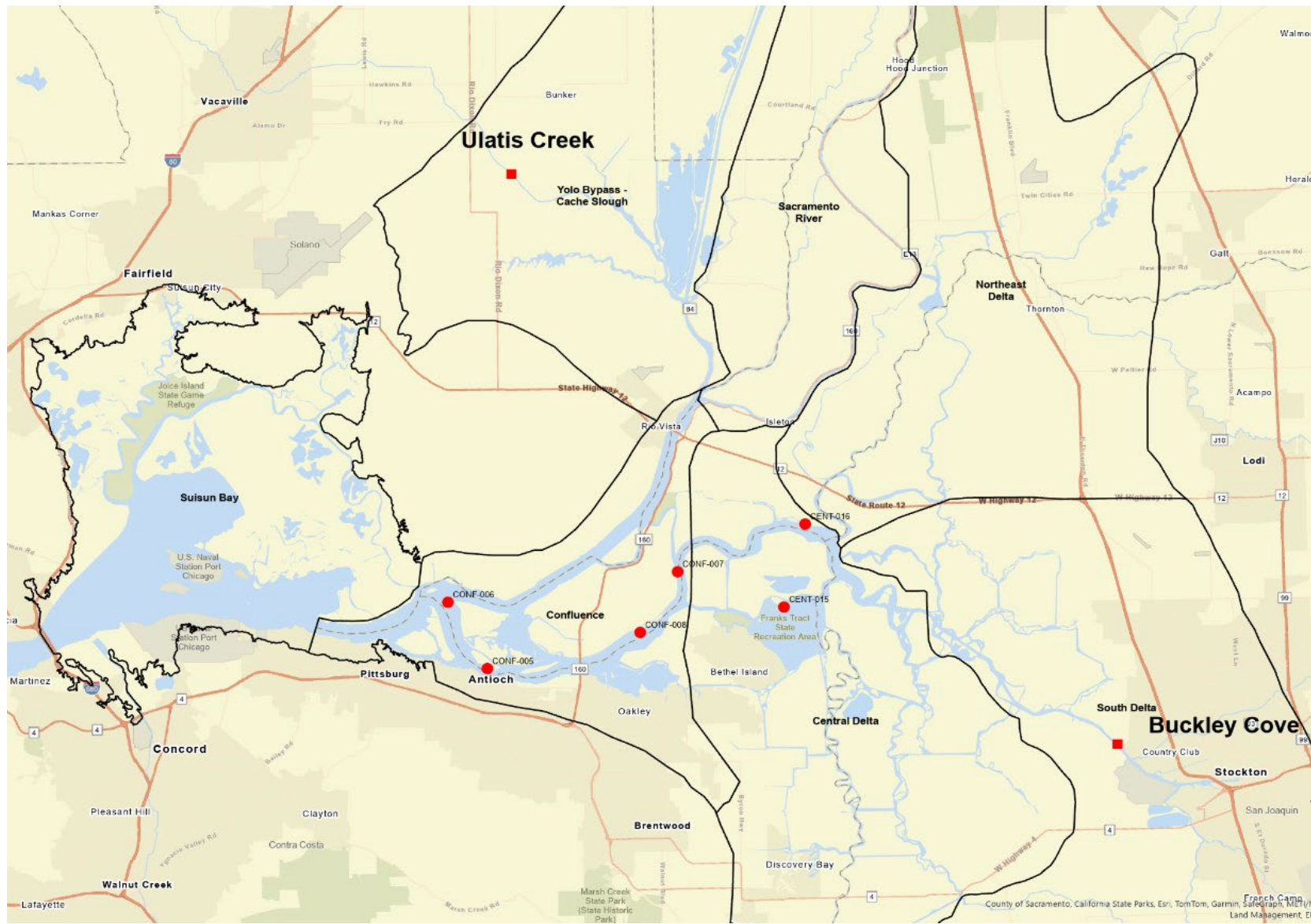
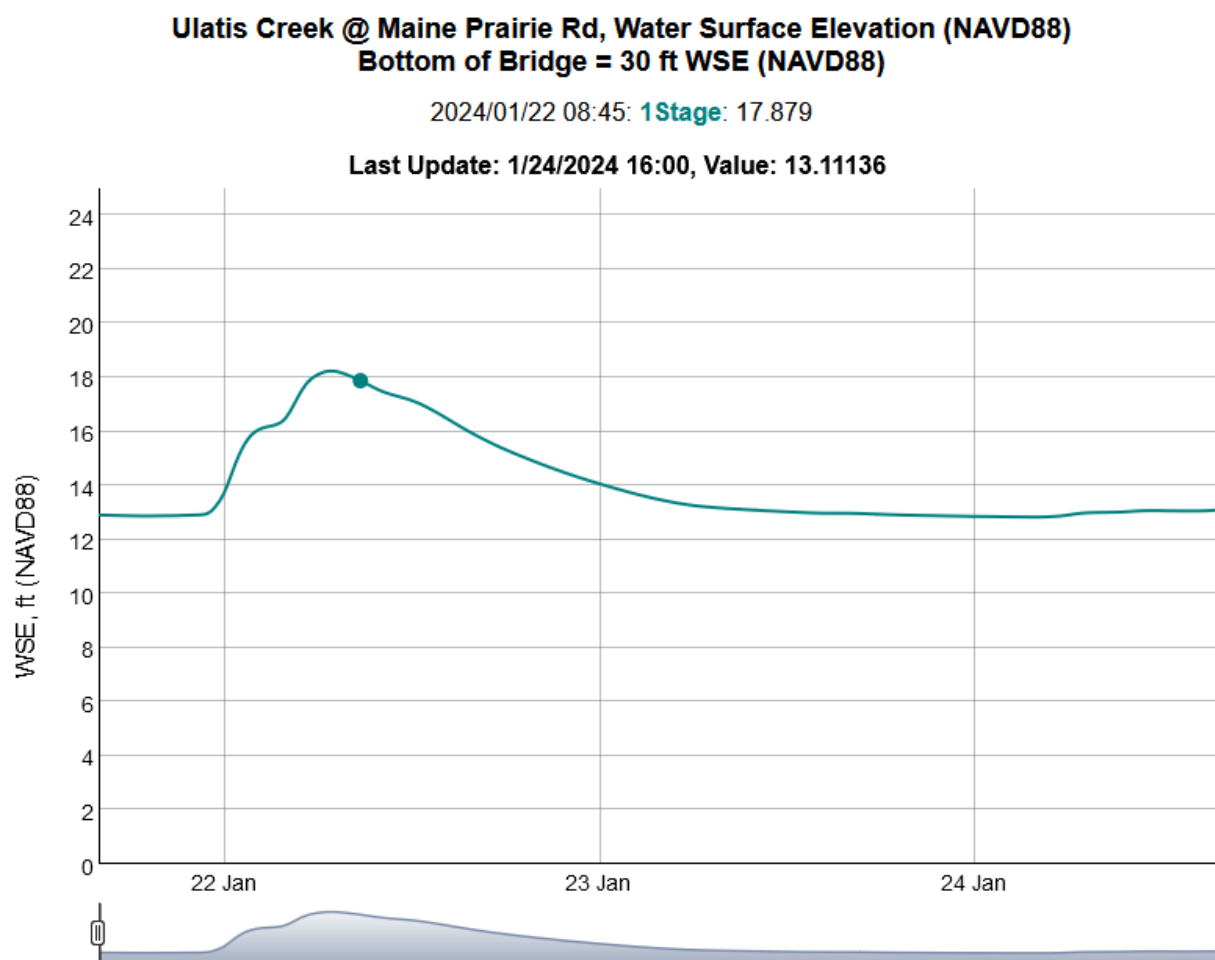


Figure 9. Stage at Ulatis Creek during Event 2¹. The dot on the figure indicates the approximate sampling time.



¹ All of the data and information in these plot(s) is raw, unrefined, and has not yet been reviewed by qualified staff. The plot(s) are obtained directly from the monitoring equipment and are displayed in unedited format. All monitoring equipment is subject to intermittent fluctuations, or spikes, which can cause an invalid instrument reading. These plot(s) are issued once or twice a day and may not reflect current readings. The data and information are subject to change at any time for a variety of reasons.

Figure 10. Streamflow for the San Joaquin River at Vernalis during Event 2. The dashed line indicates the historical median flow for the period. The vertical dashed line and dot on the figure indicates the approximate sampling time.

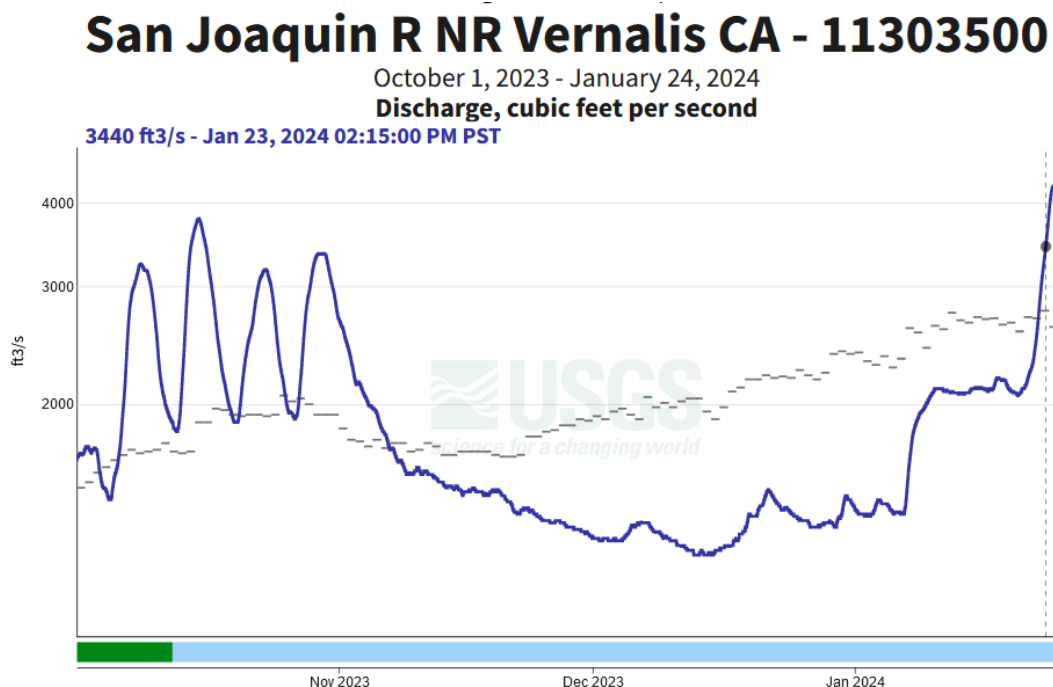
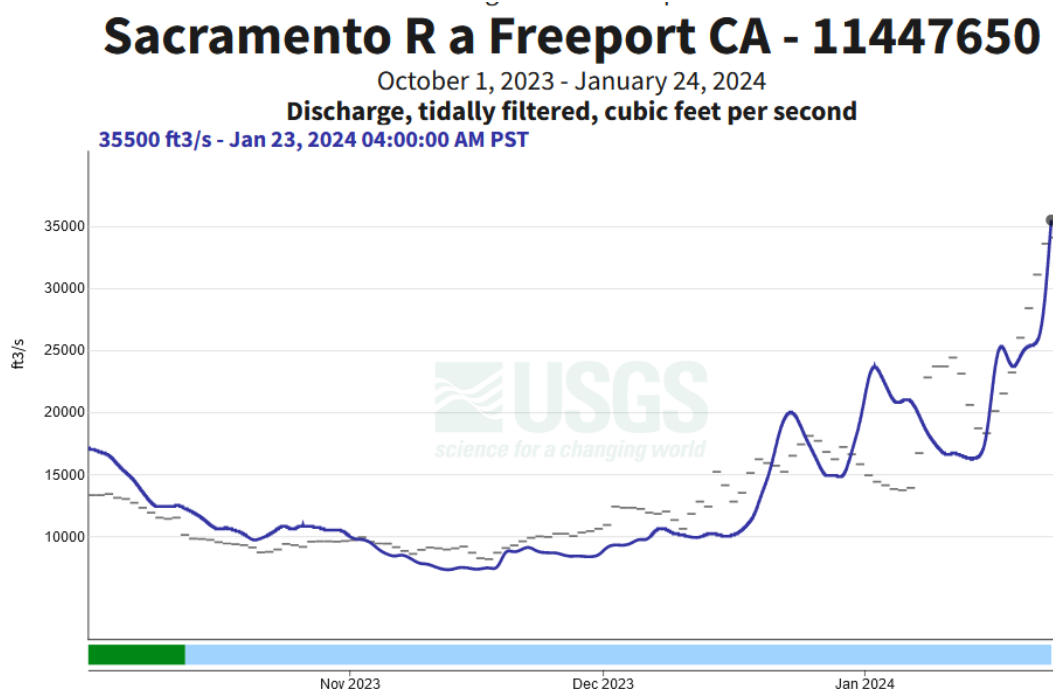


Figure 11. Streamflow for the Sacramento River at Freeport during Event 2. The dashed line indicates the historical median flow for the period. The vertical dashed line and dot on the figure indicates the approximate sampling time.



The USGS personnel for DRMP sampling Event 2 WY 2024 consisted of Jim Orlando, Matt De Parsia, and Elisabeth Labarbera. The weather on both days was cloudy with minor precipitation.

On January 22, 2024, the crew first drove out to the Ulati Creek at Brown Road sampling site. Flows were high with the water level about halfway up the levees and the water was very turbid (Appendix, **Figure A.10**). Samples were collected from the bridge using a weighted bottle sampler at 08:45. The crew then returned to Sacramento, picked up the boat, and drove to Buckley Cove. Samples were collected at 12:30 at the target coordinates (**Figure A.11**). The crew then pulled the boat and returned to Sacramento. Toxicity samples were picked up by PER courier at approximately 16:30.

On January 23, 2024, USGS personnel (Jim Orlando, Matt DeParsia, and Elisabeth Labarbera) launched the boat from B&W Marina off Hwy 12 in the Delta at 09:30. The crew then motored southwest to site CONF-007 on the San Joaquin River where samples were collected at the target coordinates at 10:10 (**Figure A.12**). The crew then continued southwest to site CONF-005 on the San Joaquin River at Antioch. Samples were collected at the target coordinates at 10:45 (**Figure A.13**). The crew then motored north to site CONF-006 at the confluence of the Sacramento and San Joaquin Rivers where samples were collected at the target coordinates at 11:20 (**Figure A.14**). The crew then motored back up the San Joaquin River approximately 9 miles to site CONF-008. Samples were collected at the target coordinates at 12:00 (**Figure A.15**). The crew then motored northeast to Franks Tract. Samples were collected at site CENT-015 at the target coordinates at 12:40. (**Figure A.16**). The crew then motored north out of Franks Tract to site CENT-016 on the San Joaquin River. This site was located within 100 meters of the San Andreas Landing (SAL) California Data Exchange Center (CDEC) monitoring station. Samples were collected at the target coordinates at 13:10 (**Figure A.17**). The crew returned to the marina, pulled the boat, and drove back to Sacramento. Toxicity samples were picked up by PER courier at approximately 17:30.

Event 3

This was the third sampling event of WY 2024 and is considered Event 3 of the fourth year of sampling under the current monitoring design. Samples were collected April 29 and 30, 2024 based on a requirement in the project QAPP to collect Event 3 samples prior to the end of April regardless of storm and streamflow conditions. This was a Spring runoff event. Sampling sites for Event 3 are shown in **Figure 12**.

Since the last sampling event in January 2024, there were several storms which impacted the sampling region. A significant storm occurred during the first several days of February, but this storm could not be sampled because it occurred within two weeks of the previous sampling event. Additional storms that arrived in February and early March did not meet

the sampling criteria of producing 2x flows on the Sacramento and San Joaquin Rivers. Precipitation events from mid-March through the end of April were generally very light with the exception of rainfall which occurred on April 5 and 14, 2024, which never-the-less did not meet the sampling criteria. Flows on the Sacramento and San Joaquin Rivers were generally above the historical median from late January through April 2024 (**Figure 13** and **Figure 14**).

The map displays the Sacramento-San Joaquin River Delta, highlighting the locations of 18 fish passage barrier sites. The sites are categorized by region and labeled with codes: CONF-009, CONF-010, CONF-011, CONF-012, CENT-017, CENT-018, and Buckley Cove. The map also shows major waterways, including the Sacramento River and Suisun Bay, and various cities and towns in the area. The regions are labeled as Yolo Bypass - Cache Slough, Northeast Delta, Central Delta, and South Delta. The map includes a legend for the barrier sites and a scale bar.

Figure 13. Streamflow for the San Joaquin River at Vernalis during Event 3.
The dashed line indicates the historical median flow for the period. The vertical dashed line and dot on the figure indicates the approximate sampling time.

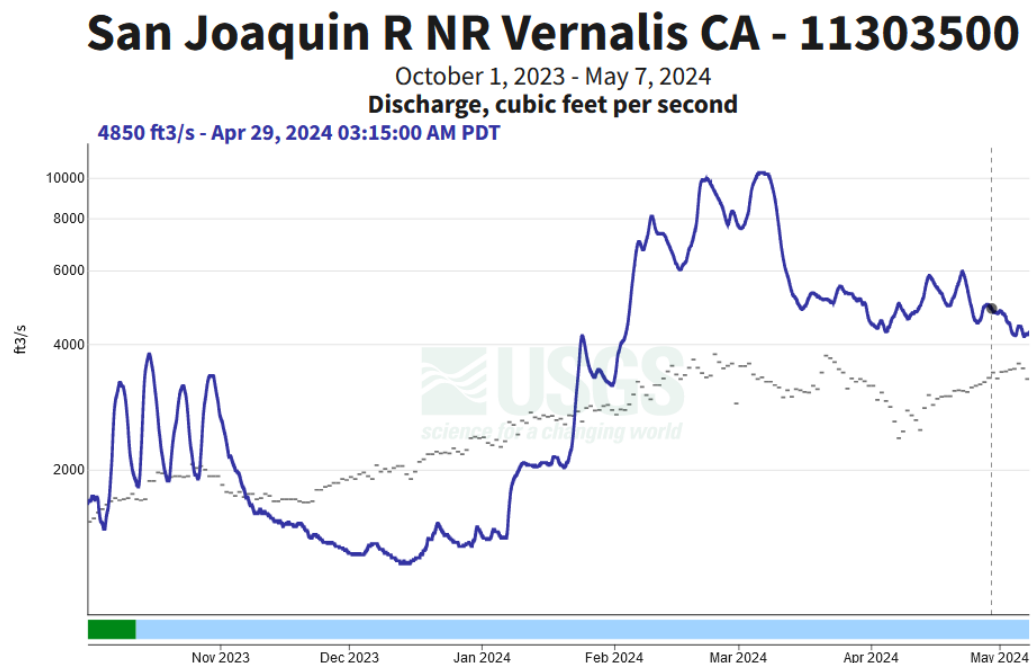
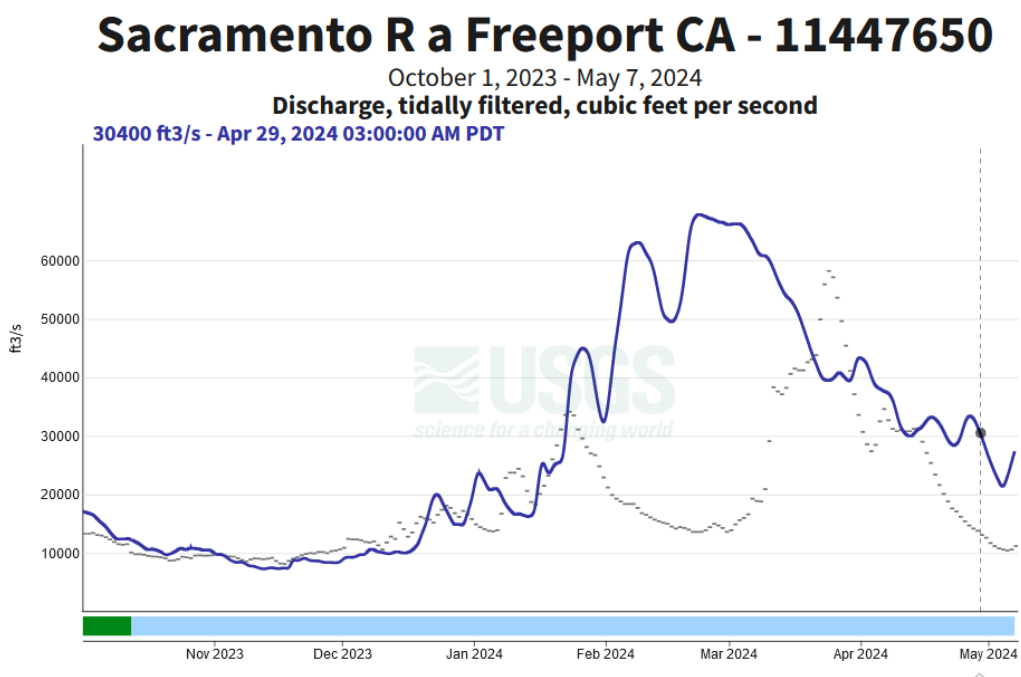


Figure 14. Streamflow for the Sacramento River at Freeport during Event 3.
The dashed line indicates the historical median flow for the period. The vertical dashed line and dot on the figure indicates the approximate sampling time.



The USGS personnel for DRMP sampling Event 3 WY 2024 consisted of Jim Orlando, Matt De Parsia, and Matt Uychutin. The weather on both days was sunny and breezy.

On April 29, 2024, the crew first drove out to the Ulati Creek at Brown Road sampling site. Flows were quite low (Appendix, **Figure A.18**). They encountered a Solano County work crew at the site who had stopped by and were also wondering why flows were so low. They also noted several large fish (possibly salmon) that were making their way upstream. Samples were collected at 08:45 by wading. The crew then returned to Sacramento, picked up the boat, and drove to Buckley Cove. The crew launched the boat and proceeded west to site CENT-017 on Old River. Samples were collected at 12:45 at the target coordinates (**Figure A.19**). The crew then motored northeast to site CENT-018 located on eastern edge of the flooded Mildred Island. Samples were collected at the target coordinates at 13:45 (**Figure A.20**). Some aquatic vegetation in this region appeared yellow and may have recently been sprayed with herbicides (**Figure A.21**). The crew then motored back to Buckley Cove and collected samples (including a toxicity replicate) at the target coordinates at 14:40 (**Figure A.22**). It was noted that a large freighter had passed through the area prior to sampling and stirred up quite a bit of bottom sediment. The crew then pulled the boat and returned to Sacramento. Toxicity samples were picked up by PER courier at approximately 17:30.

On April 30, 2024, USGS personnel (Jim Orlando, Matt DeParsia, and Matt Uychutin) launched the boat from Brannan Island State Park at 09:30. The crew then motored south to site CONF-010 on the San Joaquin River at the Antioch Bridge where samples were collected at the target coordinates at 10:35 (**Figure A.23**). The crew then continued west through choppy waters to site CONF-009 near the confluence of the San Joaquin and Sacramento Rivers. Samples were collected at the target coordinates at 11:15 (**Figure A.24**). The crew then returned to the area of Brannan Island and sampled at sites CONF-012 at 1230 (**Figure A.25**) and CONF-011 at 12:45 (**Figure A.26**). Both sites were located on the Sacramento River less than $\frac{1}{4}$ mile apart. The crew returned to the marina, pulled the boat, and drove back to Sacramento. Toxicity samples were picked up by PER courier at approximately 14:30.

Event 4

This was the fourth sampling event of WY 2024 and is considered Event 4 of the fourth year of sampling under the current monitoring design. Samples were collected June 24 and 25, 2024. This was an irrigation runoff sampling event. Sampling sites for Event 4 are shown in **Figure 15**. Since the last sampling event in April 2024, there was no significant rainfall in the study area. Flows on the Sacramento and San Joaquin Rivers were generally above the historical median from late January through June 2024. Flows on the San

Joaquin River at the time of sampling were above the historical median while flows on the Sacramento River were roughly at the median (**Figure 16** and **Figure 17**).

Figure 15. Map of sampling locations for Event 4 of WY 2024.

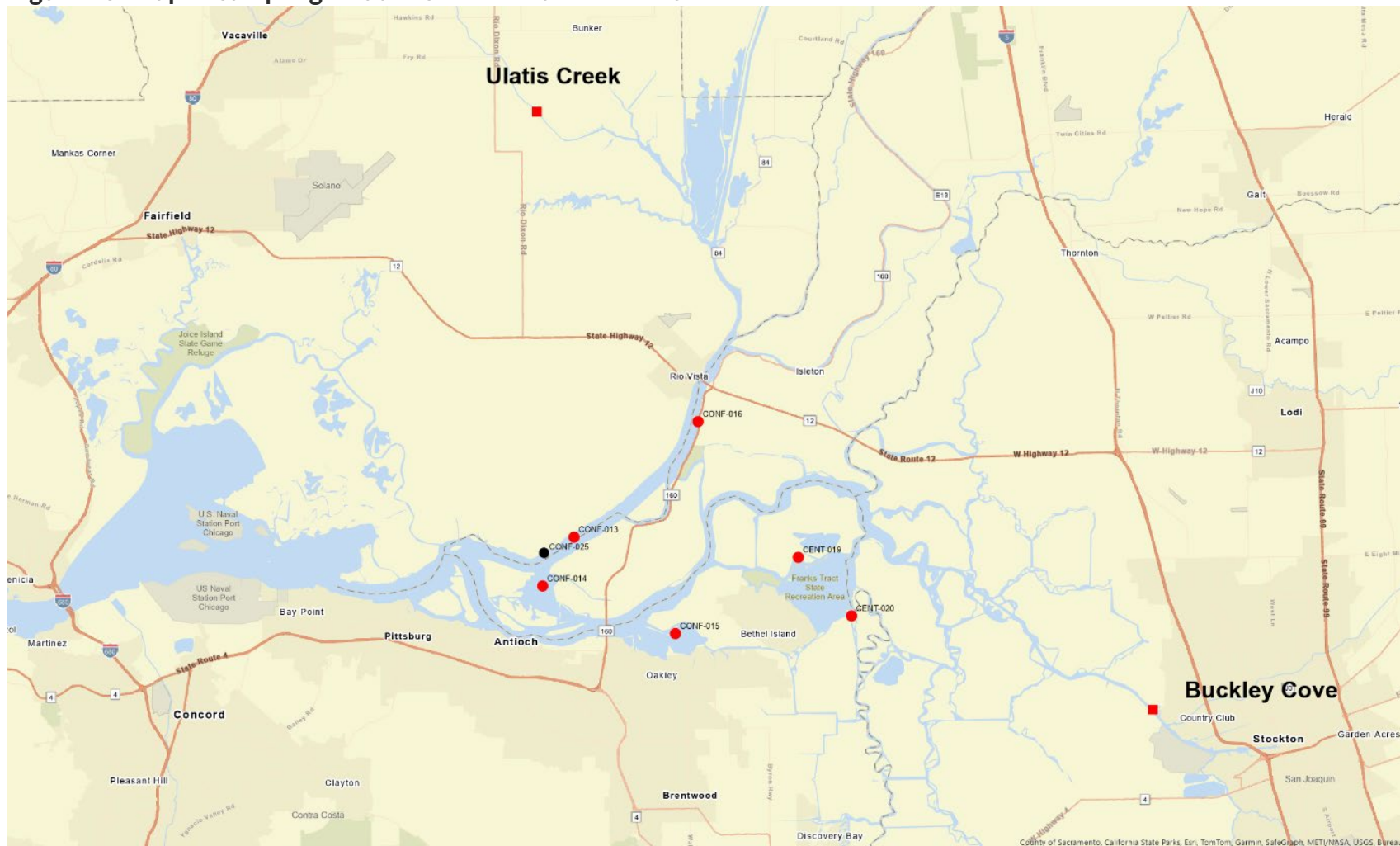


Figure 16. Streamflow for the San Joaquin River at Vernalis during Event 4.
The dashed line indicates the historical median flow for the period. The vertical dashed line and dot on the figure indicates the approximate sampling time.

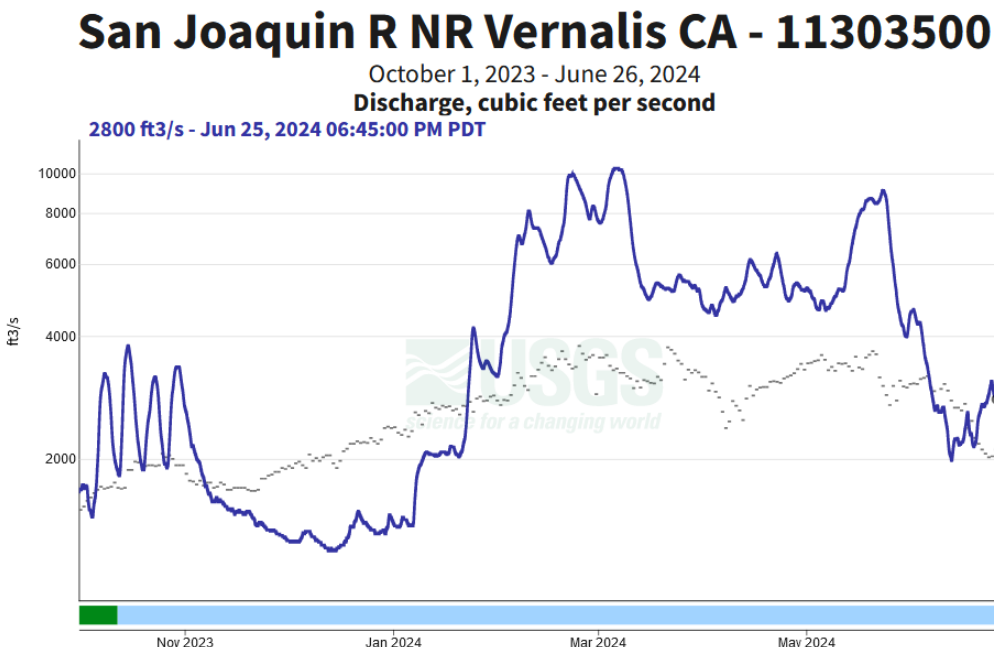
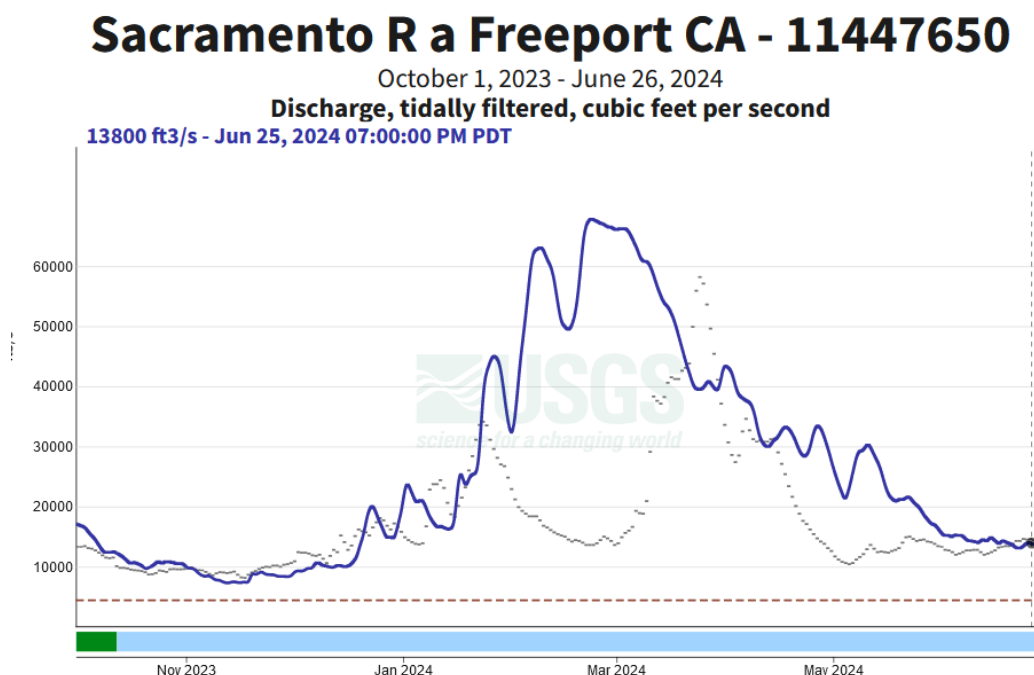


Figure 17. Streamflow for the Sacramento River at Freeport during Event 4.
The dashed line indicates the historical median flow for the period. The vertical dashed line and dot on the figure indicates the approximate sampling time.



The USGS personnel for DRMP sampling Event 4 WY 2024 consisted of Jim Orlando, Matt De Parsia, and Matt Uychutin. The weather on June 24 was sunny while June 25 was cloudy with scattered drizzle in the region. Both days were hot and breezy.

On June 24, 2024, the crew first drove to Stockton and launched the boat at Buckley Cove regional park. Samples were collected at the Buckley Cove target coordinates at 09:10 (Appendix, **Figure A.27**). The crew then pulled the boat and drove to Brannan Island State Park where the boat was launched at approximately 11:00. The crew then proceeded south down the Sacramento River to site CONF-014 located in Sherman Lake. Samples were collected at 11:40 at the target coordinates (**Figure A.28**). The crew then motored northeast to site CONF-013 located on the Sacramento River. Samples were collected at the target coordinates at 12:05 (**Figure A.29**). The crew then continued up the Sacramento River to site CONF-016 located just south of Rio Vista and collected samples at the target coordinates at 12:45 (**Figure A.30**). The crew then returned to Brannan Island, pulled the boat, and returned to Sacramento. Toxicity samples were picked up by PER courier at approximately 16:00.

On June 25, 2024, USGS personnel (Jim Orlando, Matt DeParsia, and Matt Uychutin) drove to Brannan Island State Park and launched the boat at 09:00. The crew then motored south to the Big Break area near Oakley in an attempt to reach site CONF-015. Due to low water and submerged aquatic vegetation in this area the crew was unable to reach the site. The crew then motored northeast to the Franks Tract area and sampled site CENT-019 on False River at 1025 (**Figure A.31**). The crew then boated around Franks Tract to site CENT-020 on Sheep Slough where samples were collected at the target coordinates at 10:55 (**Figure A.32**). The crew then returned west to Brannan Island, entered the Sacramento River, and motored south to oversample site CONF-025 (**Figure 15**). Samples were collected at the target coordinates near the west bank of the Sacramento River at 12:00 (**Figure A.33**). It was noted at this site that wind a wave action in the shallows were resuspending quite a lot of bottom sediment. The crew then returned to Brannan Island, pulled the boat, and drove to Ulati Creek. Samples were collected Ulati Creek by wading at 13:50 (**Figure A.34**). The crew then returned to Sacramento. Toxicity samples were picked up by PER courier at approximately 16:30.

Event 5

This was the fifth sampling event of WY 2024 and is considered Event 5 of the fourth year of sampling under the current monitoring design. Samples were collected July 22 and 23, 2024. This was an irrigation runoff sampling event. Sampling sites for Event 5 are shown in **Figure 18**. Since the last sampling event in June 2024, there was no significant rainfall in the study area. Flows on the San Joaquin River were below the historical median at the

time of sampling, while flows on the Sacramento River were above the historical median (**Figure 19** and **Figure 20**).

Figure 18. Map of sampling locations for Event 5 of WY 2024.

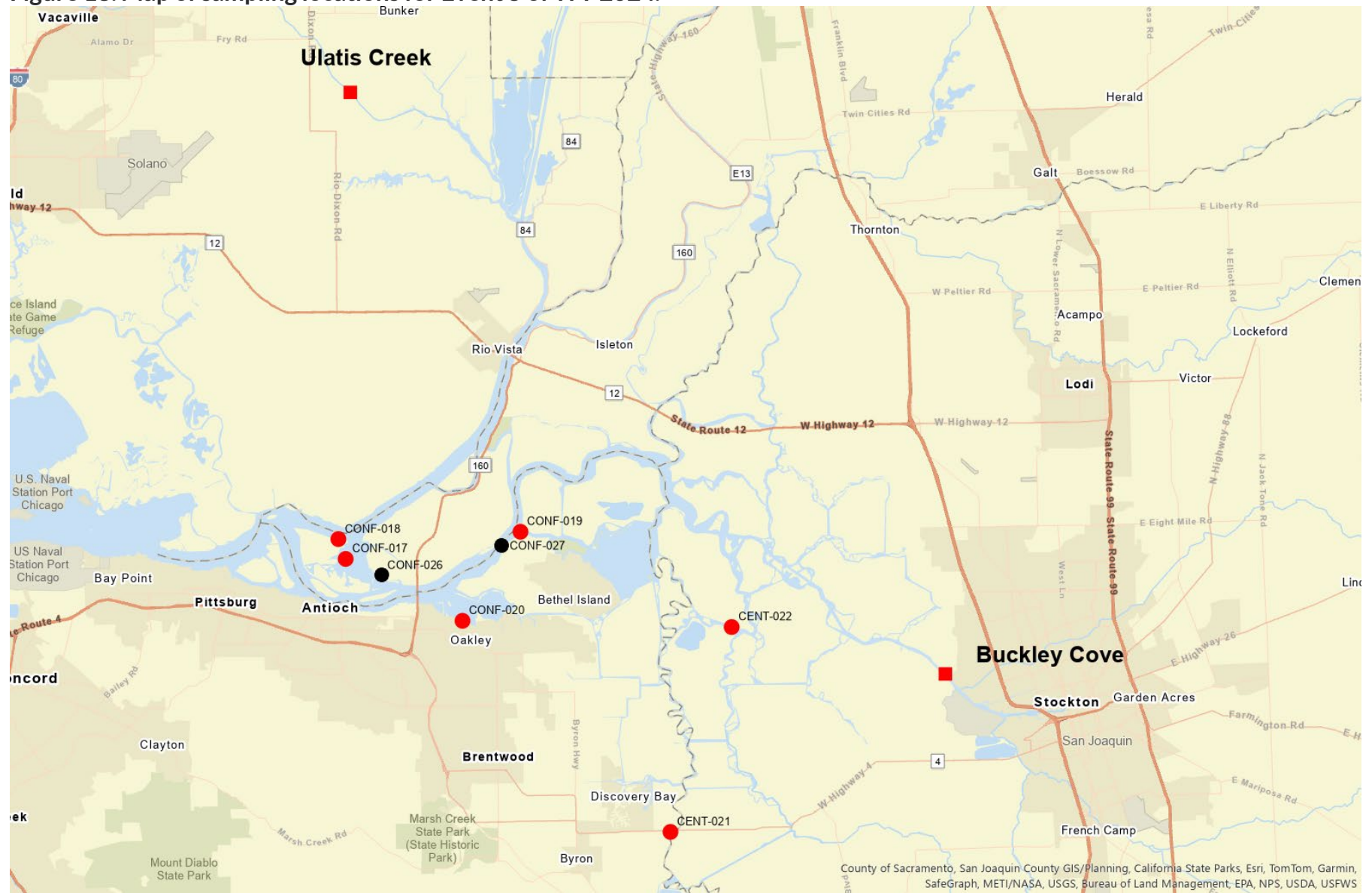


Figure 19. Streamflow for the San Joaquin River at Vernalis during Event 5.
The dashed line indicates the historical median flow for the period. The vertical dashed line and dot on the figure indicates the approximate sampling time.

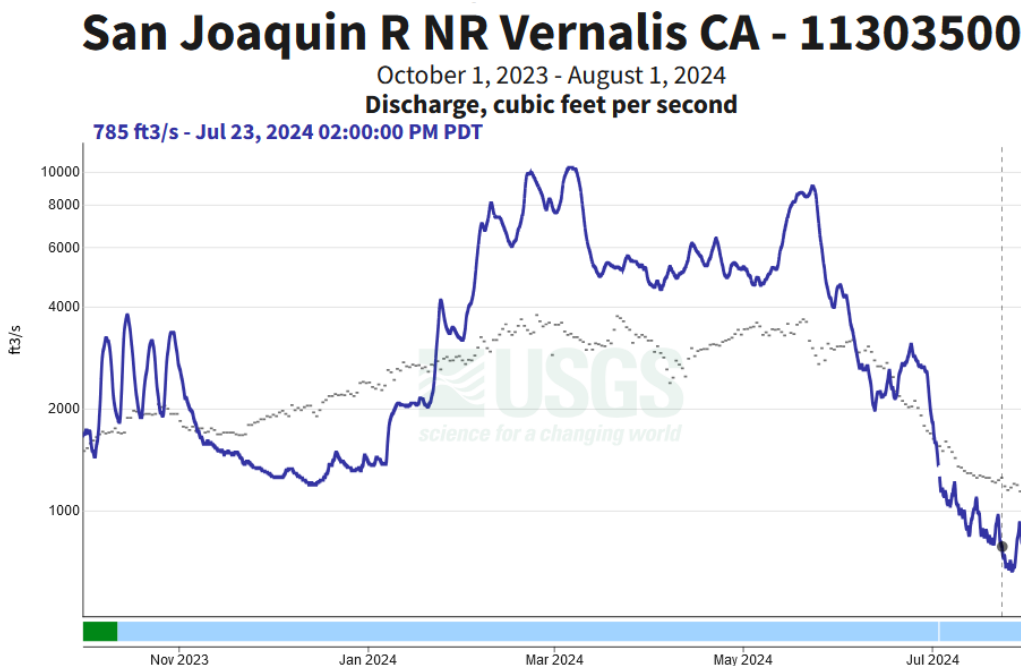
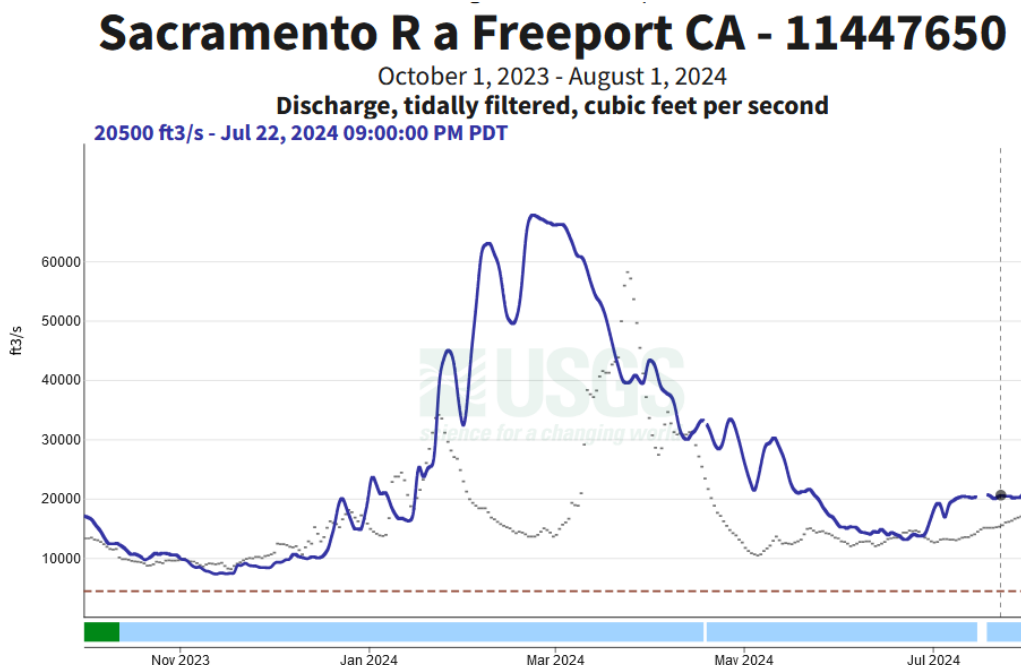


Figure 20. Streamflow for the Sacramento River at Freeport during Event 5.
The dashed line indicates the historical median flow for the period. The vertical dashed line and dot on the figure indicates the approximate sampling time.



The USGS personnel for DRMP sampling Event 5 WY 2024 consisted of Jim Orlando, Matt De Parsia, and Matt Uychutin. The weather on both days was sunny and quite hot.

On July 22, 2024, the crew first picked up the boat in Sacramento and drove to Ulatis Creek. Samples were collected at Ulatis Creek by wading at 09:15 (Appendix, **Figure A.35**). The crew then drove to Brannan Island State Park and launched the boat at approximately 10:45. The crew motored downstream on the Sacramento River to site CONF-018 just outside Sherman Lake and sampled at the target coordinates at 11:10 (**Figure A.36**). The crew then motored south into Sherman Lake to site CONF-017 and collected samples at the target coordinates at 11:45 (**Figure A.37**). The crew then continued southeast in the channel connecting the Sacramento and San Joaquin Rivers along Sherman Lake and collected samples at oversample site CONF-026 at 12:15 (**Figure A.38**). Note that this site replaces site CONF-020 which could not be reached due to its location in shallow water in Big Break. The crew then motored up the San Joaquin River to site CONF-019 and collected samples at the target coordinates at 12:55 (**Figure A.39**). The crew then returned to Brannan Island, pulled the boat, and returned to Sacramento. Toxicity samples were picked up by PER courier at approximately 16:00.

On July 23, 2024, USGS personnel (Jim Orlando, Matt DeParsia, and Matt Uychutin) drove to Buckley Cove and launched the boat at 09:15. Samples were collected at the Buckley Cove target coordinates at 09:35 (**Figure A.40**). The crew then motored northwest and then south to site CENT-021 located just south of Discovery Bay. Samples were collected at the target coordinates at 10:55 (**Figure A.41**). The crew then motored northeast to site CENT-022 near Mildred Island. Samples were collected at the target coordinates at 11:20 (**Figure A.42**). It was noted that floating aquatic vegetation in the area near this site was dead or dying and had most likely been sprayed with herbicide recently (**Figure A.43**). The crew then returned to Buckley Cove, pulled the boat, and returned to Sacramento. Toxicity samples were picked up by PER courier at approximately 15:00.

Event 6

This was the sixth and final sampling event of WY 2024 and is considered Event 6 of the fourth year of sampling under the current monitoring design. This is the final sampling event for the RMP CUP project. Samples were collected on September 10 and 11, 2024. This was an irrigation runoff sampling event. Sampling sites for Event 6 are shown in **Figure 21**. Since the last sampling event in July 2024 there was no significant rainfall in the study area. Flows on the San Joaquin River were below the historical median at the time of sampling, while flows on the Sacramento River were above the historical median (**Figure 22** and **Figure 23**).

[illegible]

Figure 22. Streamflow for the San Joaquin River at Vernalis during Event 6.
The dashed line indicates the historical median flow for the period. The vertical dashed line and dot on the figure indicates the approximate sampling time.

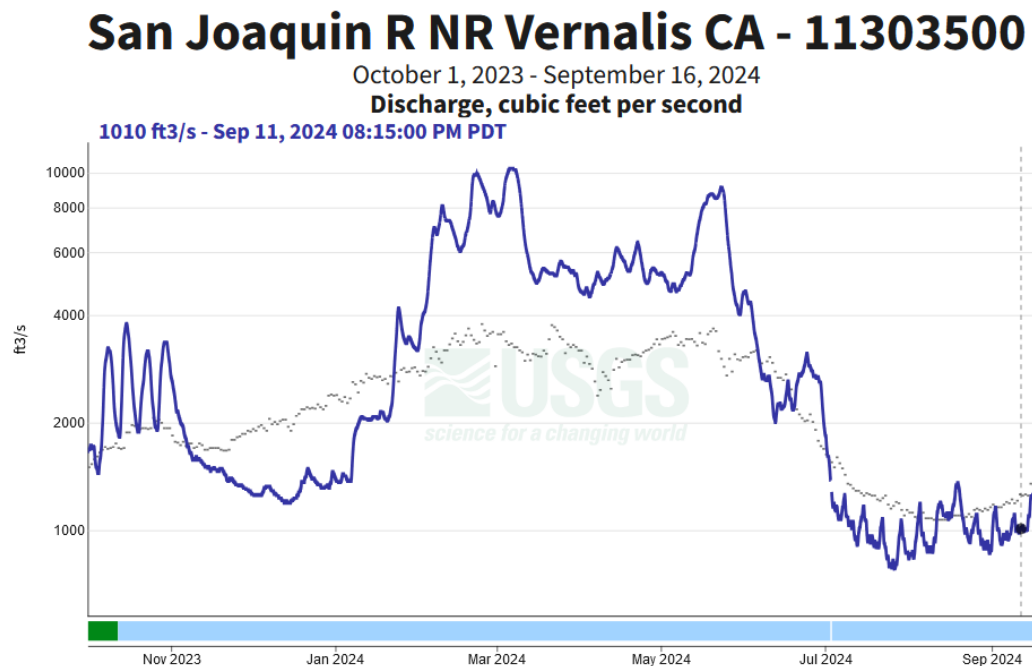
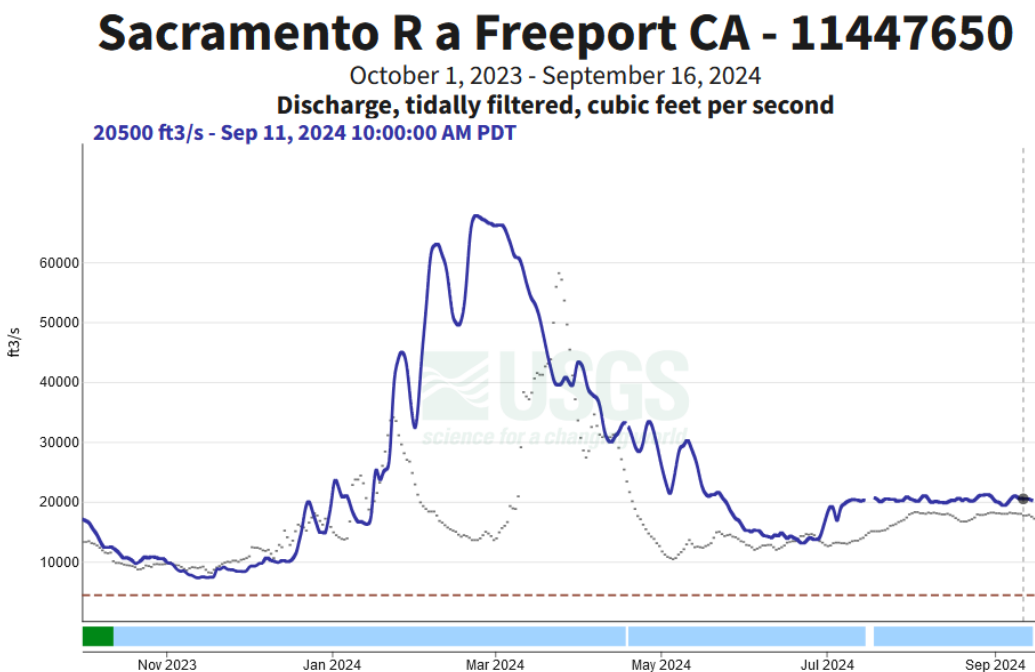


Figure 23. Streamflow for the Sacramento River at Freeport during Event 6.
The dashed line indicates the historical median flow for the period. The vertical dashed line and dot on the figure indicates the approximate sampling time.



The USGS personnel for DRMP sampling Event 6 WY 2024 consisted of Jim Orlando, Matt De Parsia, and Matt Uychutin. Sampling occurred on September 10th and 11th. The weather on both days was sunny, warm, and windy.

On September 10, 2024, the crew first picked up the boat in Sacramento and drove to Antioch where conditions were quite windy. The crew launched the boat and motored across the San Joaquin River to Cabin Slough. Samples were collected at the target coordinates for site CONF-021 at 10:20 (Appendix, **Figure A.44**). The crew then motored further west in an attempt to reach site CONF-022 on the Sacramento River, however due to very strong winds and dangerous waves the crew were unable to access the site. The crew then returned to the Antioch boat launch, pulled the boat, and drove to Brannan Island State Park. The boat was relaunched at approximately 12:00 and the crew motored downstream on the Sacramento River to site CONF-023 on Horseshoe Bend in the Sacramento River at Decker Island. Samples were collected at the target coordinates at 12:10 (**Figure A.45**). The crew then motored back to Threemile Slough and proceeded south on the San Joaquin River to the oversample site CONF-027 (sampled in place of the inaccessible CONF-022). Samples were collected at CONF-027 at 12:50 (**Figure A.46**). The crew then continued downstream on the San Joaquin River to site CONF-024 where samples were collected at the target coordinates at 13:30 (**Figure A.47**). The crew then returned to Brannan Island, pulled the boat, and drove to Ulati Creek where samples were collected at 15:00 (**Figure A.48**). The crew then returned to Sacramento and toxicity samples were picked up by PER courier at approximately 17:30.

On September 11, 2024, USGS personnel (Jim Orlando, Matt DeParsia, and Matt Uychutin) drove to Buckley Cove and launched the boat at 09:00. The crew then motored north and west to site CENT-023 located on False River just west of Frank's Tract. Samples were collected at the target coordinates at 10:10 (**Figure A.49**). It was noted that floating aquatic vegetation in the area of Frank's Tract was yellowing and may have recently been sprayed with herbicides (**Figure A.50**). The crew then motored east and south around Frank's Tract to site CENT-024 located on Old River. Samples were collected at the target coordinates at 11:00 (**Figure A.51**). The crew then motored back to Buckley Cove where samples were collected at the target coordinates at 12:15 (**Figure A.52**). The crew then pulled the boat and returned to Sacramento. Toxicity samples were picked up by PER courier at approximately 15:00.

ANALYTICAL OVERVIEW

FIELD MEASUREMENTS

During each of the six sampling events described in the **Sampling Overview**, the USGS CWSC took basic water-quality measurements (water temperature, specific conductivity, dissolved oxygen (DO), pH, and turbidity) at a depth of 0.5 m using a YSI EXO multi-parameter meter equipped with conductivity/temperature, DO, pH, and turbidity sensors. The meter was calibrated using appropriate procedures and standards before each sampling event as described in the USGS [National Field Manual](#) (U.S. Geological Survey, variously dated). Basic water-quality parameter data are shown in **Table 26**.

Field Measurement Completeness

During WY 2024, 382 of 384 required field measurements were successfully collected (**Appendix C, Table C.3**). The two missing field measurements pertained to turbidity and occurred due to probe failure (see Deviation **2023-10: Event 2 (WY 2024) USGS Missed Turbidity on Sampling Day 1 in Deviations and Corrective Actions** for further discussion). Field measurement completeness for WY 2024 was 99.5%.

ANALYTICAL LABORATORY METHODS

The preparation and analytical methods applied to DRMP CUP samples are identified in **Table 5**.

Table 5. Analytical laboratory methods for WY 2024 monitoring.

LAB	MATRIX	FRACTIONS	ANALYTE	PREPARATION METHOD	ANALYTICAL METHOD
USGS OCRL	Water	Dissolved, Particulate	Pesticides	USGS-OCRL GC/MS/MS	USGS-OCRL GC/MS/MS
USGS OCRL	Water	Dissolved, Particulate	Pesticides	USGS-OCRL LC/MS/MS	USGS-OCRL LC/MS/MS
USGS OCRL	Water	Particulate	Total Suspended Solids	None	EPA 160.2
Babcock	Water	Dissolved	Copper	EPA 200.2	EPA 200.8
Babcock	Water	Dissolved	Dissolved Organic Carbon	None	SM 5310 B
Babcock	Water	Total	Total Organic Carbon	None	SM 5310 B

LAB	MATRIX	FRACTIONS	ANALYTE	PREPARATION METHOD	ANALYTICAL METHOD
Babcock	Water	Dissolved	Hardness ¹	EPA 200.2/ EPA 200.7	SM 2340 B
Babcock	Water	Dissolved	Calcium	EPA 200.2/ EPA 200.7	EPA 200.7
Babcock	Water	Dissolved	Magnesium	EPA 200.2/ EPA 200.7	EPA 200.7
Babcock	Water	Total	Nitrate + Nitrite as N	None	EPA 353.2
Babcock	Water	Dissolved, Total	Nitrogen, Total Kjeldahl	EPA 351.2	EPA 351.2
Babcock	Water	Dissolved, Total	Nitrogen, Total	None	Calculated
PER	Water	Survival, Growth	<i>Pimephales promelas</i> (Chronic)	None	EPA 821/R-02-013
PER	Water	Reproduction, Survival	<i>Ceriodaphnia dubia</i> (Chronic)	None	EPA 821/R-02-013
PER	Water	Growth	<i>Selenastrum capricornutum</i> (Chronic)	None	EPA 821/R-02-013
PER	Water	Survival, Growth	<i>Chironomus dilutus</i> (Chronic)	None	EPA 600/R-99-064M
PER	Water	Survival	<i>Hyalella azteca</i> (Acute)	None	EPA 821/R-02-012

¹ Hardness by calculation (SM 2340 B) is derived from the sum of calcium and magnesium measurements (EPA 200.7).

Analytical Methods – USGS OCRL

Pesticide concentrations in surface water were measured by the USGS OCRL using two methods: (1) liquid chromatography/tandem mass spectrometry (LC/MS/MS) and (2) gas chromatography/tandem mass spectrometry (GC/MS/MS). Thirty compounds were analyzed using GC/MS/MS and 148 compounds were analyzed using LC/MS/MS; all methods are described in the USGS OCRL SOPs for Water Extraction Using Hydrophilic Lipophilic Balance (HLB) Solid Phase Extraction (SPE) and Analysis via LC-MS/MS and GC-MS/MS, Version 6 (OCRL-WATER-PEST_06). Individual constituents and the associated methods are provided in **Appendix B, Table B.1**.

Analytical Methods – Babcock

Calcium, magnesium, hardness, copper, dissolved organic carbon (DOC), total organic carbon (TOC), nitrate + nitrite as nitrogen (N), total Kjeldahl nitrogen (TKN), and total nitrogen (TN) analyses were performed by Babcock Laboratories. Hardness, DOC, and TOC were analyzed according to Standard Methods (SM) for the Examination of Water and Wastewater (21st edition), with hardness determined by calculation (derived from the sum of calcium and magnesium measurements). Calcium, magnesium, copper, nitrate + nitrite as N, and TKN were analyzed using U.S. Environmental Protection Agency (EPA) test methods (**Table 5**). Finally, TN was calculated based on contributing analyses using the EPA methods specified in **Table 5**.

Toxicity Methods – PER

Toxicity testing was conducted on five test species by PER according to the methodology defined by EPA and the Surface Water Ambient Monitoring Program (SWAMP).

Acute 96-hour toxicity testing for *Hyalella azteca* followed acute protocols and measurement quality objectives (MQOs) outlined in SWAMP Guidance and *Methods for Measuring Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms* (EPA 821/R-02-012, 2002). The response of *H. azteca* was evaluated as the survival of individuals.

Chronic toxicity testing for *Ceriodaphnia dubia*, *Pimephales promelas*, and *Selenastrum capricornutum* followed the protocols outlined in *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms* (EPA-821-R-02-013, 2002). *Chironomus dilutus* water-only testing protocols and MQOs are defined by SWAMP. Organism responses to sample water were evaluated at various endpoints, including survival and growth (measured as ash-free dry weight per surviving individual) for *C. dilutus*, survival and reproduction (measured as number of young per female) for *C. dubia*, survival and growth (measured as biomass as weight per original individual) for *P. promelas*, and growth (measured as total cell count) for *S. capricornutum*.

Starting with Event 3 (April 2024) of WY 2024, *P. promelas* tests were performed using 20 replicates of two fish per replicate instead of four replicates of 10 fish per replicate. The total number of fish tested (40) remained the same. This change was initiated to mitigate pathogen related mortality (also referred to as pathogen-related toxicity) which was observed in previous *P. promelas* tests. The increase in replication (from four to 20 replicates) does not affect the comparison of the test results as both strategies are permitted within the same EPA method. This decision was recommended by the CUP TAC on April 17, 2024, and approved by the DRMP Executive Committee on April 18, 2024.

ANALYTICAL COMPLETENESS

Analytical completeness is based on the number of constituents in each sample successfully analyzed and reported by the laboratory. Completeness is assessed as each analysis scheduled for each site over all events in the year; completeness counts by individual constituent are provided in **Appendix C, Table C.2**. A total of 17,786 of the expected 17,808 constituents scheduled for analysis were successfully reported and the overall analytical completeness was 99.9% for WY 2024.

A total of twenty-two results were not reported during WY 2024. Fourteen missed sample endpoints were related to Event 1 where toxicity tests were cancelled due to high salinity levels in sample water. The sample endpoints affected by this deviation included eight missed toxicity endpoints for *C. dubia*, (n=4 survival and n=4 reproduction), four missed toxicity endpoints for *P. promelas* (n=2 survival and n=2 growth), and two missed toxicity endpoints for *S. capricornutum* (n=2 growth) (see **2023-06: Event 1 (WY 2024) Missed Tests Due to High Salinity in Deviations and Corrective Actions** for further discussion). The remaining eight missed sample endpoints were related to Event 3 sampling and canceled toxicity tests for *P. promelas* (n=4 survival and n=4 growth) due to hold time exceedance (see **2023-13: Event 3 (WY 2024) Pimephales 7-day Toxicity Test Missed Hold Time in Deviations and Corrective Actions** for further discussion).

DATA VERIFICATION OVERVIEW

VERIFICATION PROCESS

The EPA defines data verification as *the process of evaluating the completeness, correctness, and conformance/compliance of a specific data set against the method, procedural, or contractual specifications*. Verification of DRMP CUP data was performed by MLJ Environmental and the Marine Pollution Studies Laboratory at Moss Landing Marine Laboratories (MPSL-MLML) based on the sample handling requirements and MQOs of the CUP QAPP (v1.5). Verification of instrument tuning, calibration standards, calibration verifications, and internal standards were the responsibility of the submitting laboratory.

Initial data verification by MLJ Environmental staff was conducted as individual electronic data deliverables (EDDs) received by the laboratories were processed and uploaded into the Central Valley Regional Data Center (CV RDC). These data processing steps occurred according to the procedures outlined in the CUP QAPP (v1.5). All project data underwent a final verification review by MPSL-MLML staff as a part of the data finalization process, at which point all verified data were assigned a classification and the corresponding

California Environmental Data Exchange Network (CEDEN) compliance code described in the following sections.

Compliant

Data classified as “Compliant” meet all requirements specified in the CUP QAPP (v1.5). These data are considered usable for their intended purpose without additional assessment.

Qualified

Data classified as “Qualified” do not meet one or more of the requirements specified in the CUP QAPP (v1.5). These data are considered usable for their intended purpose following an additional assessment to determine the scope and impact of the deficiency.

Estimated

Data classified as “Estimated” (i.e., EPA “J” flag) are assigned to data batches and sample results that are not considered quantifiable.

Screening

Data classified as “Screening” are considered non-quantitative and may or may not meet the minimum requirements specified in the CUP QAPP (v1.5). These data may not be usable for their intended purpose and require additional assessment.

Rejected

Data classified as “Rejected” do not meet the minimum requirements specified in the CUP QAPP (v1.5). These data are not considered usable for their intended purpose.

Not Applicable

Data classified as “Not Applicable” were not verified since there were no CUP QAPP (v1.5) requirements for the specific parameter (e.g., oxygen saturation) or a failure was reported and could not be verified.

Verified Datasets

This report details the above verification process as applied to the datasets appearing in **Table 6**. The findings of the data verification process are outlined in the sections below. A complete summary of the completeness and QC sample acceptability for each analysis performed during WY 2024 is provided in **Appendix C**.

Table 6. Verified datasets associated with WY 2024 monitoring.

LAB	ANALYTICAL CATEGORY	CEDEN MATRIX	DATASETS PRODUCED	DATASETS REVIEWED	REVIEWED DATASET (BATCH) IDs
USGS OCRL	Pesticides	Samplewater, Particulate (>0.70 µm)	12	12	USGS-OCRL_DRMP_CUP_1578_W_GCMSMS; USGS-OCRL_DRMP_CUP_1559_W_GCMSMS; USGS-OCRL_DRMP_CUP_1640_W_GCMSMS; USGS-OCRL_DRMP_CUP_1669_W_GCMSMS; USGS-OCRL_DRMP_CUP_1680_W_GCMSMS; USGS-OCRL_DRMP_CUP_1716_W_GCMSMS; USGS-OCRL_DRMP_CUP_1556_W_LCMSMS; USGS-OCRL_DRMP_CUP_1576_W_LCMSMS; USGS-OCRL_DRMP_CUP_1636_W_LCMSMS; USGS-OCRL_DRMP_CUP_1664_W_LCMSMS; USGS-OCRL_DRMP_CUP_1679_W_LCMSMS; USGS-OCRL_DRMP_CUP_1704_W_LCMSMS
USGS OCRL	Pesticides	Samplewater (<0.7 µm)	12	12	USGS-OCRL_DRMP_CUP_1578_W_GCMSMS; USGS-OCRL_DRMP_CUP_1559_W_GCMSMS; USGS-OCRL_DRMP_CUP_1640_W_GCMSMS; USGS-OCRL_DRMP_CUP_1669_W_GCMSMS; USGS-OCRL_DRMP_CUP_1680_W_GCMSMS; USGS-OCRL_DRMP_CUP_1716_W_GCMSMS; USGS-OCRL_DRMP_CUP_1556_W_LCMSMS; USGS-OCRL_DRMP_CUP_1576_W_LCMSMS; USGS-OCRL_DRMP_CUP_1636_W_LCMSMS; USGS-OCRL_DRMP_CUP_1664_W_LCMSMS; USGS-OCRL_DRMP_CUP_1679_W_LCMSMS; USGS-OCRL_DRMP_CUP_1704_W_LCMSMS

LAB	ANALYTICAL CATEGORY	CEDEN MATRIX	DATASETS PRODUCED	DATASETS REVIEWED	REVIEWED DATASET (BATCH) IDs
USGS OCRL	Total Suspended Solids	Samplewater, Particulate (>0.70 µm)	6	6	USGS-OCRL_DRMP_CUP_909_W_TSS; USGS-OCRL_DRMP_CUP_910_W_TSS; USGS-OCRL_DRMP_CUP_911_W_TSS; USGS-OCRL_DRMP_CUP_912_W_TSS; USGS-OCRL_DRMP_CUP_913_W_TSS; USGS-OCRL_DRMP_CUP_914_W_TSS;
Babcock	Calcium and Magnesium ¹	Samplewater	8	8	Babcock_DRMP_CUP_3L29035_W_M; Babcock_DRMP_CUP_4A09020_W_M; Babcock_DRMP_CUP_4B06021_W_M; Babcock_DRMP_CUP_4E22062_W_M; Babcock_DRMP_CUP_4G12024_W_M; Babcock_DRMP_CUP_4H05044_W_M; Babcock_DRMP_CUP_4I25027_W_M; Babcock_DRMP_CUP_4I25039_W_M
Babcock	Hardness ¹	Samplewater	8	8	Babcock_DRMP_CUP_3L29035_W_HARD; Babcock_DRMP_CUP_4A09020_W_HARD; Babcock_DRMP_CUP_4B06021_W_HARD; Babcock_DRMP_CUP_4E22062_W_HARD; Babcock_DRMP_CUP_4G12024_W_HARD; Babcock_DRMP_CUP_4H05044_W_HARD; Babcock_DRMP_CUP_4I25027_W_HARD; Babcock_DRMP_CUP_4I25039_W_HARD

LAB	ANALYTICAL CATEGORY	CEDEN MATRIX	DATASETS PRODUCED	DATASETS REVIEWED	REVIEWED DATASET (BATCH) IDs
Babcock	Copper	Samplewater	15	15	Babcock_DRMP_CUP_3L29035_W_M; Babcock_DRMP_CUP_4A09020_W_M; Babcock_DRMP_CUP_4B06021_W_M; Babcock_DRMP_CUP_4B08022_W_M; Babcock_DRMP_CUP_4B13020_W_M; Babcock_DRMP_CUP_4E14016_W_M; Babcock_DRMP_CUP_4E22062_W_M; Babcock_DRMP_CUP_4G05019_W_M; Babcock_DRMP_CUP_4G11045_W_M; Babcock_DRMP_CUP_4G12024_W_M; Babcock_DRMP_CUP_4H05011_W_M; Babcock_DRMP_CUP_4H05044_W_M; Babcock_DRMP_CUP_4I18006_W_M; Babcock_DRMP_CUP_4I25027_W_M; Babcock_DRMP_CUP_4I25039_W_M
Babcock	Nitrate + Nitrite as N	Samplewater	14	14	Babcock_DRMP_CUP_4A03066_W_NO3+2; Babcock_DRMP_CUP_4A05050_W_NO3+2; Babcock_DRMP_CUP_4A05080_W_NO3+2; Babcock_DRMP_CUP_4B09071_W_NO3+2; Babcock_DRMP_CUP_4B16069_W_NO3+2; Babcock_DRMP_CUP_4E14070_W_NO3+2; Babcock_DRMP_CUP_4E16069_W_NO3+2; Babcock_DRMP_CUP_4E20066_W_NO3+2; Babcock_DRMP_CUP_4G08071_W_NO3+2; Babcock_DRMP_CUP_4G12052_W_NO3+2; Babcock_DRMP_CUP_4H06062_W_NO3+2; Babcock_DRMP_CUP_4H09048_W_NO3+2; Babcock_DRMP_CUP_4I23045_W_NO3+2; Babcock_DRMP_CUP_4I24061_W_NO3+2

LAB	ANALYTICAL CATEGORY	CEDEN MATRIX	DATASETS PRODUCED	DATASETS REVIEWED	REVIEWED DATASET (BATCH) IDs
Babcock	Nitrogen, Total Kjeldahl	Samplewater	18	18	Babcock_DRMP_CUP_4A02058_W_TKN; Babcock_DRMP_CUP_4A05075_W_TKN; Babcock_DRMP_CUP_4A05076_W_TKN; Babcock_DRMP_CUP_4B08091_W_TKN; Babcock_DRMP_CUP_4B13074_W_TKN; Babcock_DRMP_CUP_4B16056_W_TKN; Babcock_DRMP_CUP_4E18006_W_TKN; Babcock_DRMP_CUP_4E22046_W_TKN; Babcock_DRMP_CUP_4E31052_W_TKN; Babcock_DRMP_CUP_4F29005_W_TKN; Babcock_DRMP_CUP_4F29006_W_TKN; Babcock_DRMP_CUP_4G01063_W_TKN; Babcock_DRMP_CUP_4G05023_W_TKN; Babcock_DRMP_CUP_4H07076_W_TKN; Babcock_DRMP_CUP_4H07080_W_TKN; Babcock_DRMP_CUP_4H15076_W_TKN; Babcock_DRMP_CUP_4I17087_W_TKN; Babcock_DRMP_CUP_4I20048_W_TKN

LAB	ANALYTICAL CATEGORY	CEDEN MATRIX	DATASETS PRODUCED	DATASETS REVIEWED	REVIEWED DATASET (BATCH) IDs
Babcock	Nitrogen, Total	Samplewater	13	13	Babcock_DRMP_CUP_3L27081_W_Ncalc; Babcock_DRMP_CUP_4B03001_W_Ncalc; Babcock_DRMP_CUP_4E10034_W_Ncalc; Babcock_DRMP_CUP_4G03057_W_Ncalc; Babcock_DRMP_CUP_4H06040_W_Ncalc; Babcock_DRMP_CUP_4I19066_W_Ncalc; Babcock_DRMP_CUP_C3L2733_W_Ncalc; Babcock_DRMP_CUP_C3L2994_W_Ncalc; Babcock_DRMP_CUP_C4A3917_W_Ncalc; Babcock_DRMP_CUP_C4E0785_W_Ncalc; Babcock_DRMP_CUP_C4F3403_W_Ncalc; Babcock_DRMP_CUP_C4G3938_W_Ncalc; Babcock_DRMP_CUP_C4I2113_W_Ncalc
Babcock	Total Organic Carbon	Samplewater	5	5	Babcock_DRMP_CUP_3L27033_W_TOC; Babcock_DRMP_CUP_4B05023_W_TOC; Babcock_DRMP_CUP_4E15019_W_TOC; Babcock_DRMP_CUP_4G10046_W_TOC; Babcock_DRMP_CUP_4H02033_W_TOC
Babcock	Dissolved Organic Carbon	Samplewater	9	9	Babcock_DRMP_CUP_3L22020_W_DOC; Babcock_DRMP_CUP_4A05040_W_DOC; Babcock_DRMP_CUP_4B01055_W_DOC; Babcock_DRMP_CUP_4E09018_W_DOC; Babcock_DRMP_CUP_4G05030_W_DOC; Babcock_DRMP_CUP_4H01033_W_DOC; Babcock_DRMP_CUP_4I19011_W_DOC; Babcock_DRMP_CUP_4I24009_W_DOC; Babcock_DRMP_CUP_4I26015_W_DOC

LAB	ANALYTICAL CATEGORY	CEDEN MATRIX	DATASETS PRODUCED	DATASETS REVIEWED	REVIEWED DATASET (BATCH) IDs
PER	<i>Pimephales promelas</i> (Chronic)	Samplewater	11	11	PER_DRMP_CUP_0124PP_C1_W_TOX; PER_DRMP_CUP_0124PP_C2_W_TOX; PER_DRMP_CUP_0424PP_C1_W_TOX; PER_DRMP_CUP_0624PP_C1_W_TOX; PER_DRMP_CUP_0624PP_C2_W_TOX; PER_DRMP_CUP_0724PP_C1_W_TOX; PER_DRMP_CUP_0724PP_C2_W_TOX; PER_DRMP_CUP_0924PP_C1_W_TOX; PER_DRMP_CUP_0924PP_C2_W_TOX; PER_DRMP_CUP_1223PP_C1_W_TOX; PER_DRMP_CUP_1223PP_C2_W_TOX
PER	<i>Ceriodaphnia dubia</i> (Chronic)	Samplewater	11	11	PER_DRMP_CUP_0124CD_C1_W_TOX; PER_DRMP_CUP_0124CD_C2_W_TOX; PER_DRMP_CUP_0424CD_C1_W_TOX; PER_DRMP_CUP_0424CD_C2_W_TOX; PER_DRMP_CUP_0624CD_C1_W_TOX; PER_DRMP_CUP_0624CD_C2_W_TOX; PER_DRMP_CUP_0724CD_C1_W_TOX; PER_DRMP_CUP_0724CD_C2_W_TOX; PER_DRMP_CUP_0924CD_C1_W_TOX; PER_DRMP_CUP_0924CD_C2_W_TOX; PER_DRMP_CUP_1223CD_C1_W_TOX

LAB	ANALYTICAL CATEGORY	CEDEN MATRIX	DATASETS PRODUCED	DATASETS REVIEWED	REVIEWED DATASET (BATCH) IDs
PER	<i>Selenastrum capricornutum</i> (Chronic)	Samplewater	12	12	PER_DRMP_CUP_0124SC_C1_W_TOX; PER_DRMP_CUP_0124SC_C2_W_TOX; PER_DRMP_CUP_0424SC_C1_W_TOX; PER_DRMP_CUP_0424SC_C2_W_TOX; PER_DRMP_CUP_0624SC_C1_W_TOX; PER_DRMP_CUP_0624SC_C2_W_TOX; PER_DRMP_CUP_0724SC_C1_W_TOX; PER_DRMP_CUP_0724SC_C2_W_TOX; PER_DRMP_CUP_0924SC_C1_W_TOX; PER_DRMP_CUP_0924SC_C2_W_TOX; PER_DRMP_CUP_1223SC_C1_W_TOX; PER_DRMP_CUP_1223SC_C2_W_TOX
PER	<i>Chironomus dilutus</i> (Chronic)	Samplewater	12	12	PER_DRMP_CUP_0124CHD_C1_W_TOX; PER_DRMP_CUP_0124CHD_C2_W_TOX; PER_DRMP_CUP_0424CHD_C1_W_TOX; PER_DRMP_CUP_0424CHD_C2_W_TOX; PER_DRMP_CUP_0624CHD_C1_W_TOX; PER_DRMP_CUP_0624CHD_C2_W_TOX; PER_DRMP_CUP_0724CHD_C1_W_TOX; PER_DRMP_CUP_0724CHD_C2_W_TOX; PER_DRMP_CUP_0924CHD_C1_W_TOX; PER_DRMP_CUP_0924CHD_C2_W_TOX; PER_DRMP_CUP_1223CHD_C1_W_TOX; PER_DRMP_CUP_1223CHD_C2_W_TOX

LAB	ANALYTICAL CATEGORY	CEDEN MATRIX	DATASETS PRODUCED	DATASETS REVIEWED	REVIEWED DATASET (BATCH) IDs
PER	<i>Hyalella azteca</i> (Acute)	Samplewater	12	12	PER_DRMP_CUP_0124Ha_C1_W_TOX; PER_DRMP_CUP_0124Ha_C2_W_TOX; PER_DRMP_CUP_0424HA_C1_W_TOX; PER_DRMP_CUP_0424HA_C2_W_TOX; PER_DRMP_CUP_0624HA_C1_W_TOX; PER_DRMP_CUP_0624HA_C2_W_TOX; PER_DRMP_CUP_0724HA_C1_W_TOX; PER_DRMP_CUP_0724HA_C2_W_TOX; PER_DRMP_CUP_0924HA_C1_W_TOX; PER_DRMP_CUP_0924HA_C2_W_TOX; PER_DRMP_CUP_1223HA_C1_W_TOX; PER_DRMP_CUP_1223HA_C2_W_TOX

¹ Hardness by calculation (SM 2340 B) is derived from the sum of calcium and magnesium measurements (EPA 200.7).

DATA VERIFICATION: SAMPLE HANDLING

During data verification, storage and holding times of DRMP CUP samples were evaluated to ensure the integrity of the target analyte(s) in each matrix. For consistency with the State Water Resources Control Board's SWAMP and the Code of Federal Regulations, Title 40 *Protection of the Environment*, Section 136 *Guidelines Establishing Test Procedures for the Analysis of Pollutants*, DRMP holding times are defined as follows:

- *Pre-Preservation/Extraction*: Required holding times for sample preservation or extraction begin at the time of sample collection and conclude when the sample is preserved or extracted, respectively.
- *Pre-Analysis*: Required holding times for sample analysis begin either at the time of sample collection, filtration, or extraction and conclude when sample analysis is completed.

In WY 2024, 48 DRMP CUP environmental samples and three field duplicates were verified against the sample handling requirements in **Table 7**.

A total of 36,374 out of 38,695 (94%) verified sample and QC sample results (excluding calculated TN results) met these DRMP CUP sample and handling requirements. Of environmental sample results (not including laboratory QC samples), a total of 20,993 out of 21,013 (99.9%) met holding time requirements (**Appendix C, Table C.5**). Analyses resulting in qualification appear in **Table 8**. Details can be found in the **Deviations and Corrective Actions** section of the report which summarize the following deviations:

- **2023-07: Event 2 (WY 2024) *Chironomus* 10-day Toxicity Test Missed Hold Time;**
- **2023-13: Event 3 (WY 2024) *Pimephales* 7-day Toxicity Test Missed Hold Time;**
- **2023-14: Event 3 (WY 2024) *Ceriodaphnia* Toxicity Test Lost Control;**
- **2023-17: Event 3 (WY 2024) Babcock Missed Hold Time for TKN; and**
- **2023-21: Event 5 (WY 2024) Babcock Missed Hold Time TKN dissolved.**

Table 7. Sample handling requirements defined in the CUP QAPP.

ANALYTE/ PARAMETER GROUP	PRE-PRESERVATION/EXTRACTION		PRE-ANALYSIS	
	Storage	Initial Preservation/Holding Requirements	Holding Time	Storage
Total Suspended Solids (Water)	0–6 °C in dark	Cool to 4 ±2 °C	7 days	0–6 °C in dark
Calcium and Magnesium (Dissolved)	0–6 °C in dark	Filter and acidify within 24 hours of collection	6 months	0–6 °C in dark
Hardness (Dissolved)	0–6 °C in dark	Filter and acidify within 24 hours of collection	6 months	0–6 °C in dark
DOC (Water)	0–6 °C in dark	Filter and acidify within 24 hours of collection	28 days	0–6 °C in dark
TOC (Water)	0–6 °C in dark	Acidify within 24 hours of collection	28 days	0–6 °C in dark
Nitrate + Nitrite as N	0–6 °C in dark	Acidify within 24 hours of collection	28 days	0–6 °C in dark
TKN	0–6 °C in dark	Acidify within 24 hours of collection	28 days	0–6 °C in dark
TKN (Dissolved)	0–6 °C in dark	Filter and acidify within 24 hours of collection	28 days	0–6 °C in dark
Copper (Dissolved)	0–6 °C in dark	Filter in the field as soon as possible after collection	6 months	0–6 °C in dark
Pesticides (Dissolved)	0–6 °C in dark	Extract within 48 hours of collection	Not to exceed 30 days	≤ –20 °C in dark
Pesticides (Particulate)	0–6 °C in dark	Extract within 48 hours of collection	Not to exceed 30 days	≤ –20 °C in dark
Aquatic Toxicity Tests	0–6 °C in dark	Initiate Test within 48 hours of sample collection	NA	NA

Table 8. Sample handling qualification WY 2024 monitoring.

Results appearing in this table were all flagged with the CEDEN QA code: H, VBC. QA code definitions are provided in Appendix Table C.1.

DATASET ID	SAMPLE ID	SAMPLE DATE	MATRIX	FRACTIONS	ANALYTE	PROJECT QUALIFIER	DESCRIPTION
Babcock_DRMP_CUP_4E31052_W_TKN	Cent-018	4/29/2024	Water	Dissolved	TKN	Qualified	Holding time violations; re-analysis for low recovery in original batch was six days outside of holding time, due to laboratory oversight
Babcock_DRMP_CUP_4E31052_W_TKN	Cent-018 LabDUP	4/29/2024	Water	Dissolved	TKN	Qualified	Holding time violations; re-analysis for low recovery in original batch was six days outside of holding time due to laboratory oversight
Babcock_DRMP_CUP_4E31052_W_TKN	Cent-018 MS/MSD	4/29/2024	Water	Dissolved	TKN	Qualified	Holding time violations; re-analysis for low recovery in original batch was six days outside of holding time due to laboratory oversight
Babcock_DRMP_CUP_4E31052_W_TKN	Conf-009	4/30/2024	Water	Dissolved	TKN	Qualified	Holding time violations; re-analysis for low recovery in original batch was five days outside of holding time due to laboratory oversight
Babcock_DRMP_CUP_4E31052_W_TKN	Conf-010	4/30/2024	Water	Dissolved	TKN	Qualified	Holding time violations; re-analysis for low recovery in original batch was samples analyzed five days outside of holding time due to laboratory oversight

DATASET ID	SAMPLE ID	SAMPLE DATE	MATRIX	FRACTIONS	ANALYTE	PROJECT QUALIFIER	DESCRIPTION
Babcock_DRMP_CUP_4E31052_W_TKN	Conf-011	4/30/2024	Water	Dissolved	TKN	Qualified	Holding time violations; re-analysis for low recovery in original batch was samples analyzed five days outside of holding time due to laboratory oversight
Babcock_DRMP_CUP_4E31052_W_TKN	Conf-012	4/30/2024	Water	Dissolved	TKN	Qualified	Holding time violations; re-analysis for low recovery in original batch was samples analyzed five days outside of holding time due to laboratory oversight
Babcock_DRMP_CUP_4H15076_W_TKN	Cent-026	7/22/2024	Water	Dissolved	TKN	Qualified	Holding time violations; samples reanalyzed one day outside of holding time to confirm result from original analysis
Babcock_DRMP_CUP_4H15076_W_TKN	Cent-026 LabDUP	7/22/2024	Water	Dissolved	TKN	Qualified	Holding time violations; samples reanalyzed one day outside of holding time to confirm result from original analysis
Babcock_DRMP_CUP_4H15076_W_TKN	Cent-026 MS/MSD	7/22/2024	Water	Dissolved	TKN	Qualified	Holding time violations; samples reanalyzed one day outside of holding time to confirm result from original analysis
PER_DRMP_CUP_0124CHD_C1_W_TOX	511ULCA BR	1/24/2024	Water	Growth, Survival	<i>Chironomus dilutus</i>	Qualified	Holding time violations; tests initiated outside of holding time due to shipping delay from supplier

DATASET ID	SAMPLE ID	SAMPLE DATE	MATRIX	FRACTIONS	ANALYTE	PROJECT QUALIFIER	DESCRIPTION
PER_DRMP_CUP_0124CHD_C1_W_TOX	544LSAC13	1/24/2024	Water	Growth, Survival	<i>Chironomus dilutus</i>	Qualified	Holding time violations; tests initiated outside of holding time due to shipping delay from supplier
PER_DRMP_CUP_0424CD_C2_W_TOX	Conf-009	4/30/2024	Water	Reproduction, Survival	<i>Ceriodaphnia dubia</i>	Qualified	Holding time violations; test originally initiated on 5/1/24 but restarted on 5/2/24 as organisms in control test were accidentally discarded during maintenance; testing reinitiated outside of standard 36-hr but within maximum 72-hr holding time
PER_DRMP_CUP_0424CD_C2_W_TOX	Conf-010	4/30/2024	Water	Reproduction, Survival	<i>Ceriodaphnia dubia</i>	Qualified	Holding time violations; test originally initiated on 5/1/24 but restarted on 5/2/24 as organisms in control test were accidentally discarded during maintenance; testing reinitiated outside of standard 36-hr but within maximum 72-hr holding time

DATASET ID	SAMPLE ID	SAMPLE DATE	MATRIX	FRACTIONS	ANALYTE	PROJECT QUALIFIER	DESCRIPTION
PER_DRMP_CUP_0424CD_C2_W_TOX	Conf-011	4/30/2024	Water	Reproduction, Survival	<i>Ceriodaphnia dubia</i>	Qualified	Holding time violations; test originally initiated on 5/1/24 but restarted on 5/2/24 as organisms in control test were accidentally discarded during maintenance; testing reinitiated outside of standard 36-hr but within maximum 72-hr holding time
PER_DRMP_CUP_0424CD_C2_W_TOX	Conf-012	4/30/2024	Water	Reproduction, Survival	<i>Ceriodaphnia dubia</i>	Qualified	Holding time violations; test originally initiated on 5/1/24 but restarted on 5/2/24 as organisms in control test were accidentally discarded during maintenance; testing reinitiated outside of standard 36-hr but within maximum 72-hr holding time
Babcock_DRMP_CUP_4G05030_W_DOC	Conf-025	6/25/2024	Water	Dissolved	DOC	Qualified	Sample received in improper container; sample was split from a filtered poly preserved container into the VOA vials needed to analyze DOC

DATA VERIFICATION: USGS CALIFORNIA WATER SCIENCE CENTER

The USGS CWSC equipment used to take field data measurements must be calibrated according to Table 18 of the CUP QAPP (v1.5). At a minimum, the following equipment must be calibrated:

- Thermometers
- DO meters
- pH meters
- Conductivity meters
- Multi-parameter field meters

After post-calibration checks are performed, the percent drift should be evaluated to confirm compliance with the CUP QAPP (v1.5). Non-compliant results should not be reported unless they have been flagged to indicate non-compliance.

Of the 384 field measurement results reported, all 334 verified results met DRMP MQOs. None of the 48 oxygen saturation results were verified since no MQO exists for this field measurement. Two turbidity results were not reported due to a probe malfunction. Affected oxygen saturation and turbidity results were classified as “Not Applicable.”

DATA VERIFICATION: USGS ORGANIC CHEMISTRY RESEARCH LABORATORY

DRMP CUP chemistry data verification assesses QC samples associated with contamination, precision, and accuracy. For consistency with SWAMP, QC sample definitions are based on the January 2022 *Surface Water Ambient Monitoring Program Quality Assurance Program Plan* (SWAMP QAPrP).

CONTAMINATION

For USGS OCRL's pesticide and total suspended solids (TSS) analyses, contamination is assessed with the analysis of field blanks and laboratory blanks. Associated data verification results are detailed below.

Field Blanks

A field blank is a sample of analyte-free media that is carried to the sampling site where it is opened and exposed to sampling conditions, returned to the laboratory, and treated as a routine environmental sample. Preservatives, if any, are added to the sample container in the same manner as the environmental sample. The field blank matrix should be comparable to the sample of interest. This blank is used to provide information about contaminants that may be introduced during sample collection, storage, and transport.

For WY 2024 DRMP CUP monitoring, field blanks were collected for pesticides and TSS analyses. Six pesticide (i.e., three for analysis by GC/MS/MS and three for analysis by LC/MS/MS) and three TSS field blanks were analyzed. All field blanks (**Appendix C, Table C.6**) met the DRMP MQO with analytical results below the reporting limit (RL).

Laboratory Blanks

A laboratory blank is free from the target analyte(s) and is used to represent the environmental sample matrix as closely as possible. The laboratory blank is processed simultaneously with and under the same conditions and steps of the analytical procedures (e.g., including exposure to all glassware, equipment, solvents, reagents, labeled compounds, internal standards, and surrogates that are used with samples) as all samples in the analytical batch (including other QC samples). The laboratory blank is used to determine if target analytes or interferences are present in the laboratory environment, reagents, or instruments. Results of laboratory blanks provide a measurement of bias introduced by the analytical procedure.

For WY 2024 DRMP CUP monitoring, laboratory blanks were prepared and analyzed for all pesticide and TSS batches. Six TSS and 12 pesticide laboratory blanks were analyzed at the required frequency of one per 20 samples or per batch (whichever was more frequent). All laboratory blank results (**Appendix C, Table C.7**) met the DRMP MQO with analytical results below the MDL.

ACCURACY

For USGS OCRL's DRMP pesticide analyses, accuracy is studied with the analysis of matrix spike (MS) samples, laboratory control spike (LCS) samples, and surrogates. Associated data verification results are detailed below.

Matrix Spikes

Matrix spike samples are prepared by adding a known amount of the target analyte to an environmental sample in order to increase the concentration of the target analyte. The MS is used to determine the effect of the matrix on a method's recovery efficiency and is a measure of accuracy. The MS is analyzed exactly like an environmental sample within the laboratory batch. The purpose of analyzing the MS is to determine whether the sample matrix contributes bias to the analytical results.

For WY 2024 DRMP CUP monitoring, six pesticide MS samples (i.e., three MS/MSD pairs) were prepared and analyzed at the required frequency of 1 per 20 samples. All MS/MSD results (**Appendix C, Table C.8**) met the 70-130% DRMP recovery MQO.

Laboratory Control Samples

An LCS is a sample matrix representative of the environmental sample (e.g., water, sand) that is prepared in the laboratory and is free from the analytes of interest. The LCS is spiked with verified amounts of analytes or a material containing known and verified amounts of analytes. It is either used to establish intra-laboratory or analyst-specific precision and bias, or to assess the performance of a portion of the measurement system.

For WY 2024 DRMP CUP monitoring, LCSs were prepared and analyzed for all pesticide batches at the required frequency of one per 20 samples or per batch (whichever was more frequent). In addition, a single LCS sample was run on the whole sample water matrix prior to the filtration process per the procedures approved in the OCRL-WATER-PEST_06 analytical SOP. This additional sample is run annually to assess any potential bias or analyte loss that may be introduced during sample processing prior to when the dissolved and particulate fractions are spiked for their respective extractions and analyses. All LCS results (**Appendix C, Table C.9**) met the 70-130% DRMP recovery MQO.

Surrogates

A surrogate is a non-target analyte that has similar chemical properties to the analyte of interest. The surrogate standard is added to the sample in a known amount and used to evaluate the response (i.e., loss of analyte) of the analyte to sample preparation and analysis procedures.

For DRMP CUP monitoring in WY 2024, the surrogates $^{13}\text{C}_{12}$ -p,p'-DDE, $^{13}\text{C}_6$ -cis-permethrin, and d₁₄-trifluralin were added to all dissolved and particulate pesticide samples analyzed by GC/MS/MS. $^{13}\text{C}_3$ -atrazine, ^{13}C -fipronil, d₄-imidacloprid, $^{13}\text{C}_6$ -metolachlor, $^{13}\text{C}_3$ -tebuconazole, and d₁₄-trifluralin were added to all dissolved and particulate pesticide samples analyzed by LC/MS/MS. All surrogate results (**Appendix C, Table C.10**) met the 70-130% DRMP recovery MQO.

PRECISION

For USGS OCRL's DRMP CUP analyses, precision is studied with the analysis of field duplicates, laboratory duplicates, and matrix spike duplicates (MSDs). Associated data verification results are detailed below. Relative percent difference (RPD) is calculated for each duplicate pair as a measure of precision.

Field Duplicates

A field duplicate is an independent sample that is collected as close as possible to the same point in space, time, and collection methodology as the field sample.

For WY 2024 DRMP CUP monitoring, field duplicates collected and analyzed for pesticide and TSS analyses appear in **Table 9**.

Table 9. Field duplicates for WY 2024 samples analyzed by USGS OCRL.

DUPLICATE ID	SAMPLE DATE	ANALYTE
Cent-015	2/23/2024	Pesticides by GC/MS Pesticides by LC/MS/MS TSS
511ULCABR	6/25/2024	Pesticides by GC/MS Pesticides by LC/MS/MS TSS
Conf-017	7/22/2024	Pesticides by GC/MS Pesticides by LC/MS/MS TSS

All field duplicate results (**Appendix C, Table C.11**) met the DRMP MQO with an RPD <25% (not applicable or n/a if concentration of either sample is <RL).

Laboratory Duplicates

A laboratory duplicate is an analysis or measurement of the target analyte(s) performed identically on two sub-samples of the same sample, usually taken from the same container. The results from laboratory duplicate analyses are used to evaluate analytical or measurement precision, and include variability associated with sub-sampling and the matrix (not the precision of field sampling, preservation, or storage at the laboratory).

For WY 2024 DRMP CUP monitoring, pesticide and TSS laboratory duplicates were analyzed at the required frequency of one per 20 samples or per batch (whichever was more frequent). Of these results, 99.9% (i.e., 2,111 of 2,112; **Appendix C, Table C.12**) met the DRMP MQO with an RPD < 25% (n/a if concentration of either sample < RL). USGS staff discussed the TSS laboratory duplicates outside of MQOs and have worked to ensure the TSS analyses are as precise as possible. Analyses resulting in qualification appear in **Table 10**.

Table 10. Laboratory duplicate precision qualification for WY 2024 samples analyzed by USGS OCRL.

Results appearing in this table were all flagged with the CEDEN QA code: IL. QA code definitions are provided in **Appendix Table C.1**.

DATASET ID	DUPLICATE ID	ANALYTE	MATRIX	SAMPLE RESULT (mg/L)	DUPLICATE RESULT (mg/L)	RPD	PROJECT QUALIFIER
USGS-ORCL_DRMP_CUP_912_W_TSS	Cent-020	TSS	Water	2.5	4.9	65	Qualified

Matrix Spike Duplicates

An MSD is prepared by splitting a matrix spike sample. Both the MS and MSD samples are analyzed exactly like an environmental sample within the laboratory batch. The purpose of analyzing the MS and MSD samples is to determine whether the sample matrix contributes bias to the analytical results, and to measure precision of the duplicate analyses.

For WY 2024 DRMP CUP monitoring, three pesticide MSD pairs were prepared and analyzed at the required frequency of one per 20 samples. Of these results, 100.0% (**Appendix C, Table C.13**) met the DRMP MQO with RPD < 25%.

DATA VERIFICATION: BABCOCK LABORATORIES

The DRMP CUP chemistry data verification for samples analyzed by Babcock Laboratories assesses QC samples associated with contamination, precision, and accuracy.

CONTAMINATION

For Babcock analyses, contamination is assessed with the analysis of field blanks and laboratory blanks. Associated data verification results are detailed below.

Field Blanks

For WY 2024 DRMP CUP monitoring, field blanks were collected for all Babcock analyses (i.e., three for calcium, copper, magnesium, hardness, nitrate + nitrite as N, DOC, TOC, TKN (total and dissolved) and TN (total and dissolved). Of these results, 96.9% (i.e., 32 of 33; **Appendix C, Table C.6**) met the DRMP MQO with analytical results below the RL. Analyses resulting in qualification appear in **Table 11**. Details can be found in the **Deviations and Corrective Actions** section of this report (**2023-25: Event 6 (WY 2024) USGS Field Blank Contamination on DOC**).

Table 11. Field blank qualification for WY 2024 samples analyzed by Babcock.

Results appearing in this table were all flagged with the CEDEN QA code: IP. QA code definitions are provided in **Appendix Table C.1**.

FIELD BLANK ID	SAMPLE DATE	ANALYTE	SAMPLE RESULT (mg/L)	RL (mg/L)	PROJECT QUALIFIER
Conf-027	9/10/2024	DOC	0.46	0.3	Qualified

Laboratory Blanks

For WY 2024 DRMP CUP project monitoring, laboratory blanks were prepared and analyzed for all Babcock batches at the required frequency of one per 20 samples or per batch (whichever was more frequent).

While 97.3% (i.e., 110 of 113; **Appendix C, Table C.7**) of these results met the DRMP MQO with analytical results below the MDL, three samples produced results above the MDL. Qualified laboratory blanks and the environmental samples associated with detectable laboratory blank results are listed in **Table 12** and **Table 13**, respectively. Details can be found in the **Deviations and Corrective Actions** section of this report (**2023-12: Event 1 (WY 2024) Babcock Lab Blank Contamination for TOC**; and **2023-22: Event 4 (WY 2024) Babcock Lab Blank Contamination for Copper**).

Table 12. Laboratory blank qualification for WY 2024 samples analyzed by Babcock.
Results appearing in this table were all flagged with the CEDEN QA code: IP. QA code definitions are provided in Appendix **Table C.1**.

DATASET ID	LAB BLANK ID	ANALYTE	BLANK RESULT (mg/L)	MDL (mg/L)	PROJECT QUALIFIER
Babcock_DRMP_CUP_4G05019_M	4G05019-BLK1	Copper	0.3	0.3	Qualified
Babcock_DRMP_CUP_4G05019_M	4G05019-BLK2	Copper	0.3	0.3	Qualified
Babcock_DRMP_CUP_3L27033_W_TOC	3L27033-BLK1	TOC	0.205	0.13	Qualified

Table 13. Laboratory blank qualification: associated environmental samples for WY 2024 samples analyzed by Babcock. Results appearing in this table were all flagged with the CEDEN QA code: FI. QA code definitions are provided in Appendix Table C.1.

DATASET ID	SAMPLE ID	SAMPLE DATE	ANALYT E	SAMPLE RESULT (mg/L)	MDL (mg/L)	PROJECT QUALIFIER
Babcock_DRMP_CUP_4G05019_M	544LSAC13- FB	6/24/2024	Copper	0.3	0.3	Qualified
Babcock_DRMP_CUP_4G05019_M	544LSAC13-Dup ¹	6/24/2024	Copper	0.7	0.3	Qualified
Babcock_DRMP_CUP_4G05019_M	544LSAC13-MS	6/24/2024	Copper	18.8	0.3	Qualified
Babcock_DRMP_CUP_4G05019_M	544LSAC13-MSD	6/24/2024	Copper	19.7	0.3	Qualified
Babcock_DRMP_CUP_3L27033_W_TOC	Cent-013	12/10/2023	TOC	2.6	0.13	Qualified
Babcock_DRMP_CUP_3L27033_W_TOC	Cent-014	12/10/2023	TOC	2.4	0.13	Qualified
Babcock_DRMP_CUP_3L27033_W_TOC	Conf-001	12/11/2023	TOC	2	0.13	Qualified
Babcock_DRMP_CUP_3L27033_W_TOC	Conf-001-Dup ¹	12/11/2023	TOC	2.1	0.13	Qualified
Babcock_DRMP_CUP_3L27033_W_TOC	Conf-001-MS	12/11/2023	TOC	6.98	0.13	Qualified
Babcock_DRMP_CUP_3L27033_W_TOC	Conf-001-MSD	12/11/2023	TOC	7.12	0.13	Qualified
Babcock_DRMP_CUP_3L27033_W_TOC	Conf-002	12/11/2023	TOC	2	0.13	Qualified
Babcock_DRMP_CUP_3L27033_W_TOC	Conf-003	12/11/2023	TOC	2	0.13	Qualified
Babcock_DRMP_CUP_3L27033_W_TOC	Conf-003-FD	12/11/2023	TOC	2.1	0.13	Qualified
Babcock_DRMP_CUP_3L27033_W_TOC	Conf-004	12/11/2023	TOC	2	0.13	Qualified
Babcock_DRMP_CUP_3L27033_W_TOC	511ULCABR	12/11/2023	TOC	5.3	0.13	Qualified
Babcock_DRMP_CUP_3L27033_W_TOC	544LSAC13	12/11/2023	TOC	3.4	0.13	Qualified

¹ Laboratory split

ACCURACY

For DRMP CUP project analyses performed by Babcock Laboratories, accuracy is studied with the analysis of MS samples and LCSs. Associated data verification results are detailed below.

Matrix Spikes

For WY 2024 DRMP CUP monitoring, calcium, copper, magnesium, nitrate + nitrite as N, DOC, TOC, and TKN were prepared and analyzed at the required frequency of 1 per 20 samples or per batch (whichever was more frequent). Of these results, 98.0% (i.e., 149 of 152; **Appendix C, Table C.8**) met the DRMP recovery MQOs: 70-130% for calcium and magnesium; 75-125% for copper; 80-120% for DOC, TOC, and TKN; and 90-110% for nitrate + nitrite as N. Analyses resulting in qualification appear in **Table 14**.

Table 14. Matrix spike/matrix spike duplicate accuracy qualification for WY 2024 samples analyzed by Babcock.

Results appearing in this table were all flagged with the CEDEN QA code: GB,VGB. QA code definitions are provided in Appendix **Table C.1**.

DATASET ID	MS/MSD ID	ANALYTE	MATRIX	MS % RECOVERY	MSD % RECOVERY	PROJECT QUALIFIER
Babcock_DRMP_CUP_4A05076_W_TKN	511ULCABR	TKN	Water	152	122	Qualified
Babcock_DRMP_CUP_4B08091_W_TKN	000NONPJ	TKN	Water	59	110 ¹	Qualified

¹ Result met MQO but listed to show MS/MSD pair % recovery.

Laboratory Control Samples

For WY 2024 DRMP CUP monitoring, LCSs were prepared and analyzed for all calcium, magnesium, copper, nitrate + nitrite as N, DOC, TOC, and TKN batches at the required frequency of one per 20 samples or per batch (whichever was more frequent). Of these results, 94.2% (i.e., 65 of 69; **Appendix C, Table C.9**) met DRMP recovery MQOs: 85-115% for calcium, magnesium, and copper; 80-120% for DOC and TOC; and 90-110% for nitrate + nitrite as N and TKN. Analyses resulting in qualification appear in **Table 15**.

Table 15. Laboratory control sample qualification for WY 2024 samples analyzed by Babcock.

Results appearing in this table were all flagged with the CEDEN QA code: EUM. QA code definitions are provided in Appendix **Table C.1**.

DATASET ID	LCS ID	ANALYTE	FRACTION	LCS (% RECOVERY)	PROJECT QUALIFIER
Babcock_DRMP_CUP_4A05075_W_TKN	4A05075-BS1	TKN	Total	87	Qualified
Babcock_DRMP_CUP_4A05076_W_TKN	4A05076-BS1	TKN	Dissolved	87	Qualified
Babcock_DRMP_CUP_4E22046_W_TKN	4E22046-BS1	TKN	Dissolved	82	Qualified
Babcock_DRMP_CUP_4H15076_W_TKN	4H15076-BS1	TKN	Dissolved	84	Qualified

Additional Qualification

Sample results in **Table 16** were flagged by the laboratory and qualified as estimated for exceeding the instrument calibration range.

Table 16. Calibration-related qualification for WY 2024 samples analyzed by Babcock.

Results appearing in this table were all flagged with the CEDEN QA code: CJ. QA code definitions are provided in Appendix **Table C.1**.

DATASET ID	SAMPLE ID	SAMPLE DATE	ANALYTE	RESULT (mg/L)	PROJECT QUALIFIER
Babcock_DRMP_CUP_4B09071_W_NO3+2	511ULCABR-MS	1/22/2024	Nitrate + Nitrite as N	1.36	Estimated
Babcock_DRMP_CUP_4B09071_W_NO3+2	511ULCABR-MSD	1/22/2024	Nitrate + Nitrite as N	1.37	Estimated
Babcock_DRMP_CUP_4B09071_W_NO3+2	544LSAC13-MS	1/22/2024	Nitrate + Nitrite as N	2.34	Estimated
Babcock_DRMP_CUP_4E14070_W_NO3+2	000NONPJ-MS	5/14/2024	Nitrate + Nitrite as N	2.2	Estimated
Babcock_DRMP_CUP_4E14070_W_NO3+2	000NONPJ-DUP	5/14/2024	Nitrate + Nitrite as N	1.75	Estimated

PRECISION

For DRMP CUP analyses performed by Babcock Laboratories, precision is studied with the analysis of field duplicates, laboratory duplicates, and MSDs. Associated data verification results are detailed below.

Field Duplicates

For WY 2024 DRMP CUP monitoring, field duplicates collected and analyzed for calcium, copper, magnesium, hardness, nitrate + nitrite as N, DOC, TOC, TKN, and TN analyses appear in **Table 17**.

Table 17. Field duplicates for WY 2024 samples analyzed by Babcock.

DUPLICATE ID	SAMPLE DATE	ANALYTE
Conf-003	12/12/2023	Calcium, Magnesium, Copper, Hardness, Nitrate + Nitrite as N, TKN, TN, TOC, DOC
Cent-017	4/29/2024	Calcium, Magnesium, Copper, Hardness, Nitrate + Nitrite as N, TKN ¹ , TN ² , TOC, DOC
511ULCABR	7/22/2024	Calcium, Magnesium, Copper, Hardness, Nitrate + Nitrite as N, TKN, TN, TOC, DOC

¹ Cent-017, Grab2, TKN-Dissolved sample was not reanalyzed by Babcock due to laboratory staff error.

² Cent-017, Grab2, TN-Dissolved sample was not reported due to the Cent-017, Grab2, TKN-Dissolved sample not being reanalyzed by Babcock.

A total of 96.8% (i.e., 30 of 31; **Appendix C, Table C.11**) of these results met the DRMP MQO with an RPD <25% (n/a, if concentration of either sample < RL). Analyses resulting in qualification appear in **Table 18**.

Table 18. Field duplicate qualification for WY 2024 samples analyzed by Babcock.

Results appearing in this table were all flagged with the CEDEN QA code: FDP. The qualification for the Cent-017 field duplicate occurred in the TKN-Total Fraction. QA code definitions are provided in Appendix **Table C.1**.

DATASET ID	DUPLICATE ID	ANALYTE	MATRIX	SAMPLE RESULT (mg/L)	DUPLICATE RESULT (mg/L)	RPD	PROJECT QUALIFIER
Babcock_DRMP_CUP_4E18006_W_TKN	Cent-017	TKN	Water	0.2	0.3	40	Qualified

Laboratory Duplicates

For WY 2024 DRMP CUP monitoring, calcium, copper, magnesium, nitrate + nitrite as N, DOC, TOC, and TKN laboratory duplicates were analyzed at the required frequency of one per 20 samples or per batch (whichever was more frequent). All of these results (**Appendix C, Table C.12**) met DRMP RPD MQOs: <20% for calcium, magnesium and nitrate + nitrite as N; and <25% for copper, DOC, TOC, and TKN (n/a if concentration of either sample <RL).

Matrix Spike Duplicates

For WY 2024 DRMP CUP monitoring, calcium, copper, magnesium, nitrate + nitrite as N, DOC, TOC, and TKN MSD pairs were prepared and analyzed at the required frequency of one per 20 samples or per batch (whichever was more frequent). All of these results (**Appendix C, Table C.13**) met DRMP RPD MQOs: <20% for calcium, magnesium, and nitrate + nitrite as N; and <25% for copper, DOC, TOC, and TKN (**Appendix C, Table C.13**).

DATA VERIFICATION: PACIFIC ECORISK

DRMP CUP toxicity data verification assesses QC samples associated with negative and positive controls that address sensitivity, test manipulations, tolerance thresholds, and intra-laboratory precision for both acute and chronic test methods. Also verified are the associated water quality measurements and required testing parameters to assess toxicity test conditions. For consistency with SWAMP, QC sample definitions are based on the January 2022 SWAMP QAPrP.

NEGATIVE CONTROLS

Laboratory control water is used to evaluate the health and sensitivity of test organisms. It must be used with each analytical batch and produce bioassay results meeting all test acceptability criteria for the species of interest.

A secondary control for manipulated samples (i.e., a treatment control) is used to evaluate the effects of sample manipulations upon the test organisms. The same treatment must be performed on the control water when manipulations are performed on one or more of the ambient samples in the analytical batch and a treatment control not meeting test acceptability criteria indicates that the sample treatment may be negatively affecting the test organism response.

A secondary control for unmanipulated samples is used to evaluate the effects of parameters near or beyond the tolerance threshold(s) of the test organism(s) (i.e., a tolerance control). They can be performed when samples have parameters near the tolerance threshold of the organism and the tolerance control must meet the test acceptability criteria if it is to be used for statistical comparisons. A tolerance control not meeting test acceptability criteria indicates that the sample parameter(s) outside of the test organisms' tolerance range may be negatively affecting the test organism response.

For WY 2024 DRMP CUP monitoring, laboratory control water was used for all toxicity testing batches. All results (**Appendix C, Table C.14**) met the MQO specified in the CUP QAPP (v1.5).

POSITIVE CONTROLS

Reference Toxicant Test

A reference toxicant test is used to assess intra-laboratory precision. One reference toxicant test is required per batch when using organisms that are either commercially

supplied or wild-caught. Monthly reference toxicant tests are required for laboratories utilizing in-house cultures. The last-plotted data point (Lethal Concentration 50 (LC50) or half maximal effective concentration (EC50)) should be within two standard deviations (SDs) of the cumulative mean.

For WY 2024 DRMP CUP monitoring, reference toxicant tests were performed at the required frequency and all results met the MQO specified in the CUP QAPP (v1.5).

Test Acceptability Criteria

The required number of organisms were processed per replicate, and organism survival met the test criteria for all batches except those appearing in **Table 19**. The minimum test acceptability requirements specified in the CUP QAPP (v1.5) were met by 100.0% of toxicity testing results (**Appendix C, Table C.14**). Analyses resulting in qualification appear in **Table 19**. Details can be found in the **Deviations and Corrective Actions** section of this report and the following deviation summaries:

- 2023-03: Event 1 (WY 2024) *Chironomus* larvae initial weights greater than 0.012 mg/ individual Ash Free Dry Weight (AFDW);
- 2023-11: Event 2 (WY 2024) *Chironomus* larvae initial weights greater than 0.012 mg/ individual AFDW;
- 2023-15: Event 3 (WY 2024) *Chironomus* larvae final ash-free dry weights measured incorrectly; t(0) AFDW not calculated;
- 2023-16: Event 3 (WY 2024) *Chironomus* larvae initial weights greater than 0.012 mg/individual AFDW; and
- 2023-23: Event 6 (WY 2024) PER *Chironomus*; final ash-free dry weights measured incorrectly; No t(0) AFDW for Control Batch 1 and 2.

Table 19. Organism and survival qualifications for WY 2024 toxicity samples.

Results appearing in this table were all flagged with one or more of the following CEDEN QA code: TAF, TOQ, TMO, PRM, RLST, TMSD, MN, SN. QA code definitions are provided in Appendix **Table C.1**.

TOX BATCH ID	SAMPLE ID	SAMPLE DATE	ORGANISM	ISSUE	PROJECT QUALIFIER
PER_DRMP_CUP_12 23CHD_C1_W_TOX	All samples in batch	12/11/2023	<i>Chironomus dilutus</i>	Test organisms exceeded maximum weight requirement at test initiation	Qualified
PER_DRMP_CUP_12 23CHD_C2_W_TOX	All samples in batch	12/12/2023	<i>Chironomus dilutus</i>	Test organisms exceeded maximum weight requirement at test initiation	Qualified
PER_DRMP_CUP_01 24CHD_C2_W_TOX	All samples in batch	1/23/2024	<i>Chironomus dilutus</i>	Test organisms exceeded maximum weight requirement at test initiation	Qualified
PER_DRMP_CUP_04 24CHD_C2_W_TOX	All samples in batch	4/30/2024	<i>Chironomus dilutus</i>	Test organisms exceeded maximum weight requirement at test initiation	Qualified
PER_DRMP_CUP_12 23CHD_C1_W_TOX	CNEG	12/12/2023	<i>Chironomus dilutus</i>	Unequal quantity of organisms per replicate	Qualified
PER_DRMP_CUP_12 23CHD_C1_W_TOX	Conf-002	12/12/2023	<i>Chironomus dilutus</i>	Unequal quantity of organisms per replicate	Qualified
PER_DRMP_CUP_01 24CHD_C1_W_TOX	All samples in batch	1/22/2024	<i>Chironomus dilutus</i>	Unequal quantity of organisms per replicate	Qualified
PER_DRMP_CUP_01 24CHD_C2_W_TOX	Cont-007	1/23/2024	<i>Chironomus dilutus</i>	Unequal quantity of organisms per replicate	Qualified
PER_DRMP_CUP_01 24CHD_C2_W_TOX	Cont-008	1/23/2024	<i>Chironomus dilutus</i>	Unequal quantity of organisms per replicate	Qualified
PER_DRMP_CUP_01 24CHD_C2_W_TOX	CNEG	1/24/2024	<i>Chironomus dilutus</i>	Unequal quantity of organisms per replicate	Qualified

TOX BATCH ID	SAMPLE ID	SAMPLE DATE	ORGANISM	ISSUE	PROJECT QUALIFIER
PER_DRMP_CUP_06 24CHD_C2_W_TOX	Conf-025	6/25/2024	<i>Chironomus dilutus</i>	Unequal quantity of organisms per replicate	Qualified
PER_DRMP_CUP_07 24CHD_C2_W_TOX	CNEG	7/24/2024	<i>Chironomus dilutus</i>	Unequal quantity of organisms per replicate	Qualified
PER_DRMP_CUP_09 24CHD_C2_W_TOX	544LSAC13	9/11/2024	<i>Chironomus dilutus</i>	Unequal quantity of organisms per replicate	Qualified
PER_DRMP_CUP_09 24CHD_C2_W_TOX	CNEG	9/12/2024	<i>Chironomus dilutus</i>	Unequal quantity of organisms per replicate	Qualified
PER_DRMP_CUP_04 24HA_C2_W_TOX	Conf-009	4/30/2024	<i>Hyalella azteca</i>	Unequal quantity of organisms per replicate	Qualified
PER_DRMP_CUP_04 24HA_C2_W_TOX	CNEG	5/1/2024	<i>Hyalella azteca</i>	Unequal quantity of organisms per replicate	Qualified
PER_DRMP_CUP_04 24HA_C1_W_TOX	544LSAC13	6/24/2024	<i>Hyalella azteca</i>	Unequal quantity of organisms per replicate	Qualified
PER_DRMP_CUP_04 24HA_C2_W_TOX	Conf-025	6/25/2024	<i>Hyalella azteca</i>	Unequal quantity of organisms per replicate	Qualified
PER_DRMP_CUP_07 24HA_C2_W_TOX	544LSAC13	7/23/2024	<i>Hyalella azteca</i>	Unequal quantity of organisms per replicate	Qualified
PER_DRMP_CUP_07 24HA_C2_W_TOX	Cent-022	7/23/2024	<i>Hyalella azteca</i>	Unequal quantity of organisms per replicate	Qualified
PER_DRMP_CUP_09 24HA_C2_W_TOX	Cent-023	9/11/2024	<i>Hyalella azteca</i>	Unequal quantity of organisms per replicate	Qualified
PER_DRMP_CUP_12 23CHD_C2_W_TOX	Conf-001	12/12/2023	<i>Chironomus dilutus</i>	Organism was missing at the end of the test	Qualified
PER_DRMP_CUP_12 23CHD_C2_W_TOX	Conf-003	12/12/2023	<i>Chironomus dilutus</i>	Organism was missing at the end of the test	Qualified
PER_DRMP_CUP_12 23CHD_C2_W_TOX	Conf-004	12/12/2023	<i>Chironomus dilutus</i>	Organism was missing at the end of the test	Qualified

TOX BATCH ID	SAMPLE ID	SAMPLE DATE	ORGANISM	ISSUE	PROJECT QUALIFIER
PER_DRMP_CUP_01 24CHD_C2_W_TOX	Conf-005	1/23/2024	<i>Chironomus dilutus</i>	Organism was missing at the end of the test	Qualified
PER_DRMP_CUP_01 24CHD_C2_W_TOX	Conf-006	1/23/2024	<i>Chironomus dilutus</i>	Organism was missing at the end of the test	Qualified
PER_DRMP_CUP_04 24CHD_C1_W_TOX	511ULCABR	4/29/2024	<i>Chironomus dilutus</i>	Organism was missing at the end of the test	Qualified
PER_DRMP_CUP_04 24CHD_C2_W_TOX	544LSAC13	4/29/2024	<i>Chironomus dilutus</i>	Organism was missing at the end of the test	Qualified
PER_DRMP_CUP_04 24CHD_C1_W_TOX	CNEG	4/30/2024	<i>Chironomus dilutus</i>	Organism was missing at the end of the test	Qualified
PER_DRMP_CUP_04 24CHD_C2_W_TOX	CNEG	5/1/2024	<i>Chironomus dilutus</i>	Organism was missing at the end of the test	Qualified
PER_DRMP_CUP_06 24CHD_C1_W_TOX	544LSAC13	6/24/2024	<i>Chironomus dilutus</i>	Organism was missing at the end of the test	Qualified
PER_DRMP_CUP_06 24CHD_C1_W_TOX	Conf-013	6/24/2024	<i>Chironomus dilutus</i>	Organism was missing at the end of the test	Qualified
PER_DRMP_CUP_06 24CHD_C1_W_TOX	Conf-016	6/24/2024	<i>Chironomus dilutus</i>	Organism was missing at the end of the test	Qualified
PER_DRMP_CUP_06 24CHD_C2_W_TOX	Cent-019	6/25/2024	<i>Chironomus dilutus</i>	Organism was missing at the end of the test	Qualified
PER_DRMP_CUP_09 24CHD_C1_W_TOX	511ULCABR	9/10/2024	<i>Chironomus dilutus</i>	Organism was missing at the end of the test	Qualified
PER_DRMP_CUP_09 24CHD_C1_W_TOX	Conf-024	9/10/2024	<i>Chironomus dilutus</i>	Organism was missing at the end of the test	Qualified
PER_DRMP_CUP_09 24CHD_C2_W_TOX	544LSAC13	9/11/2024	<i>Chironomus dilutus</i>	Organism was missing at the end of the test	Qualified
PER_DRMP_CUP_04 24PP_C1_W_TOX	Conf-019	7/22/2024	<i>Pimephales promelas</i>	Organism was missing at the end of the test	Qualified

TOX BATCH ID	SAMPLE ID	SAMPLE DATE	ORGANISM	ISSUE	PROJECT QUALIFIER
PER_DRMP_CUP_07 24PP_C1_W_TOX	Conf-026	7/22/2024	<i>Pimephales promelas</i>	Organism was missing at the end of the test	Qualified
PER_DRMP_CUP_09 24PP_C1_W_TOX	Conf-023	9/10/2024	<i>Pimephales promelas</i>	Organism was missing at the end of the test	Qualified
PER_DRMP_CUP_09 24PP_C1_W_TOX	Conf-027	9/10/2024	<i>Pimephales promelas</i>	Organism was missing at the end of the test	Qualified
PER_DRMP_CUP_12 23HA_C2_W_TOX	Conf-002	12/12/2023	<i>Hyalella azteca</i>	Organism was missing at the end of the test	Qualified
PER_DRMP_CUP_01 24HA_C1_W_TOX	CNEG	1/23/2024	<i>Hyalella azteca</i>	Organism was missing at the end of the test	Qualified
PER_DRMP_CUP_01 24PP_C1_W_TOX	511ULCABR	1/22/2024	<i>Pimephales promelas</i>	Low survival in toxicity test resulted from test interference due to pathogen-related mortality	Qualified
PER_DRMP_CUP_07 24PP_C1_W_TOX	Conf-017 ¹	07/22/2024	<i>Pimephales promelas</i>	Low survival in toxicity test resulted from test interference due to pathogen-related mortality	Qualified
PER_DRMP_CUP_01 24PP_C1_W_TOX	Conf-019 ¹	07/22/2024	<i>Pimephales promelas</i>	Low survival in toxicity test resulted from test interference due to pathogen-related mortality	Qualified
PER_DRMP_CUP_01 24PP_C1_W_TOX	Conf-019 ^{1,2}	07/22/2024	<i>Pimephales promelas</i>	Low survival in toxicity test resulted from test interference due to pathogen-related mortality	Qualified
PER_DRMP_CUP_01 24PP_C1_W_TOX	Conf-026 ¹	07/22/2024	<i>Pimephales promelas</i>	Low survival in toxicity test resulted from test interference due to pathogen-related mortality	Qualified
PER_DRMP_CUP_01 24CHD_C2_W_TOX	Conf-005	1/23/2024	<i>Chironomus dilutus</i>	Replicate was lost or destroyed	Qualified

TOX BATCH ID	SAMPLE ID	SAMPLE DATE	ORGANISM	ISSUE	PROJECT QUALIFIER
PER_DRMP_CUP_07 24PP_C2_W_TOX	544LSAC13	7/23/2024	<i>Pimephales promelas</i>	Per EPA method, the endpoint is considered not toxic when both the relative difference from the control and the test percent minimum significant difference (PMSD) are less than EPA's lower PMSD bound (10th percentile).	Compliant
PER_DRMP_CUP_04 24PP_C1_W_TOX	All samples in batch	4/29/2024	<i>Pimephales promelas</i>	See narrative: Test performed using 20 replicates of two fish/replicate per EPA method. Growth endpoint calculations performed by grouping replicates into four groups of 10 fish/group.	Compliant
PER_DRMP_CUP_06 24PP_C1_W_TOX	All samples in batch	6/24/2024	<i>Pimephales promelas</i>	See narrative: Test performed using 20 replicates of two fish/replicate per EPA method. Growth endpoint calculations performed by grouping replicates into four groups of 10 fish/group.	Compliant
PER_DRMP_CUP_06 24PP_C2_W_TOX	All samples in batch	6/25/2024	<i>Pimephales promelas</i>	See narrative: Test performed using 20 replicates of two fish/replicate per EPA method. Growth endpoint calculations performed by grouping replicates into four groups of 10 fish/group.	Compliant

TOX BATCH ID	SAMPLE ID	SAMPLE DATE	ORGANISM	ISSUE	PROJECT QUALIFIER
PER_DRMP_CUP_07 24PP_C1_W_TOX	All samples in batch	7/22/2024	<i>Pimephales promelas</i>	See narrative: Test performed using 20 replicates of two fish/replicate per EPA method. Growth endpoint calculations performed by grouping replicates into four groups of 10 fish/group.	Compliant
PER_DRMP_CUP_07 24PP_C2_W_TOX	All samples in batch	7/23/2024	<i>Pimephales promelas</i>	See narrative: Test performed using 20 replicates of two fish/replicate per EPA method. Growth endpoint calculations performed by grouping replicates into four groups of 10 fish/group.	Compliant
PER_DRMP_CUP_09 24PP_C1_W_TOX	All samples in batch	9/10/2024	<i>Pimephales promelas</i>	See narrative: Test performed using 20 replicates of two fish/replicate per EPA method. Growth endpoint calculations performed by grouping replicates into four groups of 10 fish/group.	Compliant
PER_DRMP_CUP_09 24PP_C2_W_TOX	All samples in batch	9/11/2024	<i>Pimephales promelas</i>	See narrative: Test performed using 20 replicates of two fish/replicate per EPA method. Growth endpoint calculations performed by grouping replicates into four groups of 10 fish/group.	Compliant
PER_DRMP_CUP_04 24CHD_C1_W_TOX	All samples in batch	4/29/2024	<i>Chironomus dilutus</i>	Method procedures were not followed. Initial organism weights could not be determined due to technician error during the weighing procedure.	Qualified

TOX BATCH ID	SAMPLE ID	SAMPLE DATE	ORGANISM	ISSUE	PROJECT QUALIFIER
PER_DRMP_CUP_09 24CHD_C1_W_TOX	All samples in batch	9/10/2024	<i>Chironomus dilutus</i>	Method procedures were not followed. Initial organism weights could not be determined due to technician error during the weighing procedure.	Qualified
PER_DRMP_CUP_09 24CHD_C1_W_TOX	All samples in batch	9/11/2024	<i>Chironomus dilutus</i>	Method procedures were not followed. Initial organism weights could not be determined due to technician error during the weighing procedure.	Qualified

¹ Test performed using 20 replicates of two fish/replicate per EPA method to mitigate pathogen interference, nevertheless pathogen-related toxicity was observed.

² Field Duplicate

FIELD DUPLICATES

For WY 2024 DRMP CUP monitoring, field duplicates collected and analyzed for all aquatic toxicity test species appear in **Table 20**. All of these results (**Appendix C, Table C.11**) met the DRMP MQO by having an RPD <25%.

Table 20. Field duplicates for WY 2024 toxicity samples.

DUPLICATE ID	SAMPLE DATE	ANALYTE
Cent-014	12/11/2023	Aquatic Toxicity Tests
544LSAC13	4/29/2024	Aquatic Toxicity Tests
Conf-019	7/22/2024	Aquatic Toxicity Tests

WATER QUALITY PARAMETERS

Water quality parameters (i.e., temperature, pH, DO, specific conductivity, hardness, alkalinity, and ammonia) are monitored to assess toxicity testing conditions and are required to meet the MQOs specified in the CUP QAPP (v1.5). Deviations from recommended test conditions were noted in the data set.

For WY 2024 DRMP CUP monitoring, the required number of organisms were processed per replicate, and organism survival met the test criteria for all toxicity testing batches except those appearing in **Table 21**.

In addition, water quality parameters for toxicity testing were measured at the required frequency for all toxicity testing batches except those appearing in **Table 21**. Water quality parameter MQOs specified in the CUP QAPP (v1.5) were met by 96.3% (289 of 300) toxicity testing results. Details can be found in the **Deviations and Corrective Actions** section of this report (**2023-18: Events 1 and 3 (WY 2024) PER Missing Required WQ Measures**; **2023-20: Event 5 (WY 2024) PER Missing Required WQ Measures**; and **2023-24: Event 6 (WY 2024) PER Hyalella; Missing Required Final WQ Measurement Ammonia**).

Table 21. Water quality parameter qualifications for WY 2024 toxicity samples.

Results appearing in this table were all flagged with the CEDEN QA code: TWN. QA code definitions are provided in **Appendix Table C.1**.

TOX BATCH ID	SAMPLE IDs	SAMPLE DATE	ORGANISM	MISSING WATER QUALITY PARAMETER	PROJECT QUALIFIER
PER_DRMP_CUP_04 24CD_C1_W_TOX	Cent-018	4/29/ 2024	<i>Ceriodaphnia dubia</i>	Old DO solution not measured on Day 2	Qualified

TOX BATCH ID	SAMPLE IDs	SAMPLE DATE	ORGANISM	MISSING WATER QUALITY PARAMETER	PROJECT QUALIFIER
PER_DRMP_CUP_04 24SC_C1_W_TOX	Cent-018	4/29/ 2024	<i>Selenastrum capricornutum</i>	Final specific conductivity was not measured	Qualified
PER_DRMP_CUP_07 24CD_C1_W_TOX	Conf-026	7/22/ 2024	<i>Ceriodaphnia dubia</i>	Old pH and DO solutions not measured on Day 1	Qualified
PER_DRMP_CUP_07 24PP_C1_W_TOX	Conf-017	7/22/2024	<i>Pimephales promelas</i>	Old pH and DO solutions not measured on Day 1	Qualified
PER_DRMP_CUP_09 24HA_C1_W_TOX	All samples in batch	9/10/2024	<i>Hyalella azteca</i>	Final ammonia not measured	Qualified
PER_DRMP_CUP_12 23PP_C1_W_TOX	511ULCAB R	12/11/2023	<i>Pimephales promelas</i>	Final DO not measured on Day 1	Qualified

SUMMARY

CHEMISTRY RESULTS

Pesticides

A total of 48 environmental samples and three field duplicates were analyzed for dissolved pesticides by the USGS OCRL during WY 2024. During this period, 56 pesticides were detected in the dissolved phase (18 fungicides, 23 herbicides, and 15 insecticides). Each of the 48 samples analyzed contained multiple pesticides ranging from 6 to 37 pesticides per sample. Frequently detected pesticides included azoxystrobin and methoxyfenozide (100% of samples), propiconazole (88%), fluridone (85%), 3,4-DCA (83%), hexazinone (79%), metolachlor (71%), chlorantraniliprole (65%), and diuron (50%). Maximum concentrations ranged from below reporting limits to 203 ng/L (dithiopyr).

Of the 14,512 environmental and QC sample results for dissolved pesticides, 100.0% met the MQOs specified in the CUP QAPP (v1.5) and are considered “Compliant” (**Table 22**).

The 48 environmental samples and three field duplicates were also analyzed for suspended-sediment-associated (i.e., particulate) pesticides by the USGS OCRL. During this period, seven pesticides were detected in suspended sediments. The pesticides detected included bifenthrin (two detections), desthio-prothioconazole (one detection), dithiopyr (one detection), ethofenprox (one detection), oxyfluorfen (one detection), pendimethalin (one detection) and permethrin (one detection). Four of the eight detections in suspended sediment occurred during Event 2 storm sampling.

Of the 14,118 environmental and QC sample results for particulate pesticides, 100.0% met the MQOs specified in the CUP QAPP (v1.5) and are considered “Compliant” (**Table 22**).

A total of 173 QC sample results were analyzed for pesticides as the total fraction of the sample matrix (see **Laboratory Control Samples**). This requirement is completed on an annual basis to assess any potential bias or analyte loss that may be introduced during sample processing prior to when the dissolved and particulate fractions are spiked for their respective extractions and analyses. One hundred percent of the total fraction results met the MQOs specified in the CUP QAPP (v1.5) and are considered “Compliant” (**Table 22**).

Metals

A total of 48 environmental samples and three field duplicates were analyzed for dissolved copper by Babcock. Copper was detected in all 48 environmental samples and field duplicates (100.0%), with concentrations ranging from 0.9 µg/L to 3.3 µg/L. Of the total environmental and QC results evaluated for WY 2024, 87 out of 93 (93.5%) met the MQOs specified in the CUP QAPP (v1.5) and are considered “Compliant” (Table 22). The remaining six results were qualified for findings and addressed in Table 12.

Ancillary Parameters

A total of 48 environmental samples and three field duplicates were analyzed for TSS by USGS OCRL. Sixty-four out of 66 (96.9%) environmental and QC sample results met the MQOs specified in the CUP QAPP (v1.5) and are considered “Compliant”. The remaining two results were qualified for findings and addressed in Table 10.

A total of 48 environmental samples and three field duplicates were analyzed for calcium, magnesium, hardness, nitrate + nitrite as N, DOC, TOC, TKN, and TN by Babcock. Of these environmental and QC results, 862 out of 903 (95.5%) met the MQOs specified in the CUP QAPP (v1.5) and are considered “Compliant”. Of the remaining results, five results were estimated (Table 16), and 36 results were qualified for findings and addressed in Table 11, Table 12, Table 13, Table 14, Table 15, and Table 18.

Table 22. Summary of verified chemistry results for WY 2024 monitoring.

Counts of results include all environmental and QC sample results. Percentage of total for each count by analyte category, laboratory, and fraction is in parenthesis next to sample count. Analyte categories are defined in Table 1.

ANALYTE CATEGORY	LAB	FRACTION	COMPLIANT	QUALIFIED	ESTIMATED	REJECTED	TOTAL
Ancillary Parameters	Babcock	Dissolved	510 (96.4%)	19 (3.6%)	0	0	529
Ancillary Parameters	Babcock	Total	352 (94.1%)	17 (4.6%)	5 (1.3%)	0	374
Ancillary Parameters	OCRL	Particulate	64 (97.0%)	2 (3.0%)	0	0	66
<i>Ancillary Parameters Subtotal</i>			926 (95.6%)	38 (3.9%)	5 (0.5%)	0	969
Trace Metals	Babcock	Dissolved	87 (93.5%)	6 (6.5%)	0	0	93
<i>Trace Metals Subtotal</i>			87 (93.5%)	6 (6.5 %)	0	0	93
Pesticides	OCRL	Dissolved	14,512 (100.0%)	0	0	0	14,512
Pesticides	OCRL	Particulate	14,118 (100.0%)	0	0	0	14,118

ANALYTE CATEGORY	LAB	FRACTION	COMPLIANT	QUALIFIED	ESTIMATED	REJECTED	TOTAL
Pesticides	OCRL	Total	174 (100.0%)	0	0	0	174
<i>Pesticides Subtotal</i>			28,804 (100.0%)	0	0	0	28,804
Total Verified Results			29,817 (99.8%)	44 (0.2%)	5 (0.02%)	0	29,866

Water Quality Metrics

By July 1, annually, the CVRWQCB provides a list of relevant water quality metrics to which DRMP results should be compared when reporting data. Metrics used for reporting WY 2024 results were provided on June 12, 2023, and subsequently updated on June 18, 2024. There are 157 CUP constituents to which results are compared, all of which are pesticides analyzed by USGS OCRL; water quality metrics are provided in **Appendix B, Table B.2**.

Of the 48 environmental samples and three field duplicates, seven environmental samples contained at least one pesticide with a concentration above the water quality metrics. Imidacloprid was detected above its metric of 10.0 ng/L in five of the seven samples that contained at least one pesticide above water quality metrics. Bifenthrin was detected above its metric of 0.05 ng/L in two samples. Diuron and naled were each detected above their respective metric in one sample each.

For WY 2024, 99.9% (15,750 of 15,759) of the environmental results compared to a metric were below the metrics provided. A total of nine results were reported above their respective metrics, which included results for bifenthrin, diuron, imidacloprid, and naled. These results are summarized in **Table 23**.

Table 23. Summary of WY 2024 results above the Water Quality Metrics provided by the CVRWQCB.

ANALYTE	WATER QUALITY METRIC (ng/L)	FRACTION	COUNT OF RESULTS ABOVE METRICS						Total
			Event 1 (First Flush)	Event 2 (Winter Storm)	Event 3 (Spring Snow Melt)	Event 4 (Early Summer)	Event 5 (Mid-Summer)	Event 6 (Late Summer)	
Bifenthrin	0.05	Particulate	--	1	--	--	--	1 ¹	2
Diuron	130	Dissolved	--	1	--	--	--	--	1
Imidacloprid	10	Dissolved	2	2	1	--	--	--	5

ANALYTE	WATER QUALITY METRIC (ng/L)	FRACTION	COUNT OF RESULTS ABOVE METRICS						
			Event 1 (First Flush)	Event 2 (Winter Storm)	Event 3 (Spring Snow Melt)	Event 4 (Early Summer)	Event 5 (Mid-Summer)	Event 6 (Late Summer)	Total
Naled	10	Dissolved	--	--	--	1 ²	--	--	1
Total			2	4	1	1	0	1	9

¹ Bifenthrin result was 0.8 ng/L which is equal to the MDL of 0.8 ng/L and less than the RL of 1.5 ng/L. This result is greater than the water quality metric of 0.05 ng/L.

² Naled result was 15.6 ng/L which is greater than the MDL of 10.6 ng/L and less than the RL of 21.1 ng/L. This result is greater than the water quality metric of 10 ng/L.

TOXICITY TESTING

A total of 48 environmental samples and three field duplicates were analyzed by PER for each of the following aquatic toxicity test species: *C. dubia*, *P. promelas*, *S. capricornutum*, *C. dilutus*, and *H. azteca*. Of the 478 environmental and toxicity test QC results, 140 results (29.3%) were qualified for organism and survival findings and QA controls for toxicity tests (i.e., toxicity test negative controls). The remaining 338 environmental sample and toxicity test QC results met the MQOs specified in the CUP QAPP (v1.5) and are considered “Compliant” (70.7%, **Table 24**).

During WY 2024, 18 toxicity tests produced results that were significantly different from the control. These test results are outlined in **Table 25**. However, four of the 18 results require additional context. One of these results was for a duplicate sample where the environmental sample was also significantly different from the control (*C. dubia* reproduction in 544LSAC13 collected on April 29, 2024). Another one requiring context was for a qualified *P. promelas* growth result from a test compromised by a pathogen-related toxicity in CONF-017 collected on July 22, 2024. The pathogen-related toxicity occurred even with the increase in replication (from four to 20 replicates) to mitigate for pathogen-related toxicity. Yet another of the results was for a test with *P. promelas*, where the difference from the control did not exceed the minimum percent difference required by EPA (2002) guidance for determining a sample significantly different from the control. This *P. promelas* growth endpoint with the sample collected from 544LSAC13 on July 23, 2024, should not be considered significantly different from the control according to EPA (2002) guidance. Finally, for the *C. dilutus* sample collected at CONF-019 on July 22, 2024, the environmental duplicate sample results were significantly different from the control,

but the environmental sample was not. Three of the five test species had results significantly different from the control for at least one endpoint, with *H. azteca* and *S. capricornutum* being the two species for which no significant reductions were observed during the WY.

Two of the 18 significant results had a response of 50% or less compared to the control, which is the threshold at which the decision to conduct a TIE is presented to the TIE Advisory Committee. A TIE was conducted for the *C. dubia* samples collected from Conf-016 on June 24, 2024, which had a 46% reproductive rate compared to controls. The Phase I TIE results indicated that the sample was toxic to *C. dubia* reproduction, but less so than in the original test, suggesting that a compound subject to rapid degradation was responsible for the toxicity. The slight removal of toxicity via piperonyl butoxide (PBO) during TIE testing was suggestive of the presence of a metabolically activated substance, although it was also noted that normal organism variability (e.g., slightly lower reproduction in the PBO blank) could also provide an explanation for the reduction in toxicity observed in the PBO treatment. Additionally, toxicity increased in the C18 SPE treatment assessment, which is atypical since C18 SPE and PBO treatments both have effects on dissolved non-polar organic pesticides and subsequent toxicity. Therefore, the Phase I TIE did not result in the conclusive identification of any broad class of contaminants (e.g., organics, metals) in the sample, but the degradation of toxicity observed would typically be associated with an organic contaminant.

A TIE was not conducted for *P. promelas* samples collected from Conf-017 on July 22, 2024, which had a 43% growth rate compared to controls. A follow-up TIE test was not initiated based on guidance from the DRMP TIE Subcommittee due to the age of sample (i.e., overall holding time) and the observation of pathogen-related toxicity in the sample.

Table 24. Summary of verified toxicity test results for WY 2024 monitoring.

LAB	ORGANISM	ENDPOINT	COMPLIANT	QUALIFIED	ESTIMATED	REJECTED	TOTAL
PER	<i>Ceriodaphnia dubia</i>	Reproduction	52 (89.7%)	6 (10.3%)	0	0	58
PER	<i>Ceriodaphnia dubia</i>	Survival	52 (89.7%)	6 (10.3%)	0	0	58
PER	<i>Chironomus dilutus</i>	Growth	15 (23.8%)	48 (76.2%)	0	0	63
PER	<i>Chironomus dilutus</i>	Survival	15 (23.8%)	48 (76.2%)	0	0	63
PER	<i>Hyalella azteca</i>	Survival	48 (76.2%)	15 (23.8%)	0	0	63
PER	<i>Pimephales promelas</i>	Growth	48 (85.7%)	8 (14.3%)	0	0	56
PER	<i>Pimephales promelas</i>	Survival	48 (85.7%)	8 (14.3%)	0	0	56

LAB	ORGANISM	ENDPOINT	COMPLIANT	QUALIFIED	ESTIMATED	REJECTED	TOTAL
PER	<i>Selenastrum capricornutum</i>	Growth	60 (98.4%)	1 (1.6%)	0	0	61
Total Verified Results			338 (70.7%)	140 (29.3%)	0	0	478

Table 25. Samples with toxicity endpoints significantly different from controls in WY 2024.

STATION CODE	SAMPLE DATE	ORGANISM	ENDPOINT	PCT CONTROL	SIG. EFFECT ¹	TIE?	TIE NARRATIVE
Conf-007	01/23/2024	<i>Ceriodaphnia dubia</i>	Survival	60	SL	No	None
Cent-017	04/29/2024	<i>Ceriodaphnia dubia</i>	Reproduction ²	82	SG	No	None
Cent-018	04/29/2024	<i>Ceriodaphnia dubia</i>	Reproduction ^{2,3}	64	SL	No	None
544LSAC13	04/29/2024	<i>Ceriodaphnia dubia</i>	Reproduction ²	72	SL	No	None
544LSAC13 ⁴	04/29/2024	<i>Ceriodaphnia dubia</i>	Reproduction ²	77	SL	No	None
Conf-013	06/24/2024	<i>Ceriodaphnia dubia</i>	Reproduction ²	52	SL	No	None
Conf-016	06/24/2024	<i>Ceriodaphnia dubia</i>	Reproduction ²	46	SL	Yes	Phase I TIE (07/03/24) results inconclusive: Baseline toxicity persistent but reduced; toxicity partially removed in PBO and centrifugation + WCX; toxicity increased in C18 SPE treatment; slight removal of toxicity via PBO is suggestive of a metabolically activated substance; however, Phase-1 TIE not conclusive.
Cent-019	06/25/2024	<i>Ceriodaphnia dubia</i>	Reproduction ²	75	SL	No	None
Cent-020	06/25/2024	<i>Ceriodaphnia dubia</i>	Reproduction ²	83	SG	No	None
Conf-025	06/25/2024	<i>Ceriodaphnia dubia</i>	Reproduction ²	84	SG	No	None
Cent-020	06/25/2024	<i>Chironomus dilutus</i>	Survival	88	SG	No	None
Cent-022	07/23/2024	<i>Ceriodaphnia dubia</i>	Reproduction ²	70	SL	No	None
Conf-019 ⁴	07/22/2024	<i>Chironomus dilutus</i>	Survival	85	SG	No	None

STATION CODE	SAMPLE DATE	ORGANISM	ENDPOINT	PCT CONTROL	SIG. EFFECT ¹	TIE?	TIE NARRATIVE
Conf-017	07/22/2024	<i>Pimephales promelas</i>	Growth ^{5,6,7,8}	43	SL	No	Percent effect was >50%; follow-up TIE testing not initiated per guidance from DRMP TIE Subcommittee due to the observation of pathogen-related toxicity in this sample and the age of the sample (hold time).
Conf-017	07/22/2024	<i>Pimephales promelas</i>	Survival ^{5,8}	57	SL	No	None
544LSAC13	07/23/2024	<i>Pimephales promelas</i>	Growth ^{5,6,9}	90	SG	No	None
Conf-023	09/10/2024	<i>Ceriodaphnia dubia</i>	Reproduction ²	68	SL	No	None
Conf-024	09/10/2024	<i>Ceriodaphnia dubia</i>	Reproduction ²	87	SG	No	None

¹ Significant effect: SG (Significant Greater Similarity) indicates significantly different from the control and greater similarity to control, Percent effect equal to or smaller than the evaluation threshold; SL (Significant Less Similarity) indicates significantly different from the control and less similarity to control, Percent effect value larger than the evaluation threshold.

² Reproduction for *C. dubia* is evaluated as the number of young per female.

³ Water quality parameter not measured; 'Old' dissolved oxygen not measured on Day 2 for CENT-018.

⁴ Field Duplicate.

⁵ Test performed using 20 replicates of two fish/replicate (to mitigate for effects of pathogen-related toxicity). Growth endpoint calculations performed by grouping replicates into four groups of 10 fish/group.

⁶ Growth for *P. promelas* is evaluated as biomass as weight per original individual (dry weight per surviving individual).

⁷ Toxicity resulted from test interference due to pathogen-related toxicity.

⁸ Water quality parameters not measured; 'Old' pH and D.O. not measured on Day 1 for Conf-017.

⁹ 544LSAC13 Biomass endpoint; Endpoint considered not toxic; per EPA (2002) guidance, shall not be considered significantly different from the control, when both the relative difference from control and the test percent minimum significant difference (PMSD) are less than EPA lower PMSD bound (10th percentile).

FIELD MEASUREMENTS

During WY 2024, 382 field measurements were taken out of 384 scheduled (99.5% completeness; **Appendix C, Table C.3**). Two turbidity measurements were not performed during WY 2024 due to instrument failure during Event 2 sampling (please see deviation **2023-10: Event 2 (WY 2024) USGS Missed Turbidity on Sampling Day 1** in the **Deviations and Corrective Actions** section for details). Field measurement results appear in their entirety in **Table 26**.

DATA AVAILABILITY

All analytical and field parameter results generated by USGS CWSC and USGS OCRL will be made available for download through the USGS National Water Information System (NWIS; <https://nwis.waterdata.usgs.gov/ca/nwis/qwdata>) using the sampling event and station identification information found in **Table 3** and **Table 26**. All project data, including the USGS datasets as well as those provided by Babcock and PER will be published to CEDEN and can be accessed through the Advance Query Tool (<https://ceden.waterboards.ca.gov/AdvancedQueryTool>) under the project code “2023 DRMP Current Use Pesticides”.

Table 26. Sampling event information and basic water quality parameters measured during sample collection.

EVENT	CEDEN CODE	USGS SITE NUMBER	DATE	TIME	WATER TEMP °C	PH	DO (mg/L)	DO (% SATURATION)	SPECIFIC CONDUCTIVITY (µS/cm)	SALINITY (ppt)	TURBIDITY (NTU)
1	511ULCABR	11455261	11/Dec/2023	09:20	9.3	8.0	9.7	84.5	968	0.48	10.7
1	544LSAC13	375831121223701	11/Dec/2023	13:25	12.2	7.7	9.4	87.9	614	0.30	2.7
1	Cent-013	375633121333301	11/Dec/2023	11:30	11.2	7.7	10.4	95.9	415	0.20	1.8
1	Cent-014	380347121334	11/Dec/2023	12:30	11.6	7.7	10.3	95.1	284	0.14	7.7
1	Conf-001	380228121492901	12/Dec/2023	12:00	11.6	7.6	9.6	90.1	6816	3.75	4.5
1	Conf-002	380333121492001	12/Dec/2023	11:30	11.8	7.7	9.9	94.3	8302	4.63	6.7
1	Conf-003	380146121451401	12/Dec/2023	10:25	11.5	7.8	10.2	94.5	2615	1.36	3.7
1	Conf-004	380118121440701	12/Dec/2023	10:45	11.6	7.8	10.3	95.3	2454	1.27	3.7
2	511ULCABR	11455261	22/Jan/2024	08:45	12.8	7.5	9.2	87.2	269	0.13	0.0
2	544LSAC13	375831121223701	22/Jan/2024	12:30	11.2	7.7	10.2	93.0	681	0.33	0.0
2	Cent-015	380325121363101	23/Jan/2024	12:40	11.2	7.8	10.6	96.9	452	0.22	7.1
2	Cent-016	380615121353501	23/Jan/2024	13:10	10.7	7.7	10.4	93.8	274	0.13	15.1
2	Conf-005	380126121485801	23/Jan/2024	10:45	10.6	7.8	10.6	95.8	644	0.32	13.7
2	Conf-006	380344121503501	23/Jan/2024	11:20	10.4	7.7	10.6	95.1	773	0.38	26.4
2	Conf-007	380441121405701	23/Jan/2024	10:10	10.5	7.7	10.7	96.4	418	0.20	12.6
2	Conf-008	380236121423301	23/Jan/2024	12:00	10.6	7.8	10.7	96.4	469	0.23	16.9
3	511ULCABR	11455261	29/Apr/2024	08:45	17.2	8.2	6.5	67.8	901	0.45	2.2
3	544LSAC13	375831121223701	29/Apr/2024	14:40	18.2	7.7	9.5	100.9	296	0.14	7.7
3	Cent-017	375513121332101	29/Apr/2024	12:45	19.9	7.9	9.0	98.6	355	0.17	3.9
3	Cent-018	375930121305501	29/Apr/2024	13:45	19.7	8.1	9.4	103.3	340	0.16	1.3
3	Conf-009	380206121495201	30/Apr/2024	11:15	17.4	8.0	9.2	96.2	198	0.09	5.7
3	Conf-010	380131121445401	30/Apr/2024	10:35	17.7	7.9	9.1	95.5	219	0.10	4.1
3	Conf-011	380600121430801	30/Apr/2024	12:45	17.0	7.9	9.2	95.4	157	0.07	6.3

EVENT	CEDEN CODE	USGS SITE NUMBER	DATE	TIME	WATER TEMP °C	PH	DO (mg/L)	DO (% SATURAT ION)	SPECIFIC CONDUCT TIVITY (µS/cm)	SALINITY (ppt)	TURBIDITY (NTU)
3	Conf-012	380635121423601	30/Apr/2024	12:30	16.9	7.9	9.2	95.1	171	0.08	5.0
4	511ULCABR	11455261	25/Jun/2024	13:50	24.1	8.2	8.6	102.7	672	0.33	5.2
4	544LSAC13	375831121223701	24/Jun/2024	09:10	24.4	7.4	7.2	86.6	381	0.18	6.7
4	Cent-019	380342121370901	25/Jun/2024	10:25	23.2	7.8	8.1	94.6	175	0.08	3.7
4	Cent-020	380145121350001	25/Jun/2024	10:55	24.4	8.7	8.4	100.2	150	0.07	2.1
4	Conf-013	380428121462201	24/Jun/2024	12:05	22.5	7.7	8.1	94.0	149	0.07	9.3
4	Conf-014	380252121474201	24/Jun/2024	11:40	20.1	7.7	8.1	92.6	989	0.49	11.0
4	Conf-016	380812121411201	24/Jun/2024	12:45	23.0	7.7	8.0	93.5	134	0.06	5.0
4	Conf-025	380357121473601	25/Jun/2024	12:00	22.6	7.8	8.3	95.7	441	0.22	25.1
5	511ULCABR	11455261	22/Jul/2024	09:15	21.6	7.7	3.8	43.4	829	0.41	14.0
5	544LSAC13	375831121223701	23/Jul/2024	09:35	27.4	7.3	5.9	73.8	315	0.15	7.8
5	Cent-021	375322121342901	23/Jul/2024	10:55	26.3	7.9	7.1	87.4	193	0.09	3.2
5	Cent-022	380013121314401	23/Jul/2024	11:20	25.2	7.7	7.7	93.4	159	0.07	2.1
5	Conf-017	380242121480801	22/Jul/2024	11:45	23.5	8.4	10.2	120.2	1158	0.58	3.0
5	Conf-018	380322121482601	22/Jul/2024	11:10	22.5	7.8	8.3	95.8	623	0.29	9.3
5	Conf-019	380333121404001	22/Jul/2024	12:55	23.8	7.8	7.9	93.6	275	0.13	3.3
5	Conf-026	380209121463701	22/Jul/2024	12:15	23.4	7.8	8.1	95.2	591	0.29	12.7
6	511ULCABR	11455261	10/Sep/2024	15:00	21.0	7.7	5.4	61.0	664	0.32	4.6
6	544LSAC13	375831121223701	11/Sep/2024	12:15	25.6	7.4	7.2	87.9	601	0.29	4.4
6	Cent-023	380306121380301	11/Sep/2024	10:10	22.0	7.9	8.4	96.2	370	0.18	3.8
6	Cent-024	380220121341101	11/Sep/2024	11:00	22.3	8.2	8.4	96.5	266	0.13	1.8
6	Conf-021	380138121484001	10/Sep/2024	10:20	21.2	7.8	8.5	96.1	926	0.46	10.3
6	Conf-023	380504121423601	10/Sep/2024	12:10	21.8	7.9	8.5	97.0	188	0.09	3.4
6	Conf-024	380221121432801	10/Sep/2024	13:30	21.5	7.9	8.6	97.4	679	0.33	7.0
6	Conf-027	380306121413001	10/Sep/2024	12:50	22.0	8.0	8.7	99.1	548	0.26	3.6

DEVIATIONS AND CORRECTIVE ACTIONS

There were eighteen deviations from the DRMP CUP QAPP which occurred during WY 2024 and were associated with current use pesticides and aquatic toxicity. Relevant CUP QAPP deviation forms are outlined in (Table 27) and a summary for each is provided below. These forms have been drafted and are included in Appendix D.

2023-03: Event 1 (WY 2024) Chironomus larvae initial weights greater than 0.012 mg/ individual Ash Free Dry Weight (AFDW)

Deviation 2023-03 occurred on December 19, 2023 (CUP Event 1, WY 2024). Upon completion of the drying process, PER discovered that the t(0) initial weights of *C. dilutus* were greater than the SWAMP MQO of ≤ 0.12 mg/individual AFDW for two control batches. Test batches were initiated on December 12, 2023 (Control Batch 1) and December 13, 2023, respectively (Control Batch 2). The first batch (Control Batch 1) had a mean t(0) AFDW of 0.15 mg/individual. The second batch (Control Batch 2) had a mean t(0) of 0.14 mg/individual. It was determined that no impact on the test results was expected in Control Batch 1 since there was no pupation and the age of the organisms was confirmed at 9-10 days old at time of test initiation. In Control Batch 2, three of four organisms pupated with one transitioning to an adult during this testing. Pupation occurred in tests performed on samples collected from stations CONF-001 (Replicate C), CONF-003 (Replicate A and C) and CONF-004 (Replicate D). Pupated organisms were excluded from both the survival and growth endpoint statistics per the Data Management SOP (v2.4). It was noted that historically larvae ordered from outside vendors often have a greater likelihood of initial weights above AFDW threshold compared to organisms reared in-house from egg casings by PER staff. Accordingly, PER requested 2.5 weeks of advance notice for remaining CUP non-storm sampling events to allow for rearing of egg cases in-house. The DRMP Program Manager agreed to help coordinate communication between the sampling team and PER for non-storm events that can be scheduled in advance to provide advance notice. Flagging of data results for the deviation included the following; 1) the Tox Test Level QA Code of TAF [Test organisms exceed the maximum weight requirement at test initiation] was applied to the samples in both Control Batches, 2) the Tox Test Level QA Code of TMO [Test organisms escaped or are otherwise missing] was applied to the effected samples in Control 2 that had pupation, and 3) a Tox Result Comment was added to the replicate records that had pupation: "1 organism pupated; 9 organisms used in statistics". The deviation has been finalized, approved, and signed by all required parties.

2023-06: Event 1 (WY 2024) Missed Tests Due to High Salinity

Deviation 2023-06 (December 13, 2023) was related to CUP Event 1 (WY 2024) missed tests due to high salinity. It was determined that salinities were above threshold levels for three species (*S. capricornutum*, *C. dubia* and *P. promelas*) at Confluence sites during Event 1 sampling on December 12, 2023. Four stations had a total of eight tests (14 endpoints) that were not conducted due to elevated salinities in surface water. Corrective actions included: 1) prior to sample events, conductivity will be checked remotely using results from the CDEC site at Antioch and the timing of sample collection will be reviewed by USGS in all confluence sites for Events 2-6. This will allow time for additional communication and planning for implementing the alternative salinity procedures if deemed necessary, and 2) guidance was developed (i.e., QAPP CUP Amendment v1.5 and SOPs) for next time high salinities are encountered. The deviation has been finalized, approved, and signed by all required parties.

2023-07: Event 2 (WY 2024) *Chironomus* 10-day Toxicity Test Missed Hold Time

Deviation 2023-07 occurred on January 24, 2024 (CUP Event 2, WY 2024). On January 23, 2024, Stephen Clark at PER contacted the DRMP Program Manager, the CVRWQCB Quality Assurance (QA) Representative, and DRMP TIE Advisory Committee members with an email indicating that an order of *C. dilutus* organisms that were due to arrive for toxicity test initiation on January 23, 2024, had been delayed due to flight mechanical issues during shipping. It was noted that if the organisms did not arrive by the end of day, then testing would be initiated outside of the 48-hour hold time limit for the two samples (511ULCABR and 544LSAC13) collected during Event 2 monitoring on January 22, 2024. (Note: outside of the hold time limit, but within the maximum of 72 hours cited in EPA method manuals for justifications such as shipping delays.) The organisms arrived on January 24, 2024, in acceptable condition, and the 10-day toxicity tests were initiated on January 24, 2024, at 13:50 hours, which was outside of the 48-hour holding time limit. Sample 511ULCABR was five hours outside of the 48-hour hold time and sample 544LSAC13 was one hour outside of the 48-hour hold time. Although these organisms were received later than planned, they were within weight requirements and there was no pupation. The toxicity results associated with both samples for all organisms were not toxic. The Tox Test Level QA Code of H was applied to *Chironomus* test(s) initiation outside of hold time (samples 511ULCABR and 544LSAC13); and a summary result comment was added indicating how far out of hold time the toxicity testing occurred. Regarding future sampling and testing, PER noted that the laboratory was working diligently to avoid missing hold times for organisms that are shipped to the laboratory during storm season, including effective communication with the samplers, laboratory, vendor, and Project Manager. Since this was an issue due to shipping delays outside of the

control of the laboratory, there were no additional corrective actions identified. The deviation has been finalized, approved, and signed by all required parties.

2023-10: Event 2 (WY 2024) USGS Missed Turbidity on Sampling Day 1

Deviation 2023-10 occurred on January 29, 2024 (CUP Event 2, WY 2024). On January 31, 2024, Matt Uychutin from the USGS-OCRL informed the DRMP Data Manager via email that turbidity was not able to be measured in the field from two targeted sites (511ULCABR & 544LSAC13) during Event 2 (i.e., Day 1 sampling, January 22, 2024). This deviation occurred due to a probe failure of the instrument “YSI EXO Multiparameter Sonde (YSI EXO1)”. The probe was exchanged with a working probe in time for Day 2 sampling on January 23, 2024. It was noted that there was minimal impact expected on the project objectives due to missing two turbidity results. Overall, the project will still meet its completeness goal of 90%. Field equipment is maintained by USGS according to the requirements outlined in the CUP QAPP. Since this was an unforeseen probe failure, there are minimum corrective actions. Results for turbidity were flagged with a QA Code of FIF [Instrument/Probe Failure] for results. The deviation has been finalized, approved, and signed by all required parties.

2023-11: Event 2 (WY 2024) *Chironomus* larvae initial weights greater than 0.012 mg/ individual AFDW

Deviation 2023-11 occurred on January 24, 2024 (CUP Event 2, WY 2024). The toxicity laboratory, PER, discovered that the $t(0)$ weights of *C. dilutus* were greater than the SWAMP MQO of ≤ 0.12 mg/individual AFDW for one of two control batches associated with Event 2 sampling. Two control batch tests were initiated on January 24, 2024 (Control Batch 1 and Control Batch 2). The first batch (Control Batch 1) had a mean AFDW of 0.09 mg/individual and the second batch (Control Batch 2) a mean of 0.19 mg/individual at time $t(0)$. Control Batch 2 included two organisms which pupated during tests for samples collected on January 23, 2024, from sites CONF-005 and CONF-006; Control Batch 1 did not have any pupating organisms. The SWAMP MQO of AFDW ≤ 0.12 mg/individual is presumably targeted to reduce the likelihood of pupation/hatching during the 10-day test. Pupated organisms were excluded from both the survival and growth endpoint statistics and data were flagged per the Data Management SOP (v2.4). Neither sample was toxic to *C. dilutus*, and it is expected that the omission of one organism in one replicate had minimal to no impact on the statistical analysis to determine toxicity for these two samples. The Data Management Team flagged the results and added comments explaining the situation following the procedures in the Data Management SOP: 1) the Tox Test Level QA Code of TAF [Test organisms exceed the maximum weight requirement at test initiation] was applied to the samples for Control Batch #2, 2) the Tox Test Level QA Code of TMO [Test organisms escaped or are otherwise missing] was

applied to the effected samples in Control Batch #2 that had pupation, and 3) a Tox Result Comment was added to the replicate records that had pupation: “1 organism pupated; 9 organisms used in statistics”. The deviation has been finalized, approved, and signed by all required parties.

2023-12: Event 1 (WY 2024) Babcock Lab Blank Contamination for TOC

Deviation 2023-12 occurred on February 26, 2024 (CUP Event 1, WY 2024). Upon review of a revised Babcock Lab Report for WY 2024 CUP Event 1 sampling, the Data Management Team discovered there was a detection in the TOC lab blank for Event 1 samples analyzed on December 27, 2023, by Babcock Laboratories. Contamination was detected at a level above the MDL in the detected not quantified (DNQ) range. This deviation does not meet the DRMP lab blank contamination MQO, but does meet the SWAMP MQO which is followed by the Central Valley Water Quality Regional Board as the contracting agency for analysis conducted by Babcock for the DRMP CUP; therefore, the results did not require reconfirmation from the laboratory, but were flagged by the DRMP as not meeting project MQOs. The affected result(s) were flagged as follows: 1) the TOC blank result were flagged with an IP [Analyte detected in field or lab generated blank], 2) environmental samples in the analytical batch were flagged with an QA Code of FI [Analyte in field sample and associated blank], and 3) the lab batch comment included the following “TOC reported in lab blank at levels above MDL but below RL”. The deviation has been finalized, approved, and signed by all required parties.

2023-13: Event 3 (WY 2024) *Pimephales* 7-day Toxicity Test Missed Hold Time

Deviation 2023-13 (May 1, 2024) was related to CUP Event 3 WY 2024 sampling and *P. promelas* seven-day toxicity test missed hold time. Stephen Clark, Technical Director at PER, informed the DRMP and CVRWQCB on May 1, 2024, that an order of fathead minnows (*P. promelas*) was packaged and shipped via overnight delivery on April 30, 2024 (for test initiation on May 1, 2024), but the delivery was delayed in route. PER staff called FedEx, and FedEx representatives indicated that the package would arrive at PER by 3:00 p.m. on May 1, 2024 (in time for test initiation). However, the package did not arrive on May 1, 2024, and testing could not be initiated for the samples collected on April 30, 2024. After some discussion, the TIE Advisory Committee members agreed to forgo *P. promelas* testing for the affected samples since the delayed toxicity testing would occur outside of the CUP QAPP holding time limits for water samples and the organisms would be older than specified (>48 hours) in the test procedures. This deviation affected four environmental samples collected on April 30, 2024, from stations Conf-009, Conf-010, Conf-011 and Conf-012 and for *P. promelas* Control Batch 2 only. Since shipping delays are outside of the control of the laboratory or the DRMP, the only corrective action was to add comments in the database indicating why there are not *P. promelas* results for these

samples. Sample and collection comments were added to Stations Conf-009, Conf-010, Conf-011 and Conf-012 which stated: "*Pimephales* was not tested at this station due to delays in shipping larvae.". The deviation has been finalized, approved, and signed by all required parties.

2023-14: Event 3 (WY 2024) *Ceriodaphnia* Toxicity Test Lost Control

Deviation 2023-14 occurred on May 2, 2024 (CUP Event 3, WY 2024) and was related to the accidental disposal of *C. dubia* control treatments for four toxicity tests related to samples collected on April 30, 2024 (Event 3). This deviation affected the following locations/stations: Conf-009, Conf-010, Conf-011, and Conf-012. Stephen Clark at PER indicated that on May 2, 2024, PER staff had re-started the affected tests outside of the standard 48 hour holding time limit (but within the maximum 72 hour holding time limit as outlined in EPA testing methods). Stephen Clark indicated that the staff member involved was an experienced analyst, and that the pre-mature disposal of the control treatments was accidental. The staff member self-reported the mistake and was subsequently required to undergo re-training on culturing and toxicity testing methods (which is required by the quality management system at PER when incidents such as this occur). In summary, a technical mistake by PER staff was the contributing factor to this test being invalidated. Data results for the affected samples were flagged as follows: 1) Station locations Conf-009, Conf-010, Conf-011 and Conf-012 sampled on April 30, 2024 (Event 3) had a toxicity test level QA Code of H [A holding time violation has occurred] added to the *C. dubia* summary records along with a comment regarding the time out of hold based on the collection time of each sample, and 2) a lab batch comment that samples were run out of hold time was applied. Finally, it was noted that future Laboratory performance will be monitored against the completeness requirements of the CUP QAPP v1.5. The deviation has been finalized, approved, and signed by all required parties.

2023-15: Event 3 (WY 2024) *Chironomus* larvae final ash-free dry weights measured incorrectly; $t(0)$ AFDW not calculated

Deviation 2023-15 occurred on May 1, 2024 (CUP Event 3, WY 2024) and was related to *C. dilutus* testing by PER in which toxicity tests for Control Batch 1 were measured incorrectly, so the initial time [$t(0)$] AFDW prior to the start of the 10-day toxicity test could not be calculated. In this incident, the wrong pans were weighed by PER staff prior to placing pans and organisms in the muffle furnace for ashing. The dry weights of the small pans with the organisms should have been weighed prior to placing the pans into the muffle furnace for two hours at 550°C. However, only the outer pans were weighed prior to placement into the furnace (outer pans are only used for easier identification of pans and organisms). As only the outer pans were weighed before placing everything in the furnace (and not the inner pans that contained the organisms), there was no way to

calculate the dry weight of the *C. dilutus* larvae. This deviation affected the following Event 3 samples: 511ULCABR_2024_04_29, 544LSAC13_2024_04_29 (replicate1), 544LSAC13_2024_04_29 (replicate2), Cent017_2024_04_29, and Cent-018_2024_04_29). An investigation was subsequently performed by PER to determine the cause of incorrectly weighed pans. The staff member responsible for the incident was interviewed by PER staff, and it was confirmed that he had been trained in the relevant laboratory procedures, which included reading the SOPs that outlined procedures for performing weighing for *C. dilutus* testing. The responsible PER staff member noted he failed to recognize that the pan he was weighing had no organisms or notice that the weights he was recording were more than four times the initial weights, which is anomalous. The staff member responsible also indicated that he did not recall that the SOP specifically states that "Only the inner foil pans will be weighed". The staff member responsible also failed to measure the QA pans, as is required to ensure that weights are consistent. Therefore, a technical mistake by PER staff was the cause of the test failing to meet test acceptability criteria. Corrective Actions included; 1) the responsible PER staff member was issued a Performance Evaluation, and 2) the staff member was retrained on the weighing of test organisms. Affected data results were flagged with the following: 1) code MN [Method procedures not followed] was applied to control and samples for Control-1, and 2) a lab batch comment was applied; "NR: Initial weight of LABQA could not be determined due to technician error with weights". The deviation has been finalized, approved, and signed by all required parties.

2023-16: Event 3 (WY 2024) *Chironomus* larvae initial weights greater than 0.012 mg/individual AFDW

Deviation 2023-16 occurred on May 01, 2024 (CUP Event 3, WY 2024). On May 13, 2024, Stephen Clark notified (via email) Melissa Turner of a deviation regarding *C. dilutus* testing that was initiated with organisms above the MQO of ≤ 0.12 mg/individual AFDW for Control Batch #2 associated with Event 3 sampling. The mean AFDW was 0.16 mg/individual for organisms used to start toxicity testing on May 1, 2024. An investigation was performed to determine the cause of the increased weight of the organisms used for test initiation on May 1, 2024. The following Event 3 samples were affected by this deviation: Conf009_2024_04_30, Conf-010_2024_04_30, Conf-011_2024_04_30, and Conf012_2024_04_30. Control Batch 2 testing was initiated on May 1, 2024, using 10-day old larvae reared from egg cases received on April 20, 2024, from Aquatic BioSystems Inc. (PER's primary vendor). The egg cases were received by PER in good condition at arrival with acceptable water quality parameters and all egg cases were noted as hatching on April 21, 2024. At 10 days old, the organisms were used for test initiation which is within the required age range for the test method. Both the PER Quality Manager and the Assistant Lab Manager noted that the organisms used for test initiation were larger than

is typical for 10-day old organisms, but that they appeared to be in excellent health. When organisms are received by PER as larvae, the organisms tend to have higher weights than when PER receives egg cases and raises the larvae in-house. However, these organisms were larger and more active than is typically seen from larvae raised from egg cases at PER. The visual observation of large larvae at test initiation is consistent with the larger larval t(0) weight. The larvae were fed consistently with PER's SOP and by very experienced analysts throughout the husbandry period, and there were no mistakes made during organism husbandry that could account for the weight exceeding the SWAMP MQO. However, the hatch from egg cases can vary from several hundred organisms to over a 2000 count, so it is possible that a lower hatching density occurred for these affected trays, which can cause the organisms to grow larger than usual due to having more food per organism in the culture. It should be noted that *C. dilutus* larvae are very small (near microscopic), making food adjustments based on the quantity of hatching organisms next to impossible. Therefore, food density cannot be ruled out as a contributing factor to the test exceeding the SWAMP MQO. It was concluded that organism quality (e.g., large larvae) appeared to be a contributing factor to the test exceeding the SWAMP MQO. Affected samples for Control Batch #2 were flagged with a Tox Test Level QA Code of TAF [Test organisms exceed the maximum weight requirement at test initiation]. It was further noted that even though the larval t(0) weight in Control Batch 2 was 0.16 mg/individual, there were no pupating organisms in this control batch; therefore, it is not expected that having larger larvae at the start of the toxicity test had an effect on the test batch results. The deviation has been finalized, approved, and signed by all required parties.

2023-17: Event 3 (WY 2024) Babcock Missed Hold Time for TKN

Deviation 2023-17 occurred on June 11, 2024 (CUP Event 3, WY 2024) when Babcock Laboratories notified MLJ Environmental and the CVRWQCB that six samples related to Event 3 (April 29-30, 2024) sampling had experienced a “Blank Spike fail low” during TKN dissolved laboratory analysis. Given this occurrence, there was a need to reanalyze the samples. Five of the six samples were reanalyzed five days out of hold time, whereas the sample for Cent-017 (Grab 2) was not reanalyzed at all due to laboratory staff oversight. The reanalyzed results were reported by the laboratory and flagged as out of hold time. On February 27, 2025, Babcock Laboratories sent a Corrective Action Report (CAR) to the DRMP, State Water Resources Control Board (SWRCB), and CVRWQCB, where they reported that the original analysis was ran on day-27 (post sampling), which was close to regulatory holding time (28 days). The post sampling delay in the analysis was due to lab processing capacity and instrumentation issues. Upon Babcock’s review of the Quality Control (QC) related to original batch, and identification of the QC failure, it was determined that the reanalysis happened after the holding time had already expired.

Further, Cent-017 (Grab 2) was not marked for reanalysis due to internal procedures not being followed by Babcock staff. Babcock Laboratories noted in their original email related to the deviation that meeting holding times is a part of the laboratory's key performance indicators (KPI) criteria and that Babcock Laboratories does investigate all "past holding time" data occurrences. Babcock Laboratories performed a root cause analysis assessment and developed a corrective action plan to ensure similar incidents do not occur in the future. Subsequently, corrective action has been taken by Babcock to review all data entry procedures, including re-analysis, with the appropriate employees. In addition, follow-up measures were put in place to catch oversights in this process moving forward. Effectiveness checks to date have shown no recurrences of this error. Results were flagged with a QA Code of H [A holding time violation has occurred] on the samples out of hold time. A lab batch and lab result comment was added. The deviation is currently under review by CVRWQCB staff.

2023-18: Events 1 and 3 (WY 2024) PER Missing Required WQ Measures

Deviation 2023-18 occurred on July 8, 2024 (CUP Events 1 and 3, WY 2024) when Cassandra Lamerdin (at MLJ Environmental) documented two deviations that occurred in the DRMP CUP Year 4 study during WY 2024 in relation to missed water quality measurements by PER staff. Event 1 (WY 2024) had one site (511ULCABR) with no final *P. promelas* dissolved oxygen (DO) measure, and Event 3 (WY 2024) had two missing water quality measurements at site Cent-018 (missing DO for *C. dubia* and missing conductivity for *S. capricornutum*). For the Event 1, *P. promelas* toxicity test (511ULCABR), the solutions were renewed without collecting an aliquot for the old water quality on Day 1 of the test. This was documented by the analyst that made the error, and the PER lab Quality Management team reminded the analyst to pay close attention to collecting the aliquot for old water into the pre-labeled cup before renewing the test solutions. For the Event 3, *C. dubia* toxicity test (CENT-018), the Day 2 old water quality cup collected after solution renewals was tipped over before the pH and DO could be measured. The PER lab Quality Management team reminded the analyst to follow the process of their training, including securing the old water quality cups in a way that they will not be tipped over. For the Event 3, *S. capricornutum* toxicity test (CENT-018), the solutions were collected for old water quality data. The analyst recorded the temperature, pH, and DO, but failed to record conductivity on the bench sheet prior to pouring out the solution, even though the parameters are all measured concurrently. The PER lab Quality Management team reminded the analyst to follow the process of their training, including double checking the bench sheet to ensure that all water quality parameters have been recorded prior to disposing of the solution. A Tox Test Level QA Code of TWN [required water quality parameter not measured] was applied to the samples in each test batch. Finally, it was noted that future laboratory performance will be monitored against the completeness

requirements of DRMP CUP QAPP 2022 v1.5. The deviation is currently under review by CVRWQCB staff.

2023-20: Event 5 (WY 2024) PER Missing Required WQ Measures

Deviation 2023-20 occurred on August 21, 2024, when Stephen Clark at PER emailed Cassandra Lamerdin (MLJ Environmental) and Melissa Turner (MLJ Environmental) regarding a deviation that occurred during WY 2024 Event 5 toxicity testing, in which two incidents occurred where water quality parameters were not measured. In the first incident, a cup with the old water quality solutions for the chronic fathead minnow (*P. promelas*) test (CONF-017) was tipped over prior to the measurement of pH and DO on day 1. This was documented by the analyst that made the error, and the laboratory Quality Management team at PER reminded the analyst to follow the process of their training, including securing the old water quality cups in a manner that will not result in them being tipped over. In the second incident, for the chronic *C. dubia* test (CONF-026), the solutions were renewed without keeping a replicate cup for the “old” renewal water quality prior to pouring out the other nine replicates and prior to the measurement of pH and DO on day 1. This was documented by the analyst that made the error, and the laboratory Quality Management team at PER reminded the analyst to follow their training which requires collection of a cup from each treatment for old water quality and setting them aside into one area of their workstation prior to disposing of the other nine cups per treatment. A Tox Test Level QA Code of TWN [required water quality parameter not measured] was applied to the samples in the test batch prior to data submission. Additionally, future laboratory performance will be monitored against the completeness requirements of DRMP CUP QAPP 2022 v1.5. The deviation is currently under review by CVRWQCB staff.

2023-21: Event 5 (WY 2024) Babcock Missed Hold Time TKN dissolved

Deviation 2023-21 occurred on August 23, 2024, when Babcock Laboratories notified MLJ Environmental and the CVRWQCB that Event 5 sample “CONF-026 2024-07-22 (for TKN Dissolved)” needed to be reanalyzed and would result in a hold time violation. The original value for the dissolved TKN result for this sample was 0.4 mg/L, whereas the total TKN result for this sample was 0.2 mg/L. The re-analysis was needed due to the dissolved fraction being greater than the total TKN result. After reanalysis, the dissolved TKN result came back non-detect (ND) and the total TKN came back at the same result of 0.2 mg/L. Subsequently, the dissolved TKN reanalysis for sample “DRMP CONF-026 2024-07-22” occurred past holding time. Results were flagged with a QA Code of H [A holding time violation has occurred] on the samples out of hold time. Both a lab batch and lab result comment were added. Babcock Laboratories indicated in their notification email that the laboratory is currently working towards improving their internal processes with a focus

on performing sample re-analyses with a quicker turnaround time. The deviation is currently under review by CVRWQCB staff.

2023-22: Event 4 (WY 2024) Babcock Lab Blank Contamination for Copper

Deviation 2023-22 occurred on September 10, 2024, when Babcock Laboratories notified MLJ Environmental and the CVRWQCB on September 10, 2024, there were two method blank samples with detections of dissolved copper (equal to the MDL) analyzed with samples collected during the CUP Event 4. Ten samples were collected on June 24, 2024, for CUP Event 4 and analyzed for dissolved copper on July 15, 2024. The laboratory noted that both laboratory blanks had concentrations equal to the MDL (0.3 ug/L) which does not meet the DRMP Measurement Quality Objective (MQO) of <MDL. On July 16, 2024, nine of the 10 samples were redigested and reanalyzed with new laboratory blanks as required per the method. One sample (a field blank, sample ID C4F340-02) was not redigested/reanalyzed due to technician error. For the original batch which was not redigested/reanalyzed, the field blank, the field blank duplicate, the matrix spike and the matrix spike duplicate were flagged with a QA Code of FI [Analyte in field sample and associated blank] and assigned a compliance code of “Qualified”. In addition, the field blank received an QA code of IP [Analyte detected in field or lab generated blank], and a comment was added to the Lab Batch indicating “Copper detected in LabBlank and FieldBlank. (>1/2xRL)”. Given that the laboratory blank showed contamination it is unclear whether the field blank contamination was generated at the laboratory or the field. The redigested/reanalyzed batch which included environmental results had laboratory blanks <MDL meeting the DRMP MQO and therefore these samples were not impacted by the original batch. No additional corrective action items have been identified. The deviation is currently under review by CVRWQCB staff.

2023-23: Event 6 (WY 2024) PER Chironomus; final ash-free dry weights measured incorrectly; No t(0) AFDW for Control Batch 1 and 2

Deviation 2023-23 occurred on September 14, 2024, when PER staff noted that the test initiation time zero [t(0)] AFDW measurements associated with DRMP 10-day chronic water exposure *C. dilutus* toxicity tests were measured incorrectly resulting in a negative mean AFDW, and therefore a reliable AFDW could not be calculated for WY 2024 Event 6 Control Batch 1 and 2 *C. dilutus* toxicity tests. An investigation was carried out to determine the cause of the incorrectly weighed pans. During the investigation, it was noted that there was very little change in weight during the three different weight measurements. In one replicate, there was less than a 0.2 mg difference between the initial ashed pan, the dry weight, and the ashed weight. Typically, even with the smallest organisms being loaded, there should be a weight gain of at least 0.5 mg (i.e., during development), and more if the organisms used are larger. When the organisms are ashed,

there should be a reduction in weight of at least 0.2 mg. However, for the t(0) measurements for both test batches, there was no effective weight loss after the organisms were ashed, and several replicates were even measured as being nominally higher in weight. To determine if there was a furnace malfunction, the pans were placed in the furnace a second time and the remeasured weights did not change sufficiently to produce a noticeable difference in the AFDW. To determine if there was an error in the initial ashed pan weights, the pans were opened, dried organisms were scraped off, and the pans were re-weighed, but there was little change in the initial weights as well. After interviewing all staff involved with measuring the initial ashed pan weights, dry pan+ larvae weights, and ashed pan + larvae weights, no obvious mistakes were noted or reported by PER staff in the methodology employed during testing, with all staff having followed the SOP for the toxicity testing. In conclusion, the PER Quality Management team determined that a technical mistake by PER staff was the most likely contributing factor for the test failing to meet test acceptability criteria, although the specific staff mistake or oversight could not be identified. All PER staff involved with the incident were subsequently retrained on the weighing of test organisms. The Tox Test Level QA Code of TMO [Test organisms escaped or are otherwise missing] was applied to the effected samples in Control 1 that had pupation, and MN [Method procedures not followed] was added to control and samples for Control Batch 1 & 2. Additionally, a lab batch comment “MN: Initial weight of LABQA could not be determined due to technician error with weights.” was added to affected lab control matches. It was noted in the deviation that future laboratory performance will be monitored against the completeness requirements of DRMP CUP QAPP 2022 v1.5. The deviation is currently under review by CVRWQCB staff.

2023-24: Event 6 (WY 2024) PER Hyalella; Missing Required Final WQ Measurement Ammonia

Deviation 2023-24 occurred on September 15, 2024, when PER staff noted that a deviation occurred for WY 2024 Event 6 *H. azteca* toxicity testing, in which final ammonia was not measured for samples collected from 511ULCABR, CONF-021, CONF-023, CONF-024, and CONF-027. When interviewed, the PER analyst involved with the incident noted that he had accidentally terminated the test without collecting samples for and measuring the final ammonia, even though he was familiar with the DRMP requirement to measure ammonia at test termination. He admitted he did not read the Study Guidance sheet in front of the data sheets that stated in large letters that ammonia needed to be measured at test initiation and termination. He also stated that he did not realize the test had been assigned to another analyst who received a communication to assure that final ammonia concentrations were measured at test termination. A technical mistake by PER staff was the contributing factor to not achieving the SWAMP MQOs to

measure ammonia in final test concentrations. It was noted that a performance evaluation was issued to the PER analyst involved with the incident. A Tox Test Level QA Code of TWN [Required water quality parameter not measured] was applied to the samples in the test batch prior to data submission. For the *H. azteca* toxicity tests affected by this oversight, five (5) of the eight (8) samples did not have final ammonia measurements. The ammonia concentrations at the end of the test for these five samples or the laboratory negative control are unknown, but none of these samples were toxic to *Hyalella*. Finally, it was further noted that future laboratory performance will be monitored against the completeness requirements of DRMP CUP QAPP 2022 v1.5. The deviation is currently under review by CVRWQCB staff.

2023-25: Event 6 (WY 2024) USGS Field Blank Contamination on DOC

Deviation 2023-25 occurred on October 7, 2024, when Cassandra Lamerdin (MLJ Environmental) emailed Allie Guerra (Babcock Laboratories Special Programs Manager), the USGS, the DRMP QA Officer, and the CVRWQCB to inquire about potential DOC contamination in a field blank sample collected during WY 2024 Event 6 monitoring. On September 10, 2024, samples were collected by the USGS for WY 2024 Event 6 CUP water quality monitoring collection. A field blank sample analyzed on September 26, 2024, indicated a detection for DOC at 0.46 mg/L (RL = 0.30 mg/L). Cassandra Lamerdin requested on October 7, 2024, that Babcock re-analyze this sample to confirm the original results, and she asked both Jim Orlando (Project Manager, USGS) and Allie Guerra (Special Programs Manager, Babcock Laboratories) to confirm that no laboratory transcription errors or abnormalities occurred or were observed in relation to the preparation and handling of the sample in question. Allie Guerra emailed USGS, MLJ Environmental, DRMP QA Officer, and the CVRWQCB on October 7, 2024, to confirm that potential DOC contamination of a field blank sample may have occurred, and that Babcock was initiating a re-analysis of the sample in question to confirm the original results. In relation to DOC analysis, a total of three 40 mL vials for each sample are prepared (filtered and acidified) within 24 hours of sampling (CUP QAPP v1.5). For the re-analysis, Babcock re-tested a second vial (vial B) for the sample in question. The DOC re-analysis for vial B occurred on October 8, 2024, within the 28-day hold time requirement. The DOC result for vial B was a non-detect (ND), in contrast to the first vial (vial A) which returned a detection for DOC at 0.46 mg/L. Babcock then performed an additional re-analysis of both vial A and B on October 18, 2024, which confirmed the original results for both vials. Specifically, in this additional re-analysis, the results indicated the presence of DOC in vial A (at 0.50 mg/L) and a non-detect for DOC in vial B. It should be noted that the second re-analysis confirmation did occur outside of the 28-day hold time. In summary, out of a total of three 40 mL sample vials prepared for analysis of DOC for the field blank sample “DRMP_CONF-027_2024-09-10_BL”, one (vial A) returned a detection of 0.46

mg/L and the second (vial B) returned a non-detect for DOC, and both results were confirmed via re-analysis (although the confirmation re-analysis was performed outside of the 28-day hold-time). Accordingly, field blank results for DOC reported by Babcock for sample “DRMP_CONF-027_2024-09-10_BL” were flagged according to the SWAMP business rules. Specifically, the 0.46 mg/L detection for DOC in vial A was flagged a QA Code of IP [Analyte detected in field or lab generated blank], and both a lab result comment and a batch comment was added stating that a second vial analyzed for this sample was ND; both results were confirmed by reanalysis. Previous corrective actions for this type of incident (Deviation 2022-09) have involved the following: 1) review of USGS National Field Manual sampling protocols to determine if the issue of organic solvent contamination is discussed including steps to be taken to avoid contamination, and determine if SOPs need to be revised or updated, and 2) the USGS has reviewed filtration SOPs with staff doing filtration specifically addressing concerns about organic carbon contamination. Jim Orlando (USGS) performed a review of the USGS National Field Manual SOP on June 23, 2023, and determined that the SOP was current and correct. It is not expected that this field blank concentration of DOC will have an impact on the project’s overall purpose to characterize status and trends of pesticide concentrations and toxicity in the Delta. The deviation is currently under review by CVRWQCB staff.

Table 27. Referenced deviations from the CUP QAPP for WY 2024.

NUMBER	STATUS	DATE	QAPP	TITLE	DESCRIPTION	CORRECTIVE ACTIONS	RESOLUTION
2023-03	Final	12/19/2023	Delta RMP CUP QAPP 2022 v1.4	CUP Event 1 (WY 2024) <i>Chironomus</i> larvae initial weights greater than 0.012 mg/individual AFDW	PER discovered that the t(0) weights of <i>C. dilutus</i> were greater than the SWAMP MQO of ≤ 0.12 mg/individual AFDW for two Event 1 control batches. The first control batch had a mean AFDW of 0.15 mg/individual and the second control batch a mean AFDW of 0.14 mg/individual at time t(0). It was determined that no impact on the test results was expected in Control Batch 1 since there was no pupation, while in Control Batch 2, three of four organisms pupated with one transitioning to an adult during testing. Pupated organisms were excluded from both the survival and growth endpoint statistics per the Data Management SOP (v2.4).	It was noted that historically larvae ordered from outside vendors often have a greater likelihood of initial weights above AFDW threshold compared to organisms reared in-house from egg casings by PER staff. Accordingly, PER requested 2.5 weeks of advance notice for remaining CUP non-storm sampling events to allow for rearing of egg cases in-house. The Program Manager will help coordinate communication between the sampling team and PER for non-storm events that can be scheduled in advance to provide advance notice.	1) The Tox Test Level QA Code of TAF [Test organisms exceed the maximum weight requirement at test initiation] was applied to the samples in both Control Batches., 2) The Tox Test Level QA Code of TMO [Test organisms escaped or are otherwise missing] was applied to the effected samples in Control 2 that had pupation., and 3) a Tox Result Comment was added to the replicate records that had pupation: "1 organism pupated; 9 organisms used in statistics".

NUMBER	STATUS	DATE	QAPP	TITLE	DESCRIPTION	CORRECTIVE ACTIONS	RESOLUTION
2023-06	Final	12/13/2023	Delta RMP CUP QAPP 2022 v1.4	CUP Event 1 (WY 2024) Missed Tests Due to High Salinity	It was determined that salinities were above threshold levels for three species (<i>Selenastum</i> , <i>Ceriodaphnia</i> and <i>Pimephales</i>) at Confluence sites during Event 1 sampling on December 11, 2023. Four stations had a total of eight tests (14 endpoints) that were not conducted due to elevated salinities in surface water.	Prior to sample events, conductivity will be checked remotely using results from the CDEC site at Antioch and the timing of sample collection will be reviewed by USGS in all confluence sites for Events 2-6. This will allow time for additional communication and planning for implementing the alternative salinity procedures if deemed necessary.	Guidance was developed (QAPP CUP Amendment v1.5 and SOPs) for next time high salinities are encountered.

NUMBER	STATUS	DATE	QAPP	TITLE	DESCRIPTION	CORRECTIVE ACTIONS	RESOLUTION
2023-07	Final	01/24/2024	Delta RMP CUP QAPP 2022 v1.4	CUP Event 2 (WY 2024) <i>Chironomus</i> 10-day Toxicity Test Missed Hold Time	On January 23, 2024, PER contacted the DRMP Program Manager, the CVRWQCB, and DRMP TIE Advisory Committee with an email indicating that an order of <i>C. dilutus</i> organisms had been delayed during shipping. Organisms arrived on 01/24/2024 in acceptable condition, and the 10-day toxicity tests were initiated on 01/24/2024 at 13:50, which was outside of the 48-hour holding time limit for two samples.	The laboratory is already working diligently to avoid missing hold times for organisms that are shipped to the laboratory during storm season, including; effective communication with the samplers, laboratory, vendor, and Project Manager. Shipping delays are not in the control of the laboratory; therefore, PER uses in-house organisms whenever possible to limit situations where shipping delays could result in hold time violations. However, storm sampling events often result in the need for using outside vendor organisms.	The Tox Test Level QA Code of H was applied to <i>Chironomus</i> tests initiated outside of hold time (samples 511ULCABR and 544LSAC13); and a summary result comment was added indicating how far out of hold time the toxicity testing occurred.
2023-10	Final	01/29/2024	Delta RMP CUP QAPP 2022 v1.4	CUP Event 2 (WY 2024) USGS Missed Turbidity on Sampling Day 1	On January 31, 2024, USGS -OCRL informed the DRMP Data Manager via email indicating that turbidity was not measured in the field from two targeted sites (511ULCABR & 544LSAC13) during Event 2 (Day 1 sampling, January 22, 2024) due to instrument failure.	The probe was exchanged with a working probe in time for Day 2 sampling on January 23, 2024. It was noted that field equipment is maintained by USGS according to the requirements outlined in the CUP QAPP. Since this was an unforeseen probe failure, there are minimum corrective actions.	Results for turbidity were flagged with a QA Code of FIF [Instrument/Probe Failure] for results.

NUMBER	STATUS	DATE	QAPP	TITLE	DESCRIPTION	CORRECTIVE ACTIONS	RESOLUTION
2023-11	Final	01/24/2024	Delta RMP CUP QAPP 2022 v1.4	CUP Event 2 (WY 2024) <i>Chironomus</i> larvae initial weights greater than 0.012 mg/individual AFDW	PER discovered that the t(0) weights of <i>C. dilutus</i> were greater than SWAMP MQO of ≤ 0.12 mg/individual AFDW for one of two control batches associated with Event 2 sampling. While neither sample was toxic to <i>Chironomus</i> , Control Batch 2 did include two organisms which pupated.	Pupated organisms were excluded from both the survival and growth endpoint statistics and data were flagged per the Data Management SOP (v2.4). Additionally, PER requested 2.5 weeks advance notice for remaining CUP non-storm sampling events to allow for rearing of egg cases in-house. The Program Manager will help coordinate communication between the sampling team and PER for non-storm events that can be scheduled in advance to provide advance notice.	The Tox Test Level QA Code of TAF was applied to the samples for Control Batch #2, the Tox Test Level QA Code of TMO was applied to the effected samples in Control Batch #2 that had pupation, and a Tox Result Comment was added to the replicate records that had pupation.

NUMBER	STATUS	DATE	QAPP	TITLE	DESCRIPTION	CORRECTIVE ACTIONS	RESOLUTION
2023-12	Final	02/26/2024	Delta RMP CUP QAPP 2022 v1.4	CUP Event 1 (WY 2024) Babcock Lab Blank Contamination for TOC	There was a detection in the TOC lab blank for Event 1 samples analyzed on 12/27/2023 by Babcock Laboratories. Contamination was detected at a level above the MDL in the detected not quantified (DNQ) range.	This deviation does not meet the DRMP lab blank contamination MQO, but does meet the SWAMP MQO which is followed by the Central Valley Water Quality Regional Board as the contracting agency for analysis conducted by Babcock for the DRMP CUP; therefore, the results did not require reconfirmation from the laboratory, but were flagged by the DRMP as not meeting project MQOs.	The TOC blank result was flagged with an IP code [Analyte detected in field or lab generated blank]; Environmental samples in the analytical batch were flagged with an QA Code of FI [Analyte in field sample and associated blank], and a lab batch comment was added to indicate the following; "TOC reported in lab blank at levels above MDL but below RL".

NUMBER	STATUS	DATE	QAPP	TITLE	DESCRIPTION	CORRECTIVE ACTIONS	RESOLUTION
2023-13	Final	05/01/2024	Delta RMP CUP QAPP 2022 v1.5	CUP Event 3 (WY 2024) <i>Pimephales</i> 7-day Toxicity Test Missed Hold Time	A shipment of <i>P. promelas</i> to PER was delayed in shipping, and toxicity test initiation was delayed beyond the 36 hours hold time limit. Consequently, four of the 24 samples collected for <i>P. promelas</i> toxicity testing for this Event were not tested and are incomplete. This might have an impact on the interpretation of toxicity to fish in the Confluence Subregion. However, all samples collected from the two fixed sites (Buckley Cove and Ulatis Creek) have been tested for toxicity to <i>P. promelas</i> .	Since shipping delays are outside of the control of the laboratory or the DRMP, the only corrective action to take is to add comments in the database indicating why there are not <i>P. promelas</i> results for these samples.	It was the consensus of the TIE committee members to forego testing for the affected samples as delayed toxicity testing would occur either outside of the holding time limits for water samples and/or past the organismal age (time limit) for use of the test specimens. A sample and collection comment was added to Station(s) Conf-009, Conf-010, Conf-011 and Conf-012 which states: " <i>Pimephales</i> was not tested at this station due to delays in shipping larvae."

NUMBER	STATUS	DATE	QAPP	TITLE	DESCRIPTION	CORRECTIVE ACTIONS	RESOLUTION
2023-14	Final	05/02/2024	Delta RMP CUP QAPP 2022 v1.5	CUP Event 3 (WY 2024) <i>Ceriodaphnia</i> Toxicity Test Lost Control	PER accidentally disposed of <i>C. dubia</i> control treatments for four toxicity tests related to samples collected on April 30, 2024 (Event 3). PER staff re-started the affected tests on May 2, 2024, outside of the standard 48-hour holding time limit, but within the maximal 72 hour holding time limit as outlined in EPA testing methods.	1) The PER staff member involved with the incident was re-trained on culturing and toxicity testing methods (which is required by the quality management system at PER when incidents such as this occur)., 2) Future Laboratory performance will be monitored against the completeness requirements of the CUP QAPP v1.5, and 3) A Lab Batch comment that samples were run out of hold time was added to the results.	Station locations Conf-009, Conf-010, Conf011 and Conf-012 sampled on April 30, 2024 (Event 3) had a toxicity test level QA Code of H [A holding time violation has occurred] added to the <i>C. dubia</i> summary records along with a comment with the time out of hold based on the collection time of each sample.
2023-15	Final	05/01/2024	Delta RMP CUP QAPP 2022 v1.5	CUP Event 3 (WY 2024) <i>Chironomus</i> larvae final ash free dry weights measured incorrectly; t(0) AFDW not calculated	The t(0) final AFDW measurements associated with DRMP's 10-day chronic water exposure <i>C. dilutus</i> toxicity tests for Control Batch 1 (associated with Event 3 monitoring) were measured incorrectly by PER staff, so the t(0) AFDW could not be calculated.	1) The responsible PER staff member was issued a Performance Evaluation, and the staff member was retrained on the weighing of test organisms, and 2) Future Laboratory performance will be monitored against the completeness requirements of the CUP QAPP v1.5.	A MN code [Method procedures not followed] was applied to control and samples for Control 1. A lab batch comment was also added; "MN: Initial weight of LABQA could not be determined due to technician error with weights."

NUMBER	STATUS	DATE	QAPP	TITLE	DESCRIPTION	CORRECTIVE ACTIONS	RESOLUTION
2023-16	Final	05/01/2024	Delta RMP CUP QAPP 2022 v1.5	CUP Event 3 (WY 2024) <i>Chironomus</i> larvae initial weights greater than 0.012 mg/individual AFDW	Upon completion of the drying process, the initial AFDW was recorded by PER staff for <i>C. dilutus</i> larvae in Control Batch #2 (Event 3 monitoring). The larvae exceeded the MQO of ≤ 0.12 mg/individual AFDW for t(0) weights.	An investigation was performed by PER to determine the cause of the increased weight of the organisms used for test initiation on May 1, 2024. It was determined that organism quality (e.g., large larvae) appeared to be a contributing factor to the test exceeding the SWAMP MQO for initial weight. PER also noted that all larvae were fed according to PER's SOP and by experienced analysts throughout the husbandry period. Accordingly, no mistakes were made during organism husbandry that could account for the weight exceeding the SWAMP MQO.	1) The SWAMP MQO of AFDW ≤ 0.12 mg/individual is presumably targeted to reduce the likelihood of pupation/hatching during the 10-day test. Even though the larval t(0) weight in Control Batch 2 was 0.16 mg/individual, there were no pupating organisms in this control batch. Therefore, it is not expected that the larger larvae at the test start had an effect on the test batch results., and 2) The Tox Test Level QA Code of TAF [Test organisms exceed the maximum weight requirement at test initiation] was applied to the affected samples in Control Batch#2.

NUMBER	STATUS	DATE	QAPP	TITLE	DESCRIPTION	CORRECTIVE ACTIONS	RESOLUTION
2023-17	Out for Regional Board Review	06/11/2024	Delta RMP CUP QAPP 2022 v1.5	CUP Event 3 (WY 2024) Babcock Missed Hold Time for TKN	1) Due to low spike recoveries, Babcock laboratories reanalyzed the TKN batch for five of six environmental samples which were approximately five days out of hold time., and 2) One of the six samples (Cent-017, Grab 2) was not marked for reanalysis due to internal procedures not being followed by Babcock staff.	1) Babcock Laboratories noted in their original correspondence related to the deviation that meeting holding times was part of the laboratory's key performance indicators (KPI) criteria and that Babcock Laboratories investigates all "past holding time" occurrences., 2) Babcock Laboratories performed a root cause analysis assessment and developed a corrective action plan to ensure similar incidents do not occur in the future., 3) Subsequently, corrective action has been taken by Babcock to review all data entry procedures, including re-analysis, with the appropriate employees. In addition, follow-up measures were put in place to catch oversights in this process moving forward, and 4) Effectiveness checks to date have shown no recurrences of this error.	1) Results were flagged with a QA Code of H [A holding time violation has occurred] on the samples out of hold time., 2) A lab batch and lab result comment was added., 3) The Cent-017 TKN- Dissolved result for the Grab 2 sample will not be reported., and 4) The Total Nitrogen (Dissolved) result which includes TKN will not be reported for Cent-017 (Grab 2) because it is missing the TKN component.

NUMBER	STATUS	DATE	QAPP	TITLE	DESCRIPTION	CORRECTIVE ACTIONS	RESOLUTION
2023-18	Out for Regional Board Review	07/08/2024	Delta RMP CUP QAPP 2022 v1.5	CUP Events 1 and 3 (WY 2024) PER Missing Required WQ Measures	Cassandra Lamerdin (at MLJ Environmental) documented two deviations that occurred in the DRMP CUP Year 4 study during WY 2024 due to missed water quality measurements by PER staff. Event 1 (WY 2024) had one site (511ULCABR) with no final <i>P. promelas</i> DO measure and Event 3 (WY 2024) had two missing water quality measurements at site Cent-018 (missing DO for <i>C. dubia</i> and missing conductivity for <i>S. capricornutum</i>).	1) The PER Quality Management team reminded the analysts involved in all three incidents to follow the process of their training and laboratory testing procedures, and 2) future Laboratory performance will be monitored against the completeness requirements of DRMP CUP QAPP 2022 v1.5.	A Tox Test Level QA Code of TWN [required water quality parameter not measured] was applied to the samples in each test batch.

NUMBER	STATUS	DATE	QAPP	TITLE	DESCRIPTION	CORRECTIVE ACTIONS	RESOLUTION
2023-20	Out for Regional Board Review	08/21/2024	Delta RMP CUP QAPP 2022 v1.5	CUP Event 5 (WY 2024) PER Missing Required WQ Measures	Deviation 2023-20 occurred during WY 2024 Event 5 toxicity testing by PER, in which two incidents occurred where water quality parameters were not measured: 1) A cup with the old water quality solutions for the chronic fathead minnow (<i>P. promelas</i>) test (CONF-017) was tipped over prior to the measurement of pH and DO on day 1, and 2) for the chronic <i>C. dubia</i> test (CONF-026), the solutions were renewed without keeping a replicate cup for the “old” renewal water quality prior to pouring out the other nine replicates and prior to the measurement of pH and DO on day 1.	1) The PER Quality Management team reminded the analysts involved in both incidents to follow the process of their training and laboratory testing procedures, and 2) Laboratory performance will be monitored against the completeness requirements of the DRMP CUP QAPP 2022 v1.5	A Tox Test Level QA Code of TWN [required water quality parameter not measured] was applied to the samples in the test batch prior to data submission.

NUMBER	STATUS	DATE	QAPP	TITLE	DESCRIPTION	CORRECTIVE ACTIONS	RESOLUTION
2023-21	Out for Regional Board Review	08/23/2024	Delta RMP CUP QAPP 2022 v1.5	CUP Event 5 (WY 2024) Babcock Missed Hold Time TKN dissolved	Babcock Laboratories notified MLJ Environmental and the CVRWQCB on 08/23/2024 that Event 5 sample "CONF-026 2024-07-22 (for TKN Dissolved)", needed to be reanalyzed and would result in a hold time violation. The original value for the dissolved TKN result for this sample was 0.4 mg/L, whereas the total TKN result for this sample was 0.2 mg/L. The re-analysis was needed due to the dissolved fraction being greater than the total TKN result. After reanalysis, the dissolved TKN result came back non-detect (ND) and the total TKN came back at the same result of 0.2 mg/L. Subsequently, the dissolved TKN reanalysis for sample "DRMP CONF-026 2024-07-22" occurred past holding time.	Babcock Laboratories indicated in their notification email that the laboratory is currently working towards improving their internal processes with a focus on performing sample re-analyses with a quicker turnaround time.	Results were flagged with a QA Code of H [A holding time violation has occurred] on the samples out of hold time. A lab batch and lab result comment was added.

NUMBER	STATUS	DATE	QAPP	TITLE	DESCRIPTION	CORRECTIVE ACTIONS	RESOLUTION
2023-22	Out for Regional Board Review	09/10/2024	Delta RMP CUP QAPP 2022 v1.5	CUP Event 4 (WY 2024) Babcock Lab Blank Contamination for Copper	Deviation 2023-22 occurred on September 10, 2024, when Babcock Laboratories notified MLJ Environmental and the CVRWQCB that two blank results (for C4F3403 samples) were noted to have copper contamination that was detected but not quantified [DNQ], indicating an estimated sample concentration that is less than the RL, but equal to or above the MDL and subject to a high degree of uncertainty. When samples were redigested and reanalyzed with new laboratory blanks as required per the method, one sample (a field blank, sample ID C4F340-02) was not redigested / reanalyzed due to technician error.	Given that the laboratory blank showed contamination it is unclear whether the field blank contamination was generated at the laboratory or the field, and no additional corrective action items have been identified. It should be noted that the redigested/reanalyzed batch which included environmental results had laboratory blanks meeting the DRMP MQO (i.e., < MDL) and therefore these samples were not impacted by the original batch.	The results associated with the method blank contamination were flagged with a QA Code of FI [Analyte in field sample and associated blank]. A comment was added to the LabBatch indicating "Copper detected in LabBlank and FieldBlank. (>1/2xRL)". In addition, the field blank received an QA code of IP [Analyte detected in field or lab generated blank].

NUMBER	STATUS	DATE	QAPP	TITLE	DESCRIPTION	CORRECTIVE ACTIONS	RESOLUTION
2023-23	Out for Regional Board Review	09/14/2024	Delta RMP CUP QAPP 2022 v1.5	CUP Event 6 (WY 2024) PER Chironomus; final ash-free dry weights measured incorrectly; No t(0) AFDW for Control Batch 1 and 2.	The t(0) final AFDW measurements associated with DRMP's 10-day chronic water exposure <i>C. dilutus</i> toxicity test for Control Batch 1 and 2 (associated with WY 2024 Event 6 monitoring) were measured incorrectly; therefore, a reliable t(0) AFDW could not be calculated.	1) PER Staff involved with the incident were retrained on the weighing of test organisms, and 2) Laboratory performance will be monitored against the completeness requirements of the DRMP CUP QAPP 2022 v1.5.	1) A code of MN [Method procedures not followed] was applied to control and samples for Control Batch 1 & 2., 2) A lab batch comment "MN: Initial weight of LABQA could not be determined due to technician error with weights." was applied to the affected batches, and 3) The Tox Test Level QA Code of TMO [Test organisms escaped or are otherwise missing] was applied to the affected samples in Control 1 that had pupation.

NUMBER	STATUS	DATE	QAPP	TITLE	DESCRIPTION	CORRECTIVE ACTIONS	RESOLUTION
2023-24	Out for Regional Board Review	09/15/2024	Delta RMP CUP QAPP 2022 v1.5	CUP Event 6 (WY 2024) PER Hyalella; Missing Required Final WQ Measurement Ammonia	A deviation occurred for WY 2024 Event 6 <i>H. azteca</i> toxicity testing, in which final ammonia was not measured for samples collected from 511ULCABR, CONF-021, CONF-023, CONF-024, and CONF-027.	1) A performance evaluation was issued to the PER analyst involved with the incident., and 2) Laboratory performance will be monitored against the completeness requirements of the DRMP CUP QAPP 2022 v1.5.	A Tox Test Level QA Code of TWN [required water quality parameter not measured] was applied to the samples in the test batch prior to data submission.

NUMBER	STATUS	DATE	QAPP	TITLE	DESCRIPTION	CORRECTIVE ACTIONS	RESOLUTION
2023-25	Out for Regional Board Review	10/07/2024	Delta RMP CUP QAPP 2022 v1.5	CUP Event 6 (WY 2024) USGS Field Blank Contamination on DOC	On October 7, 2024, Cassandra Lamerdin (MLJ Environmental) emailed Allie Guerra (Babcock Laboratories Project Manager), the USGS, the DRMP QA officer, and the CVRWQCB to inquire about potential DOC contamination in a field blank sample collected during WY 2024 Event 6 monitoring. In summary, out of a total of three 40 mL sample vials prepared for analysis of DOC for the field blank sample "DRMP_CONF-027_2024-09-10_BL", one (vial A) returned a detection of 0.46 mg/L and the second (vial B) returned a non-detect for DOC, and both results were confirmed via re-analysis (although the confirmation re-analysis was performed outside of the 28-day hold-time).	Previous corrective actions for this type of incident have involved the following: 1) Review of USGS National Field Manual sampling protocols to determine if the issue of organic solvent contamination is discussed including steps to be taken to avoid contamination, and determine if SOPs need to be revised or updated, and 2) the USGS has reviewed filtration SOPs with staff doing filtration specifically addressing concerns about organic carbon contamination.	1) Affected sample result(s) were flagged with a QA Code of IP [Analyte detected in field or lab generated blank], and a comment was added stating that a second vial analyzed for this sample was ND; and both results were confirmed by reanalysis, and 2) USGS reviewed the USGS National Field Manual SOP on June 23, 2023 and determined the SOP is current and correct.

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Appendix A. Sampling Photos for WY 2024 Monitoring (Current Use Pesticides Year 4)

Sampling for Year 4 of the DRMP CUP monitoring during WY 2024 occurred over Events 1 through 6 in December of 2023 through September of 2024. Photos taken by field crews during each monitoring event are provided below.

Event 1 – December 11 and 12, 2023

Figure A.1. Utlatis Creek looking downstream.



Figure A.2. Preparing to sample at site CENT-013 on Old River.

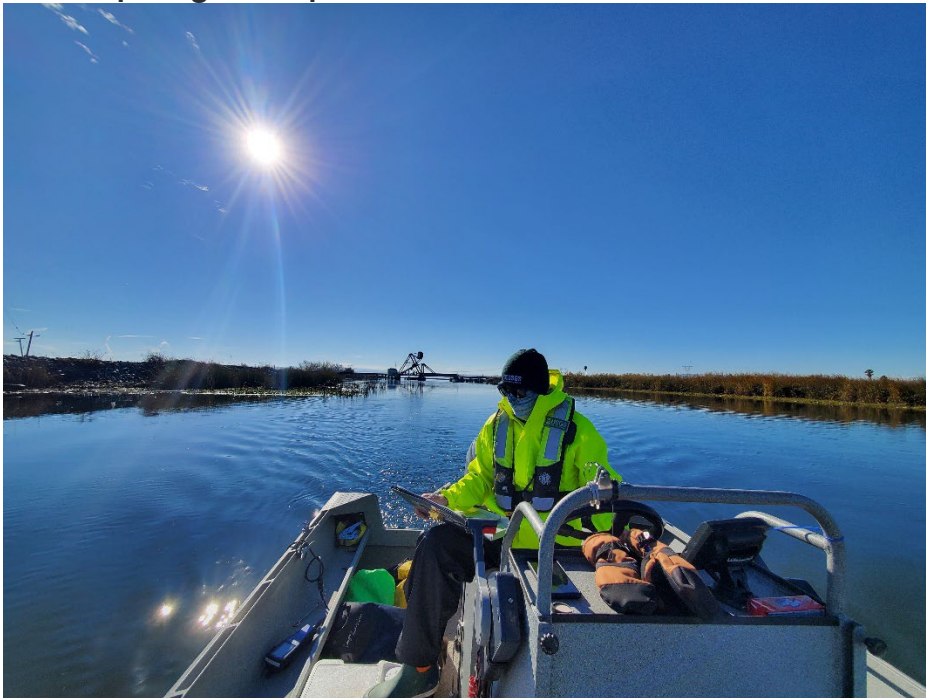


Figure A.3. Site CENT-014 on the San Joaquin River.



Figure A.4. Water from a channel dredging operation being pumped into the San Joaquin River.



Figure A.5. Preparing to sample at Buckley Cove.



Figure A.6. Post-sampling at site CONF-003.



Figure A.7. Sampling site CONF-004 on the San Joaquin River.



Figure A.8. View of site CONF-002.



Figure A.9. Site CONF-001 located in Sherman Lake.



Event 2 – January 22 and 23, 2024

Figure A.10. Ulatis Creek looking downstream.



Figure A.11. Waiting for a freighter to pass while sampling at Buckley Cove.



Figure A.12. Site CONF-007 on the San Joaquin River.



Figure A.13. USGS personnel collecting field notes at site CONF-005.



Figure A.14. The view towards the west from stie CONF-006.



Figure A.15. Sampling site CONF-008 on the San Joaquin River.



Figure A.16. View of site CENT-015.



Figure A.17. Site CENT-016 located on the San Joaquin River.



Event 3 – April 29 and 30, 2024

Figure A.18. Ulatis Creek looking downstream.



Figure A.19. View from site CENT-017 on Old River.



Figure A.20. View from site CENT-018 at Mildred Island.



Figure A.21. Yellowed floating aquatic vegetation near site CENT-018.



Figure A.22. San Joaquin River at Buckley Cove.



Figure A.23. Site CONF-010 on the San Joaquin River just upstream of the Antioch Bridge.



Figure A.24. USGS personnel preparing to sample at site CONF-009.



Figure A.25. The view south from stie CONF-012.



Figure A.26. The view south from stie CONF-011.



Event 4 – June 24 and 25, 2024

Figure A.27. View of the Buckley Cove sampling location.



Figure A.28. View from site CONF-014 in Sherman Lake.



Figure A.29. USGS personnel preparing to sample at site CONF-013.

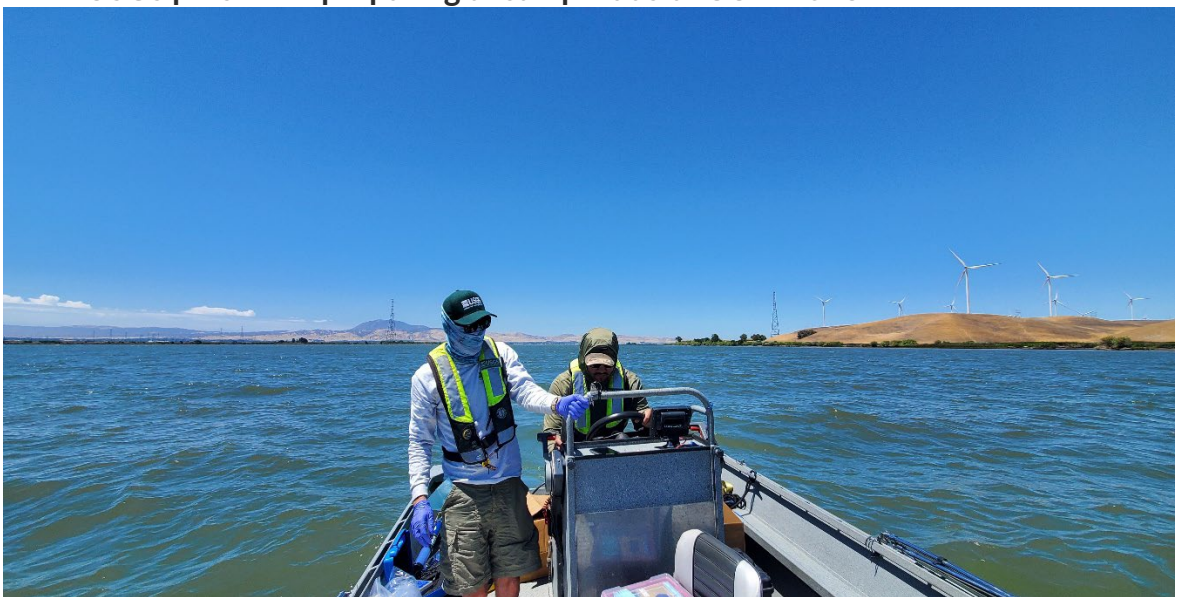


Figure A.30. View from site CONF-016 located on the eastern bank of the Sacramento River.



Figure A.31. View from site CENT-019.



Figure A.32. Site CENT-020 on Sheep Slough near Franks Tract.



Figure A.33. View from site CONF-025.



Figure A.34. The view looking downstream at Ulatis Creek.



Figure A.35. USGS personnel rinsing toxicity sampling bottles at Ulatis Creek.



Event 5 – July 22 and 23, 2024

Figure A.36. View from site CONF-018 just outside Sherman Lake.



Figure A.37. View from site CONF-017 in Sherman Lake.



Figure A.38. Preparing to collect samples at site CONF-026.



Figure A.39. Preparing to collect samples at site CONF-019.



Figure A.40. View to the South from the Buckley Cove sampling site.



Figure A.41. Preparing to collect water samples at site CENT-021.

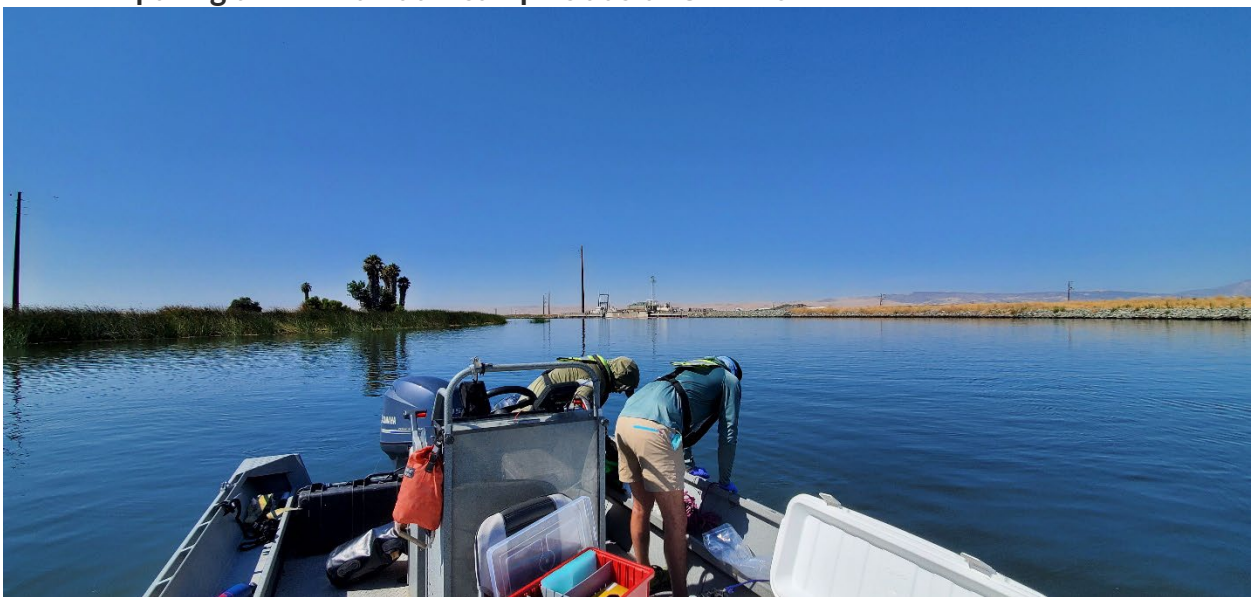
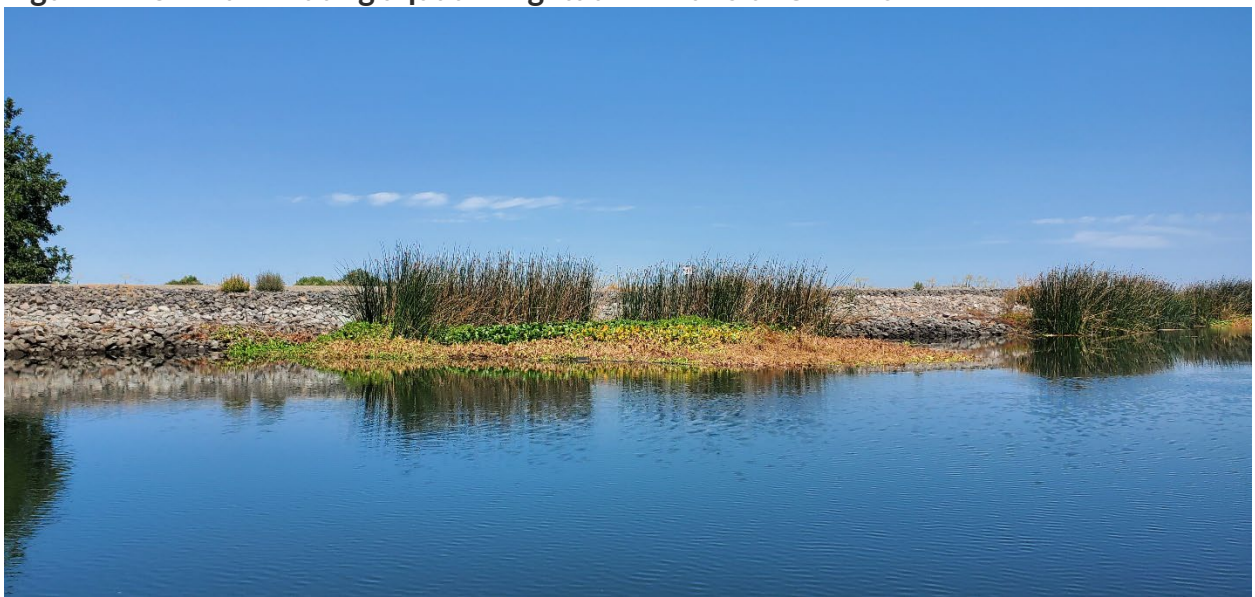


Figure A.42. The view looking east from site CENT-022.



Figure A.43. Dead floating aquatic vegetation near site CENT-022.



Event 6 – September 10 and 11, 2024

Figure A.44. View west from site CONF-021 on Cabin Slough.



Figure A.45. USGS personnel preparing to sample at site CONF-023.



Figure A.46. View from site CONF-027 on the San Joaquin River.



Figure A.47. View west at site CONF-024.



Figure A.48. USGS personnel rinsing sample bottles at Ulatis Creek.



Figure A.49. View to the north from the CENT-023 sampling site.



Figure A.50. Yellowing floating aquatic vegetation near site CENT-023.



Figure A.51. The view looking west from site CENT-024 (note yellowing FAV).



Figure A.52. USGS personnel sampling at Buckley Cove.



Appendix B. List of Current Use Pesticide Constituents

Constituents Analyzed

Table B.1. Water Year 2024 current use pesticides and chemistry parameters.

LAB	MATRIX	METHOD	ANALYTE	CAS NUMBER	FRACTION	UNIT
Babcock	Water	Calculated	Nitrogen, Total	Not Applicable	Dissolved	mg/L
Babcock	Water	Calculated	Nitrogen, Total	Not Applicable	Total	mg/L
Babcock	Water	EPA 200.7	Calcium	7440702	Dissolved	mg/L
Babcock	Water	EPA 200.7	Magnesium	7439954	Dissolved	mg/L
Babcock	Water	EPA 200.8	Copper	7440508	Dissolved	µg/L
Babcock	Water	EPA 351.2	Nitrogen, Total Kjeldahl	7727379	Dissolved	mg/L
Babcock	Water	EPA 351.2	Nitrogen, Total Kjeldahl	7727379	Total	mg/L
Babcock	Water	EPA 353.2	Nitrate + Nitrite as N	Not Applicable	Total	mg/L
Babcock	Water	SM 2340 B	Hardness	Not Applicable	Dissolved	mg/L
Babcock	Water	SM 5310 B	Dissolved Organic Carbon	Not Applicable	Dissolved	mg/L
Babcock	Water	SM 5310 B	Total Organic Carbon	Not Applicable	Total	mg/L
OCRL	Water	EPA 160.2	Total Suspended Solids	Not Applicable	Particulate	mg/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_GC/MS/MS	Acibenzolar-S-methyl	135158542	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_GC/MS/MS	Allethrin	584792	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_GC/MS/MS	Benfluralin	1861401	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_GC/MS/MS	Bifenthrin	82657043	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_GC/MS/MS	Chlorfenapyr	122453730	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_GC/MS/MS	Chlorothalonil	1897456	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_GC/MS/MS	Cyfluthrin, Total	68359375	Dissolved, Particulate	ng/L

LAB	MATRIX	METHOD	ANALYTE	CASNUMBER	FRACTION	UNIT
OCRL	Water	USGS-OCRL_WATER-PEST_06_GC/MS/MS	Cyhalofop-butyl	122008859	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_GC/MS/MS	Cyhalothrin, Total	68085858	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_GC/MS/MS	Cypermethrin, Total	52315078	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_GC/MS/MS	Dacthal	1861321	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_GC/MS/MS	DDD(p,p')	72548	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_GC/MS/MS	DDE(p,p')	72559	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_GC/MS/MS	DDT(p,p')	50293	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_GC/MS/MS	Deltamethrin	52918635	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_GC/MS/MS	Dithiopyr	97886458	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_GC/MS/MS	Esfenvalerate	66230044	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_GC/MS/MS	Ethalfuralin	55283686	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_GC/MS/MS	Ethofenprox	80844071	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_GC/MS/MS	Fenpropathrin	39515418	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_GC/MS/MS	Methoprene	40596698	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_GC/MS/MS	Nitrapyrin	1929824	Dissolved, Particulate	ng/L

LAB	MATRIX	METHOD	ANALYTE	CASNUMBER	FRACTION	UNIT
OCRL	Water	USGS-OCRL_WATER-PEST_06_GC/MS/MS	Pentachloroanisole	1825214	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_GC/MS/MS	Pentachloronitrobenzene	82688	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_GC/MS/MS	Permethrin, Total	52645531	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_GC/MS/MS	Phenothrin	26002802	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_GC/MS/MS	Tefluthrin	79538322	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_GC/MS/MS	Tetramethrin	7696120	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_GC/MS/MS	T-Fluvalinate	102851069	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_GC/MS/MS	Trifluralin	1582098	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Acetamiprid	135410207	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Atrazine	1912249	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Azoxystrobin	131860338	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Bentazon	25057890	Dissolved	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Benzobicyclon	156963665	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Benzovindiflupyr	1072957711	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Boscalid	188425856	Dissolved, Particulate	ng/L

LAB	MATRIX	METHOD	ANALYTE	CASNUMBER	FRACTION	UNIT
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Boscalid-5-hydroxy	661463872	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Broflanilide	1207727045	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Bromuconazole	116255482	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Butralin	33629479	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Carbaryl	63252	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Carbendazim	10605217	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Carbofuran	1563662	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Chlorantraniliprole	500008457	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Chloro-N-(ethoxymethyl)-N-(2-ethyl-6-methylphenyl)acetamide, 2-	34256821	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Chlorpyrifos	2921882	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Chlorpyrifos oxon	5598152	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Clomazone	81777891	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Clothianidin	210880925	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Clothianidin-Desmethyl	135018154	Dissolved, Particulate	ng/L

LAB	MATRIX	METHOD	ANALYTE	CASNUMBER	FRACTION	UNIT
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Coumaphos	56724	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Cyantraniliprole	736994631	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Cyazofamid	120116883	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Cyclaniliprole	1031756985	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Cycloate	1134232	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Cymoxanil	57966957	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Cyproconazole	94361065	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Cyprodinil	121552612	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Desethyl-Atrazine	6190654	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Desisopropyl-Atrazine	1007289	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Desnitro-imidacloprid	115970177	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Desthio-prothioconazole	120983644	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Diazinon	333415	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Diazoxon	962583	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Dichloroaniline, 3,5-	626437	Dissolved, Particulate	ng/L

LAB	MATRIX	METHOD	ANALYTE	CASNUMBER	FRACTION	UNIT
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Dichlorobenzenamine, 3,4-	95761	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Dichlorophenyl Urea, 3,4-	2327028	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Dichlorophenyl-3-methyl Urea, 3,4-	3567622	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Dichlorvos	62737	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Difenoconazole	119446683	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Dimethomorph	110488705	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Dinotefuran	165252700	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Diuron	330541	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	EPTC	759944	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Ethaboxam	162650773	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Etoxazole	153233911	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Famoxadone	131807573	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Fenamidone	161326347	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Fenbuconazole	114369436	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Fenhexamid	126833178	Dissolved, Particulate	ng/L

LAB	MATRIX	METHOD	ANALYTE	CAS NUMBER	FRACTION	UNIT
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Fenpyroximate	134098616	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Fipronil	120068373	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Fipronil Desulfinyl	205650653	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Fipronil Desulfinyl Amide	1115248093	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Fipronil Sulfide	120067836	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Fipronil Sulfone	120068362	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Flonicamid	158062670	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Florpyrauxifen-Benzyl	1390661729	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Fluazinam	79622596	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Fludioxonil	131341861	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Flufenacet	142459583	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Fluindapyr	1383809877	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Flumetralin	62924703	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Fluopicolide	239110157	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Fluopyram	658066354	Dissolved, Particulate	ng/L

LAB	MATRIX	METHOD	ANALYTE	CASNUMBER	FRACTION	UNIT
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Fluoxastrobin	193740760	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Flupyradifurone	951659408	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Fluridone	59756604	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Flutolanil	66332965	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Flutriafol	76674210	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Fluxapyroxad	907204313	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Halauxifen-methyl	943831989	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Hexazinone	51235042	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Hydroxy-Imidacloprid, 5-	380912094	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Imazalil	35554440	Dissolved	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Imidacloprid	138261413	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Imidacloprid olefin	115086549	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Imidacloprid urea	120868668	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Indaziflam	950782862	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Indoxacarb	173584446	Dissolved, Particulate	ng/L

LAB	MATRIX	METHOD	ANALYTE	CASNUMBER	FRACTION	UNIT
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Ipconazole	125225287	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Iprodione	36734197	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Isofetamid	875915789	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Kresoxim-methyl	143390890	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Malaoxon	1634782	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Malathion	121755	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Mandestrobin	173662970	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Mandipropamid	374726622	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Metalaxyl	57837191	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Metalaxyl-hydroxymethyl	85933499	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Metconazole	125116236	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Methoxyfenozide	161050584	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Metolachlor	51218452	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Myclobutanil	88671890	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Naled	300765	Dissolved, Particulate	ng/L

LAB	MATRIX	METHOD	ANALYTE	CASNUMBER	FRACTION	UNIT
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Napropamide	15299997	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Novaluron	116714466	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Oryzalin	19044883	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Oxadiazon	19666309	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Oxathiapiprolin	1003318679	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Oxyfluorfen	42874033	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Paclobutrazol	76738620	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Pendimethalin	40487421	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Penoxsulam	219714962	Dissolved	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Penthiopyrad	183675823	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Phosmet	732116	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Picarbutrazox	500207045	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Picoxystrobin	117428225	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Piperonyl Butoxide	51036	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Prodiamine	29091212	Dissolved, Particulate	ng/L

LAB	MATRIX	METHOD	ANALYTE	CASNUMBER	FRACTION	UNIT
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Prometon	1610180	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Prometryn	7287196	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Propanil	709988	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Propargite	2312358	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Propiconazole	60207901	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Propyzamide	23950585	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Pydiflumetofen	1228284647	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Pyraclostrobin	175013180	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Pyridaben	96489713	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Pyrimethanil	53112280	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Pyriproxyfen	95737681	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Quinoxifen	124495187	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Sedaxane	874967676	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Simazine	122349	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Sulfoxaflo	946578003	Dissolved, Particulate	ng/L

LAB	MATRIX	METHOD	ANALYTE	CASNUMBER	FRACTION	UNIT
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Tebuconazole	107534963	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Tebuconazole-tert-Butylhydroxy	212267646	Dissolved	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Tebufenozide	112410238	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Tebupirimfos	96182535	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Tebupirimfos oxon	1035330369	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Tetraconazole	112281773	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Thiabendazole	148798	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Thiacloprid	111988499	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Thiamethoxam	153719234	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Thiamethoxam Degradate (CGA-355190)	--	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Thiamethoxam Degradate (NOA-407475)	--	Dissolved	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Thiobencarb	28249776	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Tolfenpyrad	129558765	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Triadimefon	43121433	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Triadimenol	55219653	Dissolved, Particulate	ng/L

LAB	MATRIX	METHOD	ANALYTE	CASNUMBER	FRACTION	UNIT
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Triallate	2303175	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Tributyl Phosphorotrithioate, S,S,S-	78488	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Trifloxystrobin	141517217	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Triflumizole	68694111	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Triticonazole	131983727	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Valifenalate	283159900	Dissolved, Particulate	ng/L
OCRL	Water	USGS-OCRL_WATER-PEST_06_LC/MS/MS	Zoxamide	156052685	Dissolved, Particulate	ng/L

Water Quality Metrics

Table B.2. Water Year 2024 water quality metrics for current use pesticides and chemistry parameters ¹.

Source code definitions are provided in Appendix Table B.3.

ANALYTE	CAS NUMBER	FRACTION	WATER QUALITY METRIC (ng/L)	SOURCE CODE
Acetamiprid	135410207	Dissolved, Particulate	2,100	B
Acibenzolar-S-methyl	135158542	Dissolved, Particulate	26,000	B
Allethrin	584792	Dissolved, Particulate	1,050	L
Atrazine	1912249	Dissolved, Particulate	1,000	B,D
Azoxystrobin	131860338	Dissolved, Particulate	44,000	B
Benfluralin	1861401	Dissolved, Particulate	1,900	K
Bentazon	25057890	Dissolved	4,500,000	N
Benzobicyclon	156963665	Dissolved, Particulate	1,475	O
Benzovindiflupyr	1072957711	Dissolved, Particulate	950	K
Bifenthrin	82657043	Dissolved, Particulate	0.05	M
Boscalid	188425856	Dissolved, Particulate	116,000	B
Boscalid-5-hydroxy	Not Available	Dissolved, Particulate	--	Not Applicable
Broflanilide	1207727045	Dissolved, Particulate	5,930	M
Bromuconazole	116255482	Dissolved, Particulate	20,000	M
Butralin	33629479	Dissolved, Particulate	600,000	S
Carbaryl	63252	Dissolved, Particulate	500	B
Carbendazim	10605217	Dissolved, Particulate	990*	K*
Carbofuran	1563662	Dissolved, Particulate	750	M
Chlorantraniliprole	500008457	Dissolved, Particulate	3,020	B
Chlorfenapyr	122453730	Dissolved, Particulate	2,915	B
Chloro-N-(ethoxymethyl)-N-(2-ethyl-6-methylphenyl)acetamide, 2-	34256821	Dissolved, Particulate	1,430	N
Chlorothalonil	1897456	Dissolved, Particulate	600	B

ANALYTE	CAS NUMBER	FRACTION	WATER QUALITY METRIC (ng/L)	SOURCE CODE
Chlorpyrifos	2921882	Dissolved, Particulate	15	A
Chlorpyrifos Oxon	5598152	Dissolved, Particulate	--	Not Applicable
Clomazone	81777891	Dissolved, Particulate	167,000	N
Clothianidin	210880925	Dissolved, Particulate	50	B
Clothianidin-Desmethyl	135018154	Dissolved, Particulate	--	Not Applicable
Coumaphos	56724	Dissolved, Particulate	33.7	M
Cyantraniliprole	736994631	Dissolved, Particulate	6,560	B
Cyazofamid	120116883	Dissolved, Particulate	8,700	B
Cyclaniliprole	1031756985	Dissolved, Particulate	9,600	M
Cycloate	1134232	Dissolved, Particulate	30,000	E
Cyfluthrin, total	68359375	Dissolved, Particulate	0.12	M
Cyhalofop-butyl	122008859	Dissolved, Particulate	47,400	M
Cyhalothrin, Total	68085858	Dissolved, Particulate	6,200	P
Cymoxanil	57966957	Dissolved, Particulate	980	B
Cypermethrin, Total	52315078	Dissolved, Particulate	0.05	M
Cyproconazole	94361065	Dissolved, Particulate	60,000	S
Cyprodinil	121552612	Dissolved, Particulate	8,200	B
Dacthal	1861321	Dissolved, Particulate	11,000,000	N
DDD(p,p')	72548	Dissolved, Particulate	--	Not Applicable
DDE(p,p')	72559	Dissolved, Particulate	--	Not Applicable
DDT(p,p')	50293	Dissolved, Particulate	1	I
Deltamethrin	52918635	Dissolved, Particulate	0.026	B
Desethyl-Atrazine	6190654	Dissolved, Particulate	--	Not Applicable
Desisopropyl-Atrazine	1007289	Dissolved, Particulate	--	Not Applicable
Desnitro-imidacloprid	115970177	Dissolved, Particulate	--	Not Applicable
Desthio-prothioconazole	120983644	Dissolved, Particulate	4,800	N
Diazinon	333415	Dissolved, Particulate	100	A
Diazoxon	962583	Dissolved, Particulate	--	Not Applicable

ANALYTE	CAS NUMBER	FRACTION	WATER QUALITY METRIC (ng/L)	SOURCE CODE
Dichloroaniline, 3,5-	626437	Dissolved, Particulate	--	Not Applicable
Dichlorobenzeneamine, 3,4-	95761	Dissolved, Particulate	10,000	M
Dichlorophenyl Urea, 3,4-	2327028	Dissolved, Particulate	--	Not Applicable
Dichlorophenyl-3-methyl Urea, 3,4-	3567622	Dissolved, Particulate	7,100	N
Dichlorvos	62737	Dissolved, Particulate	5.8	B
Difenoconazole	119446683	Dissolved, Particulate	860	B
Dimethomorph	110488705	Dissolved, Particulate	107,000	B
Dinotefuran	165252700	Dissolved, Particulate	6,000,000	E
Dithiopyr	97886458	Dissolved, Particulate	6,110	B
Diuron	330541	Dissolved, Particulate	130	B
EPTC	759944	Dissolved, Particulate	40,000	B
Esfenvalerate	66230044	Dissolved, Particulate	0.0309	M
Ethaboxam	162650773	Dissolved, Particulate	50,000	M
Ethalfuralin	55283686	Dissolved, Particulate	400	B
Ethofenprox	80844071	Dissolved, Particulate	170	B
Etiozole	153233911	Dissolved, Particulate	130	B
Famoxadone	131807573	Dissolved, Particulate	85	B
Fenamidone	161326347	Dissolved, Particulate	4,700	B
Fenbuconazole	114369436	Dissolved, Particulate	27,000	B
Fenhexamid	126833178	Dissolved, Particulate	101,000	B
Fenpropathrin	39515418	Dissolved, Particulate	1.5	B
Fenpyroximate	134098616	Dissolved, Particulate	110	B
Fipronil	120068373	Dissolved, Particulate	11	B
Fipronil Desulfinyl	205650653	Dissolved, Particulate	530	K
Fipronil Desulfinyl Amide	1115248093	Dissolved, Particulate	--	Not Applicable
Fipronil Sulfide	120067836	Dissolved, Particulate	830	K
Fipronil Sulfone	120068362	Dissolved, Particulate	220	M
Flonicamid	158062670	Dissolved, Particulate	200,000	E

ANALYTE	CAS NUMBER	FRACTION	WATER QUALITY METRIC (ng/L)	SOURCE CODE
Florpyrauxifen-Benzyl	1390661729	Dissolved, Particulate	16.2	O
Fluazinam	79622596	Dissolved, Particulate	690	B
Fludioxonil	131341861	Dissolved, Particulate	14,000	B
Flufenacet	142459583	Dissolved, Particulate	2450	O
Fluindapyr	1383809877	Dissolved, Particulate	31,000	K
Flumetralin	62924703	Dissolved, Particulate	770	K
Fluopicolide	239110157	Dissolved, Particulate	151,000	B
Fluopyram	658066354	Dissolved, Particulate	71,000	E
Fluoxastrobin	193740760	Dissolved, Particulate	45,000	B
Flupyradifurone	951659408	Dissolved, Particulate	460,000	E
Fluridone	59756604	Dissolved, Particulate	480,000	K
Flutolanil	66332965	Dissolved, Particulate	220,000	B
Flutriafol	76674210	Dissolved, Particulate	300,000	E
Fluxapyroxad	907204313	Dissolved, Particulate	22,000*	B*
Halauxifen-methyl	943831989	Dissolved, Particulate	135	O
Hexazinone	51235042	Dissolved, Particulate	7,000	B
Hydroxy-Imidacloprid, 5-	380912094	Dissolved, Particulate	--	Not Applicable
Imazalil	35554440	Dissolved	639,000	E
Imidacloprid	138261413	Dissolved, Particulate	10	B
Imidacloprid olefin	115086549	Dissolved, Particulate	--	Not Applicable
Imidacloprid urea	120868668	Dissolved, Particulate	47,400,000	L
Indaziflam	950782862	Dissolved, Particulate	100,000	E
Indoxacarb	173584446	Dissolved, Particulate	75,000	B
Ipconazole	125225287	Dissolved, Particulate	180	B
Iprodione	36734197	Dissolved, Particulate	120,000	B
Isofetamid	875915789	Dissolved, Particulate	86,000	B
Kresoxim-methyl	143390890	Dissolved, Particulate	30,300	B
Malaoxon	1634782	Dissolved, Particulate	--	Not Applicable

ANALYTE	CAS NUMBER	FRACTION	WATER QUALITY METRIC (ng/L)	SOURCE CODE
Malathion	121755	Dissolved, Particulate	49	B
Mandestrobin	173662970	Dissolved, Particulate	5,400,000	S
Mandipropamid	374726622	Dissolved, Particulate	76,000	B
Metalaxyl	57837191	Dissolved, Particulate	1,200,000	B
Metalaxyl-hydroxymethyl	85933499	Dissolved, Particulate	--	Not Applicable
Metconazole	125116236	Dissolved, Particulate	2,900	B
Methoprene	40596698	Dissolved, Particulate	48,000	K
Methoxyfenozide	161050584	Dissolved, Particulate	3,100	B
Metolachlor	51218452	Dissolved, Particulate	8,000	B
Myclobutanil	88671890	Dissolved, Particulate	122,000	B
Naled	300765	Dissolved, Particulate	10	B
Napropamide	15299997	Dissolved, Particulate	350,000	B
Nitrapyrin	1929824	Dissolved, Particulate	103,000	B
Novaluron	116714466	Dissolved, Particulate	30	B
Oryzalin	19044883	Dissolved, Particulate	13,000	B
Oxadiazon	19666309	Dissolved, Particulate	880	B
Oxathiapiprolin	1003318679	Dissolved, Particulate	140,000	N
Oxyfluorfen	42874033	Dissolved, Particulate	330	B
Paclobutrazol	76738620	Dissolved, Particulate	8,000	B
Pendimethalin	40487421	Dissolved, Particulate	5,200	B
Penoxsulam	219714962	Dissolved	3,000	B
Pentachloroanisole	1825214	Dissolved, Particulate	--	Not Applicable
Pentachloronitrobenzene	82688	Dissolved, Particulate	6,000	S
Penthiopyrad	183675823	Dissolved, Particulate	100,000	B
Permethrin, Total	52645531	Dissolved, Particulate	3.3	L
Phenothrin	26002802	Dissolved, Particulate	470	M
Phosmet	732116	Dissolved, Particulate	750	B
Picarbutrazox	500207045	Dissolved, Particulate	76,000	K

ANALYTE	CAS NUMBER	FRACTION	WATER QUALITY METRIC (ng/L)	SOURCE CODE
Picoxystrobin	117428225	Dissolved, Particulate	1,000	B
Piperonyl Butoxide	51036	Dissolved, Particulate	7,800	B
Prodiamine	29091212	Dissolved, Particulate	1,500	B
Prometon	1610180	Dissolved, Particulate	98,000	B
Prometryn	7287196	Dissolved, Particulate	1,040	B
Propanil	709988	Dissolved, Particulate	2,400	K
Propargite	2312358	Dissolved, Particulate	7,000	B
Propiconazole	60207901	Dissolved, Particulate	15,000	B
Propyzamide	23950585	Dissolved, Particulate	77,000	E
Pydiflumetofen	1228284647	Dissolved, Particulate	540,000	S
Pyraclostrobin	175013180	Dissolved, Particulate	1,500	B
Pyridaben	96489713	Dissolved, Particulate	44	B
Pyrimethanil	53112280	Dissolved, Particulate	20,000	B
Pyriproxyfen	95737681	Dissolved, Particulate	15	B
Quinoxifen	124495187	Dissolved, Particulate	13,000	B
Sedaxane	874967676	Dissolved, Particulate	650,000	S
Simazine	122349	Dissolved, Particulate	4,000	D
Sulfoxaflor	946578003	Dissolved, Particulate	300,000	S
Tebuconazole	107534963	Dissolved, Particulate	11,000	B
Tebuconazole-tert-Butylhydroxy	212267646	Dissolved, Particulate	--	Not Applicable
Tebufenozide	112410238	Dissolved, Particulate	29,000	B
Tebupirimfos	96182535	Dissolved, Particulate	11	M
Tebupirimfos oxon	1035330369	Dissolved, Particulate	--	Not Applicable
Tefluthrin	79538322	Dissolved, Particulate	4	K
Tetraconazole	112281773	Dissolved, Particulate	43,000	S
Tetramethrin	7696120	Dissolved, Particulate	1,850	B
T-Fluvalinate	102851069	Dissolved, Particulate	64	K
Thiabendazole	148798	Dissolved, Particulate	42,000	B

ANALYTE	CAS NUMBER	FRACTION	WATER QUALITY METRIC (ng/L)	SOURCE CODE
Thiacloprid	111988499	Dissolved, Particulate	970	B
Thiamethoxam	153719234	Dissolved, Particulate	740	B
Thiamethoxam Degradate (CGA-355190)	Not Available	Dissolved, Particulate	--	Not Applicable
Thiamethoxam Degradate (NOA-407475)	Not Available	Dissolved, Particulate	--	Not Applicable
Thiobencarb	28249776	Dissolved, Particulate	1,000	K
Tolfenpyrad	129558765	Dissolved, Particulate	81.5	J
Triadimefon	43121433	Dissolved, Particulate	41,000*	B*
Triadimenol	55219653	Dissolved, Particulate	20,000	E
Triallate	2303175	Dissolved, Particulate	14,000	B
Tributyl Phosphorotrithioate, S,S,S-	78488	Dissolved, Particulate	1,000	R
Trifloxystrobin	141517217	Dissolved, Particulate	2,760	B
Triflumizole	68694111	Dissolved, Particulate	33,000	B
Trifluralin	1582098	Dissolved, Particulate	1,900	B
Triticonazole	131983727	Dissolved, Particulate	12,000	B
Valifenalate	283159900	Dissolved, Particulate	500,000	M
Zoxamide	156052685	Dissolved, Particulate	3,480	B

¹Updated metrics for WY 2024 results provided by CVRWQCB on June 18, 2024

Table B.3. Water Year 2023 water quality metric source references.Specific metrics for WY 2023 constituents are provided in Appendix **Table B.2**.

Source Code	SOURCE REFERENCE
A	Numeric water quality objective in the Basin Plan (PEP Attachment A)
B	US EPA Ambient Water Quality Criteria and Aquatic Life Benchmarks (2022) (Freshwater, µg/L): (PEP Attachment A)
C	DPR's "Benchmark Equivalents" developed by Surface Water Protection Program (Luo et al. 2013: http://www.cdpr.ca.gov/docs/emon/pubs/ehapreps/analysis_memos/prioritization_report.pdf)
D	Maximum Contaminant Levels (MCLs), National Drinking Water Regulations (2022) and California State Water Resources Control Board's MCLs
E	US EPA Human Health Benchmarks for Pesticides (Chronic or Lifetime, ppb)
F	Drinking Water Notification Levels (2022)(PEP Attachment A)
G	Archived Advisory Levels for Drinking Water (PEP Attachment A)
H	US EPA Drinking Water Health Advisory (2018) (PEP Attachment A)
I	US EPA National Recommended Aquatic Life Criteria, Criterion Continuous Concentration
J	2021 Fish Acute US EPA OPP Aquatic Life Benchmark
K	2022 Vertebrates Chronic US EPA OPP Aquatic Life Benchmarks
L	2021 Invertebrates Acute US EPA OPP Aquatic Life Benchmarks
M	2022 Invertebrates Chronic US EPA OPP Aquatic Life Benchmarks
N	2021 Nonvascular Plants US EPA OPP Aquatic Life Benchmark
O	2021 Vascular Plants US EPA OPP Aquatic Life Benchmark
P	2021 Acute (Children) US EPA Human Health Benchmarks for Pesticides
Q	2021 Acute (Females 13-49 years) US EPA Human Health Benchmarks for Pesticides
R	2021 Chronic (Females 13-49 years) US EPA Human Health Benchmarks for Pesticides
S	2021 Chronic General Population US EPA Human Health Benchmarks for Pesticides

Appendix C. Summary of Completeness and Quality Control Sample Acceptability for WY 2024

The following sections outline the completeness and overall acceptability of each analysis completed for the Delta Regional Monitoring Program (DRMP) Current Use Pesticide (CUP) monitoring that occurred during WY 2024.

A total of 48 environmental samples were analyzed by the United State Geological Survey (USGS) Organic Chemistry Research Laboratory (OCRL), Babcock Laboratories (Babcock), and Pacific EcoRisk (PER).

All results for WY 2024 CUP Monitoring were reviewed according to the CUP QAPP v1.5 and the DRMP Data Management Standard Operating Procedures (SOP) and were flagged with California Environmental Data Exchange Network (CEDEN) comparable QA Codes. All codes applied to the WY 2024 monitoring results are defined in **Appendix C, Table C.1**.

Table C.1. QA Codes Used in the WY 2024 CUP Dataset (water).

QA CODE	QA NAME
AWM	Detection limit increased due to dilution prior to final sample volume (not a secondary dilution)
BCO	Sample received in improper container
BZ	Sample preserved improperly
CJ	Analyte concentration is in excess of the instrument calibration; considered estimated
D	EPA Flag - Analytes analyzed at a secondary dilution
EUM	LCS is outside of control limits
FDP	Field duplicate RPD above QC limit
FI	Analyte in field sample and associated blank
FIF	Instrument/Probe Failure
GB	Matrix spike recovery not within control limits
H	A holding time violation has occurred
IL	RPD exceeds laboratory control limit
IP	Analyte detected in field or lab generated blank
PJM	Result from re-extract/re-anal to confirm original result
MN	Method procedures not followed
PRM	Low survival in toxicity test resulted from test interference due to pathogen-related mortality
QAX	When the native sample for the MS/MSD or DUP is not included in the batch reported

QA CODE	QA NAME
RLST	Replicate lost or destroyed
SLM	Analyte results for R1 and/or R2 were lower than 10 times the MDL, therefore RPD acceptance limits do not apply
SN	See narrative and/or special notes
TAF	Test organisms exceed the maximum weight requirement at test initiation
TMO	Test organisms escaped or are otherwise missing
TMSD	Endpoint considered not toxic; per EPA method, when both the relative difference from control and the test percent minimum significant difference (PMSD) are less than EPA lower PMSD bound (10th percentile)
TOQ	Number of organisms in a toxicity test do not meet the minimum quantity per replicate at test initiation or an unequal quantity of organisms per replicate is used
TWN	Required water quality parameters not measured

Summary of Completeness

The WY 2024 monitoring samples were collected from 38 sites over six sampling events, per the CUP Workplan (see **Sampling Overview**). An evaluation of field, transport and analytical completeness, along with field quality control sample completeness are provided in tables below.

Sample Completeness

Table C.2. Field and transport, and analytical completeness for WY 2024.

Samples are counted as individual results, i.e., separate endpoints for toxicity results and separate sample fractions analyzed for chemistry results.

METHOD	LAB	FRACTIONS	ANALYTE	ENV. SAMPLES SCHEDULED	ENV. SAMPLES COLLECTED	FIELD COMPLETE NESS (%)	TOTAL SAMPLES ANALYZED	ANALYTICAL COMPLETENESS (%)
Calculated	Babcock	Dissolved, Total	Nitrogen, Total	96	96	100.0	96	100.0
EPA 200.7	Babcock	Dissolved	Calcium	48	48	100.0	48	100.0
EPA 200.7	Babcock	Dissolved	Magnesium	48	48	100.0	48	100.0
EPA 200.8	Babcock	Dissolved	Copper	48	48	100.0	48	100.0
EPA 351.2	Babcock	Dissolved, Total	Nitrogen, Total Kjeldahl	96	96	100.0	96	100.0
EPA 353.2	Babcock	Total	Nitrate + Nitrite as N	48	48	100.0	48	100.0
SM 2340 B	Babcock	Dissolved	Hardness	48	48	100.0	48	100.0
SM 5310 B	Babcock	Dissolved	Dissolved Organic Carbon	48	48	100.0	48	100.0
SM 5310 B	Babcock	Total	Total Organic Carbon	48	48	100.0	48	100.0
EPA 600/R-99-064M	PER	Survival, Growth	<i>Chironomus dilutus</i>	96	96	100.0	96	100.0
EPA 821/R-02-012	PER	Survival	<i>Hyalella azteca</i>	48	48	100.0	48	100.0
EPA 821/R-02-013	PER	Reproduction, Survival	<i>Ceriodaphnia dubia</i>	96	96	100.0	88	91.7
EPA 821/R-02-013	PER	Survival, Growth	<i>Pimephales promelas</i>	96	96	100.0	84	87.5
EPA 821/R-02-013	PER	Growth	<i>Selenastrum capricornutum</i>	48	48	100.0	46	95.8
EPA 160.2	OCRL	Particulate	Total Suspended Solids	48	48	100.0	48	100.8

METHOD	LAB	FRACTIONS	ANALYTE	ENV. SAMPLES SCHEDULED	ENV. SAMPLES COLLECTED	FIELD COMPLETE NESS (%)	TOTAL SAMPLES ANALYZED	ANALYTICAL COMPLETENESS (%)
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Particulate, Dissolved	Acibenzolar-S-methyl	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Particulate, Dissolved	Allethrin	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Particulate, Dissolved	Benfluralin	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Particulate, Dissolved	Bifenthrin	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Particulate, Dissolved	Chlorfenapyr	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Particulate, Dissolved	Chlorothalonil	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Particulate, Dissolved	Cyfluthrin, Total	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Particulate, Dissolved	Cyhalofop-butyl	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Particulate, Dissolved	Cyhalothrin, Total	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Particulate, Dissolved	Cypermethrin, Total	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Particulate, Dissolved	Dacthal	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Particulate, Dissolved	DDD(p,p')	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Particulate, Dissolved	DDE(p,p')	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Particulate, Dissolved	DDT(p,p')	96	96	100.0	96	100.0

METHOD	LAB	FRACTIONS	ANALYTE	ENV. SAMPLES SCHEDULED	ENV. SAMPLES COLLECTED	FIELD COMPLETE NESS (%)	TOTAL SAMPLES ANALYZED	ANALYTICAL COMPLETENESS (%)
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Particulate, Dissolved	Deltamethrin	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Particulate, Dissolved	Dithiopyr	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Particulate, Dissolved	Esfenvalerate	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Particulate, Dissolved	Ethalfuralin	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Particulate, Dissolved	Ethofenprox	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Particulate, Dissolved	Fenpropathrin	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Particulate, Dissolved	Methoprene	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Particulate, Dissolved	Nitrapyrin	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Particulate, Dissolved	Pentachloroanisole	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Particulate, Dissolved	Pentachloronitrobenz ene	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Particulate, Dissolved	Permethrin, Total	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Particulate, Dissolved	Phenothrin	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Particulate, Dissolved	Tefluthrin	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Particulate, Dissolved	Tetramethrin	96	96	100.0	96	100.0

METHOD	LAB	FRACTIONS	ANALYTE	ENV. SAMPLES SCHEDULED	ENV. SAMPLES COLLECTED	FIELD COMPLETE NESS (%)	TOTAL SAMPLES ANALYZED	ANALYTICAL COMPLETENESS (%)
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Particulate, Dissolved	T-Fluvalinate	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Particulate, Dissolved	Trifluralin	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Acetamiprid	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Atrazine	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Azoxystrobin	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Dissolved	Bentazon	48	48	100.0	48	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Benzobicyclon	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Benzovindiflupyr	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Boscalid	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Boscalid-5-hydroxy	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Broflanilide	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Bromuconazole	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Butralin	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Carbaryl	96	96	100.0	96	100.0

METHOD	LAB	FRACTIONS	ANALYTE	ENV. SAMPLES SCHEDULED	ENV. SAMPLES COLLECTED	FIELD COMPLETE NESS (%)	TOTAL SAMPLES ANALYZED	ANALYTICAL COMPLETENESS (%)
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Carbendazim	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Carbofuran	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Chlorantraniliprole	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Chloro-N-(ethoxy methyl)-N-(2-ethyl-6- methylphenyl) acetamide, 2-	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Chlorpyrifos	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Chlorpyrifos oxon	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Clomazone	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Clothianidin	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Clothianidin- Desmethyl	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Coumaphos	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Cyantraniliprole	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Cyazofamid	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Cyclaniliprole	96	96	100.0	96	100.0

METHOD	LAB	FRACTIONS	ANALYTE	ENV. SAMPLES SCHEDULED	ENV. SAMPLES COLLECTED	FIELD COMPLETE NESS (%)	TOTAL SAMPLES ANALYZED	ANALYTICAL COMPLETENESS (%)
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Cycloate	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Cymoxanil	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Cyproconazole	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Cyprodinil	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Desethyl-Atrazine	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Desisopropyl- Atrazine	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Desnitro- imidacloprid	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Desthio- prothioconazole	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Diazinon	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Diazoxon	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Dichloroaniline, 3,5-	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Dichlorobenzenamin e, 3,4-	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Dichlorophenyl Urea, 3,4-	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Dichlorophenyl-3- methyl Urea, 3,4-	96	96	100.0	96	100.0

METHOD	LAB	FRACTIONS	ANALYTE	ENV. SAMPLES SCHEDULED	ENV. SAMPLES COLLECTED	FIELD COMPLETE NESS (%)	TOTAL SAMPLES ANALYZED	ANALYTICAL COMPLETENESS (%)
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Dichlorvos	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Difenoconazole	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Dimethomorph	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Dinotefuran	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Diuron	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	EPTC	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Ethaboxam	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Etoxazole	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Famoxadone	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Fenamidone	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Fenbuconazole	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Fenhexamid	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Fenpyroximate	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Fipronil	96	96	100.0	96	100.0

METHOD	LAB	FRACTIONS	ANALYTE	ENV. SAMPLES SCHEDULED	ENV. SAMPLES COLLECTED	FIELD COMPLETE NESS (%)	TOTAL SAMPLES ANALYZED	ANALYTICAL COMPLETENESS (%)
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Fipronil Desulfinyl	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Fipronil Desulfinyl Amide	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Fipronil Sulfide	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Fipronil Sulfone	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Flonicamid	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Florpyrauxifen- Benzyl	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Fluazinam	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Fludioxonil	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Flufenacet	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Fluindapyr	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Flumetralin	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Fluopicolide	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Fluopyram	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Fluoxastrobin	96	96	100.0	96	100.0

METHOD	LAB	FRACTIONS	ANALYTE	ENV. SAMPLES SCHEDULED	ENV. SAMPLES COLLECTED	FIELD COMPLETE NESS (%)	TOTAL SAMPLES ANALYZED	ANALYTICAL COMPLETENESS (%)
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Flupyradifurone	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Fluridone	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Flutolanil	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Flutriafol	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Fluxapyroxad	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Halauxifen-methyl	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Hexazinone	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Hydroxy- Imidacloprid, 5-	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Dissolved	Imazalil	48	48	100.0	48	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Imidacloprid	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Imidacloprid olefin	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Imidacloprid urea	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Indaziflam	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Indoxacarb	96	96	100.0	96	100.0

METHOD	LAB	FRACTIONS	ANALYTE	ENV. SAMPLES SCHEDULED	ENV. SAMPLES COLLECTED	FIELD COMPLETE NESS (%)	TOTAL SAMPLES ANALYZED	ANALYTICAL COMPLETENESS (%)
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Ipconazole	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Iprodione	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Isofetamid	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Kresoxim-methyl	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Malaoxon	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Malathion	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Mandestrobin	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Mandipropamid	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Metalaxyl	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Metalaxyl- hydroxymethyl	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Metconazole	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Methoxyfenozide	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Metolachlor	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Myclobutanil	96	96	100.0	96	100.0

METHOD	LAB	FRACTIONS	ANALYTE	ENV. SAMPLES SCHEDULED	ENV. SAMPLES COLLECTED	FIELD COMPLETE NESS (%)	TOTAL SAMPLES ANALYZED	ANALYTICAL COMPLETENESS (%)
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Naled	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Napropamide	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Novaluron	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Oryzalin	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Oxadiazon	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Oxathiapiprolin	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Oxyfluorfen	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Paclobutrazol	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Pendimethalin	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Dissolved	Penoxsulam	48	48	100.0	48	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Penthiopyrad	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Phosmet	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Picarbutrazox	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Picoxystrobin	96	96	100.0	96	100.0

METHOD	LAB	FRACTIONS	ANALYTE	ENV. SAMPLES SCHEDULED	ENV. SAMPLES COLLECTED	FIELD COMPLETE NESS (%)	TOTAL SAMPLES ANALYZED	ANALYTICAL COMPLETENESS (%)
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Piperonyl Butoxide	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Prodiamine	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Prometon	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Prometryn	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Propanil	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Propargite	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Propiconazole	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Propyzamide	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Pydiflumetofen	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Pyraclostrobin	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Pyridaben	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Pyrimethanil	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Pyriproxyfen	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Quinoxifen	96	96	100.0	96	100.0

METHOD	LAB	FRACTIONS	ANALYTE	ENV. SAMPLES SCHEDULED	ENV. SAMPLES COLLECTED	FIELD COMPLETE NESS (%)	TOTAL SAMPLES ANALYZED	ANALYTICAL COMPLETENESS (%)
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Sedaxane	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Simazine	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Sulfoxaflor	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Tebuconazole	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Dissolved	Tebuconazole-tert- Butylhydroxy	48	48	100.0	48	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Tebufenozide	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Tebupirimfos	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Tebupirimfos oxon	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Tetraconazole	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Thiabendazole	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Thiacloprid	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Thiamethoxam	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Thiamethoxam Degradate (CGA- 355190)	96	96	100.0	96	100.0

METHOD	LAB	FRACTIONS	ANALYTE	ENV. SAMPLES SCHEDULED	ENV. SAMPLES COLLECTED	FIELD COMPLETE NESS (%)	TOTAL SAMPLES ANALYZED	ANALYTICAL COMPLETENESS (%)
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Dissolved	Thiamethoxam Degradate (NOA- 407475)	48	48	100.0	48	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Thiobencarb	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Tolfenpyrad	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Triadimefon	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Triadimenol	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Triallate	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Tributyl Phosphorotrithioate, S,S,S-	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Trifloxystrobin	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Triflumizole	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Triticonazole	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Valifenalate	96	96	100.0	96	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Zoxamide	96	96	100.0	96	100.0
Total				17,808	17,808	100.0	17,786	99.9

Field Measurement Completeness

Table C.3. Field measurement completeness counts for WY 2024.

ANALYTE	MATRIX	SAMPLES SCHEDULED	MEASUREMENTS TAKEN	COMPLETENESS (%)
Dissolved Oxygen, mg/L	Water	48	48	100.0
Oxygen Saturation (%)	Water	48	48	100.0
pH	Water	48	48	100.0
Salinity	Water	48	48	100.0
Specific Conductivity, $\mu\text{S}/\text{cm}$	Water	48	48	100.0
Temperature, $^{\circ}\text{C}$	Water	48	48	100.0
Temperature, $^{\circ}\text{C}$	Air	48	48	100.0
Turbidity, NTU	Water	48	46	95.8
Total		384	382	99.5

Field Quality Control Frequency

Table C.4. Field quality control sample completeness for WY 2024 monitoring.

Samples are counted as individual results, i.e., separate endpoints for toxicity results and separate sample fractions analyzed for chemistry results.

METHOD	LAB	FRACTIONS	ANALYTE	ENV. SAMPLES	FIELD DUPLICATES	FIELD BLANKS	FIELD DUPLICATE %	FIELD BLANK %
Calculated	Babcock	Dissolved, Total	Nitrogen, Total	96	5	6	5.2	6.3
EPA 200.7	Babcock	Dissolved	Calcium	48	3	3	6.3	6.3
EPA 200.7	Babcock	Dissolved	Magnesium	48	3	3	6.3	6.3
EPA 200.8	Babcock	Dissolved	Copper	48	3	3	6.3	6.3
EPA 351.2	Babcock	Dissolved, Total	Nitrogen, Total Kjeldahl	96	5	6	5.2	6.3
EPA 353.2	Babcock	Total	Nitrate + Nitrite as N	48	3	3	6.3	6.3
SM 2340 B	Babcock	Dissolved	Hardness	48	3	3	6.3	6.3
SM 5310 B	Babcock	Dissolved	Dissolved Organic Carbon	48	3	3	6.3	6.3
SM 5310 B	Babcock	Total	Total Organic Carbon	48	3	3	6.3	6.3
EPA 600/R-99-064M	PER	Survival, Growth	<i>Chironomus dilutus</i>	96	6	NA	6.3	NA
EPA 821/R-02-012	PER	Survival	<i>Hyalella azteca</i>	48	3	NA	6.3	NA
EPA 821/R-02-013	PER	Reproducti on, Survival	<i>Ceriodaphnia dubia</i>	88	6	NA	6.8	NA
EPA 821/R-02-013	PER	Survival, Growth	<i>Pimephales promelas</i>	84	6	NA	7.1	NA
EPA 821/R-02-013	PER	Growth	<i>Selenastrum capricornutum</i>	46	3	NA	6.5	NA
EPA 160.2	OCRL	Particulate	Total Suspended Solids	48	3	3	6.3	6.3
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Particulate, Dissolved	Acibenzolar-S-methyl	96	6	6	6.3	6.3

METHOD	LAB	FRACTIONS	ANALYTE	ENV. SAMPLES	FIELD DUPLICATES	FIELD BLANKS	FIELD DUPLICATE %	FIELD BLANK %
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Particulate, Dissolved	Allethrin	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Particulate, Dissolved	Benfluralin	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Particulate, Dissolved	Bifenthrin	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Particulate, Dissolved	Chlorfenapyr	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Particulate, Dissolved	Chlorothalonil	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Particulate, Dissolved	Cyfluthrin, Total	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Particulate, Dissolved	Cyhalofop-butyl	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Particulate, Dissolved	Cyhalothrin, Total	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Particulate, Dissolved	Cypermethrin, Total	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Particulate, Dissolved	Dacthal	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Particulate, Dissolved	DDD(p,p')	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Particulate, Dissolved	DDE(p,p')	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Particulate, Dissolved	DDT(p,p')	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Particulate, Dissolved	Deltamethrin	96	6	6	6.3	6.3

METHOD	LAB	FRACTIONS	ANALYTE	ENV. SAMPLES	FIELD DUPLICATES	FIELD BLANKS	FIELD DUPLICATE %	FIELD BLANK %
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Particulate, Dissolved	Dithiopyr	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Particulate, Dissolved	Esfenvalerate	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Particulate, Dissolved	Ethalfuralin	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Particulate, Dissolved	Ethofenprox	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Particulate, Dissolved	Fenpropathrin	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Particulate, Dissolved	Methoprene	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Particulate, Dissolved	Nitrapyrin	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Particulate, Dissolved	Pentachloroanisole	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Particulate, Dissolved	Pentachloronitrobenzene	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Particulate, Dissolved	Permethrin, Total	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Particulate, Dissolved	Phenothrin	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Particulate, Dissolved	Tefluthrin	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Particulate, Dissolved	Tetramethrin	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Particulate, Dissolved	T-Fluvalinate	96	6	6	6.3	6.3

METHOD	LAB	FRACTIONS	ANALYTE	ENV. SAMPLES	FIELD DUPLICATES	FIELD BLANKS	FIELD DUPLICATE %	FIELD BLANK %
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Particulate, Dissolved	Trifluralin	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Acetamiprid	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Atrazine	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Azoxystrobin	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Dissolved	Bentazon	48	3	3	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Benzobicyclon	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Benzovindiflupyr	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Boscalid	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Boscalid-5-hydroxy	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Broflanilide	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Bromuconazole	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Butralin	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Carbaryl	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Carbendazim	96	6	6	6.3	6.3

METHOD	LAB	FRACTIONS	ANALYTE	ENV. SAMPLES	FIELD DUPLICATES	FIELD BLANKS	FIELD DUPLICATE %	FIELD BLANK %
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Carbofuran	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Chlorantraniliprole	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Chloro-N-(ethoxymethyl)-N-(2-ethyl-6-methylphenyl)acetamide, 2-	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Chlorpyrifos	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Chlorpyrifos oxon	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Clomazone	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Clothianidin	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Clothianidin-Desmethyl	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Coumaphos	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Cyantraniliprole	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Cyazofamid	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Cyclaniliprole	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Cycloate	96	6	6	6.3	6.3

METHOD	LAB	FRACTIONS	ANALYTE	ENV. SAMPLES	FIELD DUPLICATES	FIELD BLANKS	FIELD DUPLICATE %	FIELD BLANK %
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Cymoxanil	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Cyproconazole	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Cyprodinil	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Desethyl-Atrazine	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Desisopropyl-Atrazine	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Desnitro-imidacloprid	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Desthio- prothioconazole	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Diazinon	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Diazoxon	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Dichloroaniline, 3,5-	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Dichlorobenzeneamine, 3,4-	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Dichlorophenyl Urea, 3,4-	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Dichlorophenyl-3- methyl Urea, 3,4-	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Dichlorvos	96	6	6	6.3	6.3

METHOD	LAB	FRACTIONS	ANALYTE	ENV. SAMPLES	FIELD DUPLICATES	FIELD BLANKS	FIELD DUPLICATE %	FIELD BLANK %
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Difenoconazole	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Dimethomorph	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Dinotefuran	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Diuron	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	EPTC	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Ethaboxam	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Etoxazole	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Famoxadone	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Fenamidone	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Fenbuconazole	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Fenhexamid	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Fenpyroximate	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Fipronil	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Fipronil Desulfinyl	96	6	6	6.3	6.3

METHOD	LAB	FRACTIONS	ANALYTE	ENV. SAMPLES	FIELD DUPLICATES	FIELD BLANKS	FIELD DUPLICATE %	FIELD BLANK %
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Fipronil Desulfinyl Amide	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Fipronil Sulfide	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Fipronil Sulfone	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Flonicamid	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Florpyrauxifen-Benzyl	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Fluazinam	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Fludioxonil	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Flufenacet	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Fluindapyr	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Flumetralin	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Fluopicolide	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Fluopyram	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Fluoxastrobin	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Flupyradifurone	96	6	6	6.3	6.3

METHOD	LAB	FRACTIONS	ANALYTE	ENV. SAMPLES	FIELD DUPLICATES	FIELD BLANKS	FIELD DUPLICATE %	FIELD BLANK %
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Fluridone	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Flutolanil	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Flutriafol	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Fluxapyroxad	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Halauxifen-methyl	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Hexazinone	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Hydroxy-Imidacloprid, 5-	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Dissolved	Imazalil	48	3	3	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Imidacloprid	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Imidacloprid olefin	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Imidacloprid urea	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Indaziflam	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Indoxacarb	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Ipconazole	96	6	6	6.3	6.3

METHOD	LAB	FRACTIONS	ANALYTE	ENV. SAMPLES	FIELD DUPLICATES	FIELD BLANKS	FIELD DUPLICATE %	FIELD BLANK %
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Iprodione	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Isofetamid	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Kresoxim-methyl	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Malaoxon	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Malathion	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Mandestrobin	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Mandipropamid	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Metalaxyl	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Metalaxyl- hydroxymethyl	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Metconazole	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Methoxyfenozide	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Metolachlor	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Myclobutanil	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Naled	96	6	6	6.3	6.3

METHOD	LAB	FRACTIONS	ANALYTE	ENV. SAMPLES	FIELD DUPLICATES	FIELD BLANKS	FIELD DUPLICATE %	FIELD BLANK %
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Napropamide	96	6	6	6.3	6.3
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Novaluron	96	6	6	6.3	6.3
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Oryzalin	96	6	6	6.3	6.3
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Oxadiazon	96	6	6	6.3	6.3
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Oxathiapiprolin	96	6	6	6.3	6.3
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Oxyfluorfen	96	6	6	6.3	6.3
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Paclobutrazol	96	6	6	6.3	6.3
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Pendimethalin	96	6	6	6.3	6.3
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Dissolved	Penoxsulam	48	3	3	6.3	6.3
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Penthiopyrad	96	6	6	6.3	6.3
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Phosmet	96	6	6	6.3	6.3
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Picarbutrazox	96	6	6	6.3	6.3
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Picoxystrobin	96	6	6	6.3	6.3
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Piperonyl Butoxide	96	6	6	6.3	6.3

METHOD	LAB	FRACTIONS	ANALYTE	ENV. SAMPLES	FIELD DUPLICATES	FIELD BLANKS	FIELD DUPLICATE %	FIELD BLANK %
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Prodiamine	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Prometon	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Prometryn	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Propanil	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Propargite	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Propiconazole	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Propyzamide	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Pydiflumetofen	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Pyraclostrobin	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Pyridaben	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Pyrimethanil	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Pyriproxyfen	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Quinoxifen	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Sedaxane	96	6	6	6.3	6.3

METHOD	LAB	FRACTIONS	ANALYTE	ENV. SAMPLES	FIELD DUPLICATES	FIELD BLANKS	FIELD DUPLICATE %	FIELD BLANK %
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Simazine	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Sulfoxaflor	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Tebuconazole	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Dissolved	Tebuconazole-tert-Butylhydroxy	48	3	3	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Tebufenozide	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Tebupirimfos	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Tebupirimfos oxon	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Tetraconazole	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Thiabendazole	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Thiacloprid	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Thiamethoxam	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Thiamethoxam Degradate (CGA-355190)	96	6	6	6.3	6.3
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Dissolved	Thiamethoxam Degradate (NOA-407475)	48	3	3	6.3	6.3

METHOD	LAB	FRACTIONS	ANALYTE	ENV. SAMPLES	FIELD DUPLICATES	FIELD BLANKS	FIELD DUPLICATE %	FIELD BLANK %
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Thiobencarb	96	6	6	6.3	6.3
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Tolfenpyrad	96	6	6	6.3	6.3
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Triadimefon	96	6	6	6.3	6.3
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Triadimenol	96	6	6	6.3	6.3
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Triallate	96	6	6	6.3	6.3
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Tributyl Phosphorotrithioate, S,S,S-	96	6	6	6.3	6.3
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Trifloxystrobin	96	6	6	6.3	6.3
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Triflumizole	96	6	6	6.3	6.3
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Triticonazole	96	6	6	6.3	6.3
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Valifenalate	96	6	6	6.3	6.3
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Particulate, Dissolved	Zoxamide	96	6	6	6.3	6.3
Total				17,786	1,111	1,089	6.2	6.3

Summary of Sample Handling Acceptability

Hold Time Evaluations

Table C.5. Sample hold time acceptability for WY 2024 monitoring.

Counts include environmental and QC results collected in the field (environmental, field duplicate, field blank, and MS samples). Total nitrogen calculations are not included in hold time assessments.

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL SAMPLES	SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
EPA 200.7	Babcock	Water	Dissolved	Calcium	Filter and acidify within 24 hours, analyze within six months	62	62	100.0
EPA 200.7	Babcock	Water	Dissolved	Magnesium	Filter and acidify within 24 hours, analyze within six months	62	62	100.0
EPA 200.8	Babcock	Water	Dissolved	Copper	Filter in field, analyze within six months	61	61	100.0
EPA 351.2	Babcock	Water	Dissolved, Total	Nitrogen, Total Kjeldahl	Acidify (and filter if required) within 24 hours, analyze within 28 days	125	117	93.6
EPA 353.2	Babcock	Water	Total	Nitrate + Nitrite as N	Acidify within 24 hours, analyze within 28 days	79	79	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL SAMPLES	SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
SM 2340 B	Babcock	Water	Dissolved	Hardness	Filter and acidify within 24 hours, analyze within six months	54	54	100.0
SM 5310 B	Babcock	Water	Dissolved	Dissolved Organic Carbon	Filter and acidify within 24 hours, analyze within 28 days	63	63	100.0
SM 5310 B	Babcock	Water	Total	Total Organic Carbon	Acidify within 24 hours, analyze within 28 days	60	60	100.0
EPA 600/R-99-064M	PER	Water	Survival, Growth	<i>Chironomus dilutus</i>	48 hours	102	98	96.1
EPA 821/R-02-012	PER	Water	Survival	<i>Hyalella azteca</i>	48 hours	51	51	100.0
EPA 821/R-02-013	PER	Water	Reproduction, Survival	<i>Ceriodaphnia dubia</i>	48 hours	94	86	91.5
EPA 821/R-02-013	PER	Water	Survival, Growth	<i>Pimephales promelas</i>	48 hours	90	90	100.0
EPA 821/R-02-013	PER	Water	Growth	<i>Selenastrum capricornutum</i>	48 hours	49	49	100.0
EPA 160.2	OCRL	Water	Particulate	Total Suspended Solids	7 days	54	54	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Acibenzolar-S-methyl	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Allethrin	Extract in 48 hrs, analyze in 30 days	114	114	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL SAMPLES	SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	articulate, Dissolved	Benfluralin	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Bifenthrin	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Chlorfenapyr	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	articulate, Dissolved	Chlorothalonil	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Cyfluthrin, Total	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Cyhalofop-butyl	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Cyhalothrin, Total	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Cypermethrin, Total	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Dacthal	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	DDD(p,p')	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	DDE(p,p')	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	DDT(p,p')	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Deltamethrin	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Dithiopyr	Extract in 48 hrs, analyze in 30 days	114	114	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL SAMPLES	SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Esfenvalerate	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Ethalfuralin	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Ethofenprox	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Fenpropathrin	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Methoprene	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Nitrapyrin	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Pentachloroanisole	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Pentachloronitrobenzene	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Permethrin, Total	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Phenothrin	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Tefluthrin	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Tetramethrin	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	T-Fluvalinate	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Trifluralin	Extract in 48 hrs, analyze in 30 days	114	114	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL SAMPLES	SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Acetamiprid	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Atrazine	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Azoxystrobin	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Dissolved	Bentazon	Extract in 48 hrs, analyze in 30 days	57	57	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Benzobicyclon	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Benzovindiflupyr	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Boscalid	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Boscalid-5-hydroxy	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Broflanilide	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Bromuconazole	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Butralin	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Carbaryl	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Carbendazim	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Carbofuran	Extract in 48 hrs, analyze in 30 days	114	114	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL SAMPLES	SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Chlorantraniliprole	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Chloro-N-(ethoxymethyl)-N-(2-ethyl-6-methylphenyl)acetamide, 2-	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Chlorpyrifos	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Chlorpyrifos oxon	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Clomazone	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Clothianidin	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Clothianidin-Desmethyl	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Coumaphos	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Cyantraniliprole	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Cyazofamid	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Cyclaniliprole	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Cycloate	Extract in 48 hrs, analyze in 30 days	114	114	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL SAMPLES	SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Cymoxanil	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Cyproconazole	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Cyprodinil	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Desethyl-Atrazine	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Desisopropyl-Atrazine	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Desnitro-imidacloprid	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Desthio-prothioconazole	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Diazinon	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Diazoxon	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Dichloroaniline, 3,5-	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Dichlorobenzenamine, 3,4-	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Dichlorophenyl Urea, 3,4-	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Dichlorophenyl-3-methyl Urea, 3,4-	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Dichlorvos	Extract in 48 hrs, analyze in 30 days	114	114	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL SAMPLES	SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Difenoconazole	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Dimethomorph	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Dinotefuran	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Diuron	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	EPTC	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Ethaboxam	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Etoxazole	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Famoxadone	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fenamidone	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fenbuconazole	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fenhexamid	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fenpyroximate	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fipronil	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fipronil Desulfinyl	Extract in 48 hrs, analyze in 30 days	114	114	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL SAMPLES	SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fipronil Desulfinyl Amide	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fipronil Sulfide	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fipronil Sulfone	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Flonicamid	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Florpyrauxifen-Benzyl	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fluazinam	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fludioxonil	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Flufenacet	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fluindapyr	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Flumetralin	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fluopicolide	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fluopyram	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fluoxastrobin	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Flupyradifurone	Extract in 48 hrs, analyze in 30 days	114	114	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL SAMPLES	SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fluridone	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Flutolanil	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Flutriafol	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fluxapyroxad	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Halauxifen-methyl	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Hexazinone	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Hydroxy-Imidacloprid, 5-	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Dissolved	Imazalil	Extract in 48 hrs, analyze in 30 days	57	57	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Imidacloprid	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Imidacloprid olefin	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Imidacloprid urea	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Indaziflam	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Indoxacarb	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Ipconazole	Extract in 48 hrs, analyze in 30 days	114	114	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL SAMPLES	SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Iprodione	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Isofetamid	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Kresoxim-methyl	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Malaoxon	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Malathion	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Mandestrobin	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Mandipropamid	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Metalaxyl	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Metalaxyl-hydroxymethyl	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Metconazole	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Methoxyfenozide	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Metolachlor	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Myclobutanil	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Naled	Extract in 48 hrs, analyze in 30 days	114	114	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL SAMPLES	SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Napropamide	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Novaluron	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Oryzalin	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Oxadiazon	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Oxathiapiprolin	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Oxyfluorfen	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Paclobutrazol	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Pendimethalin	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Dissolved	Penoxsulam	Extract in 48 hrs, analyze in 30 days	57	57	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Penthiopyrad	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Phosmet	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Picarbutrazox	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Picoxystrobin	Extract in 48 hrs, analyze in 30 days	114	114	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL SAMPLES	SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Piperonyl Butoxide	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Prodiamine	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Prometon	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Prometryn	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Propanil	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Propargite	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Propiconazole	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Propyzamide	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Pydiflumetofen	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Pyraclostrobin	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Pyridaben	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Pyrimethanil	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Pyriproxyfen	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Quinoxifen	Extract in 48 hrs, analyze in 30 days	114	114	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL SAMPLES	SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Sedaxane	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Simazine	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Sulfoxaflor	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Tebuconazole	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Dissolved	Tebuconazole-tert-Butylhydroxy	Extract in 48 hrs, analyze in 30 days	57	57	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Tebufenozide	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Tebupirimfos	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Tebupirimfos oxon	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Tetraconazole	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Thiabendazole	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Thiacloprid	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Thiamethoxam	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Thiamethoxam Degradate (CGA-355190)	Extract in 48 hrs, analyze in 30 days	114	114	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL SAMPLES	SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Dissolved	Thiamethoxam Degradate (NOA-407475)	Extract in 48 hrs, analyze in 30 days	57	57	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Thiobencarb	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Tolfenpyrad	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Triadimefon	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Triadimenol	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Triallate	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Tributyl Phosphorotrithioate, S,S,S-	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Trifloxystrobin	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Triflumizole	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Triticonazole	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Valifenalate	Extract in 48 hrs, analyze in 30 days	114	114	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Zoxamide	Extract in 48 hrs, analyze in 30 days	114	114	100.0
Total						21,013	20,993	99.9

Quality Control Sample Acceptability: Contamination

Field Blanks Samples

Table C.6. Field blank (FB) acceptability for WY 2024.

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL FB SAMPLES	FB SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
Calculated	Babcock	Water	Dissolved, Total	Nitrogen, Total	< RL	6	6	100.0
EPA 200.7	Babcock	Water	Dissolved	Calcium	< RL	3	3	100.0
EPA 200.7	Babcock	Water	Dissolved	Magnesium	< RL	3	3	100.0
EPA 200.8	Babcock	Water	Dissolved	Copper	< RL	3	3	100.0
EPA 351.2	Babcock	Water	Dissolved, Total	Nitrogen, Total Kjeldahl	< RL	6	6	100.0
EPA 353.2	Babcock	Water	Total	Nitrate + Nitrite as N	< RL	3	3	100.0
SM 2340 B	Babcock	Water	Dissolved	Hardness	< RL	3	3	100.0
SM 5310 B	Babcock	Water	Dissolved	Dissolved Organic Carbon	< RL	3	2	66.7
SM 5310 B	Babcock	Water	Total	Total Organic Carbon	< RL	3	3	100.0
<i>Babcock Subtotal</i>						33	32	97.0
EPA 160.2	OCRL	Water	Particulate	Total Suspended Solids	< RL	3	3	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Acibenzolar-S-methyl	< RL	6	6	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Allethrin	< RL	6	6	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Benfluralin	< RL	6	6	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL FB SAMPLES	FB SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Bifenthrin	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Chlorfenapyr	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Chlorothalonil	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Cyfluthrin, Total	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Cyhalofop-butyl	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Cyhalothrin, Total	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Cypermethrin, Total	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Dacthal	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	DDD(p,p')	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	DDE(p,p')	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	DDT(p,p')	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Deltamethrin	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Dithiopyr	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Esfenvalerate	< RL	6	6	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL FB SAMPLES	FB SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Ethalfuralin	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Ethofenprox	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Fenpropathrin	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Methoprene	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Nitrapyrin	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Pentachloroanisole	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Pentachloronitrobenzen e	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Permethrin, Total	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Phenothrin	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Tefluthrin	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Tetramethrin	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	T-Fluvalinate	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Trifluralin	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Acetamiprid	< RL	6	6	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL FB SAMPLES	FB SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Atrazine	< RL	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Azoxystrobin	< RL	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Dissolved	Bentazon	< RL	3	3	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Benzobicyclon	< RL	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Benzovindiflupyr	< RL	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Boscalid	< RL	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Boscalid-5-hydroxy	< RL	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Broflanilide	< RL	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Bromuconazole	< RL	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Butralin	< RL	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Carbaryl	< RL	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Carbendazim	< RL	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Carbofuran	< RL	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Chlorantraniliprole	< RL	6	6	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL FB SAMPLES	FB SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Chloro-N- (ethoxymethyl)-N-(2- ethyl-6- methylphenyl)acetamid e, 2-	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Chlorpyrifos	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Chlorpyrifos oxon	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Clomazone	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Clothianidin	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Clothianidin-Desmethyl	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Coumaphos	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Cyantraniliprole	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Cyazofamid	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Cyclaniliprole	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Cycloate	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Cymoxanil	< RL	6	6	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL FB SAMPLES	FB SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Cyproconazole	< RL	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Cyprodinil	< RL	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Desethyl-Atrazine	< RL	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Desisopropyl-Atrazine	< RL	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Desnitro-imidacloprid	< RL	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Desthio- prothioconazole	< RL	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Diazinon	< RL	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Diazoxon	< RL	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Dichloroaniline, 3,5-	< RL	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Dichlorobenzenamine, 3,4-	< RL	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Dichlorophenyl Urea, 3,4-	< RL	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Dichlorophenyl-3- methyl Urea, 3,4-	< RL	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Dichlorvos	< RL	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Difenoconazole	< RL	6	6	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL FB SAMPLES	FB SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Dimethomorph	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Dinotefuran	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Diuron	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	EPTC	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Ethaboxam	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Etoxazole	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Famoxadone	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fenamidone	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fenbuconazole	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fenhexamid	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fenpyroximate	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fipronil	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fipronil Desulfinyl	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fipronil Desulfinyl Amide	< RL	6	6	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL FB SAMPLES	FB SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fipronil Sulfide	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fipronil Sulfone	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Flonicamid	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Florpyrauxifen-Benzyl	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fluazinam	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fludioxonil	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Flufenacet	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fluindapyr	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Flumetralin	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fluopicolide	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fluopyram	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fluoxastrobin	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Flupyradifurone	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fluridone	< RL	6	6	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL FB SAMPLES	FB SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Flutolanil	< RL	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Flutriafol	< RL	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fluxapyroxad	< RL	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Halauxifen-methyl	< RL	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Hexazinone	< RL	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Hydroxy-Imidacloprid, 5-	< RL	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Dissolved	Imazalil	< RL	3	3	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Imidacloprid	< RL	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Imidacloprid olefin	< RL	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Imidacloprid urea	< RL	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Indaziflam	< RL	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Indoxacarb	< RL	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Ipconazole	< RL	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Iprodione	< RL	6	6	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL FB SAMPLES	FB SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Isofetamid	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Kresoxim-methyl	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Malaoxon	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Malathion	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Mandestrobin	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Mandipropamid	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Metalaxyl	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Metalaxyl- hydroxymethyl	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Metconazole	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Methoxyfenozide	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Metolachlor	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Myclobutanil	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Naled	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Napropamide	< RL	6	6	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL FB SAMPLES	FB SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Novaluron	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Oryzalin	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Oxadiazon	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Oxathiapiprolin	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Oxyfluorfen	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Paclobutrazol	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Pendimethalin	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Dissolved	Penoxsulam	< RL	3	3	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Penthiopyrad	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Phosmet	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Picarbutrazox	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Picoxystrobin	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Piperonyl Butoxide	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Prodiamine	< RL	6	6	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL FB SAMPLES	FB SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Prometon	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Prometryn	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Propanil	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Propargite	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Propiconazole	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Propyzamide	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Pydiflumetofen	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Pyraclostrobin	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Pyridaben	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Pyrimethanil	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Pyriproxyfen	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Quinoxifen	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Sedaxane	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Simazine	< RL	6	6	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL FB SAMPLES	FB SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Sulfoxaflor	< RL	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Tebuconazole	< RL	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Dissolved	Tebuconazole-tert-Butylhydroxy	< RL	3	3	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Tebufenozide	< RL	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Tebupirimfos	< RL	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Tebupirimfos oxon	< RL	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Tetraconazole	< RL	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Thiabendazole	< RL	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Thiacloprid	< RL	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Thiamethoxam	< RL	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Thiamethoxam Degradate (CGA-355190)	< RL	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Dissolved	Thiamethoxam Degradate (NOA-407475)	< RL	3	3	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Thiobencarb	< RL	6	6	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL FB SAMPLES	FB SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Tolfenpyrad	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Triadimefon	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Triadimenol	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Triallate	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Tributyl Phosphorotrithioate, S,S,S-	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Trifloxystrobin	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Triflumizole	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Triticonazole	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Valifenalate	< RL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Zoxamide	< RL	6	6	100.0
OCRL Subtotal						1,056	1,056	100.0
Total						1,089	1,088	99.9

Laboratory Blank Samples

Table C.7. Laboratory blank (LB) acceptability for WY 2024.

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL LB SAMPLES	LB SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
EPA 200.7	Babcock	Water	Dissolved	Calcium	< MDL	23	23	100.0
EPA 200.7	Babcock	Water	Dissolved	Magnesium	< MDL	23	23	100.0
EPA 200.8	Babcock	Water	Dissolved	Copper	< MDL	13	11	84.6
EPA 351.2	Babcock	Water	Dissolved, Total	Nitrogen, Total Kjeldahl	< MDL	18	18	100.0
EPA 353.2	Babcock	Water	Total	Nitrate + Nitrite as N	< MDL	14	14	100.0
SM 2340 B	Babcock	Water	Dissolved	Hardness	< MDL	8	8	100.0
SM 5310 B	Babcock	Water	Dissolved	Dissolved Organic Carbon	< MDL	8	8	100.0
SM 5310 B	Babcock	Water	Total	Total Organic Carbon	< MDL	6	5	83.3
<i>Babcock Subtotal</i>						113	110	97.3
EPA 160.2	OCRL	Water	Particulate	Total Suspended Solids	< MDL	6	6	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Acibenzolar-S-methyl	< MDL	12	12	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Allethrin	< MDL	12	12	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Benfluralin	< MDL	12	12	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Bifenthrin	< MDL	12	12	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Chlorfenapyr	< MDL	12	12	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Chlorothalonil	< MDL	12	12	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL LB SAMPLES	LB SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Cyfluthrin, Total	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Cyhalofop-butyl	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Cyhalothrin, Total	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Cypermethrin, Total	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Dacthal	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	DDD(p,p')	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	DDE(p,p')	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	DDT(p,p')	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Deltamethrin	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Dithiopyr	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Esfenvalerate	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Ethalfuralin	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Ethofenprox	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Fenpropathrin	< MDL	12	12	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL LB SAMPLES	LB SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Methoprene	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Nitrapyrin	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Pentachloroanisole	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Pentachloronitrobenzene	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Permethrin, Total	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Phenothrin	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Tefluthrin	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Tetramethrin	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	T-Fluvalinate	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Trifluralin	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Acetamiprid	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Atrazine	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Azoxystrobin	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Dissolved	Bentazon	< MDL	6	6	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL LB SAMPLES	LB SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Benzobicyclon	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Benzovindiflupyr	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Boscalid	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Boscalid-5-hydroxy	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Broflanilide	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Bromuconazole	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Butralin	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Carbaryl	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Carbendazim	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Carbofuran	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Chlorantraniliprole	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Chloro-N-(ethoxymethyl)-N- (2-ethyl-6- methylphenyl)acetamide, 2-	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Chlorpyrifos	< MDL	12	12	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL LB SAMPLES	LB SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Chlorpyrifos oxon	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Clomazone	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Clothianidin	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Clothianidin-Desmethyl	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Coumaphos	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Cyantraniliprole	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Cyazofamid	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Cyclaniliprole	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Cycloate	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Cymoxanil	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Cyproconazole	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Cyprodinil	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Desethyl-Atrazine	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Desisopropyl-Atrazine	< MDL	12	12	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL LB SAMPLES	LB SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Desnitro-imidacloprid	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Desthio-prothioconazole	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Diazinon	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Diazoxon	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Dichloroaniline, 3,5-	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Dichlorobenzenamine, 3,4-	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Dichlorophenyl Urea, 3,4-	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Dichlorophenyl-3-methyl Urea, 3,4-	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Dichlorvos	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Difenoconazole	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Dimethomorph	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Dinotefuran	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Diuron	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	EPTC	< MDL	12	12	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL LB SAMPLES	LB SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Ethaboxam	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Etoxazole	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Famoxadone	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fenamidone	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fenbuconazole	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fenhexamid	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fenpyroximate	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fipronil	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fipronil Desulfinyl	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fipronil Desulfinyl Amide	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fipronil Sulfide	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fipronil Sulfone	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Flonicamid	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Florpyrauxifen-Benzyl	< MDL	12	12	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL LB SAMPLES	LB SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fluazinam	< MDL	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fludioxonil	< MDL	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Flufenacet	< MDL	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fluindapyr	< MDL	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Flumetralin	< MDL	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fluopicolide	< MDL	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fluopyram	< MDL	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fluoxastrobin	< MDL	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Flupyradifurone	< MDL	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fluridone	< MDL	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Flutolanil	< MDL	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Flutriafol	< MDL	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fluxapyroxad	< MDL	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Halauxifen-methyl	< MDL	12	12	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL LB SAMPLES	LB SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Hexazinone	< MDL	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Hydroxy-Imidacloprid, 5-	< MDL	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Dissolved	Imazalil	< MDL	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Imidacloprid	< MDL	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Imidacloprid olefin	< MDL	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Imidacloprid urea	< MDL	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Indaziflam	< MDL	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Indoxacarb	< MDL	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Ipconazole	< MDL	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Iprodione	< MDL	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Isofetamid	< MDL	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Kresoxim-methyl	< MDL	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Malaoxon	< MDL	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Malathion	< MDL	12	12	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL LB SAMPLES	LB SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Mandestrobin	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Mandipropamid	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Metalaxyl	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Metalaxyl-hydroxymethyl	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Metconazole	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Methoxyfenozide	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Metolachlor	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Myclobutanil	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Naled	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Napropamide	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Novaluron	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Oryzalin	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Oxadiazon	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Oxathiapiprolin	< MDL	12	12	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL LB SAMPLES	LB SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Oxyfluorfen	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Paclobutrazol	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Pendimethalin	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Dissolved	Penoxsulam	< MDL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Penthiopyrad	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Phosmet	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Picarbutrazox	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Picoxystrobin	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Piperonyl Butoxide	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Prodiamine	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Prometon	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Prometryn	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Propanil	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Propargite	< MDL	12	12	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL LB SAMPLES	LB SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Propiconazole	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Propyzamide	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Pydiflumetofen	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Pyraclostrobin	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Pyridaben	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Pyrimethanil	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Pyriproxyfen	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Quinoxifen	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Sedaxane	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Simazine	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Sulfoxaflor	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Tebuconazole	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Dissolved	Tebuconazole-tert- Butylhydroxy	< MDL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Tebufenozide	< MDL	12	12	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL LB SAMPLES	LB SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Tebupirimfos	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Tebupirimfos oxon	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Tetraconazole	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Thiabendazole	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Thiacloprid	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Thiamethoxam	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Thiamethoxam Degradate (CGA-355190)	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Dissolved	Thiamethoxam Degradate (NOA-407475)	< MDL	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Thiobencarb	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Tolfenpyrad	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Triadimefon	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Triadimenol	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Triallate	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Tributyl Phosphorotrithioate, S,S,S-	< MDL	12	12	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL LB SAMPLES	LB SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Trifloxystrobin	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Triflumizole	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Triticonazole	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Valifenalate	< MDL	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Zoxamide	< MDL	12	12	100.0
OCRL Subtotal						2,112	2,112	100.0
Total						2,225	2,222	99.9

Quality Control Sample Acceptability: Accuracy

Matrix Spike Samples

Table C.8. Matrix spike (MS) recovery acceptability for WY 2024.

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL MS SAMPLES	MS SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
EPA 200.7	Babcock	Water	Dissolved	Calcium	PR 70-130	16	16	100.0
EPA 200.7	Babcock	Water	Dissolved	Magnesium	PR 70-130	16	16	100.0
EPA 200.8	Babcock	Water	Dissolved	Copper	PR 75-125	14	14	100.0
EPA 351.2	Babcock	Water	Dissolved, Total	Nitrogen, Total Kjeldahl	PR 80-120	36	33	91.7
EPA 353.2	Babcock	Water	Total	Nitrate + Nitrite as N	PR 90-110	40	40	100.0
SM 5310 B	Babcock	Water	Dissolved	Dissolved Organic Carbon	PR 80-120	18	18	100.0
SM 5310 B	Babcock	Water	Total	Total Organic Carbon	PR 80-120	12	12	100.0
<i>Babcock Subtotal</i>						152	149	98.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Acibenzolar-S-methyl	PR 70-130	12	12	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Allethrin	PR 70-130	12	12	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Benfluralin	PR 70-130	12	12	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Bifenthrin	PR 70-130	12	12	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Chlorfenapyr	PR 70-130	12	12	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Chlorothalonil	PR 70-130	12	12	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL MS SAMPLES	MS SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Cyfluthrin, Total	PR 70-130	12	12	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Cyhalofop-butyl	PR 70-130	12	12	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Cyhalothrin, Total	PR 70-130	12	12	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Cypermethrin, Total	PR 70-130	12	12	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Dacthal	PR 70-130	12	12	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	DDD(p,p')	PR 70-130	12	12	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	DDE(p,p')	PR 70-130	12	12	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	DDT(p,p')	PR 70-130	12	12	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Deltamethrin	PR 70-130	12	12	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Dithiopyr	PR 70-130	12	12	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Esfenvalerate	PR 70-130	12	12	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Ethalfuralin	PR 70-130	12	12	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Ethofenprox	PR 70-130	12	12	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Fenpropathrin	PR 70-130	12	12	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL MS SAMPLES	MS SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Methoprene	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Nitrapyrin	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Pentachloroanisole	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Pentachloronitrobenzene	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Permethrin, Total	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Phenothrin	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Tefluthrin	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Tetramethrin	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	T-Fluvalinate	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Trifluralin	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Acetamiprid	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Atrazine	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Azoxystrobin	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Dissolved	Bentazon	PR 70-130	6	6	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL MS SAMPLES	MS SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Benzobicyclon	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Benzovindiflupyr	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Boscalid	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Boscalid-5-hydroxy	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Broflanilide	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Bromuconazole	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Butralin	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Carbaryl	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Carbendazim	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Carbofuran	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Chlorantraniliprole	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Chloro-N-(ethoxymethyl)-N- (2-ethyl-6- methylphenyl)acetamide, 2-	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Chlorpyrifos	PR 70-130	12	12	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL MS SAMPLES	MS SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Chlorpyrifos oxon	PR 70-130	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Clomazone	PR 70-130	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Clothianidin	PR 70-130	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Clothianidin-Desmethyl	PR 70-130	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Coumaphos	PR 70-130	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Cyantraniliprole	PR 70-130	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Cyazofamid	PR 70-130	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Cyclaniliprole	PR 70-130	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Cycloate	PR 70-130	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Cymoxanil	PR 70-130	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Cyproconazole	PR 70-130	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Cyprodinil	PR 70-130	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Desethyl-Atrazine	PR 70-130	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Desisopropyl-Atrazine	PR 70-130	12	12	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL MS SAMPLES	MS SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Desnitro-imidacloprid	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Desthio-prothioconazole	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Diazinon	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Diazoxon	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Dichloroaniline, 3,5-	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Dichlorobenzenamine, 3,4-	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Dichlorophenyl Urea, 3,4-	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Dichlorophenyl-3-methyl Urea, 3,4-	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Dichlorvos	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Difenoconazole	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Dimethomorph	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Dinotefuran	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Diuron	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	EPTC	PR 70-130	12	12	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL MS SAMPLES	MS SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Ethaboxam	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Etoxazole	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Famoxadone	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fenamidone	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fenbuconazole	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fenhexamid	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fenpyroximate	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fipronil	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fipronil Desulfinyl	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fipronil Desulfinyl Amide	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fipronil Sulfide	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fipronil Sulfone	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Flonicamid	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Florpyrauxifen-Benzyl	PR 70-130	12	12	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL MS SAMPLES	MS SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fluazinam	PR 70-130	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fludioxonil	PR 70-130	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Flufenacet	PR 70-130	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fluindapyr	PR 70-130	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Flumetralin	PR 70-130	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fluopicolide	PR 70-130	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fluopyram	PR 70-130	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fluoxastrobin	PR 70-130	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Flupyradifurone	PR 70-130	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fluridone	PR 70-130	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Flutolanil	PR 70-130	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Flutriafol	PR 70-130	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fluxapyroxad	PR 70-130	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Halauxifen-methyl	PR 70-130	12	12	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL MS SAMPLES	MS SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Hexazinone	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Hydroxy-Imidacloprid, 5-	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Dissolved	Imazalil	PR 70-130	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Imidacloprid	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Imidacloprid olefin	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Imidacloprid urea	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Indaziflam	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Indoxacarb	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Ipconazole	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Iprodione	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Isofetamid	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Kresoxim-methyl	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Malaoxon	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Malathion	PR 70-130	12	12	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL MS SAMPLES	MS SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Mandestrobin	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Mandipropamid	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Metalaxyl	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Metalaxyl-hydroxymethyl	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Metconazole	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Methoxyfenozide	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Metolachlor	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Myclobutanil	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Naled	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Napropamide	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Novaluron	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Oryzalin	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Oxadiazon	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Oxathiapiprolin	PR 70-130	12	12	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL MS SAMPLES	MS SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Oxyfluorfen	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Paclobutrazol	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Pendimethalin	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Dissolved	Penoxsulam	PR 70-130	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Penthiopyrad	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Phosmet	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Picarbutrazox	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Picoxystrobin	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Piperonyl Butoxide	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Prodiamine	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Prometon	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Prometryn	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Propanil	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Propargite	PR 70-130	12	12	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL MS SAMPLES	MS SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Propiconazole	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Propyzamide	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Pydiflumetofen	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Pyraclostrobin	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Pyridaben	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Pyrimethanil	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Pyriproxyfen	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Quinoxifen	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Sedaxane	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Simazine	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Sulfoxaflor	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Tebuconazole	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Dissolved	Tebuconazole-tert- Butylhydroxy	PR 70-130	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Tebufenozide	PR 70-130	12	12	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL MS SAMPLES	MS SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Tebupirimfos	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Tebupirimfos oxon	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Tetraconazole	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Thiabendazole	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Thiacloprid	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Thiamethoxam	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Thiamethoxam Degradate (CGA-355190)	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Dissolved	Thiamethoxam Degradate (NOA-407475)	PR 70-130	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Thiobencarb	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Tolfenpyrad	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Triadimefon	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Triadimenol	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Triallate	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Tributyl Phosphorotrithioate, S,S,S-	PR 70-130	12	12	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL MS SAMPLES	MS SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Trifloxystrobin	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Triflumizole	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Triticonazole	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Valifenalate	PR 70-130	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Zoxamide	PR 70-130	12	12	100.0
OCRL Subtotal						2,106	2,106	100.0
Total						2,258	2,255	99.9

Laboratory Control Spike Samples

Table C.9. Laboratory control spike (LCS) recovery acceptability for WY 2024.

Per updated analysis procedures, an additional LCS sample will be run annually for pesticide analyzed by the USGS OCRL on the whole sample water matrix prior to filtration and will be reported as the total sample fraction.

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL LCS SAMPLES	LCS SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
EPA 200.7	Babcock	Water	Dissolved	Calcium	PR 85-115	8	8	100.0
EPA 200.7	Babcock	Water	Dissolved	Magnesium	PR 85-115	8	8	100.0
EPA 200.8	Babcock	Water	Dissolved	Copper	PR 85-115	7	7	100.0
EPA 351.2	Babcock	Water	Dissolved, Total	Nitrogen, Total Kjeldahl	PR 90-110	18	14	77.8
EPA 353.2	Babcock	Water	Total	Nitrate + Nitrite as N	PR 90-110	14	14	100.0
SM 5310 B	Babcock	Water	Dissolved	Dissolved Organic Carbon	PR 80-120	8	8	100.0
SM 5310 B	Babcock	Water	Total	Total Organic Carbon	PR 80-120	6	6	100.0
<i>Babcock Subtotal</i>						<i>69</i>	<i>65</i>	<i>94.2</i>
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Acibenzolar-S-methyl	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Allethrin	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Benfluralin	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Bifenthrin	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Chlorfenapyr	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Chlorothalonil	PR 70-130	13	13	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL LCS SAMPLES	LCS SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Cyfluthrin, Total	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Cyhalofop-butyl	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Cyhalothrin, Total	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Cypermethrin, Total	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Dacthal	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	DDD(p,p')	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	DDE(p,p')	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	DDT(p,p')	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Deltamethrin	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Dithiopyr	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Esfenvalerate	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Ethalfuralin	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Ethofenprox	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Fenpropathrin	PR 70-130	13	13	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL LCS SAMPLES	LCS SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Methoprene	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Nitrapyrin	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Pentachloroanisole	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Pentachloronitrobenzene	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Permethrin, Total	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Phenothrin	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Tefluthrin	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Tetramethrin	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	T-Fluvalinate	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Trifluralin	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Acetamiprid	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Atrazine	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Azoxystrobin	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Dissolved	Bentazon	PR 70-130	7	7	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL LCS SAMPLES	LCS SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Benzobicyclon	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Benzovindiflupyr	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Boscalid	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Boscalid-5-hydroxy	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Broflanilide	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Bromuconazole	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Butralin	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Carbaryl	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Carbendazim	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Carbofuran	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Chlorantraniliprole	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Chloro-N-(ethoxymethyl)-N-(2-ethyl-6-methylphenyl)acetamide, 2-	PR 70-130	13	13	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL LCS SAMPLES	LCS SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Chlorpyrifos	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Chlorpyrifos oxon	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Clomazone	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Clothianidin	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Clothianidin-Desmethyl	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Coumaphos	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Cyantraniliprole	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Cyazofamid	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Cyclaniliprole	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Cycloate	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Cymoxanil	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Cyproconazole	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Cyprodinil	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Desethyl-Atrazine	PR 70-130	13	13	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL LCS SAMPLES	LCS SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Desisopropyl-Atrazine	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Desnitro-imidacloprid	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Desthio-prothioconazole	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Diazinon	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Diazoxon	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Dichloroaniline, 3,5-	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Dichlorobenzenamine, 3,4-	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Dichlorophenyl Urea, 3,4-	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Dichlorophenyl-3-methyl Urea, 3,4-	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Dichlorvos	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Difenoconazole	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Dimethomorph	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Dinotefuran	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Diuron	PR 70-130	13	13	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL LCS SAMPLES	LCS SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	EPTC	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Ethaboxam	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Etoxazole	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Famoxadone	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Fenamidone	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Fenbuconazole	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Fenhexamid	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Fenpyroximate	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Fipronil	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Fipronil Desulfinyl	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Fipronil Desulfinyl Amide	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Fipronil Sulfide	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Fipronil Sulfone	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Flonicamid	PR 70-130	13	13	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL LCS SAMPLES	LCS SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Florpyrauxifen-Benzyl	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Fluazinam	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Fludioxonil	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Flufenacet	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Fluindapyr	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Flumetralin	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Fluopicolide	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Fluopyram	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Fluoxastrobin	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Flupyradifurone	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Fluridone	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Flutolanil	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Flutriafol	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Fluxapyroxad	PR 70-130	13	13	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL LCS SAMPLES	LCS SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Halauxifen-methyl	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Hexazinone	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Hydroxy-Imidacloprid, 5-	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Dissolved	Imazalil	PR 70-130	7	7	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Imidacloprid	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Imidacloprid olefin	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Imidacloprid urea	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Indaziflam	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Indoxacarb	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Ipconazole	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Iprodione	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Isofetamid	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Kresoxim-methyl	PR 70-130	13	13	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Malaoxon	PR 70-130	13	13	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL LCS SAMPLES	LCS SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Malathion	PR 70-130	13	13	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Mandestrobin	PR 70-130	13	13	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Mandipropamid	PR 70-130	13	13	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Metalaxyl	PR 70-130	13	13	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Metalaxyl- hydroxymethyl	PR 70-130	13	13	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Metconazole	PR 70-130	13	13	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Methoxyfenozide	PR 70-130	13	13	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Metolachlor	PR 70-130	13	13	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Myclobutanil	PR 70-130	13	13	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Naled	PR 70-130	13	13	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Napropamide	PR 70-130	13	13	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Novaluron	PR 70-130	13	13	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Oryzalin	PR 70-130	13	13	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Oxadiazon	PR 70-130	13	13	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL LCS SAMPLES	LCS SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Oxathiapiprolin	PR 70-130	13	13	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Oxyfluorfen	PR 70-130	13	13	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Paclobutrazol	PR 70-130	13	13	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Pendimethalin	PR 70-130	13	13	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Dissolved	Penoxsulam	PR 70-130	7	7	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Penthiopyrad	PR 70-130	13	13	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Phosmet	PR 70-130	13	13	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Picarbutrazox	PR 70-130	13	13	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Picoxystrobin	PR 70-130	13	13	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Piperonyl Butoxide	PR 70-130	13	13	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Prodiamine	PR 70-130	13	13	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Prometon	PR 70-130	13	13	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Prometryn	PR 70-130	13	13	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Propanil	PR 70-130	13	13	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL LCS SAMPLES	LCS SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Propargite	PR 70-130	13	13	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Propiconazole	PR 70-130	13	13	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Propyzamide	PR 70-130	13	13	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Pydiflumetofen	PR 70-130	13	13	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Pyraclostrobin	PR 70-130	13	13	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Pyridaben	PR 70-130	13	13	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Pyrimethanil	PR 70-130	13	13	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Pyriproxyfen	PR 70-130	13	13	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Quinoxifen	PR 70-130	13	13	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Sedaxane	PR 70-130	13	13	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Simazine	PR 70-130	13	13	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Sulfoxaflor	PR 70-130	13	13	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Tebuconazole	PR 70-130	13	13	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Dissolved	Tebuconazole-tert- Butylhydroxy	PR 70-130	7	7	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL LCS SAMPLES	LCS SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Tebufenozide	PR 70-130	13	13	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Tebupirimfos	PR 70-130	13	13	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Tebupirimfos oxon	PR 70-130	13	13	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Tetraconazole	PR 70-130	13	13	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Thiabendazole	PR 70-130	13	13	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Thiacloprid	PR 70-130	13	13	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Thiamethoxam	PR 70-130	13	13	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Thiamethoxam Degradate (CGA- 355190)	PR 70-130	13	13	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Dissolved	Thiamethoxam Degradate (NOA- 407475)	PR 70-130	7	7	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Thiobencarb	PR 70-130	13	13	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Tolfenpyrad	PR 70-130	13	13	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Triadimefon	PR 70-130	13	13	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Triadimenol	PR 70-130	13	13	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL LCS SAMPLES	LCS SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Triallate	PR 70-130	13	13	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Tributyl Phosphorotrithioate, S,S,S-	PR 70-130	13	13	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Trifloxystrobin	PR 70-130	13	13	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Triflumizole	PR 70-130	13	13	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Triticonazole	PR 70-130	13	13	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Valifenalate	PR 70-130	13	13	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved, Total	Zoxamide	PR 70-130	13	13	100.0
OCRL Subtotal						2,284	2,284	100.0
Total						2,353	2,349	99.8

Surrogate Samples

Table C.10. Surrogate recovery acceptability for WY 2024.

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL SURROGATE SAMPLES	SURROGATE SAMPLES IN LIMITS	ACCEPT- ABILITY MET (%)
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	DDE- ¹³ C ₁₂ (p,p') (Surrogate)	PR 70-130	158	158	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Permethrin- ¹³ C ₆ , cis- (Surrogate)	PR 70-130	158	158	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Trifluralin-d ₁₄ (Surrogate)	PR 70-130	158	158	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Atrazine- ¹³ C ₃ (Surrogate)	PR 70-130	158	158	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fipronil- ¹³ C ₄ ¹⁵ N ₂ (Surrogate)	PR 70-130	158	158	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Imidacloprid-d ₄ (Surrogate)	PR 70-130	158	158	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Metolachlor- ¹³ C ₆ (Surrogate)	PR 70-130	158	158	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Tebuconazole- ¹³ C ₃ (Surrogate)	PR 70-130	158	158	100.0
Total						1,264	1,264	100.0

Quality Control Sample Acceptability: Precision

Field Duplicate Samples

Table C.11. Field duplicate (FD) acceptability for WY 2024.

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL FD SAMPLES	FD SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
Calculated	Babcock	Water	Dissolved, Total	Nitrogen, Total	RPD $\leq$ 25 ¹	5	5	100.0
EPA 200.7	Babcock	Water	Dissolved	Calcium	RPD $\leq$ 25 ¹	3	3	100.0
EPA 200.7	Babcock	Water	Dissolved	Magnesium	RPD $\leq$ 25 ¹	3	3	100.0
EPA 200.8	Babcock	Water	Dissolved	Copper	RPD $\leq$ 25 ¹	3	3	100.0
EPA 351.2	Babcock	Water	Dissolved, Total	Nitrogen, Total Kjeldahl	RPD $\leq$ 25 ¹	5	4	80.0
EPA 353.2	Babcock	Water	Total	Nitrate + Nitrite as N	RPD $\leq$ 25 ¹	3	3	100.0
SM 2340 B	Babcock	Water	Dissolved	Hardness	RPD $\leq$ 25 ¹	3	3	100.0
SM 5310 B	Babcock	Water	Dissolved	Dissolved Organic Carbon	RPD $\leq$ 25 ¹	3	3	100.0
SM 5310 B	Babcock	Water	Total	Total Organic Carbon	RPD $\leq$ 25 ¹	3	3	100.0
<i>Babcock Subtotal</i>						312	30	96.8
EPA 600/R-99-064M	PER	Water	Survival, Growth	<i>Chironomus dilutus</i>	RPD $\leq$ 25	6	6	100.0
EPA 821/R-02-012	PER	Water	Survival	<i>Hyalella azteca</i>	RPD $\leq$ 25	3	3	100.0
EPA 821/R-02-013	PER	Water	Reproduction, Survival	<i>Ceriodaphnia dubia</i>	RPD $\leq$ 25	6	6	100.0
EPA 821/R-02-013	PER	Water	Survival, Growth	<i>Pimephales promelas</i>	RPD $\leq$ 25	6	6	100.0
EPA 821/R-02-013	PER	Water	Growth	<i>Selenastrum capricornutum</i>	RPD $\leq$ 25	3	3	100.0
<i>PER Subtotal</i>						24	24	100.0
EPA 160.2	OCRL	Water	Particulate	Total Suspended Solids	RPD $\leq$ 25 ¹	3	3	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL FD SAMPLES	FD SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Acibenzolar-S-methyl	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Allethrin	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Benfluralin	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Bifenthrin	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Chlorfenapyr	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Chlorothalonil	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Cyfluthrin, Total	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Cyhalofop-butyl	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Cyhalothrin, Total	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Cypermethrin, Total	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Dacthal	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	DDD(p,p')	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	DDE(p,p')	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	DDT(p,p')	RPD $\leq$ 25 ¹	6	6	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL FD SAMPLES	FD SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Deltamethrin	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Dithiopyr	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Esfenvalerate	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Ethalfuralin	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Ethofenprox	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Fenpropathrin	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Methoprene	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Nitrapyrin	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Pentachloroanisole	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Pentachloronitrobenzene	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Permethrin, Total	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Phenothrin	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Tefluthrin	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Tetramethrin	RPD $\leq$ 25 ¹	6	6	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL FD SAMPLES	FD SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	T-Fluvalinate	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Trifluralin	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Acetamiprid	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Atrazine	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Azoxystrobin	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Dissolved	Bentazon	RPD $\leq$ 25 ¹	3	3	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Benzobicyclon	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Benzovindiflupyr	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Boscalid	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Boscalid-5-hydroxy	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Broflanilide	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Bromuconazole	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Butralin	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Carbaryl	RPD $\leq$ 25 ¹	6	6	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL FD SAMPLES	FD SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Carbendazim	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Carbofuran	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Chlorantraniliprole	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Chloro-N-(ethoxymethyl)-N-(2-ethyl-6-methylphenyl)acetamide, 2-	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Chlorpyrifos	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Chlorpyrifos oxon	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Clomazone	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Clothianidin	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Clothianidin-Desmethyl	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Coumaphos	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Cyantraniliprole	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Cyazofamid	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Cyclaniliprole	RPD $\leq$ 25 ¹	6	6	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL FD SAMPLES	FD SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Cycloate	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Cymoxanil	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Cyproconazole	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Cyprodinil	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Desethyl-Atrazine	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Desisopropyl-Atrazine	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Desnitro-imidacloprid	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Desthio-prothioconazole	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Diazinon	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Diazoxon	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Dichloroaniline, 3,5-	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Dichlorobenzenamine, 3,4-	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Dichlorophenyl Urea, 3,4-	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Dichlorophenyl-3-methyl Urea, 3,4-	RPD $\leq$ 25 ¹	6	6	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL FD SAMPLES	FD SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Dichlorvos	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Difenoconazole	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Dimethomorph	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Dinotefuran	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Diuron	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	EPTC	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Ethaboxam	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Etoxazole	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Famoxadone	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fenamidone	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fenbuconazole	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fenhexamid	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fenpyroximate	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fipronil	RPD $\leq$ 25 ¹	6	6	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL FD SAMPLES	FD SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fipronil Desulfinyl	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fipronil Desulfinyl Amide	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fipronil Sulfide	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fipronil Sulfone	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Flonicamid	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Florpyrauxifen-Benzyl	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fluazinam	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fludioxonil	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Flufenacet	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fluindapyr	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Flumetralin	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fluopicolide	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fluopyram	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fluoxastrobin	RPD $\leq$ 25 ¹	6	6	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL FD SAMPLES	FD SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Flupyradifurone	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fluridone	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Flutolanil	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Flutriafol	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fluxapyroxad	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Halauxifen-methyl	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Hexazinone	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Hydroxy-Imidacloprid, 5-	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Dissolved	Imazalil	RPD $\leq$ 25 ¹	3	3	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Imidacloprid	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Imidacloprid olefin	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Imidacloprid urea	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Indaziflam	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Indoxacarb	RPD $\leq$ 25 ¹	6	6	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL FD SAMPLES	FD SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Ipconazole	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Iprodione	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Isofetamid	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Kresoxim-methyl	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Malaoxon	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Malathion	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Mandestrobin	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Mandipropamid	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Metalaxyl	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Metalaxyl-hydroxymethyl	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Metconazole	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Methoxyfenozide	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Metolachlor	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Myclobutanil	RPD $\leq$ 25 ¹	6	6	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL FD SAMPLES	FD SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Naled	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Napropamide	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Novaluron	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Oryzalin	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Oxadiazon	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Oxathiapiprolin	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Oxyfluorfen	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Paclobutrazol	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Pendimethalin	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Dissolved	Penoxsulam	RPD $\leq$ 25 ¹	3	3	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Penthiopyrad	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Phosmet	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Picarbutrazox	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Picoxystrobin	RPD $\leq$ 25 ¹	6	6	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL FD SAMPLES	FD SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Piperonyl Butoxide	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Prodiamine	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Prometon	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Prometryn	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Propanil	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Propargite	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Propiconazole	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Propyzamide	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Pydiflumetofen	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Pyraclostrobin	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Pyridaben	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Pyrimethanil	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Pyriproxyfen	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Quinoxifen	RPD $\leq$ 25 ¹	6	6	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL FD SAMPLES	FD SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Sedaxane	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Simazine	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Sulfoxaflor	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Tebuconazole	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Dissolved	Tebuconazole-tert-Butylhydroxy	RPD $\leq$ 25 ¹	3	3	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Tebufenozide	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Tebupirimfos	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Tebupirimfos oxon	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Tetraconazole	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Thiabendazole	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Thiacloprid	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Thiamethoxam	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Thiamethoxam Degradate (CGA-355190)	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Dissolved	Thiamethoxam Degradate (NOA-407475)	RPD $\leq$ 25 ¹	3	3	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL FD SAMPLES	FD SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Thiobencarb	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Tolfenpyrad	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Triadimefon	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Triadimenol	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Triallate	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Tributyl Phosphorotrithioate, S,S,S-	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Trifloxystrobin	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Triflumizole	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Triticonazole	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Valifenalate	RPD $\leq$ 25 ¹	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Zoxamide	RPD $\leq$ 25 ¹	6	6	100.0
OCRL Subtotal						1,056	1,056	100.0
Total						1,111	1,110	99.9

¹RPD criteria not applicable if the concentration of either sample is below the RL.

Laboratory Duplicate Samples

Table C.12. Laboratory duplicate (LD) acceptability for WY 2024.

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL LD SAMPLES	LD SAMPLES IN LIMITS	ACCEPT-ABILITY MET (%)
EPA 200.7	Babcock	Water	Dissolved	Calcium	RPD $\leq$ 20	6	6	100.0
EPA 200.7	Babcock	Water	Dissolved	Magnesium	RPD $\leq$ 20	6	6	100.0
EPA 200.8	Babcock	Water	Dissolved	Copper	RPD $\leq$ 25	5	5	100.0
EPA 351.2	Babcock	Water	Dissolved, Total	Nitrogen, Total Kjeldahl	RPD $\leq$ 25	18	18	100.0
EPA 353.2	Babcock	Water	Total	Nitrate + Nitrite as N	RPD $\leq$ 20	14	14	100.0
SM 2340 B	Babcock	Water	Dissolved	Hardness	RPD $\leq$ 25	6	6	100.0
SM 5310 B	Babcock	Water	Dissolved	Dissolved Organic Carbon	RPD $\leq$ 25	8	8	100.0
SM 5310 B	Babcock	Water	Total	Total Organic Carbon	RPD $\leq$ 25	7	7	100.0
<i>Babcock Subtotal</i>						70	70	100.0
EPA 160.2	OCRL	Water	Particulate	Total Suspended Solids	RPD $\leq$ 25	6	5	83.3
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Acibenzolar-S-methyl	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Allethrin	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Benfluralin	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Bifenthrin	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Chlorfenapyr	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Chlorothalonil	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Cyfluthrin, Total	RPD $\leq$ 25	12	12	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL LD SAMPLES	LD SAMPLES IN LIMITS	ACCEPT- ABILITY MET (%)
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Cyhalofop-butyl	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Cyhalothrin, Total	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Cypermethrin, Total	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Dacthal	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	DDD(p,p')	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	DDE(p,p')	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	DDT(p,p')	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Deltamethrin	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Dithiopyr	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Esfenvalerate	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Ethalfuralin	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Ethofenprox	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Fenpropathrin	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER- PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Methoprene	RPD $\leq$ 25	12	12	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL LD SAMPLES	LD SAMPLES IN LIMITS	ACCEPT-ABILITY MET (%)
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Nitrapyrin	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Pentachloroanisole	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Pentachloronitrobenzene	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Permethrin, Total	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Phenothrin	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Tefluthrin	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Tetramethrin	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	T-Fluvalinate	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Trifluralin	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Acetamiprid	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Atrazine	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Azoxystrobin	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Dissolved	Bentazon	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Benzobicyclon	RPD $\leq$ 25	12	12	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL LD SAMPLES	LD SAMPLES IN LIMITS	ACCEPT-ABILITY MET (%)
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Benzovindiflupyr	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Boscalid	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Boscalid-5-hydroxy	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Broflanilide	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Bromuconazole	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Butralin	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Carbaryl	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Carbendazim	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Carbofuran	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Chlorantraniliprole	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Chloro-N-(ethoxymethyl)-N-(2-ethyl-6-methylphenyl)acetamide, 2-	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Chlorpyrifos	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Chlorpyrifos oxon	RPD $\leq$ 25	12	12	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL LD SAMPLES	LD SAMPLES IN LIMITS	ACCEPT- ABILITY MET (%)
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Clomazone	RPD ≤ 25	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Clothianidin	RPD ≤ 25	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Clothianidin-Desmethyl	RPD ≤ 25	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Coumaphos	RPD ≤ 25	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Cyantraniliprole	RPD ≤ 25	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Cyazofamid	RPD ≤ 25	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Cyclaniliprole	RPD ≤ 25	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Cycloate	RPD ≤ 25	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Cymoxanil	RPD ≤ 25	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Cyproconazole	RPD ≤ 25	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Cyprodinil	RPD ≤ 25	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Desethyl-Atrazine	RPD ≤ 25	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Desisopropyl-Atrazine	RPD ≤ 25	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Desnitro-imidacloprid	RPD ≤ 25	12	12	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL LD SAMPLES	LD SAMPLES IN LIMITS	ACCEPT- ABILITY MET (%)
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Desthio-prothioconazole	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Diazinon	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Diazoxon	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Dichloroaniline, 3,5-	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Dichlorobenzenamine, 3,4-	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Dichlorophenyl Urea, 3,4-	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Dichlorophenyl-3-methyl Urea, 3,4-	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Dichlorvos	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Difenoconazole	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Dimethomorph	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Dinotefuran	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Diuron	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	EPTC	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Ethaboxam	RPD $\leq$ 25	12	12	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL LD SAMPLES	LD SAMPLES IN LIMITS	ACCEPT-ABILITY MET (%)
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Etoxazole	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Famoxadone	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fenamidone	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fenbuconazole	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fenhexamid	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fenpyroximate	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fipronil	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fipronil Desulfinyl	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fipronil Desulfinyl Amide	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fipronil Sulfide	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fipronil Sulfone	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Flonicamid	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Florpyrauxifen-Benzyl	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fluazinam	RPD $\leq$ 25	12	12	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL LD SAMPLES	LD SAMPLES IN LIMITS	ACCEPT-ABILITY MET (%)
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fludioxonil	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Flufenacet	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fluindapyr	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Flumetralin	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fluopicolide	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fluopyram	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fluoxastrobin	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Flupyradifurone	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fluridone	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Flutolanil	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Flutriafol	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fluxapyroxad	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Halauxifen-methyl	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Hexazinone	RPD $\leq$ 25	12	12	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL LD SAMPLES	LD SAMPLES IN LIMITS	ACCEPT-ABILITY MET (%)
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Hydroxy-Imidacloprid, 5-	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Dissolved	Imazalil	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Imidacloprid	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Imidacloprid olefin	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Imidacloprid urea	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Indaziflam	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Indoxacarb	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Ipconazole	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Iprodione	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Isofetamid	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Kresoxim-methyl	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Malaoxon	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Malathion	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Mandestrobin	RPD $\leq$ 25	12	12	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL LD SAMPLES	LD SAMPLES IN LIMITS	ACCEPT- ABILITY MET (%)
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Mandipropamid	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Metalaxyl	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Metalaxyl-hydroxymethyl	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Metconazole	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Methoxyfenozide	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Metolachlor	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Myclobutanil	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Naled	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Napropamide	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Novaluron	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Oryzalin	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Oxadiazon	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Oxathiapiprolin	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Oxyfluorfen	RPD $\leq$ 25	12	12	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL LD SAMPLES	LD SAMPLES IN LIMITS	ACCEPT-ABILITY MET (%)
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Paclobutrazol	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Pendimethalin	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Dissolved	Penoxsulam	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Penthiopyrad	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Phosmet	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Picarbutrazox	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Picoxystrobin	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Piperonyl Butoxide	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Prodiamine	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Prometon	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Prometryn	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Propanil	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Propargite	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Propiconazole	RPD $\leq$ 25	12	12	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL LD SAMPLES	LD SAMPLES IN LIMITS	ACCEPT- ABILITY MET (%)
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Propyzamide	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Pydiflumetofen	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Pyraclostrobin	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Pyridaben	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Pyrimethanil	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Pyriproxyfen	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Quinoxifen	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Sedaxane	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Simazine	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Sulfoxaflor	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Tebuconazole	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Dissolved	Tebuconazole-tert- Butylhydroxy	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Tebufenozide	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Tebupirimfos	RPD $\leq$ 25	12	12	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL LD SAMPLES	LD SAMPLES IN LIMITS	ACCEPT-ABILITY MET (%)
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Tebupirimfos oxon	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Tetraconazole	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Thiabendazole	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Thiacloprid	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Thiamethoxam	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Thiamethoxam Degradate (CGA-355190)	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Dissolved	Thiamethoxam Degradate (NOA-407475)	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Thiobencarb	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Tolfenpyrad	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Triadimefon	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Triadimenol	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Triallate	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Tributyl Phosphorotrithioate, S,S,S-	RPD $\leq$ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Trifloxystrobin	RPD $\leq$ 25	12	12	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL LD SAMPLES	LD SAMPLES IN LIMITS	ACCEPT-ABILITY MET (%)
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Triflumizole	RPD ≤ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Triticonazole	RPD ≤ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Valifenalate	RPD ≤ 25	12	12	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Zoxamide	RPD ≤ 25	12	12	100.0
OCRL Subtotal						2,112	2,111	99.9
Total						2,182	2,181	99.9

Matrix Spike Duplicate Samples

Table C.13. Matrix spike duplicate (MSD) acceptability for WY 2024.

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL MSD SAMPLES	MSD SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
EPA 200.7	Babcock	Water	Dissolved	Calcium	RPD $\leq$ 20	8	8	100.0
EPA 200.7	Babcock	Water	Dissolved	Magnesium	RPD $\leq$ 20	8	8	100.0
EPA 200.8	Babcock	Water	Dissolved	Copper	RPD $\leq$ 25	7	7	100.0
EPA 351.2	Babcock	Water	Dissolved, Total	Nitrogen, Total Kjeldahl	RPD $\leq$ 25	18	18	100.0
EPA 353.2	Babcock	Water	Total	Nitrate + Nitrite as N	RPD $\leq$ 20	14	14	100.0
SM 5310 B	Babcock	Water	Dissolved	Dissolved Organic Carbon	RPD $\leq$ 25	9	9	100.0
SM 5310 B	Babcock	Water	Total	Total Organic Carbon	RPD $\leq$ 25	6	6	100.0
<i>Babcock Subtotal</i>						70	70	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Acibenzolar-S-methyl	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Allethrin	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Benfluralin	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Bifenthrin	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Chlorfenapyr	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Chlorothalonil	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Cyfluthrin, Total	RPD $\leq$ 25	6	6	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL MSD SAMPLES	MSD SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Cyhalofop-butyl	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Cyhalothrin, Total	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Cypermethrin, Total	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Dacthal	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	DDD(p,p')	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	DDE(p,p')	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	DDT(p,p')	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Deltamethrin	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Dithiopyr	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Esfenvalerate	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Ethalfuralin	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Ethofenprox	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Fenpropathrin	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Methoprene	RPD $\leq$ 25	6	6	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL MSD SAMPLES	MSD SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Nitrapyrin	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Pentachloroanisole	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Pentachloronitrobenzene	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Permethrin, Total	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Phenothrin	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Tefluthrin	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Tetramethrin	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	T-Fluvalinate	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_GC/MS/MS	OCRL	Water	Particulate, Dissolved	Trifluralin	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Acetamiprid	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Atrazine	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Azoxystrobin	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Dissolved	Bentazon	RPD $\leq$ 25	3	3	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Benzobicyclon	RPD $\leq$ 25	6	6	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL MSD SAMPLES	MSD SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Benzovindiflupyr	RPD ≤ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Boscalid	RPD ≤ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Boscalid-5-hydroxy	RPD ≤ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Broflanilide	RPD ≤ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Bromuconazole	RPD ≤ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Butralin	RPD ≤ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Carbaryl	RPD ≤ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Carbendazim	RPD ≤ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Carbofuran	RPD ≤ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Chlorantraniliprole	RPD ≤ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Chloro-N-(ethoxymethyl)-N-(2-ethyl-6-methylphenyl)acetamide, 2-	RPD ≤ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Chlorpyrifos	RPD ≤ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Chlorpyrifos oxon	RPD ≤ 25	6	6	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL MSD SAMPLES	MSD SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Clomazone	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Clothianidin	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Clothianidin-Desmethyl	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Coumaphos	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Cyantraniliprole	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Cyazofamid	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Cyclaniliprole	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Cycloate	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Cymoxanil	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Cyproconazole	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Cyprodinil	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Desethyl-Atrazine	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	articulate, Dissolved	Desisopropyl-Atrazine	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Desnitro-imidacloprid	RPD $\leq$ 25	6	6	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL MSD SAMPLES	MSD SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Desthio-prothioconazole	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Diazinon	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Diazoxon	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Dichloroaniline, 3,5-	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Dichlorobenzenamine, 3,4-	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Dichlorophenyl Urea, 3,4-	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Dichlorophenyl-3-methyl Urea, 3,4-	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Dichlorvos	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Difenoconazole	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Dimethomorph	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Dinotefuran	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Diuron	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	EPTC	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Ethaboxam	RPD $\leq$ 25	6	6	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL MSD SAMPLES	MSD SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Etoxazole	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Famoxadone	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fenamidone	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fenbuconazole	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fenhexamid	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fenpyroximate	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fipronil	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fipronil Desulfinyl	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fipronil Desulfinyl Amide	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fipronil Sulfide	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fipronil Sulfone	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Flonicamid	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Florpyrauxifen-Benzyl	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fluazinam	RPD $\leq$ 25	6	6	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL MSD SAMPLES	MSD SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fludioxonil	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Flufenacet	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fluindapyr	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Flumetralin	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fluopicolide	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fluopyram	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fluoxastrobin	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Flupyradifurone	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fluridone	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Flutolanil	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Flutriafol	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Fluxapyroxad	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Halauxifen-methyl	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Hexazinone	RPD $\leq$ 25	6	6	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL MSD SAMPLES	MSD SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Hydroxy-Imidacloprid, 5-	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Dissolved	Imazalil	RPD $\leq$ 25	3	3	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Imidacloprid	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Imidacloprid olefin	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Imidacloprid urea	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Indaziflam	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Indoxacarb	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Ipconazole	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Iprodione	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Isofetamid	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Kresoxim-methyl	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Malaoxon	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Malathion	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Mandestrobin	RPD $\leq$ 25	6	6	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL MSD SAMPLES	MSD SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Mandipropamid	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Metalaxyl	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Metalaxyl-hydroxymethyl	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Metconazole	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Methoxyfenozide	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Metolachlor	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Myclobutanil	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Naled	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Napropamide	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Novaluron	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Oryzalin	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Oxadiazon	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Oxathiapiprolin	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Oxyfluorfen	RPD $\leq$ 25	6	6	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL MSD SAMPLES	MSD SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Paclobutrazol	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Pendimethalin	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Dissolved	Penoxsulam	RPD $\leq$ 25	3	3	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Penthiopyrad	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Phosmet	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Picarbutrazox	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Picoxystrobin	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Piperonyl Butoxide	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Prodiamine	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Prometon	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Prometryn	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Propanil	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Propargite	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Propiconazole	RPD $\leq$ 25	6	6	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL MSD SAMPLES	MSD SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Propyzamide	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Pydiflumetofen	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Pyraclostrobin	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Pyridaben	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Pyrimethanil	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Pyriproxyfen	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Quinoxifen	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Sedaxane	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Simazine	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Sulfoxaflor	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Tebuconazole	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Dissolved	Tebuconazole-tert-Butylhydroxy	RPD $\leq$ 25	3	3	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Tebufenozide	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Tebupirimfos	RPD $\leq$ 25	6	6	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL MSD SAMPLES	MSD SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Tebupirimfos oxon	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Tetraconazole	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Thiabendazole	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Thiacloprid	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Thiamethoxam	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Thiamethoxam Degradate (CGA-355190)	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Dissolved	Thiamethoxam Degradate (NOA-407475)	RPD $\leq$ 25	3	3	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Thiobencarb	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Tolfenpyrad	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Triadimefon	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Triadimenol	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Triallate	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Tributyl Phosphorotrithioate, S,S,S-	RPD $\leq$ 25	6	6	100.0
USGS-OCRL_WATER-PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Trifloxystrobin	RPD $\leq$ 25	6	6	100.0

METHOD	LAB	MATRIX	FRACTIONS	ANALYTE	ACCEPTABILITY CRITERIA	TOTAL MSD SAMPLES	MSD SAMPLES IN LIMITS	ACCEPT ABILITY MET (%)
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Triflumizole	RPD ≤ 25	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Triticonazole	RPD ≤ 25	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Valifenalate	RPD ≤ 25	6	6	100.0
USGS-OCRL_WATER- PEST_06_LC/MS/MS	OCRL	Water	Particulate, Dissolved	Zoxamide	RPD ≤ 25	6	6	100.0
OCRL Subtotal						1,053	1,053	100.0
Total						1,123	1,123	100.0

Toxicity Control Samples

Table C.8. Toxicity control sample acceptability for WY 2024.

METHOD	LAB	CONTROL	MATRIX	ORGANISM	ENDPOINT	ACCEPTABILITY CRITERIA	TOTAL CONTROL SAMPLES	CONTROL SAMPLES WITHIN LIMITS	ACCEPTABILITY MET (%)
EPA 600/R-99-064M	PER	Negative Control	Water	<i>Chironomus dilutus</i>	Survival	≥ 80%	12	12	100.0
					Growth ¹	≥ 0.60 mg	12	12	100.0
EPA 821/R-02-013	PER	Negative Control	Water	<i>Ceriodaphnia dubia</i>	Reproduction ²	60% of females ≥3 broods and average ≥15 young	11	11	100.0
					Survival	≥ 80%	11	11	100.0
EPA 821/R-02-013	PER	Negative Control	Water	<i>Pimephales promelas</i>	Survival	≥ 80%	11	11	100.0
					Growth ³	≥ 0.25 mg	11	11	100.0
EPA 821/R-02-013	PER	Negative Control	Water	<i>Selenastrum capricornutum</i>	Growth ⁴	Growth >200,000 cells/mL and variability <20%	12	12	100.0
EPA 821/R-02-012	PER	Negative Control	Water	<i>Hyalella azteca</i>	Survival	≥ 90%	12	12	100.0
Total							92	92	100.0

¹ Growth for *Chironomus dilutus* is evaluated as the ash-free dry weight per surviving individual.

² Reproduction for *Ceriodaphnia dubia* is evaluated as the number of young per female.

³ Growth for *Pimephales promelas* is evaluated as biomass as weight per original individual.

⁴ Growth for *Selenastrum capricornutum* is evaluated as total cell count.

Appendix D. Deviation Forms

2023-03: Event 1 (WY 2024) Chironomus larvae initial weights greater than 0.012 mg/ individual AFDW



Deviation Report / Corrective Action Form

Title:	CUP Event 1 (WY24) <i>Chironomus</i> larvae initial weights greater than 0.012 mg/ individual AFDW
Deviation Number:	2023-03_CUPv1.4_Dev_WY24Event1_PER_Chironomus_InitialWeights
Prepared By:	Robert Pangle
Attached:	2023-03_CUPv1.4_Dev_121223_DeltaRMP_NonConformingDataReport_ChironomusT0Weights_S1.pdf

Applicable Reference(s):

Delta Regional Monitoring Program Quality Assurance Project Plan for Current Use Pesticides in the Sacramento-San Joaquin Delta Version 1.4, September 28, 2023

Complete the following table regarding the major milestones for the relevant deviation. Add additional rows as needed.

	Date	Notes/Description (optional)
Date Deviation Occurred:	12/19/2023	Upon completion of the drying process, the initial Ash-Free Dry Weight (AFDW) for two control batches of <i>Chironomus dilutus</i> larvae were recorded. These test batches were initiated on 12/12/2023 and 12/13/2023, and it was subsequently noted on 12/19/2023 (post drying) that both batches exceeded the measurement quality objective (MQO) of ≤ 0.12 mg/individual AFDW for t(0) weights.
Date DRMP Program Manager was notified:	12/22/2023	Stephen Clark, Technical Director at Pacific EcoRisk (PER), notified (via email) Melissa Turner (DRMP Technical Program Manager) of a deviation regarding <i>C. dilutus</i> testing that

Deviation Report / Corrective Action Form, page 2 of 5

	Date	Notes/Description (optional)
		was initiated with organisms above the MQO of ≤ 0.12 mg/individual AFDW for two control batches.
Date CVRWQCB QA Representative Notified:	12/22/2023	Stephen Clark (PER) notified Selina Cole (Region 5 QA Representative) of the non-conformance of mean initial t(0) weights via email.
Non-conforming Report sent:	1/18/2024	Initial Non-Conforming Report sent from Stephen Clark (PER) to MLJ.
Non-conforming Report sent:	2/2/2024	Revised Non-Conforming Report sent from Stephen Clark (PER) to account for pupation.
Deviation Form sent for Review:	2/15/2024	Stephen Clark (PER Technical Director).
Deviation Form sent for Review:	4/11/2024	Will Hagan (DRMP QA Officer)
Deviation Form Sent for Signatures:	4/29/2024	Originally sent for signatures
Approval Letter Received from CVRWQCB:	10/25/2024	The Central Valley Regional Water Quality Control Board's QA Representative position is currently vacant; however, Regional Board staff have reviewed the submitted QAPP Deviations Form and find the corrective actions sufficient. Regional Board approval was provided by Patrick Pulupa (CVRWQCB Executive Officer) for six CUP deviations including this one. The approval letter was sent to Debbie Mackey (DRMP President) on October 25, 2024.
Deviation Form Sent for Signatures post approval	11/21/2024	

Description of Deviation/Change:

PER discovered that the t(0) weights of *Chironomus dilutus* were greater than the SWAMP MQO of ≤ 0.12 mg/individual AFDW for both control batches. Test batches were initiated on 12/12/2023 (Control Batch 1) and 12/13/2023 respectively (Control Batch 2). The first batch (Control Batch 1) had a t(0) mean AFDW of 0.15 mg/individual and the second batch (Control Batch 2) of 0.14 mg/individual. The Control Batch 2 included four organisms which pupated; Control Batch 1 did not have any pupating organisms.

Reason for Deviation/Change

As noted in the non-conforming report attached to this deviation form, *C. dilutus* were received as 7-day old and 8-day old larvae on 12/9/2023 and 12/12/2023 from Aquatic Biosystems, Inc.

The organisms were held in-house and monitored closely until they were ten and nine days old respectively, when they were used for test initiation occurring on 12/12/2023 and 12/13/2023. Although the organisms were of the correct age for this method and test, the ash free dry weight was greater than allowed by the SWAMP MQO. An investigation was performed to determine the cause of the increased weight of the organisms including a) an assessment of test conditions, b) feeding rates, and c) water quality. The investigation did not identify any additional contributing factors to the organisms not meeting the AFDW < 0.12 mg/individual. It was noted that historically larvae ordered from Aquatic Biosystems, Inc. have a greater likelihood of initial weights above the 0.12 mg/individual threshold compared to organisms reared in-house from egg casings by PER staff. Due to the timing for the selection of the sampling event coupled with the targeted organism age range of 8-10 days, egg cases could not be reared in house, so the organisms were received as larvae from the vendor that were of the correct age for testing.

Impact on Present and Completed Work (discuss potential magnitude of impact and bias of deviation/change, if this can be anticipated, if no impact is expected please indicate this)

The SWAMP MQO of AFDW ≤ 0.12 mg/individual is presumably targeted to reduce the likelihood of pupation/hatching during the 10-day test. No pupation or hatching occurred in the test batch that was initiated on 12/12/2023 even though the organism AFDW in Control Batch 1 was 0.15 mg/individual. No impact on the test results is expected since there was no pupation, and the age of the organisms was confirmed at 9-10 days old at time of test initiation. The organism AFDW in Control Batch 2 was 0.14 mg/individual. In Control Batch 2, initiated on 12/13/2023, four (4) organisms pupated with one transitioning to an adult during this testing. Pupation occurred in tests performed on samples collected from stations CONF-001 (Replicate C), CONF-003 (Replicate A and C) and CONF-004 (Replicate D). Pupated organisms were excluded from both the survival and growth endpoint statistics per the Data Management Standard Operating Procedure (v2.4).

Deviation Report / Corrective Action Form, page 4 of 5

Corrective Action	By Date	By Whom
The Tox Test Level QA Code of TAF [Test organisms exceed the maximum weight requirement at test initiation] will be applied to the samples in both Control Batches.	Prior to Electronic Data Deliverable Submission to MLJ data management team	Stephen Clark, Pacific EcoRisk Technical Director
The Tox Test Level QA Code of TMO [Test organisms escaped or are otherwise missing] will be applied to the effected samples in Control 2 that had pupation.	Prior to Electronic Data Deliverable Submission to MLJ data management team	Stephen Clark, Pacific EcoRisk Technical Director
Add a Tox Result Comment to the replicate records that had pupation: "1 organism pupated; 9 organisms used in statistics".	Prior to Electronic Data Deliverable Submission to MLJ data management team	Stephen Clark, Pacific EcoRisk Technical Director
PER needs 2.5 weeks advance notice for remaining CUP non-storm sampling events to allow for rearing of egg cases in-house. The Program Manager will help coordinate communication between the sampling team and PER for non-storm events that can be scheduled in advance to provide advance notice.	Prior to WY24 Events 3-6	Melissa Turner, DRMP Program Manager

Deviation Report / Corrective Action Form, page 1 of 5

ACKNOWLEDGED BY:

Pacific EcoRisk Technical Director:	DocuSigned by: <i>STEPHEN CLARK</i> C4D43551B2BC478...	Date:	11/25/2024
	Stephen Clark		

DRMP Program Manager:	DocuSigned by: <i>Melissa Turner</i> 9796DD915C44448...	Date:	11/21/2024
	Melissa Turner		

DRMP QA Officer:	DocuSigned by: <i>Will Hagan</i> A4691C48F968433...	Date:	11/25/2024
	Will Hagan		

CVRWQCB QA Representative*:	Not Applicable	Date:	10/25/2024
	Vacant		

*While these QAPP Deviation Forms will remain unsigned by the Central Valley Water Board due to the vacant QA Representative position, the current form is approved based on CVRWQCB staff scientist review and approval by the Central Valley Regional Water Quality Control Board Executive Officer Patrick Pulupa.

Evaluation of Non-Conforming Data

1.0 Incident Summary

Date of Incident:	12/12-13/23	Technical Mistake by PER Staff	
Client & Test Date:	Delta RMP; 12/12/23, 12/13/23	Organism Quality	X
Species:	<i>Chironomus dilutus</i>	Water Quality	
Test:	10d Chronic Toxicity	Solution Preparation	
Test ID:	103232-103240	Feeding/Food Quality	
Project Number:	35355	Organism Handling	
Manager on Duty:	SVV	Technical Experience	
Individuals Involved:		Undetermined	

2.0 Evaluation and Cause Analysis

The final ash free dry weight measurements recorded on 12/12 and 12/13 for the organisms associated with Delta RMP's 10-day chronic water exposure *Chironomus dilutus* toxicity tests were not ≤ 0.12 mg/individual as required by the SWAMP MQO. Two batches of tests were initiated. The organisms used to start testing had a mean ash free dry weight of 0.15 mg/individual (control 1) and 0.14 mg/individual (control 2). An investigation was performed to determine the cause of the increased weight of the organisms used for test initiation.

Organism Quality/Handling/Feeding

The tests were initiated on 12/12 and 12/13 using organism batch #14035 and #14040, which were received as 7-day old and 8-day old larvae on 12/9 and 12/12, respectively, from Aquatic BioSystems, Inc., PER's primary provider. The larvae were received in good condition at arrival with acceptable water quality parameters. The organisms were held in-house and monitored closely until they were 10 days old and 9 days old respectively, when they were used for test initiations, which is within the required age range for this test method. The cultures were observed to be in "good" condition for the duration of holding, with no observed mortalities. Historically, larvae ordered from ABS have a greater likelihood of having a weight greater than .012 mg/individual than organisms reared from an egg case by PER staff. Although the organisms were of the correct age for this method, they simply had a greater ash free dry weight listed as the SWAMP MQO, so organism quality is the most likely cause of the greater organism weight. It is important to note that the lower weight is presumably targeted to reduce pupation/hatching during the 10-day test. Four organisms pupated with one transitioning to an adult during this testing, and those have been excluded from both the survival and growth endpoints per past guidance from SWAMP staff and as approved by the Delta RMP TAC.

Other Factors

An investigation was performed on other factors that could have impacted testing including test conditions, feeding, and water quality. The investigation did not identify additional contributing factors to the organisms not meeting the ash free dry weight limit of ≤ 0.12 mg/individual.

3.0 Corrective Action / Preventative Action

Corrective Action: How will the situation/data be treated if it is encountered again? Who will implement?

The results were reported to the client and no retest was scheduled; therefore, no corrective actions are necessary at this time.

Preventative Action: Identify preventative measures that will be implemented. Who will implement?

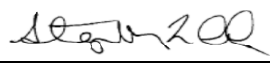
N/A.

4.0 Monitoring of Corrective Action Effectiveness

30 Days later: There have been no other related issues in the thirty days following this incident.

Incident Open Date: 12/12/23 Incident Close Date: 1/13/24

Prepared By: Kevin Lung Quality Manager's Signature: 

Technical Director: Stephen Clark Technical Director's Signature: 

2023-06: Event 1 (WY 2024) Missed Tests Due to High Salinity



Deviation Report / Corrective Action Form

Title:	CUP Event 1 (WY24) Missed Tests Due to High Salinity
Deviation Number:	2023-06_CUPv1.4_Dev_WY24Event1_PER_MissingTests_HighSalinity
Prepared By:	Cassandra Lamerdin
Attached:	24_0110_CUPTAC_RecommendationMemo.doc

Applicable Reference(s):

Delta Regional Monitoring Program Quality Assurance Project Plan for Current Use Pesticides in the Sacramento-San Joaquin Delta Version 1.4, September 28, 2023

Complete the following table regarding the major milestones for the relevant deviation. Add additional rows as needed.

	Date	Notes/Description (optional)
Date Deviation Occurred:	12/13/2023	Stephen Clark, Technical Director at Pacific EcoRisk (PER), notified (via email) Melissa Turner (DRMP Program Manager), Selina Cole (Region 5 QA Representative) and the TIE (Toxicity Identification Evaluation) Advisory Committee that four stations had conductivity above the evaluation threshold for three toxicity test species.
Date DRMP Program Manager was notified:	12/13/2023	
Date CVRWQCB QA Representative Notified:	12/13/2023	

	Date	Notes/Description (optional)
Deviation Form sent for Review:	05/01/2024	Stephen Clark (PER Technical Director)
Deviation Form sent for Review:	05/08/2024	Jim Orlando (USGS Project Manager)
Deviation Form sent for Review:	05/08/2024	Will Hagan (DRMP QA Officer)
Deviation Form Sent for Signatures:	05/09/2024	Originally sent for signatures
Approval Letter Received from CVRWQCB:	10/25/2024	The Central Valley Regional Water Quality Control Board's QA Representative position is currently vacant; however, Regional Board staff have reviewed the submitted QAPP Deviations Form and find the corrective actions sufficient. Regional Board approval was provided by Patrick Pulupa (CVRWQCB Executive Officer) for six CUP deviations including this one. The approval letter was sent to Debbie Mackey (DRMP President) on October 25, 2024.
Deviation Form Sent for Signatures post approval	11/21/2024	

Description of Deviation/Change:

On December 13, 2023, there was a deviation related to Current Use Pesticides (CUP) Event 1 (WY 2024) toxicity tests not performed for some species due to high conductivity. It was determined that conductivity was above threshold levels for three species (*Selenastrum capricornutum*, *Ceriodaphnia dubia* and *Pimephales promelas*) at Confluence sites during Event 1 sampling on December 12, 2023. Four stations (Conf-001, Conf-002, Conf-003 and Conf-004) had a total of eight tests (14 endpoints) that were not conducted due to elevated conductivity in surface water (Tables 1 and 2).

Table 1. Summary of sites with high conductivity sampled during Event 1 (December 12, 2023).

Station	Date	Conductivity (µS/cm)	Selenastrum	Ceriodaphnia	Pimephales
Conf-001	12/12/2023	7141	N/A ¹	N/A ¹	N/A ¹
Conf-002	12/12/2023	8354	N/A ¹	N/A ¹	N/A ¹
Conf-003	12/12/2023	2733	Within tolerance	N/A ¹	Within tolerance
Conf-004	12/12/2023	2576	Within tolerance	N/A ¹	Within tolerance

¹ Sample Not Tested: Conductivity exceeded upper limit

Table 2. Traditional species conductivity thresholds and alternate test species.

Traditional Species	Lower Threshold (μS/cm); Add High Conductivity Control	Upper Threshold (μS/cm); Use Alternate Test Species	Alternate Species
<i>Selenastrum</i>	1500	3000	<i>Thalassiosira</i>
<i>Ceriodaphnia</i>	1900	2500	<i>Hyaella</i>
<i>Pimephales</i>	1900	6000	<i>Menidia</i>

Reason for Deviation/Change

On December 13, 2023, Stephen Clark at PER contacted the Delta Regional Monitoring Program (DRMP) Program Manager, the Central Valley Regional Water Quality Control Board (CVRWQCB) Quality Assurance (QA) Representative, and DRMP Toxicity Identification Evaluation (TIE) Advisory Committee members via email indicating that the high conductivity measurements at four sites required discussion on next steps and alternate species use.

During notification with the DRMP Program Manager and TIE Advisory Committee, PER reminded the group that the use of alternative species was not part of the DRMP Request For Proposals and therefore the alternative species were not included in PER's scope. As a result, the PER contract does not include costs for these tests and species. In addition, PER discussed that some of the alternative species were not available with such short notice.

Impact on Present and Completed Work (discuss potential magnitude of impact and bias of deviation/change, if this can be anticipated, if no impact is expected please indicate this)

As stated above, there were four stations (Conf-001, Conf-002, Conf-003 and Conf-004) sampled on December 12, 2023 (total of eight tests and 14 endpoints) that will not be included in the WY 2024 dataset due to elevated conductivity in surface water.

The CUP TAC convened a meeting on January 8, 2024 to discuss and draft a recommendation memo (attached) for how to proceed when high conductivity is present at a site. Included in the discussion was a flowchart for how to determine the use of use of high conductivity controls and data management flagging for alternative controls when high conductivity is present.

Because the use of alternative species and these tolerance limits are already part of SWAMP recommendations and follow guidance for testing methods, there will be no change to the methods cited in the CUP QAPP. The current PER Standard Operating Procedures (SOPs) include the options to use an alternative control or species when deemed necessary.

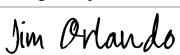
Deviation Report / Corrective Action Form, page 4 of 5

Corrective Action	By Date	By Whom
Prior to sample events, conductivity will be checked remotely using results from the California Data Exchange Center (CDEC) site at Antioch and the timing of sample collection will be reviewed by USGS in all confluence sites for Events 2-6. This will allow time for additional communication and planning for implementing the alternative salinity procedures if deemed necessary	Prior to future Event Numbers 2-6	Jim Orlando, USGS Project Manager
Meet with TAC and create a recommendation memo for process when high salinities occur.	04/15/2024	Melissa Turner, DRMP Program Manager
Make modifications to the DRMP Data Management SOP to include specific flagging procedures for high salinity situations and submit an amendment to the CUP QAPP.	05/01/2024	Melissa Turner, DRMP Program Manager

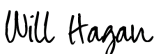
Deviation Report / Corrective Action Form, page 1 of 5

ACKNOWLEDGED BY:

Pacific EcoRisk Technical Director:	DocuSigned by:  C4D43551B2BC476...	Date:	11/25/2024
	Stephen Clark		

USGS Project Manager:	Signed by:  B4DDF22E261F427...	Date:	11/25/2024
	Jim Orlando		

DRMP Program Manager:	DocuSigned by:  9796DD915C44446...	Date:	11/26/2024
	Melissa Turner		

DRMP QA Officer:	DocuSigned by:  A4691C48F966433...	Date:	11/25/2024
	Will Hagan		

CVRWQCB QA Representative*:	Not Applicable	Date:	10/25/2024
	Vacant		

*While these QAPP Deviation Forms will remain unsigned by the Central Valley Water Board due to the vacant QA Representative position, the current form is approved based on CVRWQCB staff scientist review and approval by the Central Valley Regional Water Quality Control Board Executive Officer Patrick Pulupa.

memo

Delta Regional Monitoring Program

To: DRMP Executive Committee

From: Current Use Pesticide (CUP) Technical Advisory Committee (TAC)

Date: April 17, 2024

Re: Delta RMP CUP TAC Recommendation for Addressing Pathogen-Related Mortality During Fathead Minnow (*Pimephales promelas*) Toxicity Testing

Recommendation

The Delta Regional Monitoring Program (Delta RMP) Current Use Pesticide (CUP) Technical Advisory Committee (TAC) met on April 4, 2024, and discussed the impact of pathogen-related mortality (PRM) on testing of *Pimephales promelas* (fathead minnow). Under the current Delta RMP CUP study design, roughly 20% of the toxicity test samples for *P. promelas* were associated with PRM resulting in limited usability of the data.

The CUP study design outlined in the Quality Assurance Project Plan (QAPP) includes the following language regarding the goal and purpose of CUP monitoring:

“The Delta RMP was initiated under the encouragement of the Central Valley Regional Water Quality Control Board (CVRWQCB) with the primary goal of tracking and documenting the effectiveness of beneficial use protection and restoration efforts through comprehensive monitoring of water quality constituents and their effects in the Delta. Understanding the current water quality conditions within the Delta and the potential impacts to water quality conditions is important to preserve and enhance the Delta and inform corresponding regulatory and management decisions, which should be based upon sound science. A better understanding of the effects of contaminants in the apparent decline of Delta ecosystems is a priority for regulators and stakeholders. Pesticide use in the Delta and Central Valley is one of the potential drivers of these effects. Constantly changing pesticide use presents a challenge for environmental scientists, resource managers, and policy makers trying to understand whether these contaminants are impacting aquatic systems and if so, which pesticides are the biggest problem. Less than half of the pesticides currently applied in the Central Valley are routinely analyzed in monitoring studies and new pesticides are continually being registered for use. Therefore, baseline monitoring of ambient surface water for both aquatic toxicity and a broad list of current use pesticides is needed to understand whether current use pesticides contribute to observed toxicity in the Delta.”

The CUP TAC is submitting a recommendation to utilize a 20-replicate per treatment method for toxicity testing of *P. promelas* to mitigate the impacts of PRM on the test results and data interpretation (i.e., determining if and how much the observed effects are due to pesticides or other toxicants vs. pathogen related). The recommendation is based on the overall objectives of the CUP monitoring design to better understand the impacts of pesticides on the aquatic ecosystem of the Delta including separating out the impact of confounding variables on those impacts.

Background

The CUP monitoring project has encountered issues related to PRM during toxicity testing of *P. promelas* across various sampling events throughout three water years of monitoring (the study has conducted two events of the fourth and final water year). Pathogen related toxicity is a test interference that occurs sporadically in *P. promelas* tests with ambient samples and is believed to be caused by water-borne pathogen(s). The CUP four-year study design includes the collection of 192 environmental samples over four years to be tested for toxicity to *P. promelas* (eight sites per event x six events per year x four years) plus field duplicate sample collected for quality assurance. To date, 20% of the samples tested for *P. promelas* toxicity as part of the current CUP study design have PRM (34 samples out of 172 total samples collected to date).

This memo proposes to adjust the number of organisms per container (two organisms per container versus 10 organisms per container) with the goal of reducing the probability of PRM impacting the statistical analysis of the endpoint data. This higher replicate test method is expected to reduce the likelihood of PRM affecting the interpretation of toxicity results by minimizing the variability in fish survival as a result of PRM especially when there is potential for additional mortality caused by contaminants (e.g., pesticides) in the water column. The proposed change is allowed by the U.S. Environmental Protection Agency (EPA, 2002) method [1000.0](#) for *P. promelas* to mitigate for PRM. Pathogen related mortality is not uncommon and increased replication/fewer fish per replicate has been used in other northern California monitoring programs including the Sacramento River Watershed monitoring program and for at least one municipal urban runoff monitoring program in the Bay Area Municipal Stormwater Collaborative (BAMSC). However, due to the increase of replica containers and personnel effort to manage the additional replicates (20 containers per test versus the four normally used), the cost for conducting the *P. promelas* tests will increase. The additional costs are viewed by the CUP TAC as a necessary investment to improve the quality of data collected and limit expenditures on test results with limited usability.

The EPA (2002) [Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms](#) notes in section 11.3.4 that “Pathogenic and/or predatory organisms in effluent samples or receiving water that is used for dilution may affect test organism survival and confound test results.” Under these circumstances, the EPA recommends taking steps to minimize pathogen interference to prevent test results from being confounded by mortality due to pathogens. The test design can be modified to control pathogen interference. The use of two fish per 20 mL in each 1-ounce test solution or two fish per 50 ml in each 4-ounce test solution can be used rather than 10 fish per 250 ml test solution. The total number of fish tested remains unchanged. The increase in replication does not affect the comparison of the test results as both methods are permitted within the same EPA method and the 20-replicate method requires pooling of replicates to generate four replicates for the weight comparison.

The EPA method provides an option of conducting the increased replicate per treatment as a follow-up test when PRM is evidenced; however, this would mean that the original test would be performed with the standard four replicates per treatment and then retested outside of hold time when PRM is evidenced. Instead, in the initial testing, the CUP TAC recommendation is to utilize the additional replicates in the test design as outlined by EPA when testing *P. promelas* for toxicity. This will avoid hold time violations for retesting but will incur a larger cost since tests associated with the remaining four sampling events in 2024 (starting with the April sampling event) will have additional costs related to testing incorporating PRM mitigation procedures versus testing without such procedures. To date, the highest percentage of samples experiencing PRM in a given water year is 39%, while the lowest percentage of PRM affected samples in a water year is 4%. Based on the water year with the highest percentage of samples with PRM, it is estimated that approximately 12 of the 32 toxicity tests to be performed over the next four events would be impacted by PRM (does not include field duplicates). It would cost roughly \$10,000 less to retest samples impacted by PRM versus the CUP TAC recommendation to perform all *P. promelas* testing with the 20-container test setup. The value of spending the additional money is to avoid hold time violations that would impact the useability of the data.

The CUP TAC is made up of the following members: Selina Cole (CVRWQCB), Cam Irvine (RBI), Michael Johnson (MLJ Environmental), Karen Ashby (LWA), and Armand Ruby (ARC). Selina Cole was not present during the meeting but was informed separately of the discussion and recommendation. The TAC supports the recommendation.

Data Management

When reporting the proposed updates to testing described above, there would be several differences from previously reported *P. promelas* test results. The Summary results would receive a Test Quality Assurance (QA) Code "SN" [See narrative and/or special notes] with a Tox Batch comment of "Test performed using four replicates, each replicate of 10 fish was divided into five subreplicates with two fish/subreplicate". The QA code does not impact data interpretation or usability; it provides additional narrative detail. The data will be comparable to prior collected data.

Budget Impacts

Conducting the test with PRM avoidance measures for the remaining four events for all *P. promelas* tests (including field quality control) adds **\$37,403.31** to the PER budget.

2023-07: Event 2 (WY 2024) Chironomus 10-day Toxicity Test Missed Hold Time



Deviation Report / Corrective Action Form

Title:	CUP Event 2 (WY24) <i>Chironomus</i> 10-day Toxicity Test Missed Hold Time
Deviation Number:	2023-07_CUPv1.4_Dev_WY24Event2_PER_MissedHoldtime
Prepared By:	Robert Pangle
Attached:	2023-07_CUPv1.4_Dev_WY24Event2_PER_12324_C_Chiron_10dWater_DeltaRMPS1.pdf

Applicable Reference(s):

Delta Regional Monitoring Program Quality Assurance Project Plan for Current Use Pesticides in the Sacramento-San Joaquin Delta Version 1.4, September 28, 2023

Complete the following table regarding the major milestones for the relevant deviation. Add additional rows as needed.

	Date	Notes/Description (optional)
Date Deviation Occurred:	01/24/2024	The 48-hour hold time limit was exceeded for two Event 2 water samples collected on 01/22/2024 for use in 10-day chronic water exposure <i>Chironomus dilutus</i> toxicity tests due to late arrival of test organisms as a result of shipping delays.
Date DRMP Program Manager was notified:	01/25/2024	Stephen Clark, Technical Director at Pacific EcoRisk (PER), notified (via email) Melissa Turner (DRMP Technical Program Manager) of a deviation regarding a hold time violation.
Date CVRWQCB QA Representative Notified:	01/25/2024	Stephen Clark (PER) notified Selina Cole (Region 5 QA Representative) of the hold time violation.
Non-Conforming Report sent:	02/13/2024	Non-Conforming Report sent from Stephen Clark (PER) to Melissa Turner.

Deviation Report / Corrective Action Form, page 2 of 4

	Date	Notes/Description (optional)
Non-Conforming Report sent:	04/09/2024	Revised Non-Conforming Report sent from Stephen Clark (PER) to Melissa Turner to reflect correct hold time.
Deviation Form sent for Review:	03/26/2024	Stephen Clark (PER Technical Director)
Deviation Form sent for Review:	04/11/2024	Will Hagan (DRMP QA Officer)
Deviation Form Sent for Signatures:	04/15/2024	

Description of Deviation/Change:

On January 23, 2024, Stephen Clark at PER contacted the Delta Regional Monitoring Program (DRMP) Program Manager, the Central Valley Regional Water Quality Control Board (CVRWQCB) Quality Assurance (QA) Representative, and DRMP Toxicity Identification Evaluation (TIE) Advisory Committee members with an email indicating that an order of *Chironomus dilutus* organisms that were due to arrive for toxicity test initiation on 01/23/2024 had been delayed due to flight mechanical issues during shipping. It was noted that if the organisms did not arrive by the end of day (i.e., 01/23/2024), then testing would be initiated outside of the 48-hr hold time limit for the two samples (511ULCABR and 544LSAC13) collected during Event 2 monitoring on 01/22/2024. (Note: outside of the 36-hr hold limit, but within the maximum of 72 hrs. cited in EPA method manuals for justifications such as shipping delays). Organisms arrived on 01/24/2024 in acceptable condition, and the 10-day toxicity tests were initiated on 01/24/2024 at 13:50, which was outside of the 48-hour holding time limit. 511ULCABR was five hours outside of the 48-hr hold time and 544LSAC13 was 1 hour outside of the 48-hr hold time.

Reason for Deviation/Change

As discussed above, Stephen Clark at PER contacted the DRMP Program Manager, the CVRWQCB QA Representative, and DRMP TIE Advisory Committee members on 01/23/2024 via email indicating that an order of *Chironomus dilutus* organisms were delayed due to a flight mechanical issue which affected overnight shipping. In that email, Stephen Clark asked the DRMP TIE Advisory Committee for guidance on how to proceed given this delay. The potential scenarios for dealing with the delay were as follows: a) organisms arrive on 01/23/2024 and PER initiates testing within the 48-hr holding time limit, or b) organisms do not arrive until 01/24/2024, but hopefully in good health/quality, and at the maximum allowable age of 10-days old. This would result in the testing being initiated outside of the 48-hr holding time limit for DRMP (but within the maximum of 72 hrs cited in the EPA method manuals for justifications such as shipping delays), which would require a non-conforming report from PER. Members of the TIE Advisory Committee and the CVRWQCB QA Representative recommended that the tests proceed even if the organisms did not arrive until 01/24/2024, and, that if that situation occurred, a deviation form would need to be drafted, data would need to be flagged according to the Data Management SOP, and a laboratory report narrative would need to include an explanation of the situation. Subsequently, *Chironomus dilutus* organisms did not arrive by the end of day (i.e., 01/23/2024). Test organisms arrived on 01/24/2024 and were deemed to be of acceptable quality; testing was initiated outside of the 48-hr hold time limit on 01/24/2024 as directed by the TIE Advisory Committee.

Stephen Clark also provided additional background pertaining to PER standard operating procedures (SOPs) and the age at which organisms can be ordered for testing. PER SOPs targets

testing *Chironomus* at 8-10 days old; however, PER will only order organisms at an age of seven days old, due to past occurrences where organisms shipped at an age of six days old experienced high attrition during shipping which contributed to a considerable increase in invalid testing. In this current situation, there was no latitude to order organisms to arrive at PER on Saturday (01/20/2024) and hold them for anticipated testing since they would have been shipped at an age of six days old. Subsequently, organisms were scheduled for overnight shipping and delivery on 01/23/2024, which ended up being delayed until 01/24/2024. It was also noted by PER that it was their preference to rear *Chironomus dilutus* organisms in-house as to avoid shipping related stress and potential impacts on testing, but that is not possible for storm sampling events since there is insufficient advanced notice of sampling.

Impact on Present and Completed Work (discuss potential magnitude of impact and bias of deviation/change, if this can be anticipated, if no impact is expected please indicate this)

The TIE Advisory Committee members agreed that while the interpretation of the results from affected tests may be qualified, the toxicity tests are a useful assessment if toxicity is present in the samples. The discussion amongst TIE Advisory Committee members also indicated that given the current situation/issue, there is an inherent limitation associated with midge toxicity testing (i.e., *Chironomus dilutus*). It was noted that PER is making every effort to run tests according to the Delta RMP Quality Assurance Project Plan (QAPP) and measurement quality objectives (MQOs), but test organism availability at the right age and size appears to be an ongoing challenge. TIE Committee discussions also stressed that the current 2024 water year sampling will complete the first cycle of all regions in the rotating basin monitoring study design, and it is advisable to perform toxicity testing in the current situation as it will provide informative data. Although these organisms were received later than planned, they were within weight requirements and there was no pupation in the two samples. All toxicity tests associated with both of these samples were not toxic.

The laboratory is already doing as much as they can to avoid missing hold times for organisms that are shipped to the laboratory during storm season including effective communication with the samplers, laboratory, vendor, and Project Manager. Shipping delays are not in the control of the laboratory; therefore, PER uses in-house organisms whenever possible to limit situations where shipping delays could result in hold time violations. However, storm sampling events often result in the need for using outside vendor organisms.

Corrective Action	By Date	By Whom
The Tox Test Level QA Code of H will be applied to <i>Chironomus</i> tests initiation outside of hold time (samples 511ULCABR and 544LSAC13); a summary result comment will be added indicating how far out of hold time the toxicity testing was.	04/15/2024	Cassandra Lamerdin, DRMP Data Manager

ACKNOWLEDGED BY:

Pacific EcoRisk Technical Director:	DocuSigned by: <i>STEPHEN CLARK</i> C4D43551B2BC478... Stephen Clark	Date:	4/18/2024
Regional Board QA Representative:	DocuSigned by: <i>Selina Cole</i> F3102A0E248746B... Selina Cole	Date:	4/17/2024
DRMP Program Manager:	DocuSigned by: <i>Melissa Turner</i> 9796DD915C44446... Melissa Turner	Date:	5/9/2024
DRMP QA Officer:	DocuSigned by: <i>Will Hagan</i> A4691C48F968433... Will Hagan	Date:	4/17/2024

Evaluation of Non-Conforming Data

1.0 Incident Summary

Date of Incident:	1/23/24	Technical Mistake by PER Staff	
Client & Test Date:	Delta RMP; 1/23/24	Organism Quality	
Species:	<i>Chironomus dilutus</i>	Water Quality	
Test:	10d Chronic Toxicity	Solution Preparation	
Test ID:	104353-104354	Feeding/Food Quality	
Project Number:	35355	Organism Handling	
Manager on Duty:	SVV	Technical Experience	
Individuals		Undetermined	
Involved:		Shipping Delay	X

2.0 Evaluation and Cause Analysis

The 48-hr holding time limit for the two samples collected on 1/22/24 for Delta RMP's 10-day chronic water exposure *Chironomus dilutus* toxicity tests was exceeded. An investigation was performed to determine the cause of the deviation.

Organism Quality/Handling/Feeding

It is PER's preference to test samples with *C. dilutus* using egg cases that are reared under our culture conditions to remove shipping related stress and related impacts on testing (e.g., reduced survival/invalid testing, elevated organism t(0) weight, and/or pupation). However, this is not possible for storm sampling events since there is insufficient advanced notice of sampling to order 8-10 days old organisms that are the optimal age for testing in PER's SOP. Furthermore, PER requires that larval shipments be at least 7 days old with the preference to hold them in house for at least a day before testing given a high frequency of invalid testing that occurs when shipping ≤ 6 -day old larvae and when the larvae are not held in house for at least a day to allow for some shipping related attrition prior to test initiation. Given the expected test initiation on 1/23/24 and that organism shipments can't be received on Sunday or Monday to achieve the targeted age for shipping and test initiation, organisms for the 1/23 test initiation had to be shipped overnight.

The samples arrived on the evening of 1/22 and were logged in the morning of 1/23. All tests with species other than *C. dilutus* were initiated within hold time, while the 10-day chronic water exposure *C. dilutus* tests were postponed due to a mechanical issue causing a flight delay; the *C. dilutus* did not arrive until 1/24. Shipping delays are out of the control of PER and Section 8.5.4 of the EPA freshwater chronic method manual specifically addresses this as a possibility by establishing "in no case should more than 72 h elapse between collection and first use of the sample." Although this is in the sample handling section, the same logic applies to delayed organism shipments.

The Delta RMP TIE Subcommittee was notified on 1/23 that the organisms would likely not arrive to allow for test initiation within the holding time limit, and they approved test initiation on 1/24 if the organisms didn't arrive until then and if PER believed that the organisms were of good quality. The Delta RMP TIE Subcommittee requires data qualification for samples tested outside of the holding time limit. The samples arrived on 1/24, organisms were observed to be of acceptable quality, and the testing was initiated as approved by the Subcommittee.

3.0 Corrective Action / Preventative Action

Corrective Action: How will the situation/data be treated if it is encountered again? Who will implement?

The shipping delay and related holding time exceedance were reported to the client. No additional corrective actions was necessary.

Preventative Action: Identify preventative measures that will be implemented. Who will implement?

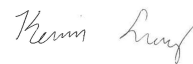
N/A.

4.0 Monitoring of Corrective Action Effectiveness

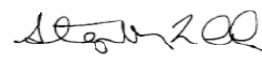
30 Days later: There have been no other related issues in the thirty days following this incident.

Incident Open Date: 1/23/24 Incident Close Date: 2/4/24

Prepared By: Kevin Lung Quality Manager's Signature: _____



Technical Director: Stephen Clark Technical Director's Signature: _____



Pacific EcoRisk

Environmental Consulting and Testing

Study Guidance Form

Client: Delta RMP
 Sample Description: Ambient Water
 Species and Test Description: C. Chironomus

Test Date: 1/24/24
 Test ID #: -
 Project #: 35355

Special Instructions:

COLLECT T0 WEIGHTS AND T10 WEIGHTS!!!

**Measure and record ammonia at initiation and termination - CONTROL TOO!!
 INITIATION AMMONIA CAN BE TRANSCRIBED FROM LOG-INS**

WQ Analysts: Please make sure ALL old WQ fields are complete prior to dumping aliquots. Double check any anomalous values with another meter and record on observation sheet as appropriate.

Be sure to feed according to attached feeding sheet

****Aerate any test treatments that measure ≤ 2.5 mg/L; see SVV if low, but > 2.5 mg/L**

****At initiation, please have second analyst confirm all test replicates have been loaded with 10 orgs each**

Confirmation signoff: 

Please be very thorough with observations regarding extra organisms found ("hitchhikers"), dead organisms, missing organisms, pupated organisms - the more info the better!

TIE Trigger: $\geq 50\%$ reduction in survival or growth

Test run at 23°C

General Guidance:

cific EcoRisk

Environmental Consulting and Testing

10 Day Chronic *Chironomus dilutus* Toxicity Test Data

Client: Delta RMP
 Test Material: 511ULCABR
 Test ID#: 104358 Project #: 35355
 Test Date: 24/09

Organism Log#: 14139 Age: 10/10/05
 Organism Supplier: A25
 Control/Diluent: Reformulated EPAMH
 Control Water Batch: 358

Treatment	Temp (°C)	pH		D.O. (mg/L)		Cond. (µS/cm)		Ammonia (mg/L)	# Live Organisms				SIGN-OFF
		New	Old	New	Old	New	Old		A	B	C	D	
Lab Control	22.0	7.82		8.5		312		2.00	10	10	10	10	Date: 12/09/05 Sol. Prep: 25
100%	22.0	7.82		8.5		306		1.00	10	10	10	10	Init. Time: 12:30 Init. Signoff: 25
Meter ID	1002	7.82		8.5		312		2.00	New WQ: 5V				Sample ID: 04789 Feed: 7L
Lab Control	22.0	7.40		6.4		311			10	10	10	10	Date: 15/09/05 Count Time: 1:00
100%	22.0	7.59		6.9		269			10	10	10	10	Count Signoff: 25 Feed: 7L
Meter ID	1002	7.40		6.4		311							Old WQ: 5N
Lab Control	23.0	7.47		7.0		310			10	12	10	9	Date: 12/09/05 Sol. Prep: 25
100%	23.0	7.59		6.4		256			8	10	10	10	Maint. Time: 13:00 Maint. Signoff: 25
Meter ID	1002	7.47		7.0		310			New WQ: 100				Sample ID: 04794 Feed: 7L
Lab Control	23.0	7.67		8.2		326			10	12	10	9	Date: 12/09/05 Count Time: 1:00
100%	23.0	7.7		8.0		279			8	10	10	10	Count Signoff: 25 Feed: 7L
Meter ID	1002	7.67		8.2		326							Old WQ: 5N
Lab Control	23.0	7.72		8.1		327			10	12	10	9	Date: 12/09/05 Sol. Prep: 25
100%	23.0	7.69		8.6		253			8	10	10	10	Maint. Time: 13:00 Maint. Signoff: 25
Meter ID	1002	7.72		8.1		327			New WQ: 100				Sample ID: 04795 Feed: 7L
Lab Control	23.0	7.67		8.5		361			10	12	10	9	Date: 12/09/05 Count Time: 1:00
100%	23.0	7.69		8.4		293			8	10	10	10	Count Signoff: 25 Feed: 7L
Meter ID	1002	7.67		8.5		361							Old WQ: KF
Lab Control	23.0	7.43		8.3		243			10	12	10	9	Date: 13/09/05 Sol. Prep: 25
100%	23.0	7.41		8.4		236			7	9	10	10	Maint. Time: 13:00 Maint. Signoff: 25
Meter ID	1002	7.43		8.3		243			New WQ: 100				Sample ID: 04796 Feed: 7L
Lab Control	23.0	7.44		8.8		299			10	12	10	9	Date: 13/09/05 Count Time: 1:00
100%	23.0	7.66		8.7		251			7	9	10	10	Count Signoff: 25 Feed: 7L
Meter ID	1002	7.44		8.8		299							Old WQ: 100
Lab Control	23.0	7.93		8.6		308			10	12	10	9	Date: 14/09/05 Sol. Prep: 25
100%	23.0	7.65		9.1		230			*	*	*	*	Maint. Time: 13:00 Maint. Signoff: 25
Meter ID	1002	7.93		8.6		308			New WQ: NB				Sample ID: 04797 Feed: 7L
Lab Control	23.0	7.25		7.0		303			10	12	10	9	Date: 14/09/05 Count Time: 1:00
100%	23.0	7.49		6.4		251			*	*	*	*	Count Signoff: 25 Feed: 7L
Meter ID	1002	7.25		7.0		303							Old WQ: 100
Lab Control	23.0	7.51		7.3		361		1.07	10	12	10	9	Date: 14/09/05 Term Time: 13:00
100%	23.0	7.76		8.1		266		4.00	7	10	13	11	Term Signoff: 25
Meter ID	1002	7.51		7.3		361		1.07					Old WQ: 100

Pacific EcoRisk

Environmental Consulting and Testing

10 Day Chronic *Chironomus dilutus* Toxicity Test Data

Client: Delta RMP
 Test Material: 544LSAC13
 Test ID#: 104359 Project #: 35355
 Test Date: 1/20/24

Organism Log#: 10139 Age: 10 days
 Organism Supplier: ABS
 Control/Diluent: Reformulated EPAMH
 Control Water Batch: 356

Treatment	Temp (°C)	pH		D.O. (mg/L)		Cond. (µS/cm)		Ammonia (mg/L)	# Live Organisms				SIGN-OFF
		New	Old	New	Old	New	Old		A	B	C	D	
Lab Control	22.0	7.52		8.5		312		0.00	10	10	10	10	Date: 1/22/24 Sol. Prep: TL Initi. Time: 1:30 Initi. Signoff: TL Sample ID: 64785
100%	22.3	7.53		8.4		310		0.00	10	10	10	10	Feed: TL
Meter ID	1700	PH24		RD15		EC12		0.00	New WQ: G.V.				Feed: TL
Lab Control	22.1		7.40		6.4		311		10	10	10	10	Date: 1/22/24 Count Time: 2:10 Count Signoff: TL Feed: TL
100%	22.2		7.32		5.5		664		10	10	10	10	Feed: TL
Meter ID	1700		PH24		RD15		EC12					Old WQ: SN	
Lab Control	23.6	7.02	7.47	9.0	7.0	310	321		10	12	10	9	Date: 1/22/24 Sol. Prep: TL Maint. Time: 3:40 Maint. Signoff: TL Sample ID: 64785
100%	23.2	7.82	7.57	9.8	6.2	665	674		10	11	10	10	Feed: TL
Meter ID	1700	PH24	PH24	RD15	RD15	EC12	EC12		New WQ: GP			Old WQ: SN	Feed: TL
Lab Control	23.6		7.62		8.2		376		10	12	10	9	Date: 1/22/24 Count Time: 3:10 Count Signoff: TL Feed: TL
100%	23.6		7.75		7.9		678		10	11	10	10	Feed: TL
Meter ID	1700		PH24		RD15		EC12					Old WQ: SN	
Lab Control	23.0	5.01	7.12	8.1	6.5	327	356		10	12	10	9	Date: 1/22/24 Sol. Prep: TL Maint. Time: 3:40 Maint. Signoff: TL Sample ID: 64785
100%	23.6	7.79	7.78	9.1	6.2	662	695		10	11	10	10	Feed: TL
Meter ID	1700	PH24	PH24	RD15	RD15	EC12	EC12		New WQ: GP			Old WQ: SN	Feed: TL
Lab Control	23.5		7.67		8.5		361		10	12	10	9	Date: 1/22/24 Count Time: 3:50 Count Signoff: TL Feed: TL
100%	23.5		7.69		7.2		679		10	11	10	11	Feed: TL
Meter ID	1700		PH27		RD15		EC15					Old WQ: GP	
Lab Control	23.0	7.46	7.37	9.0	6.3	293	302		10	12	10	9	Date: 1/23/24 Sol. Prep: TL Maint. Time: 4:00 Maint. Signoff: TL Sample ID: 64785
100%	23.2	7.22	7.38	9.2	6.7	632	661		10	11	10	11	Feed: TL
Meter ID	1700	PH24	PH24	RD15	RD15	EC12	EC12		New WQ: GP			Old WQ: GP	Feed: TL
Lab Control	23.0		7.14		5.8		249		10	12	10	9	Date: 1/23/24 Count Time: 4:10 Count Signoff: TL Feed: TL
100%	23.5		7.60		7.1		649		10	11	10	11	Feed: TL
Meter ID	1700		PH27		RD15		EC14					Old WQ: GP	
Lab Control	23.1	7.93	7.33	8.6	5.8	308	314		10	12	10	9	Date: 2/1/24 Sol. Prep: TL Maint. Time: 4:15 Maint. Signoff: TL Sample ID: 64785
100%	23.2	7.60	7.64	9.9	6.6	639	657		10	11	10	11	Feed: TL
Meter ID	1700	PH24	PH24	RD15	RD15	EC12	EC12		New WQ: GP			Old WQ: GP	Feed: TL
Lab Control	23.0		7.25		7.0		303		10	12	10	9	Date: 2/1/24 Count Time: 4:30 Count Signoff: TL Feed: TL
100%	23.0		7.61		6.3		649		10	11	10	11	Feed: TL
Meter ID	1700		PH24		RD15		EC15					Old WQ: GP	
Lab Control	23.1		7.54		7.5		361	1.07	10	12	10	9	Date: 2/1/24 Term Time: 5:45 Term Signoff: TL
100%	23.0		7.74		5.3		662	0.00	10	11	10	12	
Meter ID	1700		PH24		RD15		EC15	0.00				Old WQ: GP	

10 Day Acute *Chironomus dilutus* Toxicity Test Data

Client: Delta RMPProject#: 35355

Batch #: _____

Small Flake Food Daily Preparation				
Day	Date	Tetramin (g)	Deionized Water (mL)	Sign-off
0	1/23/24	.600	100 mL	IK
1	1/25/24	.600	100 mL	TK
2	1/26/24	.15	25 mL	
3	1/27/24	0.300	50 mL	SK
4	1/28/24	0.300	50 mL	IK
5	1/29/24	0.300	50 mL	IK
6	1/30/24	0.300	50 mL	TK
7	1/31/24	1.500	50 mL	TK
8	2/1/24	0.300	50 mL	TK
9	2/3/24	0.300	50 mL	TK

Mix 150 mg small flakes (powder, #50 sieved) in 25 mL Type I water daily to make a 6 mg/mL slurry.

Feeding Regime (recommended):

Days 0 - 3: 2mg Fish Food Flakes (0.4 mL of 6 mg/mL slurry)

Days 4 - 6: 4mg Fish Food Flakes (0.7 mL of 6 mg/mL slurry)

Days 7 - 9: 6mg Fish Food Flakes (1 mL of 6 mg/mL slurry)

Comments and Observations

Test Date: 1/24/24
Test ID #:
Project #: 35255

Date	Initials	Description of Observation:
7/1/24	SJ	• Tx LWC-B 2/1 counts confirmed by ASL. Nobody heard in LWC-D. • 1 No dead birds in Tx WABR-A, mostly empty. • Tx LSAI-B 4 organisms confirmed by SVV.
12/8/24	CS	Wren, Colibri
1/10/25	JK	(cont. Count for 54452C birds) 2/10/25 - 10:10 AM
2/1/24	TK	Sand has become too dark to see tubes

General Guidance:

- 1) All observations are to be recorded on this sheet and transcribed by a QA Officer onto the original test data sheet(s) at the completion of testing, if deemed necessary.
- 2) Record the Species and Test Description, Client, Sample Description, Test Date, Test ID #, and Project # of the test in the header..
- 3) Record the date of the observation, your initials, the treatment affected, and the test replicate affected for each entry.
- 4) Record observations in brief sentences. It is **VERY IMPORTANT** to also record any corrective actions taken.
- 5) Leave a blank line between entries.

Typical observations that should be recorded: Conductivity verification, presence or absence of PRM when mortalities are observed, etc.

Example: 8/26/08	AB	New chem of 100% effluent > 10% different than previous day. Confirmed on second meter and confirmed conductivity of sample. New sample had >10% difference in conductivity than previous sample.
------------------	----	--

Deviation From Protocol

Client:

ARMPTest Date: 1/24/24

Sample Description:

Control 1

Test ID #:

Species and Test Description:

ChironProject #: 35355**Date****Initials****Description of Deviation**1/24/24JSGreater than 3° D in temperature from culture to loading**General Guidance:**

- 1) All deviations from test protocol are to be recorded on this sheet and transcribed by a QA Officer onto the original test data sheet(s) at the completion of testing, if deemed necessary.
- 2) Record the Species and Test Description, Client, Sample Description, Test Date, Test ID #, and Project # of the test in the header..
- 3) Record the date of the deviation, your initials, the treatment affected, and the test replicate affected for each entry.
- 4) Record deviations in brief sentences. It is VERY IMPORTANT to also record the corrective action taken to address the deviation.
- 5) Leave a blank line between entries.

Typical deviations that should be recorded: modifying the test design or number of replicates,

organisms not transferred during renewal of solutions, using organisms outside of acceptable age range, or any test conditions that are outside of what the protocol requires.

Example: 8/26/08

AB

Old chem DO of 100% effluent = 4.0 mg/L, started aeration of test at 17:00.

Pacific EcoRisk

Environmental Consulting and Testing

Test Organism Log-in

Organism Log #: 14139 Total # of Orgs: 770
 Date Received: 1/24/24 Age/Hatch Date: 1/14/2024 /
 Species: Chironomus dil Initial Mortality: 0
 Source: ABS Culture Water: Reform EPTMM

Initial Observations upon Receipt:

Temp. (°C)	D.O. (mg/L)	Salinity (ppt) or Cond. (µS/cm)	Observation of Organism Health	Sign- off
17.2	17.4	376	good	AP
Meter ID: <u>66A</u>	Meter ID: <u>RDD</u>	Meter ID: <u>EC14</u>		

Shipped Dry?

Yes

No

Husbandry Log Established?

Yes

No

Inform Lab Manager if organisms received are *Chironomus dilutus*
 Egg Cases, *Pimephales promelas* (FHM) Embryos, *Atherinops*
affinis (Topsmelt), or Abalone Were they informed?

Yes

No

N/A

If organisms split into multiple husbandry bins, how many? _____

Supplier information sheet must be attached to this sheet!

General Comments:

Pacific EcoRisk

Environmental Consulting and Testing

Test Organism Husbandry Log

Organism Log #: 14139 Total # of Orgs: 770 Initial Mortality: 0
 Date Received: 1/24/24 Age/Hatch Date: 1/14/24
 Species: Chironomus dil Culture Water: Reform. EPAMM
 Source: ABS Test Type: A C Temp Adj?: Y N
 Client Name: _____ Term Date: 1/25

Instructions/Comments:

Temp Adj		
Init.	Date	Temp
	<u>1/25/24</u>	<u>23°</u>

Date	Time	Temp (°C)	D.O. (mg/L)	Sal (ppt) or Cond (µS/cm)	Feeding			Mort.	Observations of Organism Health	Water Δ?	Sign- off
					AM	Noon	PM				
<u>1/24/24</u>	<u>1100</u>	<u>17.2</u>	<u>17.4</u>	<u>376</u>			<u>JS</u>	<u>0</u>	<u>good</u>	<u>N</u>	<u>AT</u>
		Meter ID: <u>66A</u>	Meter ID: <u>RDL0</u>	Meter ID: <u>EC14</u>							
<u>1/25/24</u>	<u>1518</u>	<u>19.6</u>	<u>6.8</u>	<u>375</u>				<u>0</u>	<u>good</u>	<u>N</u>	<u>EG</u>
		Meter ID: <u>135A</u>	Meter ID: <u>RDB3</u>	Meter ID: <u>EC15</u>							
		Meter ID:	Meter ID:	Meter ID:							
		Meter ID:	Meter ID:	Meter ID:							
		Meter ID:	Meter ID:	Meter ID:							
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		Meter ID:	Meter ID:	Meter ID:							

1300 Blue Spruce Drive, Suite C
Fort Collins, Colorado 80524



Toll Free: 800/331-5916
Tel: 970/484-5091 Fax: 970/484-2514

ORGANISM HISTORY

DATE: 1/22/2024

SPECIES: *Chironomus dilutus* (formerly *C. tentans*)

AGE: Deposited 1/14/2024

LIFE STAGE: Second Instar 1/23/2024

HATCH DATE: Emergent 2/4/2024

BEGAN FEEDING: Immediately

FOOD: *Raphidocelis subcapitata**, Flake slurry

Water Chemistry Record:

	Current	Range
TEMPERATURE:	<u>23°C</u>	<u>22-25°C</u>
SALINITY/CONDUCTIVITY:	<u>--</u>	<u>--</u>
TOTAL HARDNESS (as CaCO ₃):	<u>118 mg/l</u>	<u>100-190 mg/l</u>
TOTAL ALKALINITY (as CaCO ₃):	<u>75 mg/l</u>	<u>50-100 mg/l</u>
pH:	<u>8.13</u>	<u>7.70-8.30</u>

Comments:

* Formerly known as *Psuedokirschneriella subcapitata* and *Selenastrum capricornutum*

Facility Supervisor

**2023-10: Event 2 (WY 2024) USGS Missed Turbidity on Sampling Day
1**



Deviation Report / Corrective Action Form

Title:	CUP Event 2 (WY24) USGS Missed Turbidity on Sampling Day 1
Deviation Number:	2023-10_CUPv1.4_Dev_WY24Event2_USGS_MissingTurbidityDay1
Prepared By:	Cassandra Lamerdin
Attached:	NA

Applicable Reference(s):

Delta Regional Monitoring Program Quality Assurance Project Plan for Current Use Pesticides in the Sacramento-San Joaquin Delta Version 1.4, September 28, 2023

Complete the following table regarding the major milestones for the relevant deviation. Add additional rows as needed.

	Date	Notes/Description (optional)
Date Deviation Occurred:	01/29/2024	Matt Uychutin (Field Crew, USGS) informed Cassandra Lamerdin (DRMP Data Manager) via email that there were no field turbidity results collected for the CUP WY 2024 Event 2, Day 1, sampling which occurred on 1/22/2024.
Date DRMP Program Manager was notified:	01/31/2024	Cassandra Lamerdin notified (via email) Melissa Turner (DRMP Program Manager) of a deviation regarding missed turbidity results on Day 1.

Deviation Report / Corrective Action Form, page 2 of 4

	Date	Notes/Description (optional)
Date CVRWQCB QA Representative Notified:	01/31/2024	Cassandra Lamerdin notified (via email) Selina Cole (Region 5 QA Representative) of a deviation regarding missed turbidity results on Day 1.
Deviation Form sent for Review:	04/9/2024	Jim Orlando (USGS Project Manager)
Deviation Form sent for Review:	04/11/2024	Will Hagan (DRMP QA Officer)
Deviation Form Sent for Signatures:	04/15/2024	Originally sent for signatures
Approval Letter Received from CVRWQCB:	10/25/2024	The Central Valley Regional Water Quality Control Board's QA Representative position is currently vacant; however, Regional Board staff have reviewed the submitted QAPP Deviations Form and find the corrective actions sufficient. Regional Board approval was provided by Patrick Pulupa (CVRWQCB Executive Officer) for six CUP deviations including this one. The approval letter was sent to Debbie Mackey (DRMP President) on October 25, 2024.
Deviation Form Sent for Signatures post approval	11/21/2024	

Description of Deviation/Change:

On January 31, 2024, Matt Uychutin from United States Geological Survey Organic Chemistry Research Laboratory (USGS-OCRL) informed the Delta Regional Monitoring Program (DRMP) Data Manager via email indicating that turbidity was not able to be measured in the field from two targeted sites (511ULCABR & 544LSAC13) during Event 2 (Day 1, January 22, 2024).

Reason for Deviation/Change

This deviation occurred due to a turbidity probe failure of instrument YSI EXO Multiparameter Sonde (YSI EXO1). The turbidity met calibration specifications the morning of sampling, but because of the timing of this event being part of storm sampling once the turbidity probe failed, there were no other spare instruments available that day. The probe was exchanged with a working sensor in time for Day 2 sampling on January 23, 2024.

Impact on Present and Completed Work (discuss potential magnitude of impact and bias of deviation/change, if this can be anticipated, if no impact is expected please indicate this)

There is minimal impact expected on missing two turbidity results. Overall, the project will still meet its completeness goal of 90%. Field equipment is maintained by USGS according to the requirements outlined in the CUP QAPP. Since this was an unforeseen probe failure, there are minimal corrective actions.

Corrective Action	By Date	By Whom
Results for turbidity were flagged with a QA Code of FIF [Instrument/Probe Failure]	02/15/2024	Cassandra Lamerdin, DRMP Data Manager
The field crew will look into having a backup instrument if available for future non-storm sampling events.	Future Non-Storm Events	Jim Orlando USGS Project Manager

Deviation Report / Corrective Action Form, page 1 of 4

ACKNOWLEDGED BY:

USGS Project Manager:	Signed by: <i>Jim Orlando</i> B4DDF22E261F427...	Date:	11/25/2024
	Jim Orlando		

DRMP Program Manager:	DocuSigned by: <i>Melissa Turner</i> 9796DD915C44446...	Date:	11/26/2024
	Melissa Turner		

DRMP QA Officer:	DocuSigned by: <i>Will Hagan</i> A4091C48F966433...	Date:	11/25/2024
	Will Hagan		

CVRWQCB QA Representative*:	Not Applicable	Date:	10/25/2024
	Vacant		

*While these QAPP Deviation Forms will remain unsigned by the Central Valley Water Board due to the vacant QA Representative position, the current form is approved based on CVRWQCB staff scientist review and approval by the Central Valley Regional Water Quality Control Board Executive Officer Patrick Pulupa.

2023-11: Event 2 (WY 2024) Chironomus larvae initial weights greater than 0.012 mg/ individual AFDW



Deviation Report / Corrective Action Form

Title:	CUP Event 2 (WY24) <i>Chironomus</i> larvae initial weights greater than 0.012 mg/individual AFDW
Deviation Number:	2023-11_CUPv1.4_Dev_WY24Event2_PER_Chironomus_InitialWeights
Prepared By:	Robert Pangle
Attached:	2023-11_CUPv1.4_Dev_WY24Event2_PER_ChironomusT0Weights_S2_Revised.pdf

Applicable Reference(s):

Delta Regional Monitoring Program Quality Assurance Project Plan for Current Use Pesticides in the Sacramento-San Joaquin Delta Version 1.4, September 28, 2023

Complete the following table regarding the major milestones for the relevant deviation. Add additional rows as needed.

	Date	Notes/Description (optional)
Date Deviation Occurred:	01/24/2024	Upon completion of the drying process, the initial Ash-Free Dry Weight (AFDW) was recorded for <i>Chironomus dilutus</i> larvae in Control Batch #2. The larvae exceeded the measurement quality objective (MQO) of ≤ 0.12 mg/individual AFDW for t(0) weights.
Date DRMP Program Manager was notified:	02/02/2024	Stephen Clark, Technical Director at Pacific EcoRisk (PER), notified (via email) Melissa Turner (DRMP Technical Program Manager) of a deviation regarding <i>C. dilutus</i> testing that was initiated with organisms above the MQO of ≤ 0.12 mg/individual AFDW .

Deviation Report / Corrective Action Form, page 2 of 5

	Date	Notes/Description (optional)
Date CVRWQCB QA Representative Notified:	02/02/2024	Stephen Clark (PER) notified Selina Cole (Region 5 QA Representative) of the non-conformance of mean initial (t(0)) weights via email.
Non-conforming Report sent:	02/15/2024	Initial Non-Conforming Report (NCR) sent from Stephen Clark (PER) to MLJ.
Non-conforming Report sent:	03/08/2024	Two revised Non-Conforming Reports were sent from Stephen Clark (PER) to account for control reporting errors in the initial and first revised NCRs.
Deviation Form sent for Review:	03/26/2024	Stephen Clark (PER Technical Director)
Deviation Form sent for Review:	4/11/2024	Will Hagan (DRMP QA Officer)
Deviation Form Sent for Signatures:	4/29/2024	Originally sent for signatures
Approval Letter Received from CVRWQCB:	10/25/2024	The Central Valley Regional Water Quality Control Board's QA Representative position is currently vacant; however, Regional Board staff have reviewed the submitted QAPP Deviations Form and find the corrective actions sufficient. Regional Board approval was provided by Patrick Pulupa (CVRWQCB Executive Officer) for six CUP deviations including this one. The approval letter was sent to Debbie Mackey (DRMP President) on October 25, 2024.
Deviation Form Sent for Signatures post approval:	11/21/2024	

Description of Deviation/Change:

PER discovered that the t(0) weights of *Chironomus dilutus* were greater than the Surface Water Ambient Monitoring Program (SWAMP) Measurement Quality Objective (MQO) of ≤ 0.12 mg/individual AFDW for one of two control batches associated with Event 2 sampling. Two control batch tests were initiated on 01/24/2024 (Control Batch 1 and Control Batch 2). The first batch (Control Batch 1) had a mean AFDW of 0.09 mg/individual and the second batch (Control Batch 2) a mean of 0.19 mg/individual at time t(0). Control Batch 2 included two organisms which pupated from samples collected on 01/23/2024 from sites CONF-005 and CONF-006; Control Batch 1 did not have any pupating organisms.

Reason for Deviation/Change

As noted in the non-conforming report attached to this deviation form, *C. dilutus* organisms were all received as 10-day old larvae on 01/24/2024 (both control batches) from Aquatic

Biosystems, Inc. Test initiation occurring on 01/24/2024. Although the organisms were of the correct age for this method and test, Control Batch #2 had a greater AFDW than allowed by the SWAMP MQO. Due to the storm-driven nature of monitoring for Event 2, egg cases could not be reared in house, so the organisms were received as larvae from the vendor and were of the correct age for testing. An investigation was performed to determine the cause of the increased weight of the organisms including a) an assessment of test conditions, b) feeding rates, and c) water quality. The investigation did not identify any additional contributing factors to the organisms not meeting the AFDW <0.12 mg/individual. It was noted that historically larvae ordered from Aquatic Biosystems, Inc. have a greater likelihood of initial weights above the 0.12 mg/individual threshold compared to organisms reared in-house from egg casings by PER staff. Although the organisms were of the correct age for this method and received in good condition with acceptable water quality parameters, it is likely that robust organism quality is the most probable cause of the greater organism weight.

Impact on Present and Completed Work (discuss potential magnitude of impact and bias of deviation/change, if this can be anticipated, if no impact is expected please indicate this)

The SWAMP MQO of AFDW ≤ 0.12 mg/individual is presumably targeted to reduce the likelihood of pupation/hatching during the 10-day test. No pupation or hatching occurred in Control Batch #1, which had a mean organism AFDW of 0.09 mg/individual. The organism AFDW in Control Batch 2 was 0.19 mg/individual, and two organisms pupated during testing in Control Batch #2. Pupation occurred in tests performed on samples collected from stations CONF-005 (Replicate B), and CONF-006 (Replicate A). Pupated organisms were excluded from both the survival and growth endpoint statistical analyses and data were flagged per the Data Management Standard Operating Procedure (v2.4). Neither sample was toxic to *Chironomus*; it is expected that the omission of one organism in one replicate had minimal to no impact on the statistical analysis to determine toxicity for these two samples.

Deviation Report / Corrective Action Form, page 4 of 5

Corrective Action	By Date	By Whom
The Tox Test Level QA Code of TAF [Test organisms exceed the maximum weight requirement at test initiation] will be applied to the samples for Control Batch #2.	04/15/2024	Cassandra Lamerdin, DRMP Data Manager
The Tox Test Level QA Code of TMO [Test organisms escaped or are otherwise missing] will be applied to the effected samples in Control Batch #2 that had pupation.	Prior to Electronic Data Deliverable Submission to MLJ data management team	Stephen Clark, Pacific EcoRisk Technical Director
Add a Tox Result Comment to the replicate records that had pupation: "1 organism pupated; 9 organisms used in statistics".	Prior to Electronic Data Deliverable Submission to MLJ data management team	Stephen Clark, Pacific EcoRisk Technical Director
PER needs 2.5 weeks advance notice for remaining CUP non-storm sampling events to allow for rearing of egg cases in-house. The Program Manager will help coordinate communication between the sampling team and PER for non-storm events that can be scheduled in advance to provide advance notice.	Prior to WY24 Events 3-6	Melissa Turner, DRMP Program Manager

Deviation Report / Corrective Action Form, page 1 of 5

ACKNOWLEDGED BY:

Pacific EcoRisk Technical Director:	DocuSigned by: <i>Stephen Clark</i> C4D43551B2BC476...	Date:	11/25/2024
	Stephen Clark		

DRMP Program Manager:	DocuSigned by: <i>Melissa Turner</i> 8798DD915C44448...	Date:	11/26/2024
	Melissa Turner		

DRMP QA Officer:	DocuSigned by: <i>Will Hagan</i> A4691C48F968433...	Date:	11/25/2024
	Will Hagan		

CVRWQCB QA Representative*:	Not Applicable	Date:	10/25/2024
	Vacant		

*While these QAPP Deviation Forms will remain unsigned by the Central Valley Water Board due to the vacant QA Representative position, the current form is approved based on CVRWQCB staff scientist review and approval by the Central Valley Regional Water Quality Control Board Executive Officer Patrick Pulupa.

Evaluation of Non-Conforming Data

1.0 Incident Summary

Date of Incident:	1/24/24	Technical Mistake by PER Staff	
Client & Test Date:	Delta RMP; 1/24/24	Organism Quality	X
Species:	<i>Chironomus dilutus</i>	Water Quality	
Test:	10d Chronic Toxicity	Solution Preparation	
Test ID:	104360-104365	Feeding/Food Quality	
Project Number:	35355	Organism Handling	
Manager on Duty:	SVV	Technical Experience	
Individuals Involved:		Undetermined	

2.0 Evaluation and Cause Analysis

The final *Chironomus dilutus* ash free dry weight of 0.19 mg/individual recorded on 1/24 for Delta RMP's 10-day chronic water exposure Control 2 toxicity test batch was not ≤ 0.12 mg/individual as required by the SWAMP MQO. An investigation was performed to determine the cause of the increased weight of the organisms used for test initiation.

Organism Quality/Handling/Feeding

Two tests were initiated on 1/24: Control 1 using organism batch #14139, and Control 2 using organism batch #14143, which were both received as 10-day old larvae on 1/24 from Aquatic BioSystems, Inc., PER's primary provider. The larvae were received in good condition at arrival with acceptable water quality parameters. The organisms used to initiate Control 1 were scheduled to arrive on 1/23 but did not arrive until 1/24 due to an airline mechanical issue. The organisms used to initiate Control 2 were from a separate batch of organisms that arrived on 1/24 as scheduled. The Control 1 organisms that had an extra day in shipping had a t(0) ash free dry weight of 0.09 mg/individual met the acceptable weight criteria of the SWAMP MQO, while the Control 2 organisms that had no shipping issues exceeded the SWAMP MQO with a t(0) ash free dry weight of 0.19 mg/individual. It is strange that organisms from different hatch dates but of the same age were of such different weights at t(0). Due to the storm-driven sampling not permitting ordering egg cases to hatch to 8-days old for testing, larvae had to be ordered for this testing. Historically, larvae ordered from ABS have a greater likelihood of having a weight >0.12 mg/individual than organisms reared from an egg case by PER staff. Although the organisms were of the correct age for this method, they simply had a greater ash free dry weight listed as the SWAMP MQO, so organism quality is the most likely cause of the greater organism weight. It is important to note that the lower weight is presumably targeted to reduce pupation/hatching during the 10-day test; two pupae were recorded in samples associated with Control 2, while no pupae were recorded for samples associated with Control 1.

Other Factors

An investigation was performed on other factors that could have impacted testing including test conditions, feeding, and water quality. The investigation did not identify additional contributing factors to the organisms not meeting the ash free dry weight limit of ≤ 0.12 mg/individual.

3.0 Corrective Action / Preventative Action

Corrective Action: How will the situation/data be treated if it is encountered again? Who will implement?

The results were reported to the client and no retest was scheduled; therefore, no corrective actions are necessary at this time.

Preventative Action: Identify preventative measures that will be implemented. Who will implement?

N/A.

4.0 Monitoring of Corrective Action Effectiveness

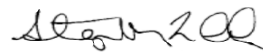
30 Days later: There have been no other related issues in the thirty days following this incident.

Incident Open Date: 1/24/24 Incident Close Date: 2/24/24

Prepared By: Kevin Lung Quality Manager's Signature: _____



Technical Director: Stephen Clark Technical Director's Signature: _____



Control 1 - Initiate 1/23/24

T0 weights

Pan ID	Initial Ashed	Dry Pan +	Ashed Pan +	# Live	Mean Dry	Mean Ash Free
	Pan Wt (mg)	Larvae Wt (mg)	Larvae Wt (mg)	Organisms (Larvae)	Weight (mg)	Dry Wt (mg)
1	93.27	94.43	93.48	10	0.12	0.10
2	94.44	95.33	94.57	10	0.09	0.08
3	111.05	112.3	111.37	10	0.13	0.09
4	99.43	100.45	99.64	10	0.10	0.08
Mean =					0.11	0.09

Control 2 - Initiated 1/24/24

T0 weights

Pan ID	Initial Ashed	Dry Pan +	Ashed Pan +	# Live	Mean Dry	Mean Ash Free
	Pan Wt (mg)	Larvae Wt (mg)	Larvae Wt (mg)	Organisms (Larvae)	Weight (mg)	Dry Wt (mg)
1	99.1	101.14	99.42	10	0.20	0.17
2	100.73	103.21	101.3	10	0.25	0.19
3	98.77	100.67	99.11	10	0.19	0.16
4	110.47	113.18	110.79	10	0.27	0.24
Mean =					0.23	0.19

1300 Blue Spruce Drive, Suite C
Fort Collins, Colorado 80524



Toll Free: 800/331-5916
Tel: 970/484-5091 Fax: 970/484-2514

ORGANISM HISTORY

DATE: 1/22/2024

SPECIES: *Chironomus dilutus* (formerly *C. tentans*)

AGE: Deposited 1/14/2024

LIFE STAGE: Second Instar 1/23/2024

HATCH DATE: Emergent 2/4/2024

BEGAN FEEDING: Immediately

FOOD: *Raphidocelis subcapitata**, Flake slurry

Water Chemistry Record:

	Current	Range
TEMPERATURE:	<u>23°C</u>	<u>22-25°C</u>
SALINITY/CONDUCTIVITY:	<u>--</u>	<u>--</u>
TOTAL HARDNESS (as CaCO ₃):	<u>118 mg/l</u>	<u>100-190 mg/l</u>
TOTAL ALKALINITY (as CaCO ₃):	<u>75 mg/l</u>	<u>50-100 mg/l</u>
pH:	<u>8.13</u>	<u>7.70-8.30</u>

Comments:

* Formerly known as *Psuedokirschneriella subcapitata* and *Selenastrum capricornutum*

[Signature]
Facility Supervisor

Pacific EcoRisk

Environmental Consulting and Testing

Test Organism Log-in

Organism Log #: 14139 Total # of Orgs: 770

Date Received: 1/24/24 Age/Hatch Date: 1/14/2024 1

Species: Chironomus dil Initial Mortality: 0

Source: ABS Culture Water: Reform EPTMM

Initial Observations upon Receipt:

Temp. (°C)	D.O. (mg/L)	Salinity (ppt) or Cond. (µS/cm)	Observation of Organism Health	Sign- off
17.2	17.4	376	good	AP
Meter ID: <u>GGP</u>	Meter ID: <u>RDO</u>	Meter ID: <u>EC14</u>		

Shipped Dry?

Yes

No

Husbandry Log Established?

Yes

No

Inform Lab Manager if organisms received are *Chironomus dilutus*
Egg Cases, *Pimephales promelas* (FHM) Embryos, *Atherinops*
affinis (Topsmelt), or Abalone Were they informed?

Yes

No

N/A

If organisms split into multiple husbandry bins, how many? _____

Supplier information sheet must be attached to this sheet!

General Comments:

cific EcoRisk

Environmental Consulting and Testing

10 Day Chronic *Chironomus dilutus* Toxicity Test Data

Client: Delta RMP
 Test Material: 511ULCABR
 Test ID#: 104358 Project #: 35355
 Test Date: 11/30/22

Organism Log#: 14139 Age: 10 days
 Organism Supplier: ABS
 Control/Diluent: Reformulated EPAMH
 Control Water Batch: 356

Treatment	Temp (°C)	pH		D.O. (mg/L)		Cond. (µS/cm)		Ammonia (mg/L)	# Live Organisms				SIGN-OFF
		New	Old	New	Old	New	Old		A	B	C	D	
Lab Control	22.0	7.52		8.5		312		2.30	10	10	10	10	Date: 11/24/22 Sol. Prep: [initials] Init. Time: 13:30 Init. Signoff: [initials] Sample ID: 104358 Feed: 7K
100%	22.0	7.58		8.5		206		2.20	10	10	10	10	
Meter ID	1012	PH29		20.5		203		7.3380	New WQ: SNV				
Lab Control	22.0	7.40		6.4		311			10	10	10	10	Date: 11/24/22 Count Time: 13:30 Count Signoff: [initials] Feed: 7K
100%	22.0	7.59		6.9		269			10	10	10	10	
Meter ID	1012	PH29		20.5		203			Old WQ: SN				
Lab Control	22.0	8.02	7.47	9.0	7.0	310	321		10	12	10	9	Date: 11/24/22 Sol. Prep: [initials] Maint. Time: 13:30 Maint. Signoff: [initials] Sample ID: 104358 Feed: 7K
100%	22.0	7.80	7.59	9.4	6.4	256	250		8	10	10	10	
Meter ID	1012	PH29		20.5		203			New WQ: AP Old WQ: SN				
Lab Control	22.0	7.67		8.2		326			10	12	10	9	Date: 11/24/22 Count Time: 13:30 Count Signoff: [initials] Feed: 7K
100%	22.0	7.71		8.0		279			8	10	10	10	
Meter ID	1012	PH29		20.5		203			Old WQ: SN				
Lab Control	23.2	8.01	7.72	8.1	6.5	327	324		10	12	10	9	Date: 11/24/22 Sol. Prep: [initials] Maint. Time: 13:45 Maint. Signoff: [initials] Sample ID: 104358 Feed: 7K
100%	23.5	7.69	7.75	8.6	6.4	253	225		8	10	10	10	
Meter ID	1012	PH29		20.5		203			New WQ: AP Old WQ: SN				
Lab Control	23.3	7.67		6.5		361			10	12	10	9	Date: 11/24/22 Count Time: 13:45 Count Signoff: [initials] Feed: 7K
100%	23.3	7.61		6.4		293			8	10	10	10	
Meter ID	1012	PH29		20.5		203			Old WQ: KE				
Lab Control	23.4	7.43	7.37	9.0	6.3	293	518		10	12	10	9	Date: 11/24/22 Sol. Prep: [initials] Maint. Time: 13:45 Maint. Signoff: [initials] Sample ID: 104358 Feed: 7K
100%	23.3	7.21	7.55	9.4	6.4	236	241		7	9	10	10	
Meter ID	1012	PH29		20.5		203			New WQ: EG Old WQ: AP				
Lab Control	23.6	7.44		6.8		293			10	12	10	9	Date: 11/24/22 Count Time: 13:45 Count Signoff: [initials] Feed: 7K
100%	23.4	7.66		6.7		251			7	9	10	10	
Meter ID	1012	PH29		20.5		203			Old WQ: KE				
Lab Control	23.1	7.93	7.33	8.6	5.8	308	314		10	12	10	9	Date: 11/24/22 Sol. Prep: [initials] Maint. Time: 13:45 Maint. Signoff: [initials] Sample ID: 104358 Feed: 7K
100%	23.2	7.65	7.60	9.1	6.4	230	249		*	*	*	*	
Meter ID	1012	PH29		20.5		203			New WQ: NB Old WQ: AP				
Lab Control	23.0	7.25		7.0		303			10	12	10	9	Date: 11/24/22 Count Time: 13:45 Count Signoff: [initials] Feed: 7K
100%	23.0	7.49		6.4		251			*	*	*	*	
Meter ID	1012	PH29		20.5		203			Old WQ: NB				
Lab Control	23.1	7.51		7.8		361	1.07	1.07	10	12	10	9	Date: 11/24/22 Term Time: 13:45 Term Signoff: [initials]
100%	23.1	7.76		8.1		600	600	600	7	10	13	11	
Meter ID	1012	PH29		20.5		203			Old WQ: CC				

Pacific EcoRisk

Environmental Consulting and Testing

10 Day Chronic *Chironomus dilutus* Toxicity Test Data

Client: Delta RMP
Test Material: 544LSAC13
Test ID#: 104359 Project #: 35355
Test Date: 1-20-24

Organism Log#: 14139 Age: 10 days
Organism Supplier: ABS
Control/Diluent: Reformulated EPAMH
Control Water Batch: 356

Treatment	Temp (°C)	pH		D.O. (mg/L)		Cond. (µS/cm)		Ammonia (mg/L)	# Live Organisms				SIGN-OFF
		New	Old	New	Old	New	Old		A	B	C	D	
Lab Control	22.0	7.52		8.5		312		0.50	0	10	0	0	Date: 1/27/24 Sol. Prep: TC Initi. Time: 13:50 Initi. Signoff: TC Sample ID: 69785 Feed: TC
100%	22.2	7.53		8.1		300		0.50	0	10	0	0	Date: 1/27/24 Sol. Prep: TC Initi. Time: 13:50 Initi. Signoff: TC Sample ID: 69785 Feed: TC
Meter ID	1204	0427		2015		2013		2050	New WQ: 40V				Feed: TC
Lab Control	22.1		7.40		6.4		311		10	10	10	10	Date: 1/27/24 Count Time: 13:55 Count Signoff: TC Feed: TC
100%	22.2		7.52		5.5		664		10	10	10	10	Date: 1/27/24 Count Time: 13:55 Count Signoff: TC Feed: TC
Meter ID	1204		0427		2015		2013				Old WQ: SN		Feed: TC
Lab Control	23.0	7.02	7.47	9.0	7.0	310	321		10	12	10	9	Date: 1/27/24 Sol. Prep: TC Maint. Time: 13:55 Maint. Signoff: TC Sample ID: 69785 Feed: TC
100%	23.2	7.82	7.57	9.8	6.2	665	674		10	11	10	10	Date: 1/27/24 Sol. Prep: TC Maint. Time: 13:55 Maint. Signoff: TC Sample ID: 69785 Feed: TC
Meter ID	1204	0427	0427	2015	2015	2017	2018		New WQ: 40V		Old WQ: SN		Feed: TC
Lab Control	23.0		7.62		8.2		326		10	12	10	9	Date: 1/27/24 Count Time: 13:55 Count Signoff: TC Feed: TC
100%	23.2		7.75		7.7		678		10	11	10	10	Date: 1/27/24 Count Time: 13:55 Count Signoff: TC Feed: TC
Meter ID	1204		0427		2015		2013				Old WQ: SN		Feed: TC
Lab Control	23.0	8.01	7.72	8.1	7.5	327	330		10	12	10	9	Date: 1/27/24 Sol. Prep: TC Maint. Time: 13:55 Maint. Signoff: TC Sample ID: 69785 Feed: TC
100%	23.6	7.79	7.70	9.1	6.6	662	695		10	11	10	10	Date: 1/27/24 Sol. Prep: TC Maint. Time: 13:55 Maint. Signoff: TC Sample ID: 69785 Feed: TC
Meter ID	1204	0427	0427	2015	2015	2015	2015		New WQ: 40V		Old WQ: SN		Feed: TC
Lab Control	23.5		7.67		6.5		361		10	12	10	9	Date: 1/27/24 Count Time: 13:55 Count Signoff: TC Feed: TC
100%	23.5		7.64		7.2		679		10	11	10	11	Date: 1/27/24 Count Time: 13:55 Count Signoff: TC Feed: TC
Meter ID	1204		0427		2015		2015				Old WQ: TC		Feed: TC
Lab Control	23.2	7.46	7.37	9.0	6.3	293	302		10	12	10	9	Date: 1/27/24 Sol. Prep: TC Maint. Time: 13:55 Maint. Signoff: TC Sample ID: 69785 Feed: TC
100%	23.2	7.60	7.62	9.6	6.7	635	661		10	11	10	11	Date: 1/27/24 Sol. Prep: TC Maint. Time: 13:55 Maint. Signoff: TC Sample ID: 69785 Feed: TC
Meter ID	1204	0427	0427	2015	2015	2015	2015		New WQ: EG		Old WQ: SN		Feed: TC
Lab Control	23.0		7.44		6.8		249		10	12	10	9	Date: 1/27/24 Count Time: 13:55 Count Signoff: TC Feed: TC
100%	23.5		7.60		7.1		649		10	11	10	11	Date: 1/27/24 Count Time: 13:55 Count Signoff: TC Feed: TC
Meter ID	1204		0427		2015		2015				Old WQ: SN		Feed: TC
Lab Control	23.1	7.93	7.33	8.6	5.8	308	314		10	12	10	9	Date: 2/1/24 Sol. Prep: TC Maint. Time: 13:55 Maint. Signoff: TC Sample ID: 69785 Feed: TC
100%	23.2	7.60	7.64	9.9	6.6	639	657		10	11	10	11	Date: 2/1/24 Sol. Prep: TC Maint. Time: 13:55 Maint. Signoff: TC Sample ID: 69785 Feed: TC
Meter ID	1204	0429	0427	2015	2015	2015	2015		New WQ: NB		Old WQ: SN		Feed: TC
Lab Control	23.0		7.25		7.0		303		10	12	10	9	Date: 2/1/24 Count Time: 13:55 Count Signoff: TC Feed: TC
100%	23.5		7.61		6.3		649		10	11	10	11	Date: 2/1/24 Count Time: 13:55 Count Signoff: TC Feed: TC
Meter ID	1204		0429		2015		2015				Old WQ: SN		Feed: TC
Lab Control	23.0		7.59		7.6		361	1.07	10	12	10	9	Date: 2/1/24 Term Time: 13:55 Term Signoff: TC
100%	23.2		7.74		6.6		662	1.00	10	11	10	12	Date: 2/1/24 Term Time: 13:55 Term Signoff: TC
Meter ID	1204		0429		2015		2015	0.035			Old WQ: SN		Feed: TC

1300 Blue Spruce Drive, Suite C
Fort Collins, Colorado 80524



Toll Free: 800/331-5916
Tel: 970/484-5091 Fax: 970/484-2514

ORGANISM HISTORY

DATE: 1/23/2024

SPECIES: *Chironomus dilutus* (formerly *C. tentans*)

AGE: Deposited 1/14/2024

LIFE STAGE: Second Instar 1/23/2024

HATCH DATE: Emergent 2/4/2024

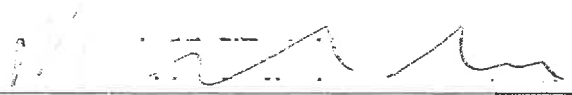
BEGAN FEEDING: Immediately

FOOD: *Raphidocelis subcapitata**, Flake slurry

Water Chemistry Record:

	Current	Range
TEMPERATURE:	<u>23°C</u>	<u>22-25°C</u>
SALINITY/CONDUCTIVITY:	<u>--</u>	<u>--</u>
TOTAL HARDNESS (as CaCO ₃):	<u>118 mg/l</u>	<u>100-190 mg/l</u>
TOTAL ALKALINITY (as CaCO ₃):	<u>75 mg/l</u>	<u>50-100 mg/l</u>
pH:	<u>8.13</u>	<u>7.70-8.30</u>

Comments: * Formerly known as *Psuedokirschneriella subcapitata* and *Selenastrum capricornutum*



Facility Supervisor

Pacific EcoRisk

Environmental Consulting and Testing

Test Organism Log-in

Organism Log #: 14143
 Total # of Orgs: 835
 Date Received: 1/24/24
 Age/Hatch Date: 10d 1/19/24
 Species: Chironomus
 Initial Mortality: 0
 Source: BBS
 Culture Water: Ref. EP19M14

Initial Observations upon Receipt:

Temp. (°C)	D.O. (mg/L)	Salinity (ppt) or Cond. (µS/cm)	Observation of Organism Health	Sign- off
<u>21.3</u>	<u>16.9</u>	<u>387</u>	<u>good</u>	<u>SP</u>
Meter ID: <u>66A</u>	Meter ID: <u>RD10</u>	Meter ID: <u>EC14</u>		

Shipped Dry? Yes ☐ No ☒

Husbandry Log Established? Yes ☒ No ☐

Inform Lab Manager if organisms received are *Chironomus dilutus*
 Egg Cases, *Pimephales promelas* (FHM) Embryos, *Atherinops*
affinis (Topsmelt), or Abalone Were they informed?

Yes ☐ No ☒ N/A

If organisms split into multiple husbandry bins, how many? _____

Supplier information sheet must be attached to this sheet!

General Comments:

Pacific EcoRisk

Environmental Consulting and Testing

Test Organism Husbandry Log

Organism Log #: 14143 Total # of Orgs: 835 Initial Mortality: 0
 Date Received: 1/24/24 Age/Hatch Date: 10 d 1/14/24
 Species: Paracentrotus Culture Water: Ref. EPAMH
 Source: ABS Test Type: A C Temp Adj?: Y (N)
 Client Name: _____ Term Date: 1/25

Instructions/Comments:

Temp Adj		
Init.	Date	Temp

Date	Time	Temp (°C)	D.O. (mg/L)	Sal (ppt) or Cond (uS/cm)	Feeding			Mort.	Observations of Organism Health	Water Δ?	Sign- off
					AM	Noon	PM				
1/24/24	1305	20.3									
			Meter ID: <u>2087</u>	Meter ID: <u>2020</u>	Meter ID: <u>2010</u>						
			Meter ID: <u>2020</u>	Meter ID: <u>2012</u>	Meter ID: <u>2012</u>						
			Meter ID: _____	Meter ID: _____	Meter ID: _____						
			Meter ID: _____	Meter ID: _____	Meter ID: _____						
			Meter ID: _____	Meter ID: _____	Meter ID: _____						
			Meter ID: _____	Meter ID: _____	Meter ID: _____						
			Meter ID: _____	Meter ID: _____	Meter ID: _____						
			Meter ID: _____	Meter ID: _____	Meter ID: _____						
			Meter ID: _____	Meter ID: _____	Meter ID: _____						
			Meter ID: _____	Meter ID: _____	Meter ID: _____						
			Meter ID: _____	Meter ID: _____	Meter ID: _____						
			Meter ID: _____	Meter ID: _____	Meter ID: _____						
			Meter ID: _____	Meter ID: _____	Meter ID: _____						
			Meter ID: _____	Meter ID: _____	Meter ID: _____						
			Meter ID: _____	Meter ID: _____	Meter ID: _____						
			Meter ID: _____	Meter ID: _____	Meter ID: _____						
			Meter ID: _____	Meter ID: _____	Meter ID: _____						
			Meter ID: _____	Meter ID: _____	Meter ID: _____						
			Meter ID: _____	Meter ID: _____	Meter ID: _____						
			Meter ID: _____	Meter ID: _____	Meter ID: _____						
			Meter ID: _____	Meter ID: _____	Meter ID: _____						

Pacific EcoRisk

Environmental Consulting and Testing

10 Day Chronic *Chironomus dilutus* Toxicity Test Data

Client: Delta RMP
 Test Material: CENT-016
 Test ID#: 104360 Project #: 35355
 Test Date: 1/24/24

Organism Log#: 14143 Age: 10 days
 Organism Supplier: ABS
 Control/Diluent: Reformulated EPAMH
 Control Water Batch: 357

Treatment	Temp (°C)	pH		D.O. (mg/L)		Cond. (µS/cm)		Ammonia (mg/L)	# Live Organisms				SIGN-OFF
		New	Old	New	Old	New	Old		A	B	C	D	
Lab Control	22.8	7.35		8.0		320		2.33	10	10	10	11	Date: 1/24/24 Sol. Prep: 2:35 Init. Time: 15:46 Init. Sign-off: 1/24/24 Sample ID: 104360-1
100%	23.0	7.05		9.0		208		2.00	10	10	10	10	Feed: 1/24/24
Meter ID	1004	1077		20.5		20.5		10.30	New WQ: 1/24/24				Feed: 1/24/24
Lab Control	22.2	7.35		6.0		335			10	10	10	10	Date: 1/24/24 Sol. Prep: 1/24/24 Count Time: 1/24/24 Count Sign-off: 1/24/24 Feed: 1/24/24
100%	22.3	7.42		5.9		278			10	10	10	10	Feed: 1/24/24
Meter ID	1004	1079		16.0		16.0		10.04					Old WQ: 1/24/24
Lab Control	23.1	7.95	7.55	8.6	7.4	312	338	1.0	10	7	10	11	Date: 1/24/24 Sol. Prep: 1/24/24 Maint. Time: 1/24/24 Maint. Sign-off: 1/24/24 Sample ID: 104360-2
100%	23.2	7.77	7.66	9.6	7.2	262	243		9	9	10	9	Feed: 1/24/24
Meter ID	1004	1079	1079	16.15	16.15	16.15	16.15		New WQ: 1/24/24				Old WQ: 1/24/24 Feed: 1/24/24
Lab Control	23.0	7.40		8.2		329			10	7	10	11	Date: 1/24/24 Sol. Prep: 1/24/24 Count Time: 1/24/24 Count Sign-off: 1/24/24 Feed: 1/24/24
100%	23.2	7.70		8.2		242			9	9	10	9	Feed: 1/24/24
Meter ID	1004	1079		16.1		16.1		10.03					Old WQ: 1/24/24
Lab Control	23.4	7.50	7.7	6.2	4.0	310	330		10	7	10	11	Date: 1/24/24 Sol. Prep: 1/24/24 Maint. Time: 1/24/24 Maint. Sign-off: 1/24/24 Sample ID: 104360-3
100%	23.4	7.50	8.3	6.0	4.0	330			9	9	10	9	Feed: 1/24/24
Meter ID	1004	1079	1079	16.1	16.1	16.1	16.1		New WQ: 1/24/24				Old WQ: 1/24/24 Feed: 1/24/24
Lab Control	22.7	7.53		5.5		360			10	7	10	11	Date: 1/24/24 Sol. Prep: 1/24/24 Count Time: 1/24/24 Count Sign-off: 1/24/24 Feed: 1/24/24
100%		7.59		5.2		282			9	9	10	9	Feed: 1/24/24
Meter ID	1004	1079		16.15		16.15		10.03					Old WQ: 1/24/24
Lab Control	23.0	7.60	7.36	8.9	6.4	293	312		10	7	10	11	Date: 1/24/24 Sol. Prep: 1/24/24 Maint. Time: 1/24/24 Maint. Sign-off: 1/24/24 Sample ID: 104360-4
100%	23.0	7.60	7.45	9.5	6.2	246	278		9	9	10	8	Feed: 1/24/24
Meter ID	1004	1079	1079	16.10	16.10	16.10	16.10		New WQ: 1/24/24				Old WQ: 1/24/24 Feed: 1/24/24
Lab Control	23.0	7.41		5.5		330			10	7	10	11	Date: 1/24/24 Sol. Prep: 1/24/24 Count Time: 1/24/24 Count Sign-off: 1/24/24 Feed: 1/24/24
100%	23.0	7.41		5.5		260			9	9	10	8	Feed: 1/24/24
Meter ID	1004	1079		16.15		16.15		10.03					Old WQ: 1/24/24
Lab Control	23.0	7.41	7.27	5.5	5.4	309	309		10	7	10	11	Date: 1/24/24 Sol. Prep: 1/24/24 Maint. Time: 1/24/24 Maint. Sign-off: 1/24/24 Sample ID: 104360-5
100%	23.0	7.41	7.18	5.5	5.4	245	258		9	9	10	8	Feed: 1/24/24
Meter ID	1004	1079	1079	16.10	16.10	16.10	16.10		New WQ: 1/24/24				Old WQ: 1/24/24 Feed: 1/24/24
Lab Control	23.0	7.62		5.1		341			10	7	10	11	Date: 1/24/24 Sol. Prep: 1/24/24 Count Time: 1/24/24 Count Sign-off: 1/24/24 Feed: 1/24/24
100%	23.0	7.62		5.1		270			9	9	10	8	Feed: 1/24/24
Meter ID	1004	1079		16.10		16.10		10.03					Old WQ: 1/24/24
Lab Control	23.0	7.36		5.5		315	114	1.14	10	6	10	11	Date: 1/24/24 Sol. Prep: 1/24/24 Term Time: 1/24/24 Term Sign-off: 1/24/24
100%	23.0	7.36		5.5		240	112	1.12	9	9	10	8	Feed: 1/24/24
Meter ID	1004	1079		16.10		16.10		10.03					Old WQ: 1/24/24

Pacific EcoRisk

10 Day Chronic Chironomus dilutus Toxicity Test Data

Client: Delta RMP
 Test Material: CENT-017-13
 Test ID#: 104361 Project #: 35355
 Test Date: 1/24/24

Organism Log#: 14743 Age: 10 days
 Organism Supplier: AAS
 Control/Diluent: Reformulated EPAMH
 Control Water Batch: 357

Treatment	Temp (°C)	pH		D.O. (mg/L)		Cond. (µS/cm)		Ammonia (mg/L)	# Live Organisms				SIGN-OFF
		New	Old	New	Old	New	Old		A	B	C	D	
Lab Control	22.8	7.80		8.4		320		21.00	10	10	10	11	Date: 1/24/24 Sol. Prep: 1/24/24 Init. Time: 15:00 Init. Signoff: 1/24/24 Sample ID: 104361-1 Feed: 1/24/24
100%	22.4	7.73		8.8		419		21.00	10	10	10	10	Date: 1/24/24 Sol. Prep: 1/24/24 Init. Time: 15:00 Init. Signoff: 1/24/24 Sample ID: 104361-2 Feed: 1/24/24
Meter ID	104361-1			20.5		21.5		21.00	New WQ: 104361-1				Feed: 1/24/24
Lab Control	22.8		7.35		6.0		335		10	10	10	10	Date: 1/24/24 Sol. Prep: 1/24/24 Count Time: 15:00 Count Signoff: 1/24/24 Feed: 1/24/24
100%	22.8		7.48		6.3		413		10	10	10	10	Date: 1/24/24 Sol. Prep: 1/24/24 Count Time: 15:00 Count Signoff: 1/24/24 Feed: 1/24/24
Meter ID	104361-2		104361-2		20.6		21.4				Old WQ: 104361-2		Feed: 1/24/24
Lab Control	22.8	7.85	7.55	8.6	7.4	312	338	21.00	10	7	10	11	Date: 1/24/24 Sol. Prep: 1/24/24 Count Time: 15:00 Count Signoff: 1/24/24 Feed: 1/24/24
100%	23.2	7.79	7.68	9.3	6.9	430	471		7	9	9	10	Date: 1/24/24 Sol. Prep: 1/24/24 Count Time: 15:00 Count Signoff: 1/24/24 Feed: 1/24/24
Meter ID	104361-3		104361-3		20.5		21.5		New WQ: 104361-3		Old WQ: 104361-3		Feed: 1/24/24
Lab Control	22.8		7.48		7.2		324		10	7	10	11	Date: 1/24/24 Sol. Prep: 1/24/24 Count Time: 15:00 Count Signoff: 1/24/24 Feed: 1/24/24
100%	23.2		7.44		6.1		414		7	9	9	9	Date: 1/24/24 Sol. Prep: 1/24/24 Count Time: 15:00 Count Signoff: 1/24/24 Feed: 1/24/24
Meter ID	104361-4										Old WQ: 104361-4		Feed: 1/24/24
Lab Control	22.8		7.54		7.2		340		10	7	10	11	Date: 1/24/24 Sol. Prep: 1/24/24 Count Time: 15:00 Count Signoff: 1/24/24 Feed: 1/24/24
100%	23.2		7.67		6.1		415		7	9	9	9	Date: 1/24/24 Sol. Prep: 1/24/24 Count Time: 15:00 Count Signoff: 1/24/24 Feed: 1/24/24
Meter ID	104361-5		104361-5		20.4		21.2		New WQ: 104361-5		Old WQ: 104361-5		Feed: 1/24/24
Lab Control	22.8		7.53		5.3		366		10	7	10	11	Date: 1/24/24 Sol. Prep: 1/24/24 Count Time: 15:00 Count Signoff: 1/24/24 Feed: 1/24/24
100%	23.2		7.60		6.4		453		7	9	9	9	Date: 1/24/24 Sol. Prep: 1/24/24 Count Time: 15:00 Count Signoff: 1/24/24 Feed: 1/24/24
Meter ID	104361-6		104361-6		20.5		21.5				Old WQ: 104361-6		Feed: 1/24/24
Lab Control	22.8	7.67	7.34	8.9	7.7	293	315		10	7	10	11	Date: 1/24/24 Sol. Prep: 1/24/24 Count Time: 15:00 Count Signoff: 1/24/24 Feed: 1/24/24
100%	23.2	7.74	7.63	10.4	6.3	419	441		6	9	9	9	Date: 1/24/24 Sol. Prep: 1/24/24 Count Time: 15:00 Count Signoff: 1/24/24 Feed: 1/24/24
Meter ID	104361-7		104361-7		20.5		21.5		New WQ: 104361-7		Old WQ: 104361-7		Feed: 1/24/24
Lab Control	22.8		7.41		5.5		333		10	7	10	11	Date: 1/24/24 Sol. Prep: 1/24/24 Count Time: 15:00 Count Signoff: 1/24/24 Feed: 1/24/24
100%	23.2		7.44		5.9		413		6	9	9	9	Date: 1/24/24 Sol. Prep: 1/24/24 Count Time: 15:00 Count Signoff: 1/24/24 Feed: 1/24/24
Meter ID	104361-8		104361-8		20.5		21.5				Old WQ: 104361-8		Feed: 1/24/24
Lab Control	22.8		7.68		5.5		300		10	7	10	11	Date: 1/24/24 Sol. Prep: 1/24/24 Count Time: 15:00 Count Signoff: 1/24/24 Feed: 1/24/24
100%	23.2		7.91		5.2		455		6	9	9	8	Date: 1/24/24 Sol. Prep: 1/24/24 Count Time: 15:00 Count Signoff: 1/24/24 Feed: 1/24/24
Meter ID	104361-9		104361-9		20.5		21.5		New WQ: 104361-9		Old WQ: 104361-9		Feed: 1/24/24
Lab Control	22.8		7.62		5.1		219		10	7	10	11	Date: 1/24/24 Sol. Prep: 1/24/24 Count Time: 15:00 Count Signoff: 1/24/24 Feed: 1/24/24
100%	23.2		7.48		5.7		424		6	9	9	8	Date: 1/24/24 Sol. Prep: 1/24/24 Count Time: 15:00 Count Signoff: 1/24/24 Feed: 1/24/24
Meter ID	104361-10		104361-10		20.5		21.5				Old WQ: 104361-10		Feed: 1/24/24
Lab Control	22.8		7.46		6.5		315	1.4	10	6	10	11	Date: 1/24/24 Sol. Prep: 1/24/24 Count Time: 15:00 Count Signoff: 1/24/24 Feed: 1/24/24
100%	23.2		7.49		7.0		436	1.41	6	8	9	8	Date: 1/24/24 Sol. Prep: 1/24/24 Count Time: 15:00 Count Signoff: 1/24/24 Feed: 1/24/24
Meter ID	104361-11		104361-11		20.6		21.6				Old WQ: 104361-11		Feed: 1/24/24

Pacific EcoRisk

Environmental Consulting and Testing

10 Day Chronic *Chironomus dilutus* Toxicity Test Data

Client: Delta RMP
 Test Material: CONF-005
 Test ID#: 104362 Project #: 35355
 Test Date: 8/24/24

Organism Log#: 14143 Age: 10 days
 Organism Supplier: ARS
 Control/Diluent: Reformulated EPAMH
 Control Water Batch: 357

Treatment	Temp (°C)	pH		D.O. (mg/L)		Cond. (µS/cm)		Ammonia (mg/L)	# Live Organisms				SIGN-OFF
		New	Old	New	Old	New	Old		A	B	C	D	
Lab Control	22.3	7.50		8.0		300		2100	10	10	10	11	Date: 8/24/24 Sol. Prep: 8/24/24 Init. Time: 15:00 Init. Signoff: 8/24/24 Sample ID: 104362-1 Feed: 100%
100%	22.3	7.23		7.5		300		2100	10	10	10	10	
Meter ID	100	7.50		8.0		300		40000	New WQ: SW				Feed: 100%
Lab Control			7.35		6.0		335		10	10	10	10	Date: 8/24/24 Count Time: 8/24/24 Count Signoff: 8/24/24 Feed: 100%
100%			7.52		6.5		641		10	10	10	10	
Meter ID	100		7.35		6.0		335		Old WQ: SW				Feed: 100%
Lab Control	22.1	7.45	7.55	8.6	7.4	312	378	1000	10	7	10	11	Date: 8/24/24 Sol. Prep: 8/24/24 Maint. Time: 15:00 Maint. Signoff: 8/24/24 Sample ID: 104362-2 Feed: 100%
100%	22.2	7.43	7.65	9.9	6.8	616	655		8	7	9	10	
Meter ID	100	7.45	7.55	8.6	7.4	312	378		New WQ: 100 Old WQ: SW				Feed: 100%
Lab Control	23.0		7.37		7.8	2	304		10	7	10	11	Date: 8/24/24 Count Time: 15:00 Count Signoff: 8/24/24 Feed: 100%
100%	23.2		7.33		7.8		603		8	7	9	10	
Meter ID	100		7.37		7.8		304		Old WQ: SW				Feed: 100%
Lab Control	22.7	8.0	7.50	7.7	6.2	300	340		10	7	10	11	Date: 8/24/24 Sol. Prep: 8/24/24 Maint. Time: 15:00 Maint. Signoff: 8/24/24 Sample ID: 104362-3 Feed: 100%
100%	22.8	7.40	7.08	9.0	4.2	220	702		8	7	9	10	
Meter ID	100	8.0	7.50	7.7	6.2	300	340		New WQ: SW Old WQ: SW				Feed: 100%
Lab Control	22.9		7.53		6.3		360		10	7	10	11	Date: 8/24/24 Count Time: 15:00 Count Signoff: 8/24/24 Feed: 100%
100%	23.2		7.60		6.1		654		8	7	9	10	
Meter ID	100		7.53		6.3		360		Old WQ: SW				Feed: 100%
Lab Control	23.1	7.60	8.36	8.9	6.4	293	38		10	7	10	11	Date: 8/24/24 Sol. Prep: 8/24/24 Maint. Time: 15:00 Maint. Signoff: 8/24/24 Sample ID: 104362-4 Feed: 100%
100%	23.2	7.77	8.51	10.5	6.2	203	632		8	7	9	9	
Meter ID	100	7.60	8.36	8.9	6.4	293	38		New WQ: SW Old WQ: SW				Feed: 100%
Lab Control			7.41		6.3		305		10	7	10	11	Date: 8/24/24 Count Time: 15:00 Count Signoff: 8/24/24 Feed: 100%
100%			7.44		6.3		609		—	7	9	9	
Meter ID	100		7.41		6.3		305		Old WQ: SW				Feed: 100%
Lab Control	22.2	7.41	7.20	8.5	5.4	396	309		10	7	10	11	Date: 8/24/24 Sol. Prep: 8/24/24 Maint. Time: 15:00 Maint. Signoff: 8/24/24 Sample ID: 104362-5 Feed: 100%
100%	22.5	7.38	7.47	9.3	5.3	603	625		—	7	9	9	
Meter ID	100	7.41	7.20	8.5	5.4	396	309		New WQ: SW Old WQ: SW				Feed: 100%
Lab Control	22.4		7.52		6.1		344		10	7	10	11	Date: 8/24/24 Count Time: 15:00 Count Signoff: 8/24/24 Feed: 100%
100%			7.40		6.8		607		—	7	9	9	
Meter ID	100		7.52		6.1		344		Old WQ: SW				Feed: 100%
Lab Control			7.30		6.2		114		10	6	10	11	Date: 8/24/24 Term Time: 8/24/24 Term Signoff: 8/24/24
100%			7.53		7.4		101		—	6	9	9	
Meter ID			7.30		6.2		114		Old WQ: SW				

Pacific EcoRisk

Environmental Consulting and Testing

10 Day Chronic *Chironomus dilutus* Toxicity Test Data

Client: Delta RMP
Test Material: CONF-006
Test ID#: 104363 Project #: 35355
Test Date: 3/24/14

Organism Log#: 17193 Age: 10 days
Organism Supplier: ABS
Control/Diluent: Reformulated EPAMII
Control Water Batch: 357

Treatment	Temp (°C)	pH		D.O. (mg/L)		Cond. (µS/cm)		Ammonia (mg/L)	# Live Organisms				SIGN-OFF
		New	Old	New	Old	New	Old		A	B	C	D	
Lab Control	22.5	7.80		8.6		320		1.00	10	10	10	10	Date: 3/24/14 Sol. Prep: 55 Init. Time: 55 Init. Sign-off: 55 Sample ID: 55
100%	22.5	7.80		8.6		320		1.00	10	10	10	10	Feed: 55
Meter ID	100	100		100		100		100	New WQ: 55				Feed: 55
Lab Control	22.5	7.35		6.0		335			10	10	10	10	Date: 3/25/14 Count Time: 55 Count Sign-off: 55 Feed: 55
100%	22.5	7.50		6.3		742			10	10	10	10	Feed: 55
Meter ID	100	100		100		100							Old WQ: 55
Lab Control	22.5	7.45	7.55	8.6	7.4	312	338		10	7	10	11	Date: 3/26/14 Sol. Prep: 55 Maint. Time: 55 Maint. Sign-off: 55 Sample ID: 55
100%	22.5	7.76	7.66	9.9	6.9	771	760		9	10	10	10	Feed: 55
Meter ID	100	100	100	100	100	100	100		New WQ: 55				Old WQ: 55
Lab Control	23.0	7.10		7.2		324			10	7	10	11	Date: 3/27/14 Count Time: 55 Count Sign-off: 55 Feed: 55
100%	23.0	7.30		7.3		774			9	9	9	10	Feed: 55
Meter ID	100	100											Old WQ: 55
Lab Control	23.0	7.52		7.2		340	342		10	7	10	11	Date: 3/28/14 Sol. Prep: 55 Maint. Time: 55 Maint. Sign-off: 55 Sample ID: 55
100%	23.0	7.52		7.2		340	342		9	9	9	10	Feed: 55
Meter ID	100	100							New WQ: 55				Old WQ: 55
Lab Control	23.0	7.53		5.3		366			10	7	10	11	Date: 3/29/14 Count Time: 55 Count Sign-off: 55 Feed: 55
100%	23.0	7.62		6.4		780			8	9	9	9	Feed: 55
Meter ID	100	100											Old WQ: 55
Lab Control	23.0	7.60	7.36	8.9	6.7	393	312		10	7	10	11	Date: 3/30/14 Sol. Prep: 55 Maint. Time: 55 Maint. Sign-off: 55 Sample ID: 55
100%	23.0	7.78	7.45	12.8	6.2	746	764		8	8	8	9	Feed: 55
Meter ID	100	100	100	100	100	100	100		New WQ: 55				Old WQ: 55
Lab Control	23.0	7.41	8.8	8.8	8.8	333			10	7	10	11	Date: 3/31/14 Count Time: 55 Count Sign-off: 55 Feed: 55
100%	23.0	7.45		6.5		741			8	8	8	7	Feed: 55
Meter ID	100	100											Old WQ: 55
Lab Control	23.0	7.28	8.5	5.4	5.4	320	309		10	7	10	11	Date: 4/1/14 Sol. Prep: 55 Maint. Time: 55 Maint. Sign-off: 55 Sample ID: 55
100%	23.0	7.45	8.4	8.5	7.0	770			8	8	8	9	Feed: 55
Meter ID	100	100	100	100	100	100	100		New WQ: 55				Old WQ: 55
Lab Control	23.0	7.32		6.1		319			10	7	10	11	Date: 4/2/14 Count Time: 55 Count Sign-off: 55 Feed: 55
100%	23.0	7.40		6.2		745			8	8	8	9	Feed: 55
Meter ID	100	100											Old WQ: 55
Lab Control	23.0	7.20		6.0		325	114		10	6	10	11	Date: 4/3/14 Count Time: 55 Count Sign-off: 55 Feed: 55
100%	23.0	7.20		7.1		715	113		7	8	8	9	Feed: 55
Meter ID	100	100											Old WQ: 55

no
water

Pacific EcoRisk

Environmental Consulting and Testing

10 Day Chronic *Chironomus dilutus* Toxicity Test Data

Client: Delta RMP
 Test Material: CONF-007
 Test ID#: 104364 Project #: 35355
 Test Date: 1/24/20

Organism Log#: 14143 Age: 10 days
 Organism Supplier: A55
 Control/Diluent: Reformulated EPAMH
 Control Water Batch: 357

Treatment	Temp (°C)	pH		D.O. (mg/L)		Cond. (µS/cm)	Ammonia (mg/L)	# Live Organisms				SIGN-OFF
		New	Old	New	Old			A	B	C	D	
Lab Control	20.8	7.55		8.6		320	<1.00	10	10	10	10	Date: 1/24/20 Sol. Prep: ES Init. Time: 15:40 Init. Sign-off: [initials] Sample ID: 1085
100%	20.1	7.55		9.8		400	210	10	10	11	10	Feed: 108
Meter ID								New WQ: 30		Old WQ: 30		Feed: 108
Lab Control			7.35		6.0	335		10	10	10	10	Date: 1/25/20 Count Time: 15:15 Count Sign-off: [initials] Feed: 108
100%			7.49		6.2	430		10	10	11	10	Feed: 108
Meter ID			PH29		PH20	314		New WQ: 30		Old WQ: 30		Feed: 108
Lab Control	23.1	7.45	7.55	8.6	7.4	312	338	10	7	10	11	Date: 1/25/20 Sol. Prep: ES Init. Time: 15:15 Init. Sign-off: [initials] Sample ID: 1086
100%	23.4	7.39	7.70	9.9	6.5	701	440	8	7	11	7	Feed: 108
Meter ID			PH24		PH25	305	305	New WQ: 30		Old WQ: 30		Feed: 108
Lab Control	23.0		7.42		3.2	325		10	7	10	11	Date: 1/27/20 Count Time: 15:16 Count Sign-off: [initials] Feed: 108
100%	23.0		7.41		8.1	496		8	6	11	7	Feed: 108
Meter ID			PH21		PH25	305		New WQ: 30		Old WQ: 30		Feed: 108
Lab Control			7.54		6.2	325		10	7	10	11	Date: 1/27/20 Sol. Prep: ES Init. Time: 15:16 Init. Sign-off: [initials] Sample ID: 1087
100%			7.70		6.2	325		8	6	11	7	Feed: 108
Meter ID			PH20		PH25	305		New WQ: 30		Old WQ: 30		Feed: 108
Lab Control			7.53		6.5	366		10	7	10	11	Date: 1/29/20 Count Time: 15:16 Count Sign-off: [initials] Feed: 108
100%			7.64		6.1	431		8	6	11	7	Feed: 108
Meter ID			PH27		PH25	305	305	New WQ: 30		Old WQ: 30		Feed: 108
Lab Control	23.0	7.00	7.36	8.9	6.7	295	313	10	7	10	11	Date: 1/29/20 Sol. Prep: ES Init. Time: 15:16 Init. Sign-off: [initials] Sample ID: 1088
100%	23.2	7.02	7.51	11.0	2.8	393		8	6	11	7	Feed: 108
Meter ID			PH24		PH27	305	305	New WQ: 30		Old WQ: 30		Feed: 108
Lab Control			7.41		5.5	333		10	7	10	11	Date: 1/29/20 Count Time: 15:16 Count Sign-off: [initials] Feed: 108
100%			7.52		4.0	335		7	6	11	7	Feed: 108
Meter ID			PH22		PH25	305		New WQ: 30		Old WQ: 30		Feed: 108
Lab Control	23.0		7.08	8.5	7.4	370	302	10	7	10	11	Date: 1/29/20 Sol. Prep: ES Init. Time: 15:16 Init. Sign-off: [initials] Sample ID: 1089
100%	23.7		7.43	8.4	5.5	444		8	6	11	7	Feed: 108
Meter ID			PH22		PH25	305		New WQ: 30		Old WQ: 30		Feed: 108
Lab Control	23.4		7.52		6.1	369		10	7	10	11	Date: 1/29/20 Count Time: 15:16 Count Sign-off: [initials] Feed: 108
100%	23.4		7.41		5.6	337		8	6	11	7	Feed: 108
Meter ID			PH20		PH25	305		New WQ: 30		Old WQ: 30		Feed: 108
Lab Control			7.46		6.0	345	1.8	10	6	10	11	Date: 1/29/20 Sol. Prep: ES Init. Time: 15:16 Init. Sign-off: [initials] Sample ID: 1090
100%			7.54		7.5	414	1.8	8	4	11	7	Feed: 108
Meter ID			PH24		PH25	305		New WQ: 30		Old WQ: 30		Feed: 108

Pacific EcoRisk

Environmental Consulting and Testing

10 Day Chronic *Chironomus dilutus* Toxicity Test Data

Client: Delta RMP
Test Material: CONF-008
Test ID#: 104365 Project #: 35355
Test Date: 1/24/24

Organism Log#: 14143 Age: 10 days
Organism Supplier: ARI
Control/Diluent: Reformulated EPAMII
Control Water Batch: 357

Treatment	Temp (°C)	pH		D.O. (mg/L)		Cond. (µS/cm)		Ammonia (mg/L)	# Live Organisms				SIGN-OFF
		New	Old	New	Old	New	Old		A	B	C	D	
Lab Control	23.0	7.80		8.0		320		1.00	10	10	10	10	Date: 1/24/24 Sol. Prep: 357
100%	23.4	7.75		7.9		330		1.00	10	11	10	10	Init. Time: 1:30 Init. Signoff: 1/24/24 Sample ID: 35735
Meter ID	104365	7.82		8.0		323		1.00	New WQ: 357				Feed: 1/24/24
Lab Control	23.0	7.35		6.0		335			10	10	10	10	Date: 1/24/24 Count Time: 5:00
100%	23.0	7.48		6.2		473			10	11	10	10	Count Signoff: 1/24/24 Feed: 1/24/24
Meter ID	104365	7.49		6.0		474							Old WQ: SN
Lab Control	23.1	7.55	7.55	8.6	7.4	312	338		10	7	10	11	Date: 1/24/24 Sol. Prep: 357
100%	23.2	7.80	7.64	10.1	6.6	454	492		9	11	9	10	Maint. Time: 4:30 Maint. Signoff: 1/24/24 Sample ID: 35735
Meter ID	104365	7.87	7.87	10.1	6.6	454	492		New WQ: 357				Old WQ: SN Feed: 1/24/24
Lab Control	23.0	7.92		8.2		384			10	7	10	11	Date: 1/24/24 Count Time: 10:30
100%	23.1	7.87		8.1		470			9	11	8	10	Count Signoff: 1/24/24 Feed: 1/24/24
Meter ID	104365	7.87		8.1		470							Old WQ: NK
Lab Control	23.0	7.54	7.7	6.2	6.2	340	340		10	7	10	11	Date: 1/24/24 Sol. Prep: 357
100%	23.1	7.67	7.0	6.3	6.3	449	474		9	11	8	10	Maint. Time: 2:30 Maint. Signoff: 1/24/24 Sample ID: 35735
Meter ID	104365	7.67	7.0	6.3	6.3	449	474		New WQ: 357				Old WQ: NK Feed: 1/24/24
Lab Control	23.0	7.53		5.3		386			10	7	10	11	Date: 1/24/24 Count Time: 1:00
100%	23.0	7.60		6.0		478			9	11	8	10	Count Signoff: 1/24/24 Feed: 1/24/24
Meter ID	104365	7.60		6.0		478							Old WQ: KE
Lab Control	23.0	7.60	7.36	8.9	7.7	393	393		10	7	10	11	Date: 1/24/24 Sol. Prep: 357
100%	23.0	7.59	7.36	10.3	7.7	446	464		9	10	8	9	Maint. Time: 1:30 Maint. Signoff: 1/24/24 Sample ID: 35735
Meter ID	104365	7.59	7.36	10.3	7.7	446	464		New WQ: 357				Old WQ: KE Feed: 1/24/24
Lab Control	23.0	7.41		5.5		339			10	7	10	11	Date: 1/24/24 Count Time: 1:00
100%	23.0	7.54		5.8		440			9	10	8	9	Count Signoff: 1/24/24 Feed: 1/24/24
Meter ID	104365	7.54		5.8		440							Old WQ: 24
Lab Control	23.0	7.28	8.5	5.4	5.0	340	340		10	7	10	11	Date: 1/24/24 Sol. Prep: 357
100%	23.0	7.40	7.7	5.1	4.0	440	464		9	10	8	9	Maint. Time: 1:30 Maint. Signoff: 1/24/24 Sample ID: 35735
Meter ID	104365	7.40	7.7	5.1	4.0	440	464		New WQ: 357				Old WQ: KE Feed: 1/24/24
Lab Control	23.0	7.32		5.1		340			10	7	10	11	Date: 1/24/24 Count Time: 1:00
100%	23.0	7.40		5.8		440			9	10	8	9	Count Signoff: 1/24/24 Feed: 1/24/24
Meter ID	104365	7.40		5.8		440							Old WQ: 24
Lab Control	23.0	7.30		5.1		340	340		10	7	10	11	Date: 1/24/24 Term Time: 1:30
100%	23.0	7.50		5.8		440	464		9	10	8	9	Term Signoff: 1/24/24
Meter ID	104365	7.50		5.8		440	464						Old WQ: 24

26
4/26/24
20
1/24/24

2

2023-12: Event 1 (WY 2024) Babcock Lab Blank Contamination for TOC



Deviation Report / Corrective Action Form

Title:	CUP Event 1 (WY24) Babcock Lab Blank Contamination for TOC
Deviation Number:	2023-12_CUPv1.4_Dev_WY24Event1_Babcock_LabBlankContaminationTOC
Prepared By:	Cassandra Lamerdin
Attached:	NA

Applicable Reference(s):

Delta Regional Monitoring Program Quality Assurance Project Plan for Current Use Pesticides in the Sacramento-San Joaquin Delta Version 1.4, September 28, 2023

Complete the following table regarding the major milestones for the relevant deviation. Add additional rows as needed.

	Date	Notes/Description (optional)
Date Deviation Occurred:	2/26/2024	Cassandra Lamerdin (DRMP Data Manager) reviewed the revised Lab Report (C3L2733) from Event 1 sampling which occurred on 12/11-12/2023.
Date DRMP Program Manager was notified:	2/26/2024	Cassandra Lamerdin notified (via email) Melissa Turner (DRMP Technical Program Manager) of a deviation regarding total organic carbon (TOC) lab blank contamination.
Date CVRWQCB QA Representative Notified:	2/26/2024	Cassandra Lamerdin notified (via email) Selina Cole (Region 5 QA Representative) of a deviation regarding TOC lab blank contamination.

	Date	Notes/Description (optional)
Deviation Form sent for Review:	5/01/2024	Tessa Fojut (SWAMP Program Manager)
Deviation Form sent for Review:	5/21/2024	Will Hagan (DRMP QA Officer)
Deviation Form Sent for Signatures:	5/23/2024	Originally sent for signatures
Approval Letter Received from CVRWQCB:	10/25/2024	The Central Valley Regional Water Quality Control Board's QA Representative position is currently vacant; however, Regional Board staff have reviewed the submitted QAPP Deviations Form and find the corrective actions sufficient. Regional Board approval was provided by Patrick Pulupa (CVRWQCB Executive Officer) for six CUP deviations including this one. The approval letter was sent to Debbie Mackey (DRMP President) on October 25, 2024.
Deviation Form Sent for Signatures post approval:	11/21/2024	

Description of Deviation/Change:

On February 23, 2024, Cassandra Lamerdin received a revised Babcock Lab Report 3CL2733 for Water Year 2024 (WY24) Current Use Pesticides (CUP) sampling Event 1 which occurred on December 11-12, 2023. This lab report was originally submitted on January 23, 2024 but was revised to update incorrect sample dates and copper method detection limits (MDLs) and reporting limits (RLs).

Upon review of the revised report received on February 26, 2024, it was identified that the Lab Blank for TOC was detected (0.205 mg/L) at a level above the MDL (0.13 mg/L) but below the RL (0.7 mg/L). The DRMP CUP Measurement Quality Objective (MQO) for Lab Blanks is <MDL; however, the MQO for Surface Water Ambient Monitoring Program (SWAMP) is <RL.

Reason for Deviation/Change

This deviation does not meet the DRMP lab blank contamination MQO but does meet the SWAMP MQO which is followed by the Central Valley Water Quality Regional Board as the contracting agency for analysis conducted by Babcock for the DRMP CUP; therefore, the results did not require reconfirmation from the laboratory but were flagged by the DRMP as not meeting project MQOs.

Impact on Present and Completed Work (discuss potential magnitude of impact and bias of deviation/change, if this can be anticipated, if no impact is expected please indicate this)

Low-level TOC laboratory blank contamination is documented in the dataset batch Babcock_DRMP_CUP_3L27033_W_TOC including the following: flagging the blank result with an IP QA Code [Analyte detected in field or lab generated blank] and flagging the associated samples (544LSAC13, 511ULCABR, Cent-013, Cent-014, Conf-001, Conf-002, Conf-003, Conf-004) with an additional FI QA Code [Analyte in field sample and associated blank]. The lab batch comment will include the following "TOC reported in lab blank at levels above MDL but below RL".

Corrective Action	By Date	By Whom
The TOC laboratory blank result will be flagged with an IP. The environmental samples in the analytical batch will be flagged with an QA Code of FI.	4/15/2024	Cassandra Lamerdin, DRMP Data Manager

Deviation Report / Corrective Action Form, page 1 of 4

ACKNOWLEDGED BY:

SWAMP Program Manager:	DocuSigned by: <i>Tessa Fojut</i> 7A88852197AE41E...	Date:	11/22/2024
	Tessa Fojut		

DRMP Program Manager:	DocuSigned by: <i>Melissa Turner</i> 0796DD016C44446...	Date:	11/22/2024
	Melissa Turner		

DRMP QA Officer:	DocuSigned by: <i>Will Hagan</i> A4601C48F968433...	Date:	11/22/2024
	Will Hagan		

CVRWQCB QA Representative*:	Not Applicable	Date:	10/25/2024
	Vacant		

*While these QAPP Deviation Forms will remain unsigned by the Central Valley Water Board due to the vacant QA Representative position, the current form is approved based on CVRWQCB staff scientist review and approval by the Central Valley Regional Water Quality Control Board Executive Officer Patrick Pulupa.

***2023-13: Event 3 (WY 2024) Pimephales 7-day Toxicity Test Missed
Hold Time***



Deviation Report / Corrective Action Form

Title:	CUP Event 3 (WY24) <i>Pimephales</i> 7-day Toxicity Test Missed Hold Time
Deviation Number:	2023-13_CUPv1.5_Dev_WY24Event3_PER_PimephalesMissedHoldtime
Prepared By:	Robert Pangle, MLJ Environmental
Attached:	2023-13_050124_DeltaRMP_NonConfirmingDataReport_FatheadMinnow_NoTesting.pdf

Applicable Reference(s):

Delta Regional Monitoring Program Quality Assurance Project Plan for Current Use Pesticides in the Sacramento-San Joaquin Delta Version 1.5, February 09, 2024

Complete the following table regarding the major milestones for the relevant deviation. Add additional rows as needed.

	Date	Notes/Description (optional)
Date Deviation Occurred:	05/01/2024	Stephen Clark, Technical Director at Pacific EcoRisk (PER), notified (via email) Melissa Turner (DRMP Program Manager), Selina Cole (Region 5 QA Representative) and the Toxicity Identification Evaluation (TIE) Advisory Committee that a shipment of <i>Pimephales promelas</i> (<i>P. promelas</i>) was delayed in shipping, and that toxicity test initiation would exceed the 48-hour hold time as outlined in the QAPP.
Date DRMP Program Manager was notified:	05/01/2024	

Deviation Report / Corrective Action Form, page 2 of 5

	Date	Notes/Description (optional)
Date CVRWQCB QA Representative Notified:	05/01/2024	
Deviation Form sent for Review:	08/28/2024	Stephen Clark (PER Technical Director)
Deviation Form sent for Review:	08/30/2024	Will Hagan (DRMP QA Officer)
Deviation Form Sent for CVRWQCB Review:	10/17/2024	
Approval Letter Received from CVRWQCB:	02/28/2025	The Central Valley Regional Water Quality Control Board's QA Representative position is currently vacant; however, Regional Board staff have reviewed the submitted QAPP Deviations Form and find the corrective actions sufficient. Regional Board approval was provided by Patrick Pulupa (CVRWQCB Executive Officer) for 5 deviations including this one. The approval letter was sent to Debbie Mackey (DRMP President) on February 28, 2025.
Deviation Form Sent for Signatures post approval:	03/17/2025	

Description of Deviation/Change:

Current Use Pesticide (CUP) monitoring for Water Year (WY) 2024 occurred on April 29 and 30, 2024 for the spring snow melt event. Stephen Clark (Pacific EcoRisk) informed the Delta Regional Monitoring Program (DRMP) and the Toxicity Identification Evaluation (TIE) Advisory Committee in the evening of May 1, 2024 that an order of fathead minnows (*P. promelas*) were packaged and shipped on April 30, 2024 for overnight delivery but the delivery was delayed in route. The TIE Advisory Committee includes the Central Valley Regional Water Quality Control Board (CVRWQCB) Quality Assurance (QA) Representative.

In tracking the order, Pacific EcoRisk (PER) staff noted that the package had been delayed at the FedEx Memphis, TN shipping hub. PER staff called FedEx and FedEx representatives indicated that the package would arrive at PER by 3:00 p.m. on May 1, 2024 in time for initiating toxicity tests for samples collected on April 30, 2024 to meet the 48 hours hold time requirement. However, the organisms did not arrive on May 1, 2024 as expected which resulted in Stephen Clark emailing the following options and looking for direction from the TIE Advisory Committee:

1. Assuming that we receive the organisms tomorrow, we can initiate the testing outside of the 36 hr holding time limit but within the maximum of 72 hrs cited in the method manuals with

justifications for such shipping delays. However, the fish will be >48 hrs old, which is outside the requirement of <48 hrs old if shipped.

2. We can order new fish to be of the proper age, but they would arrive late in the morning on Friday, and depending on the receipt time of the shipment, some if not all of the samples will be outside of the maximum of 72 hrs holding time since they were collected on 4/30 from 10:35 a.m. to 12:45 p.m.

3. Do not test the four affected samples with the fathead minnow.

After some discussion via email and text messages, the TIE Advisory Committee members agreed to forgo *P. promelas* testing for the affected samples (4 environmental samples) since the delayed toxicity testing would occur outside of the CUP Quality Assurance Project Plan (QAPP) holding time limits for water samples and the organisms would be older than specified (>48 hours) in the test procedures.

This deviation affected four environmental samples collected on April 30, 2024 from stations Conf-009, Conf-010, Conf-011, and Conf-012.

Reason for Deviation/Change

A shipment of *P. promelas* test organisms was delayed in shipping, and toxicity test initiation could not be initiated within the 48-hour hold time limit per the CUP QAPP v1.5. The TIE Advisory Committee members discussed the option of initiating toxicity tests for *P. promelas* outside of the 48-hour holding time limit for the water samples (but still within the maximum of 72 hours cited in the method manuals with justifications for such shipping delays); however, this would create a scenario where the test organisms would exceed the age limitation for shipped organisms which is less than 48 hours and be run outside of hold time.

The option of ordering more test organisms was also discussed, but by the time the fish would arrive, the water samples would be outside of the QAPP hold time of 48 hours and also outside of the maximum 72-hour hold time of the method.

After considering these options, the TIE Advisory Committee members decided to forgo testing of *P. promelas* for the samples collected on April 30, 2024, as the results would potentially be inconclusive, and qualifiers would be required in either scenario. Stephen Clark also noted that there are no vendors in California for this test species. The current vendor is in Arkansas, with a backup in Colorado.

Impact on Present and Completed Work (discuss potential magnitude of impact and bias of deviation/change, if this can be anticipated, if no impact is expected please indicate this)

The WY 2024 (Year 4) data will be incomplete for *P. promelas* testing for samples collected from the Confluence Subregion for: Event 1 (2 samples not tested due to high conductivity, Deviation 2023-06_CUPv1.4_Dev_WY24Event1_PER_MissingTests_HighSalinity) and Event 3 (4 samples not tested due to delays in receiving test organisms, Deviation 2023-13_CUPv1.5_Dev_WY24Event3_PER_PimphalesMissedHoldTime).

At the time of this deviation form, 6 of the 24 samples collected for *P. promelas* toxicity testing are incomplete. This might have an impact on the interpretation of toxicity to fish in the Confluence Subregion. However, all samples collected from the two fixed sites (Buckley Cove and Ulatis Creek) have been tested for toxicity to *P. promelas*.

Since shipping delays are outside of the control of the laboratory or the DRMP, the only corrective action to take is to add comments in the database indicating why there are not *P. promelas* results for these samples.

Corrective Action	By Date	By Whom
A sample and collection comment was added to Stations Conf-009, Conf-010, Conf-011 and Conf-012 which states: "Pimephales was not tested at this station due to delays in shipping larvae."	June 1, 2024	Cassandra Lamerdin, DRMP Data Manager

Deviation Report / Corrective Action Form, page 1 of 5

ACKNOWLEDGED BY:

Pacific EcoRisk Technical Director:	DocuSigned by:  C4D43551B2BC478...	Date:	3/17/2025
	Stephen Clark		

DRMP Program Manager:	DocuSigned by:  8798DD915C44448...	Date:	3/27/2025
	Melissa Turner		

DRMP QA Officer:	DocuSigned by:  A4691C48F968433...	Date:	3/27/2025
	Will Hagan		

CVRWQCB QA Representative*:	Not Applicable	Date:	02/28/2025
	Vacant		

*While these QAPP Deviation Forms will remain unsigned by the Central Valley Water Board due to the vacant QA Representative position, the current form is approved based on CVRWQCB staff scientist review and approval by the Central Valley Regional Water Quality Control Board Executive Officer Patrick Pulupa.

Corrective Action**1.0 Incident Summary**

Date of Incident:	5/1/24
Incident:	Chronic fathead minnow testing could not be initiated due to organisms not arriving.
Nonconformance Source:	Non-Conforming Data
Incident Cause:	Shipping delay
Incident Investigator:	Kevin Lung, Quality Manager
Corrective Action Taken:	None
Corrective Action Implemented by:	Kevin Lung, Quality Manager
Monitoring of Corrective Action:	No further incidents occurred in the following 30 days.

2.0 Nonconformance Evaluation

On 5/1/24, NK notified the Lab Manager that the less than 48-hour old *Pimephales promelas* that had been ordered for Delta RMP chronic fathead minnow Control 2 (Test ID's #104793-104796, Project #35355) had not arrived. An investigation was performed to determine the cause of the missing organisms.

3.0 Root Cause**Shipping Delay**

Although the correct amount and age of organisms were ordered, it was noted by Lab Management that the organisms had not arrived by the expected time. PER reached out to our FedEx (shipping company) account representative and left her a voicemail indicating that their online tracking system indicated that the organisms were still in Memphis one day after they were shipped and to check on the status of the delivery. As the account representative could not be reached, we reached out to the FedEx customer service department who indicated that the online information was in error and that we should receive the fish by 3:00 p.m.; although this would be late in the day, we could still initiate the testing by having staff stay late. Our account representative received the voicemail and followed up around 3:00 p.m. and indicated that the shipment was in fact still in Memphis and that the customer service representative was wrong that the organisms would be received in time for our testing. SLC reached out to the Delta RMP TIE Subcommittee to inform them of the delay in organism shipping and was instructed that the chronic *Pimephales promelas* test would not be performed for samples collected on April 30 since the samples would either be outside of the maximum hold time of 72 hours or fish >48 hours old from an external vendor would need to be used for the testing. A shipping delay was the cause of the test not being initiated as it was scheduled.

4.0 Corrective Action/Implemented by

Corrective Action: How will the situation be corrected? Who will implement?

No corrective action was necessary at this time.

5.0 Preventative Action

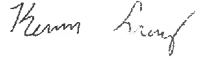
Preventative Action: Identify preventative measures that will be implemented. Who will implement?

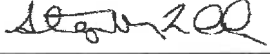
No preventative action was necessary at this time.

6.0 Monitoring of Corrective Action Effectiveness

No further incidents occurred in the following 30 days.

Incident Open Date: 5/1/24 Incident Close Date: 6/1/24

Prepared By: Kevin Lung Quality Manager's Signature: 

Technical Director: Stephen Clark Technical Director's Signature: 

Study Guidance Form

Client:	Delta RMP <u>2</u>	Test Date:	<u>5/1/24</u>
Sample Description:	Ambient Water	Test ID #:	<u>-</u>
Species and Test Description:	C. FHM	Project #:	<u>35355</u>

Special Instructions:

SWAMP MQO conductivity range: 100-1900 $\mu\text{S}/\text{cm}$. Prepare high conductivity control for samples $>1900 \mu\text{S}/\text{cm}$ by adding filtered seawater to EPAMH to match the conductivity of each sample.

Do not test with samples $>6000 \mu\text{S}/\text{cm}$, rather test with *Menidia*

Measure and record ammonia at initiation and termination - CONTROL TOO!!
INITIATION AMMONIA CAN BE TRANSCRIBED FROM LOG-INS

WQ Analysts: Please make sure ALL old WQ fields are complete prior to dumping aliquots. Double check any anomalous values with another meter and record on observation sheet as appropriate.

**Aerate any test treatments that measure $\leq 4.0 \text{ mg/L}$; see SVV if low, but $>4.0 \text{ mg/L}$

**At initiation, please have second analyst confirm all test replicates have been loaded with 10 orgs each
Confirmation signoff: _____

TIE Trigger: $\geq 50\%$ reduction in survival or growth

Please document PRM, photo evidence not needed

Test run in shell vials

Feed prior to maint.!

Scientist 1+ only
please!

General Guidance:

7 Day Chronic Fathead Minnow Toxicity Test Data

Client:

35355

Material:

Lab Control-2

Project #:

35355

Test Date:

5/1/24

Test ID:

104793-104796

Organism Log #:

Delta RMP

Organism Age:

Control Water:

EPAMH

Organism Supplier:

Day	pH		D.O.		Cond. (µS/cm)	Temp (°C)	Survival										SIGN-OFF	
	New	Old	New	Old			A	B	C	D	E	F	G	H	I	J	Date: 5/1/24	Test Init.: Time:
0	7.40		8.9		240	24.5											Sol'n Prep: TV New WQ: 40 Old WQ: Counts: Time:	
1																	Date: Sol'n Prep: New WQ: Old WQ: Counts: Time:	
2																	Date: Sol'n Prep: New WQ: Old WQ: Counts: Time:	
3																	Date: Sol'n Prep: New WQ: Old WQ: Counts: Time:	
4																	Date: Sol'n Prep: New WQ: Old WQ: Counts: Time:	
5																	Date: Sol'n Prep: New WQ: Old WQ: Counts: Time:	
6																	Date: Sol'n Prep: New WQ: Old WQ: Counts: Time:	
7																	Date: Sol'n Prep: New WQ: Old WQ: Counts: Time:	
Lab Water Control-2																		
Day	Survival																	
	K	L	M	N	O	P	Q	R	S	T								
0																		
1																		
2																		
3																		
4																		
5																		
6																		
7																		

7 Day Chronic Fathead Minnow Toxicity Test Data

Client:	Delta RMP	Material:	CONF-009	Organism Log #:
Project #:	35355	Test Date:	5/1/24	Organism Age:
	Test ID: 104793	Control Water:	EPAMH	Organism Supplier:

[illegible]

[illegible]

7 Day Chronic Fathead Minnow Toxicity Test Data

Client:	Delta RMP	Material:	CONF-011	Organism Log #:
Project #:	35355	Test Date:	5/1/24	Organism Age:
	Test ID:	Control Water:	EPAMH	Organism Supplier:
	104795			

[illegible]

7 Day Chronic Fathead Minnow Toxicity Test Data

Client: Delta RMP Material: CONF-012 Organism Log #:
Project #: 35355 Test ID: 104796 Test Date: 5/1/24 Organism Age:
Control Water: EPAMH Organism Supplier:

Day	pH		D.O.		Cond. (µS/cm)	Temp (°C)	Survival										SIGN-OFF	
	New	Old	New	Old			A	B	C	D	E	F	G	H	I	J	Date: 5/1/24 Sol'n Prep: TLC	New WQ: WD Test Init.: Time:
0	7.40		9.7		167	24.6												
1																		
2																		
3																		
4																		
5																		
6																		
7																		
%001																		
Day	Survival										Sample ID							
	K	L	M	N	O	P	Q	R	S	T	70623							
0																		
1																		
2																		
3																		
4																		
5																		
6																		
7																		

7 Day Chronic Fathead Minnow Toxicity Test Data

Client: _____ Delta RMP _____ Material: _____ Meter ID's _____ Test Date: 5/1/24

Project #: 35355 Test ID: - Control / Diluent: EPAMH

Day	pH		D.O.		Cond. (μ S/cm)	Temp ($^{\circ}$ C)													SIGN-OFF	
	New	Old	New	Old			Date:	New WQ:	Old WQ:											
0	PH20		2015		EC15	15.9A												Date: 5/1/24	New WQ: HD	
1																		Date:	New WQ:	Old WQ:
2																		Date:	New WQ:	Old WQ:
3																		Date:	New WQ:	Old WQ:
4																		Date:	New WQ:	Old WQ:
5																		Date:	New WQ:	Old WQ:
6																		Date:	New WQ:	Old WQ:
7																		Date:	New WQ:	Old WQ:

2023-14: Event 3 (WY 2024) Ceriodaphnia Toxicity Test Lost Control



Deviation Report / Corrective Action Form

Title:	CUP Event 3 (WY24) <i>Ceriodaphnia</i> Toxicity Test Lost Control
Deviation Number:	2023-14_CUPv1.5_Dev_WY24Event3_PER_CeriodaphniaControlLost
Prepared By:	Robert Pangle, MLJ Environmental
Attached:	2023-14_050224_DeltaRMP_NonConfirmingDataReport_ChronicCeriodaphnia.pdf

Applicable Reference(s):

Delta Regional Monitoring Program Quality Assurance Project Plan for Current Use Pesticides in the Sacramento-San Joaquin Delta Version 1.5, February 09, 2024

Complete the following table regarding the major milestones for the relevant deviation. Add additional rows as needed.

	Date	Notes/Description (optional)
Date Deviation Occurred:	05/02/2024	Stephen Clark, Technical Director at Pacific EcoRisk (PER), notified (via email) Melissa Turner (DRMP Program Manager), Selina Cole (Region 5 QA Representative) and the Toxicity Identification Evaluation (TIE) Advisory Committee that PER had accidentally disposed of <i>Ceriodaphnia dubia</i> control treatments for a set of toxicity tests related to samples collected on April 30, 2024 (Event 3).
Date DRMP Program Manager was notified:	05/02/2024	
Date CVRWQCB QA Representative Notified:	05/02/2024	

Deviation Report / Corrective Action Form, page 2 of 4

	Date	Notes/Description (optional)
Deviation Form sent for Review:	08/28/2024	Stephen Clark (PER Technical Director)
Deviation Form sent for Review:	08/30/2024	Will Hagan (DRMP QA Officer)
Deviation Form Sent for CVRWQCB Review:	10/17/2024	
Approval Letter Received from CVRWQCB:	02/28/2025	The Central Valley Regional Water Quality Control Board's QA Representative position is currently vacant; however, Regional Board staff have reviewed the submitted QAPP Deviations Form and find the corrective actions sufficient. Regional Board approval was provided by Patrick Pulupa (CVRWQCB Executive Officer) for 5 deviations including this one. The approval letter was sent to Debbie Mackey (DRMP President) on February 28, 2025.
Deviation Form Sent for Signatures post approval:	03/17/2025	

Description of Deviation/Change:

Current Use Pesticide (CUP) monitoring for Water Year (WY) 2024 occurred on April 29 and 30, 2024 for the spring snow melt event. Stephen Clark, Technical Director at Pacific EcoRisk (PER), notified (via email) Melissa Turner (DRMP Program Manager), Selina Cole (Region 5 QA Representative) and the Toxicity Identification Evaluation (TIE) Advisory Committee that PER staff had accidentally disposed of *Ceriodaphnia dubia* control treatments for four toxicity tests related to samples collected on April 30, 2024 (Event 3). This deviation affected the following locations/stations: Conf-009, Conf-010, Conf-011, and Conf-012. Stephen Clark indicated on May 2, 2024, that PER staff had re-started the affected tests outside of the standard 48-hour holding time limit (but within the maximal 72-hour holding time limit as outlined in EPA testing methods).

Reason for Deviation/Change

Stephen Clark indicated that the staff member involved was an experienced analyst, and that the premature disposal of the control treatments was accidental. The staff member self-reported the mistake and will undergo re-training on this toxicity testing method (which is required by the quality management system at PER when incidents such as this occur). The incident will also be written up in a performance report. In summary, a technical mistake by PER staff was the contributing factor to this error.

Impact on Present and Completed Work (discuss potential magnitude of impact and bias of deviation/change, if this can be anticipated, if no impact is expected please indicate this)

There were four stations (Conf-009, Conf-010, Conf-011 and Conf-012) sampled on April 30, 2024 that will have *C. dubia* toxicity tests performed outside of the 48-hour hold time limit (but within the maximal 72-hour holding time limit as outlined in EPA testing methods). Environmental samples affected were retested within five hours of the 48-hold time. Data will be flagged appropriately to indicate the hold time violation.

Corrective Action	By Date	By Whom
The PER staff member involved with the incident was re-trained on culturing and toxicity testing methods (which is required by the quality management system at PER when incidents such as this occur).	05/02/2024	Stephen Clark, Technical Director at PER
Station locations Conf-009, Conf-010, Conf-011 and Conf-012 sampled on April 30, 2024 (Event 3) will have toxicity test level QA Code of "H" [holding time violation has occurred] added to the <i>C. dubia</i> summary records and a comment with the time out of hold based on the collection time of each sample. The following generic comment will be updated with the specific time: "Organisms in initial test were poured out on Day 1. Testing reinitiated outside of standard 48-hr (X hr, XX min) but within maximum 72-hr hold time."	07/05/2024	Cassandra Lamerdin, DRMP Data Manager
Add a Lab Batch comment that samples were run out of hold time.	07/05/2024	Cassandra Lamerdin, DRMP Data Manager
Laboratory performance will be monitored against the completeness requirements of the QAPP referenced above	Ongoing	Will Hagan, DRMP QA Officer

Deviation Report / Corrective Action Form, page 1 of 4

ACKNOWLEDGED BY:

Pacific EcoRisk Technical Director:	DocuSigned by:  C4D43551B2BC478...	Date:	3/17/2025
	Stephen Clark		

DRMP Program Manager:	DocuSigned by:  9796DD915C44446...	Date:	3/27/2025
	Melissa Turner		

DRMP QA Officer:	DocuSigned by:  A4691C48F968433...	Date:	3/27/2025
	Will Hagan		

CVRWQCB QA Representative*:	Not Applicable	Date:	02/28/2025
	Vacant		

*While these QAPP Deviation Forms will remain unsigned by the Central Valley Water Board due to the vacant QA Representative position, the current form is approved based on CVRWQCB staff scientist review and approval by the Central Valley Regional Water Quality Control Board Executive Officer Patrick Pulupa.

Corrective Action**1.0 Incident Summary**

Date of Incident:	5/2/24
Incident:	Control 2 was terminated early invalidating the test
Nonconformance Source:	Non-Conforming Data
Incident Cause:	Technical Mistake by PER Staff
Incident Investigator:	Kevin Lung, Quality Manager
Corrective Action Taken:	Retest, Performance Evaluation issued, retraining
Corrective Action Implemented by:	Kevin Lung, Quality Manager
Monitoring of Corrective Action:	EK will be monitored for 30 days to assure that the same mistake does not occur.

2.0 Nonconformance Evaluation

On 5/2/24, ER notified the Quality Manager that he had accidentally disposed of the incorrect set of vials containing the adult organisms and had therefore terminated the Control 2 treatment for Delta RMP chronic *Ceriodaphnia dubia* control two (Test ID's #104766-104769, Project #35355). An investigation was performed to determine the cause of the mistake.

3.0 Root Cause**Technical Mistake by PER Staff**

When interviewed, experienced analyst ER noted that he had accidentally terminated the vials containing the adult organisms after solution renewal, and immediately thereafter realized what he had done. He noted that he had been working almost exclusively on a special project for the last few weeks that had him maintaining *Ceriodaphnia* in a slightly different manner than usual, and he had not caught his mistake in time to correct it. He immediately notified the Quality Manager so a retest could be initiated. A technical mistake by PER staff was the contributing factor to this test being invalidated.

4.0 Corrective Action/Implemented by

Corrective Action: How will the situation be corrected? Who will implement?

A retest was immediately initiated (Test ID's #105848-105851) which met TAC, and a Performance Evaluation was issued to ER.

5.0 Preventative Action

Preventative Action: Identify preventative measures that will be implemented. Who will implement?

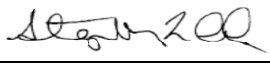
ER was immediately retrained in chronic *Ceriodaphnia* testing and reminded of the importance of ensuring you are not terminating the incorrect set of vials by setting up the workstation with 'new' chambers where adults are transferred in the back and the 'old' chambers that would not be containing the adults in the front and to check a representative test chamber for organisms prior to pouring them out.

6.0 Monitoring of Corrective Action Effectiveness

No further incidents occurred in the following 30 days.

Incident Open Date: 5/2/24 Incident Close Date: 6/2/24

Prepared By: Kevin Lung Quality Manager's Signature: 

Technical Director: Stephen Clark Technical Director's Signature: 

Short-Term Chronic 3-Brood *Ceriodaphnia dubia* Survival & Reproduction Test Data

Client: **Delta RMP** Material: **CONF-009** Test Date: **5/1/24** Mod EPAMH
Project #: **35355** Test ID: **104766** Randomization: **---** Control Water:

Day	pH		D.O.		Cond. (µS/cm)	Ammonia (mg/L)	Temp (°C)	Survival / Reproduction										SIGN-OFF
	New	Old	New	Old				A	B	C	D	E	F	G	H	I	J	
0	7.45		8.6		348	4.00	24.2	0	0	0	0	0	0	0	0	0	Date: 5/1/24 Sol'n Prep: 5:55 New WQ: 0:35 Test Init.: 1:53 Time: 12:40	
1	8.15		8.9		352			0	0	0	0	0	0	0	0	0	Counts: 0 Time: 1:17	
2																	Counts: 0 Time: 1:17	
3																	Counts: 0 Time: 1:17	
4																	Counts: 0 Time: 1:17	
5																	Counts: 0 Time: 1:17	
6																	Counts: 0 Time: 1:17	
7																	Counts: 0 Time: 1:17	
8																	Counts: 0 Time: 1:17	
Lab Water Control								Mean Neonates/Female =										

Day	pH		D.O.		Cond. (µS/cm)	Ammonia (mg/L)	Temp (°C)	Survival / Reproduction										Sample ID
	New	Old	New	Old				A	B	C	D	E	F	G	H	I	J	
0	7.51		8.8		300	<1.00	25.7	0	0	0	0	0	0	0	0	0	70620	
1	8.07		9.2		195												70620	
2																		
3																		
4																		
5																		
6																		
7																		
8																		
								Total=										Mean Neonates/Female =

Short-Term Chronic 3-Brood *Ceriodaphnia dubia* Survival & Reproduction Test Data

Client:	Delta RMP	Material:	CONF-010	Test Date:	5/1/24
Project #:	33355	Test ID:	104767	Randomization:	—
				Control Water:	Mod EPAMH

[illegible]

Short-Term Chronic 3-Brood Ceriodaphnia dubia Survival & Reproduction Test Data

Client: 35355 Delta RMP Test ID: 104768 Material: CONF-011 Test Date: 5/1/24 Mod EPAMH
Project #: 35355 Randomization: Control Water:

Survival / Reproduction										SIGN-OFF										
Day	pH		D.O.		Cond. (µS/cm)	Ammonia (mg/L)	Temp (°C)	A	B	C	D	E	F	G	H	I	J	Date: 5/1/24 Sol'n Prep: 8:55	New WQ: 8:55	Test Init.: 8:55 Time: 12:10
0	7.45		8.6		348	0.00	24.2	0	0	0	0	0	0	0	0	0	0			
1	8.15		8.9		352														New WQ: 8:56 Old WQ: 8:56 Counts: Time: 12:10	
2																			New WQ: 8:56 Old WQ: 8:56 Counts: Time: 12:10	
3																			New WQ: 8:56 Old WQ: 8:56 Counts: Time: 12:10	
4																			New WQ: 8:56 Old WQ: 8:56 Counts: Time: 12:10	
5																			New WQ: 8:56 Old WQ: 8:56 Counts: Time: 12:10	
6																			New WQ: 8:56 Old WQ: 8:56 Counts: Time: 12:10	
7																			New WQ: 8:56 Old WQ: 8:56 Counts: Time: 12:10	
8																			New WQ: 8:56 Old WQ: 8:56 Counts: Time: 12:10	
Total=																		Mean Neonates/Female =		
Survival / Reproduction										Sample ID										
Day	pH		D.O.		Cond. (µS/cm)	Ammonia (mg/L)	Temp (°C)	A	B	C	D	E	F	G	H	I	J			
0	7.47		9.6		153	0.00	24.7	0	0	0	0	0	0	0	0	0	0	70622		
1	7.89		9.3		145													70632		
2																				
3																				
4																				
5																				
6																				
7																				
8																				
Total=																		Mean Neonates/Female =		
100%																				

Short-Term Chronic 3-Brood *Ceriodaphnia dubia* Survival & Reproduction Test Data

Client:	Delta RMP	Material:	CONF-012	Test Date:	5/1/24
Project #:	35355	Randomization:	—	Control Water:	Mod EPAMH
		Test ID:	104769		

Survival / Reproduction															SIGN-OFF					
Day	pH		D.O.		Cond.	Ammonia	Temp	A	B	C	D	E	F	G	H	I	J	Date: 5/1/21	New WQ: 655	Test Init.: 551
0	New	7.45	Old			34.8	<1.00	24.2	0	0	0	0	0	0	0	0	0	Sol'n Prep: 6/1	Old WQ: 655	Time: 12:40
1	New	8.15	Old			35.2												Date: 5/1/21	New WQ: 626	Counts:
2	New		Old															Sol'n Prep: 6/1	Old WQ:	Time:
3	New		Old															Date:	New WQ:	Counts:
4	New		Old															Sol'n Prep:	Old WQ:	Time:
5	New		Old															Date:	New WQ:	Counts:
6	New		Old															Sol'n Prep:	Old WQ:	Time:
7	New		Old															Date:	New WQ:	Counts:
8	New		Old															Sol'n Prep:	Old WQ:	Time:
Total=																	Mean Neonates/Female =			
Day	pH		D.O.		Cond.	Ammonia	Temp	A	B	C	D	E	F	G	H	I	J	Sample ID		
0	New	7.44	Old			16.9	24.1	0	0	0	0	0	0	0	0	0	0	70623		
1	New	7.90	Old			16.1												70623		
2	New		Old																	
3	New		Old																	
4	New		Old																	
5	New		Old																	
6	New		Old																	
7	New		Old																	
8	New		Old																	
Total=																	Mean Neonates/Female =			
100%																				

Day	pH		D.O.		Cond. (µS/cm)	Temp (°C)	Meter ID's										SIGN-OFF
	New	Old	New	Old													
0	HI 26		RD15		2615	88.6											Date: 5/1/24 New WQ: ESS
1	PA124		RD15		2612												Date: 5/1/24 New WQ: R26 Old WQ:
2																	Date: New WQ: Old WQ:
3																	Date: New WQ: Old WQ:
4																	Date: New WQ: Old WQ:
5																	Date: New WQ: Old WQ:
6																	Date: New WQ: Old WQ:
7																	Date: New WQ: Old WQ:
8																	Date: New WQ: Old WQ:

2023-15: Event 3 (WY 2024) Chironomus larvae final ash-free dry weights measured incorrectly; t(0) AFDW not calculated



Deviation Report / Corrective Action Form

Title:	CUP Event 3 (WY24) <i>Chironomus</i> larvae final ash-free dry weights measured incorrectly; t(0) AFDW not calculated
Deviation Number:	2023-15_CUPv1.5_Dev_WY24Event3_PER_Chironomus_MissingInitialWt_Cntr1
Prepared By:	Robert Pangle
Attached:	2023-15_043024_DeltaRMP_NonConformingData_ChironomusT0Weight_PanError.pdf

Applicable Reference(s):

Delta Regional Monitoring Program Quality Assurance Project Plan for Current Use Pesticides in the Sacramento-San Joaquin Delta Version 1.5, February 09, 2024

Complete the following table regarding the major milestones for the relevant deviation. Add additional rows as needed.

	Date	Notes/Description (optional)
Date Deviation Occurred:	05/01/2024	The t(0) final ash-free dry weight (AFDW) measurements associated with DRMP's 10-day chronic water exposure <i>Chironomus dilutus</i> toxicity test for Control Batch 1 (associated with Event 3 monitoring) was measured incorrectly; therefore the t(0) AFDW could not be calculated.
Date DRMP Program Manager was notified:	05/13/2024	Stephen Clark, Technical Director at Pacific EcoRisk (PER), notified (via email) Melissa Turner (DRMP Technical Program Manager) and Selina Cole (Region 5 QA Representative) of a deviation regarding <i>C. dilutus</i> testing in which toxicity tests for Control Batch 1 were measured incorrectly.

Deviation Report / Corrective Action Form, page 2 of 5

	Date	Notes/Description (optional)
Date CVRWQCB QA Representative Notified:	05/13/2024	
Non-conforming Report sent:	05/13/2024	Initial Non-Conforming Report (NCR) sent from Stephen Clark (PER) to MLJ.
Deviation Form sent for Review:	08/28/2024	Stephen Clark (PER Technical Director)
Deviation Form sent for Review:	08/30/2024	Will Hagan (DRMP QA Officer)
Deviation Form Sent for CVRWQCB Review:	10/17/2024	
Approval Letter Received from CVRWQCB:	02/28/2025	The Central Valley Regional Water Quality Control Board's QA Representative position is currently vacant; however, Regional Board staff have reviewed the submitted QAPP Deviations Form and find the corrective actions sufficient. Regional Board approval was provided by Patrick Pulupa (CVRWQCB Executive Officer) for 5 deviations including this one. The approval letter was sent to Debbie Mackey (DRMP President) on February 28, 2025.
Deviation Form Sent for Signatures post approval:	03/17/2025	

Description of Deviation/Change:

The t(0) final ash-free dry weight (AFDW) measurements associated with Delta RMP's 10-day chronic water exposure *Chironomus dilutus* toxicity tests for Control Batch 1 (associated with Event 3 monitoring) were measured incorrectly; therefore the t(0) AFDW could not be calculated. In this incident, the wrong pans were weighed prior to placing pans and organisms in the muffle furnace for ashing. The dry weights of the small pans with the organisms should have been weighed prior to placing the pans into the muffle furnace for two hours at 550°C. However, only the outer pans were weighed prior to placement into the furnace (i.e., outer pans, which are only used for easier identification of pans and organisms). As only the outer pans were weighed before placing everything in the furnace (and not the inner pans that contained the organisms), there was no way to calculate the dry weight of the *C. dilutus* larvae. This deviation affected the Event 3 samples collected on April 29, 2024 from the following stations: 511ULCABR, 544LSAC13, 544LSAC13 (field duplicate), Cent-017, and Cent-018. An investigation was subsequently performed by PER to determine the cause of this error.

Reason for Deviation/Change

The staff member responsible for the incident was interviewed by PER staff and it was confirmed that he had been trained in the relevant laboratory procedures, which included reading the

standard operating procedures (SOPs) that outlined procedures for performing weighing for *C. dilutus* testing. The responsible staff member should have obtained the dry weights of the small pans with the organisms, and then placed the pans into the muffle furnace for two hours at 550°C. However, he weighed the outer pans, which are only used for easier identification of pans (as the sharpie ink used to label pans is removed by the furnace making it difficult to differentiate pans). As the staff member only weighed the outer pans before placing everything in the furnace, and not the inner pans that contained the organisms, there was no way to calculate the dry weight of the *C. dilutus* larvae. The responsible PER staff member noted that he failed to recognize that the pan he was weighing had no organisms or notice that the weights he was recording were more than four times the initial weights, which is anomalous. The responsible staff member also indicated that he did not recall that the SOP specifically states that "Only the inner foil pans will be weighed". The staff member also failed to measure the Quality Assurance (QA) pans, as is required to ensure that weights are consistent. If the staff member had weighed the QA pans and noted that the values were drastically different, it should have been another indication that he was weighing the incorrect pans. Therefore, a technical mistake by PER staff was the cause for the test failing to meet test acceptability criteria.

Impact on Present and Completed Work (discuss potential magnitude of impact and bias of deviation/change, if this can be anticipated, if no impact is expected please indicate this)

The results were reported to the DRMP Program Manager and no retest was scheduled since it is assumed that the initial weights would have met requirements based on the correct age of the organisms. It was reported that the organisms were of the correct age (9 days old) prior to the test initiation and no pupation occurred therefore the lack of an initial weight will not impact test results.

Deviation Report / Corrective Action Form, page 4 of 5

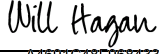
Corrective Action	By Date	By Whom
The responsible PER staff member was issued a Performance Evaluation, and the staff member was retrained on the weighing of test organisms.	05/13/2024	Stephen Clark (PER Technical Director)
Apply MN [Method procedures not followed] to control and samples for Control 1.	07/05/2024	Cassandra Lamerdin (DRMP Data Manager)
Add lab batch comment "MN: Initial weight of LABQA could not be determined due to technician error with weights."	07/05/2024	Cassandra Lamerdin (DRMP Data Manager)
Laboratory performance will be monitored against the completeness requirements of the QAPP referenced above	Ongoing	Will Hagan (DRMP QA Officer)

Deviation Report / Corrective Action Form, page 1 of 5

ACKNOWLEDGED BY:

Pacific EcoRisk Technical Director:	DocuSigned by:  C4D43851B2BC478...	Date:	3/17/2025
	Stephen Clark		

DRMP Program Manager:	DocuSigned by:  9796DD915C44446...	Date:	3/27/2025
	Melissa Turner		

DRMP QA Officer:	DocuSigned by:  A4691C48F968433...	Date:	3/27/2025
	Will Hagan		

CVRWQCB QA Representative*:	Not Applicable	Date:	02/28/2025
	Vacant		

*While these QAPP Deviation Forms will remain unsigned by the Central Valley Water Board due to the vacant QA Representative position, the current form is approved based on CVRWQCB staff scientist review and approval by the Central Valley Regional Water Quality Control Board Executive Officer Patrick Pulupa.

Corrective Action**1.0 Incident Summary**

Date of Incident:	4/30/24
Incident:	No AFDW for
Nonconformance Source:	Non-Conforming Data
Incident Cause:	Technical Mistake by PER Staff
Incident Investigator:	Kevin Lung, Quality Manager
Corrective Action Taken:	Performance Evaluation issued, staff retraining
Corrective Action Implemented by:	Kevin Lung, Quality Manager
Monitoring of Corrective Action:	No further incidents occurred in the following 30 days.

2.0 Nonconformance Evaluation

The T₀ final ash free dry weight measurements associated with Delta RMP's 10-day chronic water exposure *Chironomus dilutus* toxicity tests Control 1 were measured incorrectly, so the t(0) AFDW could not be calculated. An investigation was performed to determine the cause of the incorrectly weighed pans.

3.0 Root Cause**Technical Mistake by PER Staff**

During the investigation, NK was interviewed and confirmed that he had been trained on weights which included reading the SOP which includes how to perform weights for *C. dilutus* testing. He should have performed the dry weights of the small pans with the organisms, and then place the pans into the furnace for two hours at 550°C. However, he weighed the outer pans, which are only used for easier identification of pans as the Sharpie ink used to label pans is removed by the furnace making it difficult to differentiate pans. As he weighed only the outer pans before placing everything in the furnace, and not the inner pans that contained the organisms, there is no way to calculate the dry weight of the *C. dilutus* larvae. NK noted that he failed to recognize that the pan he was weighing had no organisms or notice that the weights he was recording were more than four times the initial weights, which is anomalous. He also indicated that he did not recall that the SOP specifically states that "Only the inner foil pans will be weighed". NK also failed to measure the QA pans, as is required to ensure that weights are consistent. If he had weighed the QA pans and noted that the values were drastically different, it should have been another indication that he was weighing the incorrect pans. Therefore, a technical mistake by PER staff was the cause for the test failing to meet TAC.

4.0 Corrective Action/Implemented by

Corrective Action: How will the situation be corrected? Who will implement?

The results were reported to the client and no retest was scheduled. NK was issued a Performance Evaluation and was retrained on the weighing of test organisms.

5.0 Preventative Action

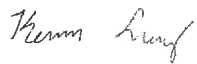
Preventative Action: Identify preventative measures that will be implemented. Who will implement?

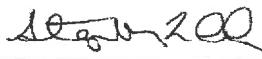
No preventative actions are necessary.

6.0 Monitoring of Corrective Action Effectiveness

No further incidents occurred in the following 30 days.

Incident Open Date: 5/1/24 Incident Close Date: 6/1/24

Prepared By: Kevin Lung Quality Manager's Signature: 

Technical Director: Stephen Clark Technical Director's Signature: 

Pacific EcoRisk

Environmental Consulting and Testing

Weigh Pan Progress Sheet

Client / Project	<u>Delta RMP</u>
Test ID	<u>104770-104774</u>
Organism	<u>C. dilutus</u>
Test Material	<u>T0 Weights</u>
Control Batch	<u>Control 1</u>
Test Start Date	<u>4/30/24</u>
Pan Size Needed	<u>C. dilutus pans</u>
Date Needed By	<u>4/29/24</u>
Termination Date	<u>5/10/24</u>

Pans Numbered	Date <u>4/25/24</u>	Signoff <u>DC</u>
Pans In Furnace@550°C for 2h	Date <u>4/25/24 @ 1010</u>	Signoff <u>DC</u>
Pans Placed In Desiccator	Date <u>4/25/24 @ 1210</u>	Signoff <u>DC</u>
Initial Weights	Date <u>4/29/24</u>	Signoff <u>SVV</u>
Test Termination	Date <u>4/30/24</u>	Signoff <u>RG</u>
Pans in Oven at 100°C	Date <u>4/30/24</u>	Signoff <u>RG</u>
Pans Placed In Desicator	Date _____	Signoff _____
Dry Weights	Date <u>5/1/24</u>	Signoff <u>NK</u>
Pans In Furnace@550°C for 2h	Date <u>05/01/2024 1518</u>	Signoff <u>NK</u>
Pans Placed In Desicator	Date <u>5/1/24 1718</u>	Signoff <u>SVV</u>
Ash-Free Dry Weights	Date <u>05/03/2024</u>	Signoff <u>NK</u>

NK 05/03/2024 Incorrect Box

pans found in desicator on 5/1 - unknown who moved

Pacific EcoRisk

Chironomus dilutus Sediment Toxicity Test Weight Data

Client: Delta RMP
 Test Material: Control 1 - T0 Weights

Initial Wt. Date: _____ Sign-off: _____
 Dry Wt Date: _____ Sign-off: _____

Test ID #: 104770-104774 Project #: 35355
 Test Date: _____

Final Ashed Wt Date: _____ Sign-off: _____

Pan ID	Treatment		Initial Ashed Pan Wt (mg)	Dry Pan + Larvae Wt. (mg)	Ashed Pan + Larvae Wt. (mg)	# of Live Organisms			Mean Dry Weight (mg)	Mean Ash Free Dry Wt. (mg)
	C. dilutus pans					Larvae	Pupae	Adult		
1	Lab Control	A	105.37	405.97	10.72					
2		B	92.08	411.01	17.69					
3		C	97.78	411.24	110.02					
4		D	113.09	418.18	102.55	115.2				
QA 1			95.23		95.21					
Balance ID				BAL04	BAL04					

5/4/24: Weigh out outer pans & subtract values, transcribe onto new sheet

5/4/24
 Outer Pan 1 405.81
 Pan 2 411.14
 Pan 3 411.36
 Pan 4 418.34
 QA: 95.22
 5/4/24
 Inner Pan 1: 106.35
 Ashed pan + larvae wt
 2: 93.38
 3: ~~98.15~~ 98.17
 4: 114.79

*Pacific EcoRisk****Chironomus dilutus* Sediment Toxicity Test Weight Data**

Client: Delta RMP
 Test Material: Control 1 - T0 Weights

Initial Wt. Date: 4/29/24 Sign-off: SVV
 Dry Wt Date: 05/01/2024 Sign-off: MK

Test ID #: 104770-104774 Project #: 35355
 Test Date: 4/30/24

Final Ashed Wt Date: _____ Sign-off: _____

Pan ID	Treatment		Initial Ashed Pan Wt (mg)	Dry Pan + Larvae Wt. (mg)	Ashed Pan + Larvae Wt. (mg)	# of Live Organisms			Mean Dry Weight (mg)	Mean Ash Free Dry Wt. (mg)
	<i>C. dilutus</i> pans					Larvae	Pupae	Adult		
1	Lab Control	A	105.37		^{106.35} 110.72	10	-	-		
2		B	92.08		^{93.51} 117.69	10	-	-		
3		C	97.78		^{98.17} 110.02	10	-	-		
4		D	113.04		^{114.74} 115.20	10	-	-		
QA 1			95.23		^{95.22} 95.21					
Balance ID			BAL04	BAL04	BAL04					

2023-16: CUP Event 3 (WY 2024) Chironomus larvae initial weights greater than 0.012 mg/individual AFDW



Deviation Report / Corrective Action Form

Title:	CUP Event 3 (WY24) <i>Chironomus</i> larvae initial weights greater than 0.012 mg/ individual AFDW
Deviation Number:	2023-16_CUPv1.5_Dev_WY24Event3_PER_Chironomus_InitialWeights_Cntr2
Prepared By:	Robert Pangle
Attached:	2023-16_050124_DeltaRMP_NonConfirmingDataReport_ChironomusT0Weight.pdf

Applicable Reference(s):

Delta Regional Monitoring Program Quality Assurance Project Plan for Current Use Pesticides in the Sacramento-San Joaquin Delta Version 1.5, February 09, 2024

Complete the following table regarding the major milestones for the relevant deviation. Add additional rows as needed.

	Date	Notes/Description (optional)
Date Deviation Occurred:	05/01/2024	Upon completion of the drying process, the initial Ash-Free Dry Weight (AFDW) was recorded for <i>Chironomus dilutus</i> larvae in Control Batch 2 (Event 3 monitoring). The larvae exceeded the Measurement Quality Objective (MQO) of ≤ 0.12 mg/individual AFDW for t(0) weights.
Date DRMP Program Manager was notified:	05/13/2024	Stephen Clark, Technical Director at Pacific EcoRisk (PER), notified (via email) Melissa Turner (DRMP Technical Program Manager) and Selina Cole (Region 5 QA Representative) of a deviation regarding <i>C. dilutus</i> testing that was initiated with organisms above the MQO of ≤ 0.12 mg/individual AFDW.

Deviation Report / Corrective Action Form, page 2 of 4

	Date	Notes/Description (optional)
Date CVRWQCB QA Representative Notified:	05/13/2024	
Non-conforming Report sent:	05/13/2024	Initial Non-Conforming Report (NCR) sent from Stephen Clark (PER) to MLJ.
Deviation Form sent for Review:	08/28/2024	Stephen Clark (PER Technical Director)
Deviation Form sent for Review:	08/30/2024	Will Hagan (DRMP QA Officer)
Deviation Form Sent for CVRWQCB Review:	10/17/2024	
Approval Letter Received from CVRWQCB:	02/28/2025	The Central Valley Regional Water Quality Control Board's QA Representative position is currently vacant; however, Regional Board staff have reviewed the submitted QAPP Deviations Form and find the corrective actions sufficient. Regional Board approval was provided by Patrick Pulupa (CVRWQCB Executive Officer) for 5 deviations including this one. The approval letter was sent to Debbie Mackey (DRMP President) on February 28, 2025.
Deviation Form Sent for Signatures post approval:	03/17/2025	

Description of Deviation/Change:

PER discovered that the t(0) weights of *Chironomus dilutus* were greater than the Surface Water Ambient Monitoring Program (SWAMP) Measurement Quality Objective (MQO) of ≤ 0.12 mg/individual mean ash free dry weight (AFDW) for Control Batch 2 associated with Event 3 sampling. The AFDW was 0.16 mg/individual for the organisms from culture #14298 that was used to start toxicity testing on May 1, 2024. An investigation was performed to determine the cause of the increased weight of the organisms used for test initiation on May 1, 2024. The Event 3 samples collected on April 30, 2024 from the following locations were affected by this deviation: Conf-009, Conf-010, Conf-011, and Conf-012.

Reason for Deviation/Change

Organism Quality: The Control Batch 2 testing was initiated on May 1, 2024 using 10-day old larvae reared from egg cases received on April 20, 2024 from Aquatic BioSystems Inc. (PER's primary vendor). The egg cases were received in good condition at arrival with acceptable water

quality parameters. All egg cases were noted as hatching on April 21, 2024 by an experienced PER analyst. The organisms (larvae) were held in-house and monitored closely until they were 10 days old when they were used for test initiation, which is within the required age range for this test method. The culture was observed to be in "good" condition for the duration of holding. Both the Quality Manager and the Assistant Lab Manager noted that the organisms used for test initiation looked physically larger than is typical for 10-day old organisms maintained by PER from egg cases, but that they appeared to be in excellent health. While larvae raised from egg cases by PER tend to have lower weights than larvae received from the vendor, these organisms were larger and more active than is typically seen from larvae raised from egg cases at PER. The visual observation of large larvae at test initiation is consistent with the larger larval t(0) weight. Organism quality (e.g., large larvae) appears to be a contributing factor to the test exceeding the SWAMP MQO for initial weight.

Feeding: All larvae were fed according to PER's Standard Operating Procedure (SOP) and by experienced analysts throughout the husbandry period, and there was no mistake made during organism husbandry that could account for the weight exceeding the SWAMP MQO. However, the hatch from egg cases can vary from several hundred organisms to over 2000, so it is possible that a lower hatching density occurred for these affected trays, which can cause the organisms to grow larger than usual due to having more food per organism in the culture. It should be noted that the *C. dilutus* larvae are very small (near microscopic), making food adjustments based on the quantity of hatching organisms next to impossible. Therefore, food density cannot be ruled out as a contributing factor to the test exceeding the SWAMP MQO.

Impact on Present and Completed Work (discuss potential magnitude of impact and bias of deviation/change, if this can be anticipated, if no impact is expected please indicate this)

The SWAMP MQO of AFDW ≤ 0.12 mg/individual is presumably targeted to reduce the likelihood of pupation/hatching during the 10-day test. Even though the larval t(0) weight in Control Batch 2 was 0.16 mg/individual, there were no pupating organisms in this control batch. Therefore, it is not expected that the larger larvae at the test start had an effect on the test batch results.

Corrective Action	By Date	By Whom
The Tox Test Level QA Code of TAF [Test organisms exceed the maximum weight requirement at test initiation] will be applied to the affected samples in Control Batch 2.	Prior to Electronic Data Deliverable Submission to MLJ data management team	Stephen Clark, Pacific EcoRisk Technical Director
Laboratory performance will be monitored against the completeness requirements of the QAPP referenced above	Ongoing	Will Hagan (DRMP QA Officer)

Deviation Report / Corrective Action Form, page 1 of 4

ACKNOWLEDGED BY:

Pacific EcoRisk Technical Director:	DocuSigned by: <i>STEPHEN CLARK</i> C4D43551B2BC478...	Date:	3/17/2025
	Stephen Clark		
DRMP Program Manager:	DocuSigned by: <i>Melissa Turner</i> 9796DD915C44446...	Date:	3/27/2025
	Melissa Turner		

DRMP QA Officer:	DocuSigned by: <i>Will Hagan</i> A4691C48F968433...	Date:	3/27/2025
	Will Hagan		

CVRWQCB QA Representative*:	Not Applicable	Date:	02/28/2025
	Vacant		

*While these QAPP Deviation Forms will remain unsigned by the Central Valley Water Board due to the vacant QA Representative position, the current form is approved based on CVRWQCB staff scientist review and approval by the Central Valley Regional Water Quality Control Board Executive Officer Patrick Pulupa

Corrective Action**1.0 Incident Summary**

Date of Incident:	5/1/24
Incident:	t(0) AFDW exceeds SWAMP MQO of ≤ 0.12 mg/individual
Nonconformance Source:	Non-Conforming Data
Incident Cause:	Organism Quality
Incident Investigator:	Kevin Lung, Quality Manager
Corrective Action Taken:	None
Corrective Action Implemented by:	Kevin Lung, Quality Manager
Monitoring of Corrective Action:	None needed

2.0 Nonconformance Evaluation

The T₀ final ash free dry weight measurements associated with Delta RMP's 10-day chronic water exposure *Chironomus dilutus* toxicity tests Control 2 exceeded the SWAMP MQO of >0.12 mg/individual. The mean ash free dry weight was 0.16 mg/individual for the organisms from culture #14298 used to start testing on 5/1. An investigation was performed to determine the cause of the increased weight of the organisms used for test initiation on 5/1.

3.0 Root Cause**Organism Quality**

The batch 2 testing was initiated on 5/1 using 10-day old larvae reared egg cases received on 4/20 from Aquatic BioSystems Inc. (PER's primary vendor). The egg cases were received in good condition at arrival with acceptable water quality parameters. The organisms were held in-house and monitored closely until they were 10 days old when they were used for test initiation, which is within the required age range for this test method. The culture was observed to be in "good" condition for the duration of holding. Both the Quality Manager and the Assistant Lab Manager both noted that the organisms used for test initiation were larger than is typical for 10-day old organisms maintained by PER from egg cases, but that they appeared to be in excellent health. While larvae raised from egg cases by PER tend to have lower weights than larvae received from the vendor, these organisms were larger and more active than is typically seen from larvae raised from egg cases at PER. The visual observation of large larvae at test initiation is consistent with the larger larval t(0) weight. Organism quality (e.g., large larvae) appears to be a contributing factor to the test exceeding the SWAMP MQO.

Feeding

Three egg cases were received on 4/20 and each was placed in a tray to hatch. All egg cases were noted as hatching on 4/21 by EJS, an experienced analyst. As the larvae were fed consistent with PER's SOP and by very experienced analysts throughout the husbandry period, there was no mistake made during organism husbandry that could account for the weight exceeding the SWAMP MQO. However, the hatch from egg cases can vary from several hundred organisms to over 2000, it is possible that a lower hatching density occurred for these trays, which can cause them to grow larger than usual due to having more food per organism in the culture. Note that the larvae are very small (near microscopic), making food adjustments based on the quantity of hatching organisms next to impossible. Therefore, food density cannot be ruled out as a contributing factor to the test exceeding the SWAMP MQO.

4.0 Corrective Action/Implemented by

Corrective Action: How will the situation be corrected? Who will implement?

The results were reported to the client and no retest was scheduled; therefore, no corrective actions are necessary at this time.

5.0 Preventative Action

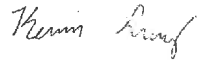
Preventative Action: Identify preventative measures that will be implemented. Who will implement?

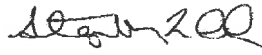
No preventative actions are necessary.

6.0 Monitoring of Corrective Action Effectiveness

Once the needed document was created, no additional monitoring of this incident was required.

Incident Open Date: 5/1/24 Incident Close Date: 6/1/24

Prepared By: Kevin Lung Quality Manager's Signature: 

Technical Director: Stephen Clark Technical Director's Signature: 

1300 Blue Spruce Drive, Suite C
Fort Collins, Colorado 80524



Toll Free: 800/331-5916
Tel: 970/484-5091 Fax: 970/484-2514

ORGANISM HISTORY

DATE: 4/19/2024

SPECIES: *Chironomus dilutus* (formerly *C. tentans*)

AGE: Deposited on 4/19/2023

LIFE STAGE: Second Instar 4/28/2024

HATCH DATE: Emergent date 5/10/2024

BEGAN FEEDING: Immediately

FOOD: *Raphidocelis subcapitata* *, Flake slurry

Water Chemistry Record:

	Current	Range
TEMPERATURE:	<u>24°C</u>	<u>22-25°C</u>
SALINITY/CONDUCTIVITY:	<u>--</u>	<u>--</u>
TOTAL HARDNESS (as CaCO ₃):	<u>189 mg/l</u>	<u>100-190 mg/l</u>
TOTAL ALKALINITY (as CaCO ₃):	<u>100 mg/l</u>	<u>50-100 mg/l</u>
pH:	<u>7.56</u>	<u>7.20-8.30</u>

Comments:

* Formerly known as *Psuedokirschneriella subcapitata* and *Selenastrum capricornutum*

Facility Supervisor

AQUATIC BIOSYSTEMS INC
1300 Blue Spruce Dr Ste. C
Fort Collins, CO 80524 US
(970) 484-5091
info@aquaticbiosystems.com

Packing Slip

BILL TO Pacific EcoRisk Laboratories Attn: Accounts Payable 2250 Cordelia Road Fairfield, CA 94534	SHIP TO Pacific EcoRisk Laboratories 2250 Cordelia Road Fairfield, CA 94534
---	---

INVOICE # 152142
DATE 04/19/2024

SHIP DATE 04/19/2024	SHIP VIA ups	P.O. NUMBER 35355
--------------------------------	------------------------	-----------------------------

ACTIVITY	QTY
CHE Chironomus Egg Cases	2
Freight Shipping Charges	1
Sat.Delivery Extra Saturday Delivery Charge	1

Pacific EcoRisk

Environmental Consulting and Testing

Test Organism Log-in

14298

Organism Log #:

Total # of Orgs:

3 egg cases

Date Received:

04/20/2024

Age/Hatch Date:

04/19/2023-05/10/2024

Species:

Chironomus dilutus (formerly C. tentans)

Initial Mortality:

Source:

Aquatic Biosystems

Culture Water:

Reformulated EPAM-H

Initial Observations upon Receipt:

Temp. (°C)	D.O. (mg/L)	Salinity (ppt) or Cond. (µS/cm)	Observation of Organism Health	Sign-off
20.0	8.9	486.4	Good	NK
Meter ID: 66A	Meter ID: RD12	Meter ID: ECH2		

Shipped Dry?

Yes

No

Husbandry Log Established?

Yes

No

Inform Lab Manager if organisms received are *Chironomus dilutus*
Egg Cases, *Pimephales promelas* (FHM) Embryos, *Atherinops*
affinis (Topsmelt), or Abalone Were they informed?

Yes

No

N/A

If organisms split into multiple husbandry bins, how many?

3

Supplier information sheet must be attached to this sheet!

General Comments:

Pacific EcoRisk

Environmental Consulting and Testing

Test Organism Husbandry Log

Organism Log #: 19298 Total # of Orgs: 3 eggs Initial Mortality: 0
 Date Received: 04/20/2024 Age/Hatch Date: 04/19/2023 - 05/10/2024
 Species: Chironomus tentans Culture Water: Reformulated APAMT
 Source: AQUATIC BIOSYSTEMS Test Type: A C Temp Adj?: Y N
 Client Name: Delta RMPART Term Date: 5/7

Instructions/Comments:

Egg 4/21 way line

Temp Adj

Init.	Date	Temp

Date	Time	Temp (°C)	D.O. (mg/L)	Sal (ppt) or Cond (µS/cm)	Feeding			Mort.	Observations of Organism Health	Water Δ?	Sign-off
					AM	Noon	PM				
4/20/24	1048	20.0	8.9	486.4	—	—	—	0	Good	N	NK
		Meter ID: 66A	Meter ID: RD12	Meter ID: EC12							
4/21/24	1619	22.4	8.8	385	HD	—	egg	0	Hatching Sand added	N	egg
		Meter ID: 88A	Meter ID: RD12	Meter ID: EC13							
4/22/24	1600	22.3	7.8	376	HD	—	egg	0	not obs - very small	N	egg
		Meter ID: 120A	Meter ID: RD12	Meter ID: EC14							
4/23/24	1713	22.6	7.9	369	RG	—	egg	0	not observed	added	egg
		Meter ID: 120A	Meter ID: RD10	Meter ID: EC14							
4/24/24	1000	22.4	7.8	401	HD	—	egg	0	small, good Sand added	N	KL
		Meter ID: 120A	Meter ID: RD12	Meter ID: EC13							
4/25/24	1550	22.4	7.7	407	HD	—	egg	0	small, good	add	egg
		Meter ID: 159A	Meter ID: RD10	Meter ID: EC15							
4/26/24	1600	22.8	8.8	373	HD	—	egg	0	good	Y	egg
		Meter ID: 142A	Meter ID: RD10	Meter ID: EC13							
4/27/24	1447	23.2	7.6	389	KF	—	KF	0	good	N	MH
		Meter ID: 88A	Meter ID: RD12	Meter ID: EC15							
4/28/24	1643	22.3	8.5	349	HD	—	egg	0	good	Y	egg
		Meter ID: 133A	Meter ID: RD13	Meter ID: EC15							
4/29/24	1445	22.3	8.4	368	HD	—	TK	0	good	N	TK
		Meter ID: 142A	Meter ID: RD15	Meter ID: EC15							
4/30/24	1550	22.6	8.4	350	HD	—	TK	0	good	Y	TK
		Meter ID: 66A	Meter ID: RD12	Meter ID: EC12							
5/1/24	1115	22.7	8.1	403	HD	—	5	0	Good	N	HD
		Meter ID: 130A	Meter ID: RD15	Meter ID: EC15							
		Meter ID:	Meter ID:	Meter ID:							
		Meter ID:	Meter ID:	Meter ID:							

7
FO
0
days
old
TERM

Pacific EcoRisk

Environmental Consulting and Testing

Weigh Pan Progress Sheet

Client / Project	<u>Delta RMP</u>
Test ID	<u>104775-104778</u>
Organism	<u>C. dilutus</u>
Test Material	<u>T0 Weights</u>
Control Batch	<u>Control 2</u>
Test Start Date	<u>5/1/24</u>
Pan Size Needed	<u>C. dilutus pans</u>
Date Needed By	<u>4/30/24</u>
Termination Date	<u>5/11/24</u>

Pans Numbered	Date	<u>4/25/24</u>	Signoff	<u>DC</u>
Pans In Furnace@550°C for 2h	Date	<u>4/25/24 @ 1010</u>	Signoff	<u>DC</u>
Pans Placed In Desiccator	Date	<u>4/25/24 @ 1210</u>	Signoff	<u>DC</u>
Initial Weights	Date	<u>4/29/24</u>	Signoff	<u>SVV</u>
Test Termination	Date	<u>5/1/24</u>	Signoff	<u>TK</u>
Pans in Oven at 100°C	Date	<u>5/1/24</u>	Signoff	<u>TK</u>
Pans Placed In Desicator	Date	<u>5/2/24</u>	Signoff	<u>MG</u>
Dry Weights	Date	<u>05/03/2024</u>	Signoff	<u>NK</u>
Pans In Furnace@550°C for 2h	Date	<u>05/03/2024 1030</u>	Signoff	<u>NK</u>
Pans Placed In Desicator	Date	<u>05/03/2024</u>	Signoff	<u>NK</u>
Ash-Free Dry Weights	Date	<u>5/4/24</u>	Signoff	<u>RLB</u>

Pacific EcoRisk***Chironomus dilutus* Sediment Toxicity Test Weight Data**

Client: Delta RMP
 Test Material: Control 2 - T0 Weights
 Test ID #: 104775-104778 Project #: 35355
 Test Date: 5/1/24

Initial Wt. Date: 4/29/24 Sign-off: SVV
 Dry Wt Date: 05/03/2024 Sign-off: NK
 Final Ashed Wt Date: 5/4/24 Sign-off: LB

Pan ID	Treatment		Initial Ashed Pan Wt (mg)	Dry Pan + Larvae Wt. (mg)	Ashed Pan + Larvae Wt. (mg)	# of Live Organisms			Mean Dry Weight (mg)	Mean Ash Free Dry Wt. (mg)
	C. dilutus pans					Larvae	Pupae	Adult		
1	Lab Control	A	93.95	96.73	94.75	10	—	—		
2		B	115.41	117.58	116.51	10	—	—		
3		C	107.30	109.88	108.18	10	—	—		
4		D	98.08	100.58	99.03	10	—	—		
QA 1			106.83	107.02	106.94					
Balance ID			BAL04	BAL04	BAL04					

2023-17: Event 3 (WY 2024) Babcock Missed Hold Time for TKN



Deviation Report / Corrective Action Form

Title:	CUP Event 3 (WY24) Babcock Missed Hold Time for TKNv2
Deviation Number:	2023-17_CUPv1.5_Dev_WY24Event3_Babcock_MissedHoldtime_TKN
Prepared By:	Robert Pangle, MLJ Environmental
Attached:	2023-17_SWRCB Region 5 CAR 25322 TKN.pdf

Applicable Reference(s):

Delta Regional Monitoring Program Quality Assurance Project Plan for Current Use Pesticides in the Sacramento-San Joaquin Delta Version 1.5, February 09, 2024.

Complete the following table regarding the major milestones for the relevant deviation. Add additional rows as needed.

	Date	Notes/Description (optional)
Date Deviation Occurred:	06/11/2024	Babcock Laboratories notified MLJ Environmental (MLJ) and the Central Valley Regional Water Quality Control Board (CVRWQCB) that six samples related to Event 3 (April 29-30, 2024) sampling had experienced a "Blank Spike fail low" during TKN-Dissolved laboratory analysis.
Date DRMP Program Manager Notified:	06/11/2024	Email sent from Allie Guerra (Babcock Laboratories) to Melissa Turner (DRMP Program Manager), Selina Cole (former QA Representative from the CVRWQCB, currently at State Water Resources Control Board [SWRCB]), and Alisha Wenzel (CVRWQCB) regarding the deviation.
Date CVRWQCB QA Representative Notified:	06/14/2024	As May 30, 2024, the CVRWQCB does not have a QA Representative. In the interim, Ryan Brown (CVRWQCB) has been tasked with tracking deviations. Selina Cole (SWRCB) forwarded the 6/11/2024 email notification to Ryan Brown at CVRWQCB.

	Date	Notes/Description (optional)
Deviation Form sent for Review:	01/08/2025	Julieta Machuca, Babcock Laboratories Special Programs Manager (representing Allie Guerra who is on leave until May 2025)
Deviation Form sent for Review:	01/24/2025	Will Hagan, DRMP QA Officer
Corrective Action Report sent:	02/27/2025	Julieta Machuca, Babcock Laboratories Special Programs Manager (representing Allie Guerra who is on leave until May 2025); deviation form was revised based on Corrective Action Report.
Approval Letter Received from CVRWQCB:	--/--/----	The Central Valley Regional Water Quality Control Board's QA Representative position is currently vacant; however, Regional Board staff have reviewed the submitted QAPP Deviations Form and find the corrective actions sufficient. Regional Board approval was provided by Patrick Pulupa (CVRWQCB Executive Officer) for 9 deviations including this one. The approval letter was sent to Debbie Mackey (DRMP President) on Month, DD, 2025.
Deviation Form Sent for Signatures:	--/--/----	

Description of Deviation/Change:

Six samples from the Current Use Pesticide (CUP) Event 3 sampling were part of a batch that had a Laboratory Control Sample analyzed for TKN- Dissolved recovery below the Measurement Quality Objective (MQO) of 90-110% (Percent Recovery (PR) 72%). Samples were collected from the following locations: CENT-018, CONF-011, CONF-012, CONF-009, CONF-010, and CENT-017 (Grab 2), and five of the six samples were reanalyzed five days out of hold time as per the QAPP, whereas the sample for Cent-017 (Grab 2) was not reanalyzed due to laboratory staff oversight. The reanalyzed results were reported by the laboratory and flagged as out of hold time. The original and reanalyzed results for TKN concentrations are presented in **Table 1**.

Table 1. Details associated with the TKN Reanalysis (units mg/L).

Station Code	Sample Date	Sample Type Code	Analysis Date for Original Batch	Analysis Date for Reanalysis Batch	TKN Result Original Batch 4E25001	TKN Result Reanalysis Batch 4E31052	MDL	RL
Cent-018	29/Apr/2024	Grab	5/26/2024	6/2/2024	0.1	0.3	0.09	0.1
Cent-018	29/Apr/2024	Grab (Lab Replicate)	5/26/2024	6/2/2024	0.12	0.246	0.09	0.1
Cent-018	29/Apr/2024	MS1	5/26/2024	6/2/2024	1.1	1.24	0.09	0.1
Cent-018	29/Apr/2024	MS2	5/26/2024	6/2/2024	1.15	1.25	0.09	0.1
Conf-009	30/Apr/2024	Grab	5/26/2024	6/2/2024	ND	0.1	0.09	0.1
Conf-010	30/Apr/2024	Grab	5/26/2024	6/2/2024	0.2	0.2	0.09	0.1
Conf-011	30/Apr/2024	Grab	5/26/2024	6/2/2024	ND	0.1	0.09	0.1
Conf-012	30/Apr/2024	Grab	5/26/2024	6/2/2024	ND	0.1	0.09	0.1
Cent-017	29/Apr/2024	Grab2	5/26/2024	NA*	ND	NA*	0.09	0.1
LABQA	31/May/2024	LCS	5/26/2024	6/2/2024	0.772	0.984	0.09	0.1
LABQA	31/May/2024	Lab Blank	5/26/2024	6/2/2024	ND	ND	0.09	0.1

* Cent-017 Grab2 sample was not reanalyzed (NA) by Babcock due to laboratory staff error; original results not reported due to QC failures.

Reason for Deviation/Change:

Babcock Laboratories sent a Corrective Action Report (CAR) on February 27, 2025, where they determined the original analysis was ran on day 27 (post sampling), which was close to the holding time (28 days). The post sampling delay in the analysis was due to lab processing capacity and instrumentation issues. Upon Babcock's review of the Quality Control (QC) related to the original batch, and identification of the QC failure, Babcock determined that reanalysis should occur even though it would be outside the 28-day holding time. However, Cent-017 (Grab 2) was not marked for reanalysis due to internal procedures not being followed by Babcock staff. The CENT-017 Grab 2 sample is a field duplicate; the CENT-017 (associated environmental sample) was analyzed in a different batch and did not have QC failures or hold time issues.

Impact on Present and Completed Work (discuss potential magnitude of impact and bias of deviation/change, if this can be anticipated, if no impact is expected please indicate this)

The affected data will be flagged with a QA Code for the missed hold time and a Compliance Code of "Qualification" will be assigned. The reanalyzed samples, which were acidified in the field, showed higher results compared to the original analysis. However, the full impact of the five-day hold time violation remains uncertain.

Due to QC issues in the original analysis, and the fact that CENT-017 Grab 2 was not reanalyzed due to laboratory error, the CENT-017 TKN-Dissolved result for the Grab 2 sample is not reported. In addition, the Total Nitrogen (Dissolved) result which includes TKN-Dissolved and Nitrate + Nitrite as N will not be reported for CENT-017 (Grab 2) because it is missing the TKN-Dissolved component.

Corrective Action	By Date	By Whom
Results were flagged with a QA Code of H [A holding time violation has occurred] on the samples out of hold time. A lab batch and lab result comment was added.	August 22, 2024	Cassandra Lamerdin, DRMP Data Manager
Babcock Laboratories indicated in their notification email that the laboratory is currently working towards improving their internal processes with a focus on performing sample re-analyses with a quicker turnaround time.	October 1, 2024	Allie Guera, Babcock Laboratories Special Programs Manager
Corrective action has been taken by Babcock to review all data entry procedures, including re-analysis, with the appropriate employees. In addition, follow-up measures were put in place to catch oversights in this process moving forward. Effectiveness checks to date have shown no recurrences of this error.	February 27, 2025	Juliatt Machuca, Babcock Laboratories Special Programs Manager

ACKNOWLEDGED BY:

Babcock Laboratories Special Programs Manager:		Date:	
	Juliatt Machuca		

DRMP Program Manager:		Date:	
	Melissa Turner		

DRMP QA Officer:		Date:	
	Will Hagan		

CVRWQCB QA Representative*:	Not Applicable	Date:	
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	Vacant		
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*While these QAPP Deviation Forms will remain unsigned by the Central Valley Water Board due to the vacant QA Representative position, the current form is approved based on CVRWQCB staff scientist review and approval by the Central Valley Regional Water Quality Control Board Executive Officer Patrick Pulupa.

2023-18: Events 1 and 3 (WY 2024) PER Missing Required WQ Measures



Deviation Report / Corrective Action Form

Title:	CUP Events 1 and 3 (WY24) PER Missing Required WQ Measures
Deviation Number:	2023-18_CUPv1.5_Dev_WY24Event1_3_PER_MissingRequiredWQ
Prepared By:	Robert Pangle, MLJ Environmental

Applicable Reference(s):

Delta Regional Monitoring Program Quality Assurance Project Plan for Current Use Pesticides in the Sacramento-San Joaquin Delta Version 1.5, February 09, 2024.

Complete the following table regarding the major milestones for the relevant deviation. Add additional rows as needed.

	Date	Notes/Description (optional)
Date Deviation Occurred:	07/08/2024	During the verification of data, Cassandra Lamerdin (DRMP Data Manager) documented two deviations that occurred in the Delta Regional Monitoring Program (DRMP) Current Use Pesticides (CUP) Study during water year 2024 (WY 24). Event 1 (WY24) had one site (511ULCABR) with no final <i>Pimephales promelas</i> dissolved oxygen measure and Event 3 (WY24) had two missing water quality measurements at site Cent-018 (missing dissolved oxygen for <i>Ceriodaphnia dubia</i> and missing conductivity for <i>Selenastrum capricornutum</i>).
Date DRMP Program Manager Notified:	07/09/2024	Notification sent from Cassandra Lamerdin (MLJ Environmental) to Melissa Turner (DRMP Program Manager).
Date CVRWQCB QA Representative Notified:	07/11/2024	As of May 30, 2024, the CVRWQCB does not have a QA Representative. In the interim, Ryan Brown (CVRWQCB) has been tasked with tracking deviations. Ryan Brown and Meredith Howard at the Central Valley Regional Water Quality Control Board (CVRWQCB) were notified of the deviation via email.
Deviation Form sent for Review:	11/22/2024	Stephen Clark, (PER Technical Director)

	Date	Notes/Description (optional)
Deviation Form sent for Review:	11/26/2024	Will Hagan, DRMP QA Officer
Approval Letter Received from CVRWQCB:	--/--/----	The Central Valley Regional Water Quality Control Board's QA Representative position is currently vacant; however, Regional Board staff have reviewed the submitted QAPP Deviations Form and find the corrective actions sufficient. Regional Board approval was provided by Patrick Pulupa (CVRWQCB Executive Officer) for 9 deviations including this one. The approval letter was sent to Debbie Mackey (DRMP President) on Month, DD, 2025.
Deviation Form Sent for Signatures:	--/--/----	

Description of Deviation/Change:

According to the DRMP Current Use Pesticide (CUP) Quality Assurance Project Plan (QAPP v1.5), the toxicity laboratory, Pacific EcoRisk (PER), should take daily renewal water quality measurements for the following constituents: pH, temperature, conductivity, and dissolved oxygen (DO). In addition, for each renewal, one old and one new measurement of DO and pH must be recorded (see Table 8 of the Data Management Standard Operating Procedure, v2.4).

Cassandra Lamerdin (DRMP QA Manager) verified PER results from CUP events and noted that Event 1 (WY24) had one sample from location 511ULCABR with a missing "old" renewal DO and pH measurement associated with *Pimephales promelas* testing from day 1, Event 3 (WY24), and had two missing water quality measurements for samples collected from site Cent-018 (missing "old" renewal DO measurement for *Ceriodaphnia dubia*, and missing final conductivity for *Selenastrum capricornutum*).

Both events were reported with the correct test QA Code of TWN by PER, but a deviation was not initiated at that time. Upon review of Event 3 by MLJ Environmental staff, it was determined that a deviation form should be created and the DRMP Program Manager and CVRWQCB staff were notified at that time.

Reason for Deviation/Change:

Event 1, *P. promelas* toxicity test (511ULCABR): the solutions were renewed without collecting an aliquot for the old water quality (DO and pH) on Day 1 of the test. This was documented by the analyst that made the error, and the laboratory Quality Management team at PER reminded the analyst to pay close attention to collecting the aliquot for old water into the pre-labeled cup before renewing the test solutions.

Event 3, *C. dubia* toxicity test (CENT-018): the Day 2 old water quality cup collected after solution renewals was tipped over before the DO could be measured. The Quality Management team at PER reminded the analyst to follow the process of their training, including securing the old water quality cups in a way that they will not be tipped over.

Event 3, *S. capricornutum* toxicity test (CENT-018): the solutions were collected for the final water quality data. The analyst recorded the temperature, pH, and DO, but failed to record conductivity on the bench sheet prior to pouring out the solution, even though the parameters are

all measured concurrently. The Quality Management team at PER reminded the analyst to follow the process of their training, including double checking the bench sheet to ensure that all water quality parameters have been recorded prior to disposing of the solution.

Impact on Present and Completed Work (discuss potential magnitude of impact and bias of deviation/change, if this can be anticipated, if no impact is expected please indicate this)

The Event 1 renewal “old” water quality measurement for DO and pH result on day 1 will be missing for the *P. promelas* toxicity test for the sample collected at site 511ULCABR. Regarding toxicity, it was noted that no significant toxicity effects occurred in this sample for either the survival or biomass endpoints for *P. promelas*. All other daily DO and pH measurements were collected and recorded for this sample and met method requirements.

Likewise, the Event 3 renewal “old” dissolved oxygen result on day 2 is missing for the *C. dubia* toxicity test for the sample collected at site CENT-018. While it was noted that no significant toxicity effects occurred in this sample in relation to survival, significant toxicity (Sig. Effect = SL) was observed for the *C. dubia* reproduction endpoint for the CENT-018 sample. All other DO values were >4.0 mg/L, *C. dubia* tests rarely exhibit hypoxic conditions, and first broods on the two days following the lack of the D.O. measurement were normal.

Finally, the Event 3 final conductivity measurement is missing for the *S. capricornutum* toxicity test for the sample collected at site CENT-018. Regarding toxicity, it was noted that no significant toxicity effects occurred for the total cell count endpoint. All other conductivity measurements were collected and recorded for this sample and met method requirements.

Corrective Action	By Date	By Whom
A Tox Test Level QA Code of TWN (i.e., required water quality parameters not measured) will be applied to the samples in each test batch.	June 5, 2024	Stephen Clark, (PER Technical Director)
The PER Quality Management team reminded the analysts involved in all three incidents to follow the process of their training and laboratory testing procedures.	December 13, 2023 (Event 1), May 2, 2024 (Event 3, <i>Ceriodaphnia</i>) and May 4, 2024 (Event 3, <i>Selenastrum</i>) August 22, 2024	Stephen Clark, (PER Technical Director)
Laboratory performance will be monitored against the completeness requirements of the QAPP referenced above	Ongoing	Will Hagan (DRMP QA Officer)

ACKNOWLEDGED BY:

PER Technical Director:		Date:	
	Stephen Clark		

DRMP Program Manager:		Date:	
	Melissa Turner		

DRMP QA Officer:		Date:	
	Will Hagan		

CVRWQCB QA Representative*:	Not Applicable	Date:	
	Vacant		

*While these QAPP Deviation Forms will remain unsigned by the Central Valley Water Board due to the vacant QA Representative position, the current form is approved based on CVRWQCB staff scientist review and approval by the Central Valley Regional Water Quality Control Board Executive Officer Patrick Pulupa.

2023-20: Event 5 (WY 2024) PER Missing Required WQ Measures



Deviation Report / Corrective Action Form

Title:	CUP Event 5 (WY24) PER Missing Required WQ Measures
Deviation Number:	2023-20_CUPv1.5_Dev_WY24Event5_PER_MissingRequiredWQ
Prepared By:	Robert Pangle, MLJ Environmental

Applicable Reference(s):

Delta Regional Monitoring Program Quality Assurance Project Plan for Current Use Pesticides in the Sacramento-San Joaquin Delta Version 1.5, February 09, 2024.

Complete the following table regarding the major milestones for the relevant deviation. Add additional rows as needed.

	Date	Notes/Description (optional)
Date Deviation Occurred:	08/21/2024	Stephen Clark at Pacific EcoRisk (PER Technical Director) emailed Cassandra Lamerdin (DRMP Data Manager) and Melissa Turner (DRMP Program Manager) regarding a deviation that occurred during water year 2024 (WY24) Event 5 toxicity testing, in which two incidents occurred where water quality parameters were not measured.
Date DRMP Program Manager Notified:	08/21/2024	
Date CVRWQCB QA Representative Notified:	08/22/2024	As of May 30, 2024, the CVRWQCB does not have a QA Representative. In the interim, Ryan Brown (CVRWQCB) has been tasked with tracking deviations. Ryan Brown at the Central Valley Regional Water Quality Control Board (CVRWQCB) was notified of the deviation via email.
Deviation Form sent for Review:	11/22/2024	Stephen Clark, (PER Technical Director)
Deviation Form sent for Review:	11/26/2024	Will Hagan, DRMP QA Officer

	Date	Notes/Description (optional)
Approval Letter Received from CVRWQCB:	--/--/----	The Central Valley Regional Water Quality Control Board's QA Representative position is currently vacant; however, Regional Board staff have reviewed the submitted QAPP Deviations Form and find the corrective actions sufficient. Regional Board approval was provided by Patrick Pulupa (CVRWQCB Executive Officer) for 9 deviations including this one. The approval letter was sent to Debbie Mackey (DRMP President) on Month, DD, 2025.
Deviation Form Sent for Signatures:	--/--/----	

Description of Deviation/Change:

According to the DRMP Current Use Pesticide (CUP) Quality Assurance Project Plan (QAPP v1.5), the toxicity laboratory, Pacific EcoRisk (PER), should take daily renewal water quality measurements for the following constituents: pH, temperature, conductivity, and dissolved oxygen (DO). In addition, for each renewal, one old and one new measurement of DO and pH must be recorded (see Table 8 of the Data Management Standard Operating Procedure, v2.4). During the WY24 Event 5 testing, the following two incidents occurred where "old" renewal water quality parameters were not measured.

1) The cup with the old water quality solutions for the chronic fathead minnow (*Pimephales promelas*) test (CONF-017) was tipped over prior to the measurement of pH and DO on day 1. This was documented by the analyst that made the error, and the laboratory Quality Management team at PER reminded the analyst to follow the process of their training, including securing the old water quality cups in a manner that will not result in them being tipped over.

2) For the chronic *Ceriodaphnia dubia* test (CONF-026), the solutions were renewed without keeping a replicate cup for the "old" renewal water quality prior to pouring out the other nine replicates and prior to the measurement of pH and DO on day 1. This was documented by the analyst that made the error, and the laboratory Quality Management team at PER reminded the analyst to follow their training which requires collection of a cup from each treatment for old water quality and setting them aside into one area of their workstation prior to disposing of the other nine cups per treatment.

Reason for Deviation/Change:

Both incidents were the result of laboratory technician error, with similar errors previously resulting in deviation form 2023-18_CUPv1.5_Dev_WY24Event1_3_PER_MissingRequiredWQ

In both incidents related to this deviation, it was documented by PER that the analyst made an error and that the laboratory Quality Management team at PER reminded the analyst(s) to follow the process of their training, which included; a) securing the "old" water quality cups in a manner that will not result in them being tipped over, and b) the requirement which requires collection of a cup from each treatment for old water quality and setting them aside into one area of their workstation prior to disposing of the other nine cups per treatment.

Impact on Present and Completed Work (discuss potential magnitude of impact and bias of deviation/change, if this can be anticipated, if no impact is expected please indicate this)

1. The Event 5 “old” renewal pH and DO results for Day 1 will be missing for the *P. promelas* toxicity test for the sample collected at site CONF-017. Regarding toxicity, it was noted that significant toxicity effects (Sig. Effect = SL, both tests) occurred in this sample for both the survival and biomass endpoints for *P. promelas*; however, toxicity was associated with Pathogen Related Mortality. All other daily renewal measurements for pH and DO were taken and met method requirements.
2. Likewise, the Event 5 “old” renewal pH and DO results for Day 1 will be missing for the *C. dubia* toxicity test for the sample collected at site CONF-026. Regarding toxicity, it was noted that no significant toxicity was observed for *C. dubia* survival or reproduction for the CONF-026 sample. All other daily renewal measurements for pH and DO were taken and met method requirements.

Corrective Action	By Date	By Whom
A Tox Test Level QA Code of TWN (i.e., required water quality parameters not measured) will be applied to the samples in the test batch prior to data submission.	October 11, 2024	Cassandra Lamerdin, DRMP Data Manager
The PER Quality Management team reminded the analysts involved in both incidents to follow the process of their training and laboratory testing procedures.	July 24, 2024	Stephen Clark, (PER Technical Director)
Laboratory performance will be monitored against the completeness requirements of the QAPP referenced above	Ongoing	Will Hagan (DRMP QA Officer)

ACKNOWLEDGED BY:

PER Director:		Date:	
	Stephen Clark		

DRMP Program Manager:		Date:	
	Melissa Turner		

DRMP QA Officer:		Date:	
	Will Hagan		

CVRWQCB QA Representative*:	Not Applicable	Date:	
	Vacant		

*While these QAPP Deviation Forms will remain unsigned by the Central Valley Water Board due to the vacant QA Representative position, the current form is approved based on CVRWQCB staff scientist review and approval by the Central Valley Regional Water Quality Control Board Executive Officer Patrick Pulupa.

2023-21: Event 5 (WY 2024) Babcock Missed Hold Time TKN dissolved



Deviation Report / Corrective Action Form

Title:	CUP Event 5 (WY24) Babcock TKN (dis) Missed Hold Time
Deviation Number:	2023-21_CUPv1.5_Dev_WY24Event5_Babcock_TKNDIs_MissedHoldtime
Prepared By:	Robert Pangle, MLJ Environmental

Applicable Reference(s):

Delta Regional Monitoring Program Quality Assurance Project Plan for Current Use Pesticides in the Sacramento-San Joaquin Delta Version 1.5, February 09, 2024.

Complete the following table regarding the major milestones for the relevant deviation. Add additional rows as needed.

	Date	Notes/Description (optional)
Date Deviation Occurred:	08/23/2024	Babcock Laboratories notified MLJ Environmental (MLJ) and the Central Valley Regional Water Quality Control Board (CVRWQCB) on 08/23/2024 that Event 5 sample "CONF-026 2024-07-22 (for TKN Dissolved)", needed to be reanalyzed and would result in a hold time violation.
Date DRMP Program Manager Notified:	08/23/2024	Email notification sent from Allie Guerra (Babcock Laboratories) to Melissa Turner (DRMP Program Manager) and Ryan Brown (CVRWQCB) regarding the deviation.
Date CVRWQCB QA Representative Notified:	08/23/2024	As of May 30, 2024, the CVRWQCB does not have a QA Representative. In the interim, Ryan Brown (CVRWQCB) has been tasked with tracking deviations.
Deviation Form sent for Review:	11/26/2024	Will Hagan, DRMP QA Officer
Deviation Form sent for Review:	12/5/2024	Julieta Machuca, Babcock Laboratories Special Programs Manager (representing Allie Guerra who is on leave until May 2025)
Approval Letter Received from CVRWQCB:	--/--/----	The Central Valley Regional Water Quality Control Board's QA Representative position is currently vacant; however, Regional Board staff have reviewed the

	Date	Notes/Description (optional)
		submitted QAPP Deviations Form and find the corrective actions sufficient. Regional Board approval was provided by Patrick Pulupa (CVRWQCB Executive Officer) for 9 deviations including this one. The approval letter was sent to Debbie Mackey (DRMP President) on Month, DD, 2025.
Deviation Form Sent for Signatures:	--/--/----	

Description of Deviation/Change:

Current Use Pesticide monitoring occurred on July 22 and 23, 2024 for Event 5 of the 2024 water year (WY). Sample DRMP CONF-026 2024-07-22 was collected and sent to Babcock Laboratories for Total Kjeldahl Nitrogen (TKN) analysis. The laboratory determined that they needed to reanalyze the sample which would result in a hold time violation of one day. The reanalysis results for TKN were acceptable for sample "DRMP CONF-026 2024-07-22" but require a flag to indicate a hold time violation.

Reason for Deviation/Change:

The original value for the dissolved TKN result for this sample was 0.4 mg/L, whereas the total TKN result for this sample was 0.2 mg/L. The re-analysis was needed due to the dissolved fraction being greater than the total TKN result. After reanalysis, the dissolved TKN result came back non-detect (ND) and the total TKN came back at the same result of 0.2 mg/L. Subsequently, the dissolved TKN reanalysis for sample "DRMP CONF-026 2024-07-22" occurred past holding time. Babcock Laboratories indicated in their notification email that the laboratory is currently working towards improving their internal processes with a focus on performing sample re-analyses with a quicker turnaround time.

Impact on Present and Completed Work (discuss potential magnitude of impact and bias of deviation/change, if this can be anticipated, if no impact is expected please indicate this)

The affected data will be flagged with a QA Code for the missed hold time and a Compliance Code of "Qualified" will be assigned. The one day hold time violation should have minimal to no impact on the project objectives.

Corrective Action	By Date	By Whom
Results were flagged with a QA Code of H [A holding time violation has occurred] on the samples out of hold time. A lab batch and lab result comment was added.	October 9, 2024	Cassandra Lamerdin, DRMP Data Manager
Babcock Laboratories indicated in their notification email that the laboratory is currently working towards improving their internal processes with a focus on performing sample re-analyses with a quicker turnaround time.	August 23, 2024	Allie Guerra, Babcock Laboratories Special Programs Manager

ACKNOWLEDGED BY:

Babcock Laboratories Special Programs Manager		Date:	
	Juliett Machuca		

DRMP Program Manager:		Date:	
	Melissa Turner		

DRMP QA Officer:		Date:	
	Will Hagan		

CVRWQCB QA Representative*:	Not Applicable	Date:	
	Vacant		

*While these QAPP Deviation Forms will remain unsigned by the Central Valley Water Board due to the vacant QA Representative position, the current form is approved based on CVRWQCB staff scientist review and approval by the Central Valley Regional Water Quality Control Board Executive Officer Patrick Pulupa.

2023-22: Event 4 (WY 2024) Babcock Lab Blank Contamination for Copper



Deviation Report / Corrective Action Form

Title:	CUP Event 4 (WY24) Babcock Lab Blank Contamination for Copper
Deviation Number:	2023-22_CUPv1.5_Dev_WY24Event4_Babcock_LabBlankContamination_CU_v2
Prepared By:	Robert Pangle, MLJ Environmental

Applicable Reference(s):

Delta Regional Monitoring Program Quality Assurance Project Plan for Current Use Pesticides in the Sacramento-San Joaquin Delta Version 1.5, February 09, 2024.

Complete the following table regarding the major milestones for the relevant deviation. Add additional rows as needed.

	Date	Notes/Description (optional)
Date Deviation Occurred:	09/10/2024	Babcock Laboratories notified MLJ Environmental (MLJ) and the Central Valley Regional Water Quality Control Board (CVRWQCB) on 09/10/2024 that there were two method blank samples with detections of dissolved copper (equal to the MDL) run with samples collected during the CUP Event 4.
Date DRMP Program Manager Notified:	09/10/2024	Email notification sent from Allie Guerra (Babcock Laboratories) to Melissa Turner (DRMP Program Manager) and Ryan Brown (CVRWQCB) regarding the deviation.
Date CVRWQCB QA Representative Notified:	09/10/2024	As of May 30, 2024, the CVRWQCB does not have a QA Representative. In the interim, Ryan Brown (CVRWQCB) has been tasked with tracking deviations. Ryan Brown was notified of the deviation via email.
Deviation Form sent for Review:	02/04/2025	Juliett Machuca, Babcock Laboratories Special Programs Manager (representing Allie Guerra who is on leave until May 2025)
Deviation Form sent for Review:	02/04/2025	Will Hagan, DRMP QA Officer

	Date	Notes/Description (optional)
Approval Letter Received from CVRWQCB:	--/--/----	The Central Valley Regional Water Quality Control Board's QA Representative position is currently vacant; however, Regional Board staff have reviewed the submitted QAPP Deviations Form and find the corrective actions sufficient. Regional Board approval was provided by Patrick Pulupa (CVRWQCB Executive Officer) for 9 deviations including this one. The approval letter was sent to Debbie Mackey (DRMP President) on Month, DD, 2025.
Deviation Form Sent for Signatures:	--/--/----	

Description of Deviation/Change:

Ten samples were collected on June 24, 2024, for CUP Event 4 and analyzed for dissolved copper on July 15, 2024. The laboratory noted that both laboratory blanks had concentrations equal to the method detection limit (MDL) (0.3 ug/L) which does not meet the DRMP Measurement Quality Objective (MQO) of <MDL. On July 16, 2024, nine of the 10 samples were redigested and reanalyzed with new laboratory blanks as required per the method. One sample (a field blank, sampleID C4F340-02) was not redigested / reanalyzed due to technician error. The laboratory reported two batches. The original batch (Batch ID Babcock_DRMP_CUP_4G05019_W_M) includes the field blank that was not redigested/reanalyzed plus laboratory QC including a field blank duplicate, a laboratory control sample (LCS), a matrix spike (MS), a matrix spike duplicate (MSD), and two laboratory blank results qualified to indicate that the laboratory blank had contamination (QA Code IP [Analyte detected in field or lab generated blank]); in addition, the field blank and field blank duplicate were also qualified with a CEDEN Quality Assurance code (QA Code FI [Analyte in field sample and associated blank]) since the laboratory blank concentration was not <MDL (Table 1). Finally, the field blank duplicate in the original batch received a QA code of IP. The redigested/reanalyzed batch (Batch ID Babcock_DRMP_CUP_4G11045_W_M) includes the other nine samples collected on June 24, 2024, a MS sample, a MSD sample, an LCS, and two laboratory blanks that were both below the MDL (Table 1).

Table 1. Details associated with WY 2024 Event 4 Laboratory Blank Contamination with Copper (units = µg/L).

Station Code	Sample Date	Sample Type Code	Analysis Date for Original Batch	Analysis Date for Reanalysis Batch	Copper Result Original Batch 4G05019	Copper Result Reanalysis Batch 4G11045	MDL	RL	CEDEN QA Code
544LSAC13	6/24/24	Grab	7/15/2024	7/16/2024	NA ¹	1.3	0.3	0.5	
544LSAC13	6/24/24	Field Blank	7/15/2024	7/16/2024	0.3 ^a	NA ²	0.3	0.5	FI (original batch)
544LSAC13	6/24/24	Field Blank (Lab Rep 2)	7/15/2024	7/16/2024	0.7 ^{a, b}	NA ³	0.3	0.5	FI, IP (original batch)
CONF-014	6/24/24	Grab	7/15/2024	7/16/2024	NA ¹	1.3	0.3	0.5	
CONF-013	6/24/24	Grab	7/15/2024	7/16/2024	NA ¹	1.2	0.3	0.5	
CONF-016	6/24/24	Grab	7/15/2024	7/16/2024	NA ¹	1.3	0.3	0.5	
CENT-019	6/25/24	Grab	7/15/2024	7/16/2024	NA ¹	1.2	0.3	0.5	
CENT-020	6/25/24	Grab	7/15/2024	7/16/2024	NA ¹	1.1	0.3	0.5	
CONF-025	6/25/24	Grab	7/15/2024	7/16/2024	NA ¹	1.3	0.3	0.5	

Station Code	Sample Date	Sample Type Code	Analysis Date for Original Batch	Analysis Date for Reanalysis Batch	Copper Result Original Batch 4G05019	Copper Result Reanalysis Batch 4G11045	MDL	RL	CEDEN QA Code
511ULCABR	6/25/24	Grab	7/15/2024	7/16/2024	NA ¹	2.4	0.3	0.5	
511ULCABR	6/25/24	Grab (Dupl.)	7/15/2024	7/16/2024	NA ¹	2.5	0.3	0.5	
LABQA	NA	Lab Blank 1	7/15/2024	7/16/2024	0.3 ^c	ND	0.3	0.5	IP (original batch)
LABQA	NA	Lab Blank 2	7/15/2024	7/16/2024	0.3 ^c	ND	0.3	0.5	IP (original batch)
LABQA	NA	LCS	7/15/2024	7/16/2024	19.5	19.3	0.3	0.5	
544LSAC13 ^d / CONF-025	6/24/24; 6/25/24	MS	7/15/2024	7/16/2024	18.8 ^a	20.8	0.3	0.5	FI (original batch)
544LSAC13 ^d / CONF-025	6/24/24; 6/25/24	MSD	7/15/2024	7/16/2024	19.7 ^a	20.1	0.3	0.5	FI (original batch)

¹ Original results not reported due to Batch 4G05019 Quality Control (QC) failures.

² 544LSAC13 (BLK; Field Blank) sample was not reanalyzed by Babcock due to a laboratory staff error.

³ Reanalysis Batch 4G11045 did not include re-testing for a duplicate field blank.

^a FI QA code (Analyte in field sample and associated blank) applied to field blank, field blank duplicate, matrix spike, and matrix spike duplicate results for the Original Batch 4G05019 QC samples.

^b IP QA code (Analyte detected in field or lab generated blank) applied to duplicate field blank result for the Original Batch 4G05019 QC samples.

^c Result was DNQ and was flagged with an IP QA code ("Detected Not Quantified" and "Analyte detected in field or lab generated blank", respectively) were applied by Babcock Laboratories to Lab Blank 1 and Lab Blank 2 report results for the Original Batch 4G05019 Lab Blank QC samples.

^d The original batch MS/MSD was performed on the 544LSAC13 Field Blank, and the Reanalysis Batch MS/MSD was performed on the CONF-025 environmental sample.

Reason for Deviation/Change:

The Babcock analyst made an error in not redigesting/reanalyzing the field blank sample. All the other samples were redigested/reanalyzed and are associated with the dissolved copper batch Babcock_DRMP_CUP_4G11045_W_M listed in the final report.

Impact on Present and Completed Work (discuss potential magnitude of impact and bias of deviation/change, if this can be anticipated, if no impact is expected please indicate this)

For the original batch which was not redigested/reanalyzed, the field blank, the field blank duplicate, the matrix spike and the matrix spike duplicate will be flagged with a QA Code of FI [Analyte in field sample and associated blank] and assigned a compliance code of "Qualified". In addition, the field blank duplicate received an QA code of IP [Analyte detected in field or lab generated blank]. Given that the laboratory blank showed contamination it is unclear whether the field blank contamination was generated at the laboratory or the field. No additional corrective action items have been identified.

The redigested/reanalyzed batch which included environmental results had laboratory blanks <MDL meeting the DRMP MQO and therefore these samples were not impacted by the original batch.

Corrective Action	By Date	By Whom
The results in Babcock_DRMP_CUP_4G05019_W_M associated with the method blank contamination will be flagged with a QA Code of FI [Analyte in field sample and associated blank]. A comment will be added to the LabBatch indicating "Copper detected in LabBlank and FieldBlank. (>1/2xRL)"	October 15, 2024	Cassandra Lamerdin, DRMP Data Manager
The field blank laboratory split will be flagged with a QA Code of IP [Analyte detected in field or lab generated blank].	October 15, 2024	Cassandra Lamerdin, DRMP Data Manager

ACKNOWLEDGED BY:

Babcock Laboratories Special Programs Manager		Date:	
	Juliett Machuca		

DRMP Program Manager:		Date:	
	Melissa Turner		

DRMP QA Officer:		Date:	
	Will Hagan		

CVRWQCB QA Representative*:	Not Applicable	Date:	
	Vacant		

*While these QAPP Deviation Forms will remain unsigned by the Central Valley Water Board due to the vacant QA Representative position, the current form is approved based on CVRWQCB staff scientist review and approval by the Central Valley Regional Water Quality Control Board Executive Officer Patrick Pulupa.

2023-23: Event 6 (WY 2024) PER Chironomus; final ash-free dry weights measured incorrectly; No t(0) AFDW for Control Batch 1 and 2



Deviation Report / Corrective Action Form

Title:	CUP Event 6 (WY24) PER Chironomus; final ash-free dry weights measured incorrectly; No t(0) AFDW for Control Batch 1 and 2.
Deviation Number:	2023-23_CUPv1.5_Dev_WY24Event6_PER_Chironomus_InaccurateAFDW_Cntr1&2
Prepared By:	Robert Pangle, MLJ Environmental
Attached:	2023-23_091124_DeltaRMP_NonConformingData_ChironomusT0Weights.pdf

Applicable Reference(s):

Delta Regional Monitoring Program Quality Assurance Project Plan for Current Use Pesticides in the Sacramento-San Joaquin Delta Version 1.5, February 09, 2024

Complete the following table regarding the major milestones for the relevant deviation. Add additional rows as needed.

	Date	Notes/Description (optional)
Date Deviation Occurred:	09/14/2024	The t(0) ash-free dry weight (AFDW) measurements associated with DRMP's 10-day chronic water exposure <i>Chironomus dilutus</i> toxicity test for Control Batch 1 and 2 (associated with water year 2024 (WY24) Event 6 monitoring) were measured incorrectly; therefore, a reliable t(0) AFDW could not be calculated.
Date DRMP Program Manager was notified:	09/19/2024	Stephen Clark, Technical Director at Pacific EcoRisk (PER), notified (via email) Melissa Turner (DRMP Technical Program Manager) and Ryan Brown at the Central Valley Regional Water Quality Control Board (CVRWQCB) regarding the deviation.
Date CVRWQCB QA Representative Notified:	09/19/2024	As of May 30, 2024, the CVRWQCB does not have a QA Representative. In the interim, Ryan Brown (CVRWQCB) has been tasked with tracking deviations. Ryan Brown at the Central Valley Regional Water Quality Control Board (CVRWQCB) was notified of the deviation via email.

	Date	Notes/Description (optional)
Non-conforming Report sent:	09/19/2024	Initial Non-Conforming Report (NCR) sent from Stephen Clark (PER) to MLJ.
Deviation Form sent for Review:	01/16/2025	Stephen Clark (PER Technical Director)
Deviation Form sent for Review:	01/17/2025	Will Hagan (DRMP QA Officer)
Approval Letter Received from CVRWQCB:	--/--/----	The Central Valley Regional Water Quality Control Board's QA Representative position is currently vacant; however, Regional Board staff have reviewed the submitted QAPP Deviations Form and find the corrective actions sufficient. Regional Board approval was provided by Patrick Pulupa (CVRWQCB Executive Officer) for 9 deviations including this one. The approval letter was sent to Debbie Mackey (DRMP President) on Month, DD, 2025.
Deviation Form Sent for Signatures:	--/--/----	

Description of Deviation/Change:

The initial time [t(0)] ash free dry weight (AFDW) measurements associated with the Delta Regional Monitoring Program (DRMP) 10-day chronic water exposure *Chironomus dilutus* toxicity tests were measured incorrectly by PER staff; therefore, the t(0) AFDW could not be used. This error affects eight environmental samples and two controls collected for Water Year 2024 (WY24) Event 6 associated with Control Batch 1 and 2 *C. dilutus* toxicity tests initiated on September 11, 2024, and September 12, 2024, respectively. These t(0) weights of *C. dilutus* are used to determine if organisms meet the Surface Water Ambient Monitoring Program (SWAMP) Measurement Quality Objective (MQO) of ≤ 0.12 mg/individual AFDW. An investigation was carried out to determine the cause of the incorrectly weighed pans.

Reason for Deviation/Change

The reason an investigation was triggered was that there was a negative mean AFDW meaning that the AFDW per pan values were incorrectly measured and/or recorded and should not be used.

It was noted that there was very little change in weight during the three different weight measurements. In one replicate, there was less than a 0.2 mg difference between the "initial ashed pan" weight, the "dry pan + larvae" weight, and the "ashed pan + larvae" weight. Typically, even with the smallest organisms being loaded, there should be a weight gain of at least 0.5 mg (i.e., during development), and more if the organisms used are larger. When the organisms are ashed, there should be a reduction in weight of at least 0.2 mg. However, for the t(0) measurements for both test batches, there was no effective weight loss after the organisms were ashed, and several replicates were even measured as being nominally higher in weight. To determine if there was a furnace malfunction, the pans were placed in the furnace a second time and the remeasured weights did not change sufficiently to produce a noticeable difference in the AFDW. To determine if there was an error in the "initial ashed pan" weights, the pans were opened, dried organisms were scraped off, and the pans were re-weighed, but there was little change in the "initial ashed pan" weights as well.

After interviewing all staff involved with measuring the components of the ash free dry weighing process, including “initial ashed pan weights”, “dry pan+ larvae weights”, and “ashed pan + larvae weights”, PER Quality Management noted that no obvious mistakes were observed or reported by staff regarding the methodology employed during testing. To determine the AFDW of each test organism, the SOP calls for subtracting the weight of the “ashed pan + larvae” (i.e., post muffle furnace combustion) from the weight of the “dry pan + larvae weights” (i.e., pre muffle furnace combustion). This difference (in weight) is then divided by the number of organisms that were ashed in the pan (typically n=10) to calculate the AFDW per organism at toxicity test initiation [i.e., t(0)].

Additionally, PER noted that the organism husbandry cultures were noted as being in good condition, with one test being initiated with larger 10-day old organisms and the other with smaller 7-day old organisms, large enough to produce a weight similar to what has been measured in past tests, which eliminates organisms as being extremely small and thus affecting the AFDW.

In conclusion, PER Quality Management determined that a technical mistake by PER staff was the most likely contributing factor for the negative mean AFDW (resulting in it being unusable), although the specific staff mistake or oversight could not be identified.

Impact on Present and Completed Work (discuss potential magnitude of impact and bias of deviation/change, if this can be anticipated, if no impact is expected please indicate this)

The SWAMP MQO of AFDW ≤ 0.12 mg/individual is presumably targeted to reduce the likelihood of pupation/hatching during the 10-day test. In this instance, the SWAMP MQO could not be assessed. Control Batch 1 had pupation in replicates associated with two of the five samples that were tested (511ULCABR (rep B) and Conf- 024 (rep D)). There was no pupation observed in Control Batch 2. The results were reported to the client and no retest was scheduled.

Corrective Action	By Date	By Whom
PER Staff involved with the incident were retrained on the weighing of test organisms.	September 19, 2024	Stephen Clark (PER Technical Director)
The Tox Test Level QA Code of TMO [Test organisms escaped or are otherwise missing] will be applied to the affected samples in Control 1 that had pupation.	October 18, 2024	Stephen Clark (PER Technical Director)
Apply MN [Method procedures not followed] to control and samples for Control Batch 1 & 2.	November 30, 2024	Cassandra Lamerdin (DRMP Data Manager)
Add lab batch comment "MN: Initial weight of LABQA could not be determined due to technician error with weights."	November 30, 2024	Cassandra Lamerdin (DRMP Data Manager)
Laboratory performance will be monitored against the completeness requirements of the QAPP referenced above	Ongoing	Will Hagan (DRMP QA Officer)

ACKNOWLEDGED BY:

Pacific EcoRisk Technical Director:		Date:	
	Stephen Clark		

DRMP Program Manager:		Date:	
	Melissa Turner		

DRMP QA Officer:		Date:	
	Will Hagan		

CVRWQCB QA Representative*:	Not Applicable	Date:	
	Vacant		

*While these QAPP Deviation Forms will remain unsigned by the Central Valley Water Board due to the vacant QA Representative position, the current form is approved based on CVRWQCB staff scientist review and approval by the Central Valley Regional Water Quality Control Board Executive Officer Patrick Pulupa

***2023-24: Event 6 (WY 2024) PER Hyalella; Missing Required Final WQ
Measurement Ammonia***



Deviation Report / Corrective Action Form

Title:	CUP Event 6 (WY24) PER Hyalella; Missing Required Final WQ Measurement Ammonia
Deviation Number:	2023-24_CUPv1.5_Dev_WY24Event6_PER_Hyalella_MissingFinalAmmoniaWQ
Prepared By:	Robert Pangle, MLJ Environmental
Attached:	2023-24_091524_DeltaRMP_NonConformingData_HyalellaFinalAmmonia.pdf

Applicable Reference(s):

Delta Regional Monitoring Program Quality Assurance Project Plan for Current Use Pesticides in the Sacramento-San Joaquin Delta Version 1.5, February 09, 2024.

Complete the following table regarding the major milestones for the relevant deviation. Add additional rows as needed.

	Date	Notes/Description (optional)
Date Deviation Occurred:	09/15/2024	A deviation occurred for water year 2024 (WY24) Event 6 <i>Hyalella azteca</i> toxicity testing, in which final ammonia was not measured for samples collected from 511ULCABR, CONF-021, CONF-023, CONF-024, and CONF-027, as well as the associated lab control treatment.
Date DRMP Program Manager Notified:	09/19/2024	Notification (via email) was sent from Stephen Clark (PER) to Melissa Turner (DRMP Program Manager) and Ryan Brown at the Central Valley Regional Water Quality Control Board (CVRWQCB) regarding the deviation.
Date CVRWQCB QA Representative Notified:	09/19/2024	As of May 30, 2024, the CVRWQCB does not have a QA Representative. In the interim, Ryan Brown (CVRWQCB) has been tasked with tracking deviations. Ryan Brown at the Central Valley Regional Water Quality Control Board (CVRWQCB) was notified of the deviation via email.

	Date	Notes/Description (optional)
Non-conforming Report sent:	09/19/2024	Initial Non-Conforming Report (NCR) sent from Stephen Clark (PER) to MLJ.
Deviation Form sent for Review:	02/04/2025	Stephen Clark, (PER Technical Director)
Deviation Form sent for Review:	02/10/2025	Will Hagan, DRMP QA Officer
Approval Letter Received from CVRWQCB:	--/--/----	The Central Valley Regional Water Quality Control Board's QA Representative position is currently vacant; however, Regional Board staff have reviewed the submitted QAPP Deviations Form and find the corrective actions sufficient. Regional Board approval was provided by Patrick Pulupa (CVRWQCB Executive Officer) for 9 deviations including this one. The approval letter was sent to Debbie Mackey (DRMP President) on Month, DD, 2025.
Deviation Form Sent for Signatures:	--/--/----	

Description of Deviation/Change:

On September 15, 2024, the Quality Assurance (QA) team at PER noticed that final ammonia was not measured on the terminated acute *H. azteca* test for WY24 Event 6 samples associated with Control Batch 1 and from locations 511ULCABR, CONF-021, CONF-023, CONF-024, CONF-027. An investigation was subsequently carried out to determine the cause of the mistake.

Reason for Deviation/Change:

When interviewed, the PER analyst involved with the incident noted that he had accidentally terminated the test without collecting samples for and measuring the final ammonia, even though he was familiar with the Delta Regional Monitoring Program (DRMP) requirement to measure ammonia at test termination. He admitted he did not read the Study Guidance sheet in front of the data sheets that stated in large letters that ammonia needed to be measured at test initiation and termination. A technical mistake by PER staff was the contributing factor to not achieving the DRMP Measurement Quality Objectives (MQOs) to measure ammonia in final test concentrations.

Impact on Present and Completed Work (discuss potential magnitude of impact and bias of deviation/change, if this can be anticipated, if no impact is expected please indicate this)

On September 15, 2024 there were eight (8) samples collected for toxicity analysis; all final water quality measurements were measured for all test species except *H. azteca*. For *H. azteca*, five (5) of the eight (8) samples do not have final ammonia measurements. The ammonia concentrations at the end of the test for these five samples or the laboratory negative control are unknown, but none of these samples were toxic to *Hyalella*.

Corrective Action	By Date	By Whom
A Tox Test Level QA Code of TWN [required water quality parameter not measured] will be applied to the samples in the test batch prior to data submission.	December 11, 2024	Cassandra Lamerdin, DRMP Data Manager
A performance evaluation was issued to the PER analyst involved with the incident.	October 15, 2024	Stephen Clark (PER Technical Director)
In addition to the Study Guidance sheets that already specify the requirement for PER staff to collect samples for final ammonia analyses, laminated red signs were added to the front of each clipboard that noted the need to measure ammonia at test termination.	September 15, 2024	Stephen Clark (PER Technical Director)
Laboratory performance will be monitored against the completeness requirements of the QAPP referenced above.	Ongoing	Will Hagan (DRMP QA Officer)

ACKNOWLEDGED BY:

Pacific EcoRisk Technical Director:		Date:	
	Stephen Clark		

DRMP Program Manager:		Date:	
	Melissa Turner		

DRMP QA Officer:		Date:	
	Will Hagan		

CVRWQCB QA Representative*:	Not Applicable	Date:	
	Vacant		

*While these QAPP Deviation Forms will remain unsigned by the Central Valley Water Board due to the vacant QA Representative position, the current form is approved based on CVRWQCB staff scientist review and approval by the Central Valley Regional Water Quality Control Board Executive Officer Patrick Pulupa.

2023-25: Event 6 (WY 2024) USGS Field Blank Contamination on DOC



Deviation Report / Corrective Action Form

Title:	CUP Event 6 (WY24) USGS Field Blank Contamination on DOC
Deviation Number:	2023-25_CUPv1.5_Dev_WY24Event6_USGS_EquipmentBlankContam_DOC
Prepared By:	Robert Pangle

Applicable Reference(s):

Delta Regional Monitoring Program Quality Assurance Project Plan for Current Use Pesticides in the Sacramento-San Joaquin Delta Version 1.5, February 09, 2024.

Complete the following table regarding the major milestones for the relevant deviation. Add additional rows as needed.

	Date	Notes/Description (optional)
Date Deviation Occurred:	10/07/2024	Allie Guerra (Babcock Project Manager) emailed USGS, MLJ Environmental, DRMP QA officer, and the CVRWQCB on October 7, 2024, to confirm that potential Dissolved Organic Carbon (DOC) contamination of a field blank sample may have occurred, and that Babcock was initiating a re-analysis of the sample in question to confirm the original results.
Date DRMP Program Manager Notified:	10/07/2024	
Date CVRWQCB QA Representative Notified:	10/07/2024	As of May 30, 2024, the CVRWQCB does not have a QA Representative. In the interim, Ryan Brown (CVRWQCB) has been tasked with tracking deviations. Ryan Brown at the CVRWQCB was notified of the deviation via email.
Deviation Form sent for Review:	02/05/2025	Jim Orlando (USGS Project Manager)
Deviation Form sent for Review:	02/11/2025	Will Hagan (DRMP QA Officer)

	Date	Notes/Description (optional)
Approval Letter Received from CVRWQCB:	--/--/----	The Central Valley Regional Water Quality Control Board's QA Representative position is currently vacant; however, Regional Board staff have reviewed the submitted QAPP Deviations Form and find the corrective actions sufficient. Regional Board approval was provided by Patrick Pulupa (CVRWQCB Executive Officer) for 9 deviations including this one. The approval letter was sent to Debbie Mackey (DRMP President) on <i>Month, DD, 2025</i> .
Deviation Form Sent for Signatures:	--/--/----	

Description of Deviation/Change:

On September 10, 2024, samples were collected by the United States Geological Survey (USGS) for Water Year (WY) 2024 Event 6 Current Use Pesticide (CUP) water quality monitoring. On October 7, 2024, Babcock Laboratories emailed the final laboratory analysis report (Report #C4I2113) for this sampling event to MLJ Environmental. Upon review of the report, Cassandra Lamerdin (MLJ Environmental) emailed Allie Guerra (Babcock Laboratories Project Manager), the United States Geological Survey (USGS), the DRMP QA Officer, and the Central Valley Regional Water Quality Control Board (CVRWQCB) on October 7, 2024, to inquire about potential Dissolved Organic Carbon (DOC) contamination in a field blank sample (DRMP_CONF-027_2024-09-10_BL). The field blank sample analyzed on September 26, 2024, indicated a detection for DOC at 0.46 mg/L (Reporting Limit = 0.30 mg/L). On October 7, 2024, Cassandra Lamerdin requested that Babcock re-analyze this sample to confirm the original results, and she asked both Jim Orlando (USGS Project Manager) and Allie Guerra (Babcock) to confirm that no laboratory transcription errors or abnormalities occurred or were observed in relation to the preparation and handling of the sample in question. Allie Guerra emailed USGS, MLJ Environmental, DRMP QA Officer, and the CVRWQCB on October 7, 2024, to confirm that potential DOC contamination of a field blank sample may have occurred, and that Babcock was initiating a re-analysis of the sample in question to confirm the original results.

In relation to DOC analysis, a total of three 40ml vials for each sample were prepared (filtered and acidified) within 24 hours of sampling (CUP QAPP v1.5). For the re-analysis, Babcock re-tested a second vial (vial B) for the sample in question. The DOC re-analysis for vial B occurred on October 8, 2024, within the 28-day hold time requirement. The DOC result for vial B was a non-detect (ND), in contrast to the first vial (vial A) which returned a detection for DOC at 0.46 mg/L. Babcock then performed an additional re-analysis of both vial A and B on October 18, 2024, which confirmed the original results for both vials. Specifically, in this additional re-analysis, the results indicated the presence of DOC in vial A (at 0.50 mg/L) and a non-detect for DOC in vial B. It should be noted that the second re-analysis confirmation did occur outside of the 28-day hold time.

In summary, out of a total of three 40 ml sample vials prepared for analysis of DOC for the field blank sample "DRMP_CONF-027_2024-09-10_BL", one (vial A) returned a detection of 0.46 mg/L and the second (vial B) returned a non-detect for DOC, and both results were confirmed via re-analysis (although the confirmation re-analysis was performed outside of the 28-day hold time).

Reason for Deviation/Change

In a previous deviation (Deviation # 2022-09), it was confirmed with the USGS that filtration for field blank samples always occurs in the USGS laboratory. In that instance, the USGS agreed to review sample preparation protocols included in the USGS National Field Manual (NFM) to ensure that adequate language is included regarding potential sources of contamination during the filtration process; it was agreed that if language was missing, the sampling procedures manual would be updated and the QAPP amended to include the updated protocol. Following that deviation in WY 2023, USGS confirmed that NFM Chapter A5 Section 5.2.2 included appropriate language which is copied and pasted below:

"Omit the methanol rinse when cleaning the equipment used to collect and process samples for total particulate carbon, particulate organic carbon, and dissolved and suspended organic carbon (TPC, POC, DOC). If equipment (such as a submersible pump) has been in contact with methanol or other organic solvent and must be used for TPC, POC, or DOC sampling, then flush the equipment with copious quantities of sample water before collecting the sample; collection of a blank sample for DOC quality control is recommended."

Further instructions from NFM Chapter A3 Section 3.2.2 incorporated at that point in time also included the following: *"Do not use methanol or other organic solvents on the equipment used to filter samples for organic-carbon analyses."*

It is unclear what procedures or sources may have potentially contributed to the DOC detections in the field blank sample "DRMP_CONF-027_2024-09-10_BL."

Impact on Present and Completed Work (discuss potential magnitude of impact and bias of deviation/change, if this can be anticipated, if no impact is expected please indicate this)

Field blank results for DOC reported by Babcock for sample "DRMP_CONF-027_2024-09-10_BL" will be flagged according to the DRMP Data Management SOP. Accordingly, the 0.46 mg/L detection for DOC will be flagged a QA Code of "IP" (Analyte detected in field or lab generated blank), and a lab result / batch comment will be added stating that a second vial analyzed for this sample was ND and both results were confirmed by reanalysis. The concentrations of DOC in this batch were all above the RL for environmental samples and ranged from 1.6 to 8.0 mg/L. In addition, the second vial (vial B) was ND for DOC. It is not expected that this field blank concentration of DOC will have an impact on the project's overall purpose to characterize status and trends of pesticide concentrations and toxicity in the Delta.

Corrective Action	By Date	By Whom
Affected sample result will be flagged a QA Code of "IP" (Analyte detected in field or lab generated blank), and a lab result / batch comment will be added stating that a second vial analyzed for this sample was ND and both results were confirmed by reanalysis.	December 2, 2024	Cassandra Lamerdin

ACKNOWLEDGED BY:

USGS Project Manager:		Date:	
	Jim Orlando		

DRMP Program Manager:		Date:	
	Melissa Turner		

DRMP QA Officer:		Date:	
	Will Hagan		

CVRWQCB QA Representative*:	Not Applicable	Date:	
	Vacant		

*While these QAPP Deviation Forms will remain unsigned by the Central Valley Water Board due to the vacant QA Representative position, the current form is approved based on CVRWQCB staff scientist review and approval by the Central Valley Regional Water Quality Control Board Executive Officer Patrick Pulupa.