

QAPP Amendment Form

PROGRAM:	Delta Regional Monitoring Program (Delta RMP)
PROJECT:	Current-Use Pesticide (CUP)
PREVIOUS QAPP VERSION:	Version 1.4
AMENDED QAPP VERSION:	Version 1.5
PREPARED BY:	MLJ Environmental
DATE SUBMITTED:	Submitted on February 9, 2024

Title: Amendment to add high-conductivity toxicity testing procedures and update the copper MDL value.

Section of QAPP affected:

This amendment applies to Element 14.1, **Table 14** (Field and laboratory analytical methods), and **Table 16** (Analytical QC).

Reason for Changes:

Element 14 has been updated to include procedures for toxicity testing in samples with high salinity concentrations. Element 14 will include a new table (**Table 17**) that identifies salinity thresholds for each prescribed traditional organism and the alternate species to test with if the upper salinity threshold is exceeded by the sample. A process flowchart for reviewing and processing toxicity reporting when a salinity control is used has been added as the new **Figure 10**. This update will also be reflected in the newest version of the Surface Water Data Management SOP v2.5 that will be submitted with this amendment.

The addition of procedures for high-conductivity controls is based on the overall objectives of the monitoring to better understand the impacts of pesticides on the aquatic ecosystem of the Delta – including separating out the impact of water quality parameters such as salinity on those impacts. The use of alternate species and high-conductivity controls for samples with elevated salinity will allow for a better understanding of whether toxicity is a result of salinity or other contaminants such as pesticides. The alternate species allow for the continued assessment of toxicity across trophic levels using species that are representative of high salinity environments in the Delta. SWAMP MQOs recommend that alternate species be tested when sample conditions are outside of the standard test organism tolerance limits; the previous version of the CUP QAPP (v1.4) does not identify those alternate species. This amendment identifies the alternate test species and other test protocols.

The four-year study design includes the collection of 196 environmental samples each year to be tested for toxicity using five species resulting in 960 toxicity test results (8 sites

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per event x 6 events per year x 4 years x 5 species). It is estimated that two samples per event collected in year 4 will be above the conductivity threshold for three species (36 tests). Based on that estimation, approximately 4% of the toxicity tests performed over the four-year study would be impacted by this recommendation.

Table 14 has been updated to reflect the most recent MDL value for reporting copper.

Table 16 has been updated to clarify the requirements for pesticide laboratory duplicate samples when a matrix spike duplicate is not included in the batch. These requirements are being clarified to address batch completeness issues that occurred during Year 3 monitoring.

Detail of Changes:

Updated tables and text are included below. Yellow-highlighted content indicates an update has been made. Strike out text indicates a deletion of content.

14.1 ADDITIONAL TOXICITY CONTROLS FOR CERIODAPHNIA DUBIA

Toxicity testing according to The SWAMP MQOs describes the recommendation for recommend secondary conductivity controls when an ambient sample specific conductivity is outside of the physiological range of the test organisms. These can be either high-conductivity controls (i.e., synthetic control waters salted up to match the highest conductivity of the ambient samples collected) or low-conductivity controls (i.e., synthetic control waters diluted with de-ionized water to match the lowest conductivity of the ambient samples collected). The high-conductivity controls will include additional alternate species when the sample conductivity concentration exceeds the upper tolerance threshold of the traditional test species. The latter low-conductivity controls will include nutrients (i.e., biotin, sodium selenate, vitamin B₁₂, and thiamine hydrochloride) added to match the target concentrations in culture water. Secondary controls will be tested as outlined below.

Depending on the conductivity range observed in ambient sample waters, additional negative controls may be tested to control for water quality near the organisms' tolerance screening value.

14.1.1 Low-Conductivity Controls

Figure 8 and Figure 9 outline procedures for how low-conductivity controls for *C. dubia* toxicity testing should be handled. Figure 8 is a flowchart depicting what controls the lab should prepare based on the range of conductivity in ambient samples. Figure 9 is a flowchart showing to which control each ambient sample should be compared.

SWAMP guidance states that for *C. dubia* toxicity testing, the sample conductivity should be above 100 $\mu\text{S}/\text{cm}$; however, previous Delta RMP testing found that *C. dubia* reproduction in cultures may be affected by conductivity as high as 127 $\mu\text{S}/\text{cm}$. Therefore, the lab shall run a tolerance control matching the lowest sample conductivity when there are sample(s) with conductivity $\leq 130 \mu\text{S}/\text{cm}$. The laboratory will also have discretion to run a second tolerance control when there are multiple samples with conductivity $\leq 130 \mu\text{S}/\text{cm}$ (i.e., if samples with conductivity $\leq 130 \mu\text{S}/\text{cm}$ have a difference of at least 50 $\mu\text{S}/\text{cm}$).

14.1.2 High-Conductivity Controls

High-conductivity controls may be run for *C. dubia*, *P. promelas*, or *S. capricornutum* tests according to the salinity thresholds outlined in Table 17 and the procedures outlined in Figure 10. When the specific conductivity of a sample exceeds the lower tolerance threshold but does not exceed the upper tolerance threshold of the test species, the test will proceed using the traditional species with the addition of a tolerance control matching the sample conductivity. In these scenarios the laboratory will use the standard control to determine if the test met test acceptability criteria (i.e., that test organisms are

sufficiently healthy) and the high-conductivity control for statistical comparisons to the sample to determine toxic effects beyond that of salinity, and for evaluation against TIE triggers, if the tolerance control also meets acceptability criteria. Otherwise, the sample is compared with the standard laboratory control.

When the specific conductivity of a sample exceeds the upper tolerance threshold of the traditional test species, the alternate test species identified in **Table 17** will be used in lieu of the traditional species. For *C. dubia* samples above the upper threshold, this will result in the elimination of the test because the alternate species, *H. azteca*, is already included in Delta RMP CUP toxicity testing.

Table 17. Conductivity thresholds for toxicity test organisms.

TRADITIONAL SPECIES	LOWER THRESHOLD (μ S/CM); ADD HIGH CONDUCTIVITY CONTROL	UPPER THRESHOLD (μ S/CM); USE ALTERNATE TEST SPECIES	ALTERNATE SPECIES
<i>Selenastrum capricornutum</i>	1,500	3,000	<i>Thalassiosira</i>
<i>Ceriodaphnia dubia</i>	1,900	2,500	<i>Hyaella azteca</i>
<i>Pimephales promelas</i>	1,900	6,000	<i>Menidia beryllina</i>

Figure 10. Flowchart illustrating procedure for selecting the appropriate high-conductivity controls for toxicity testing.

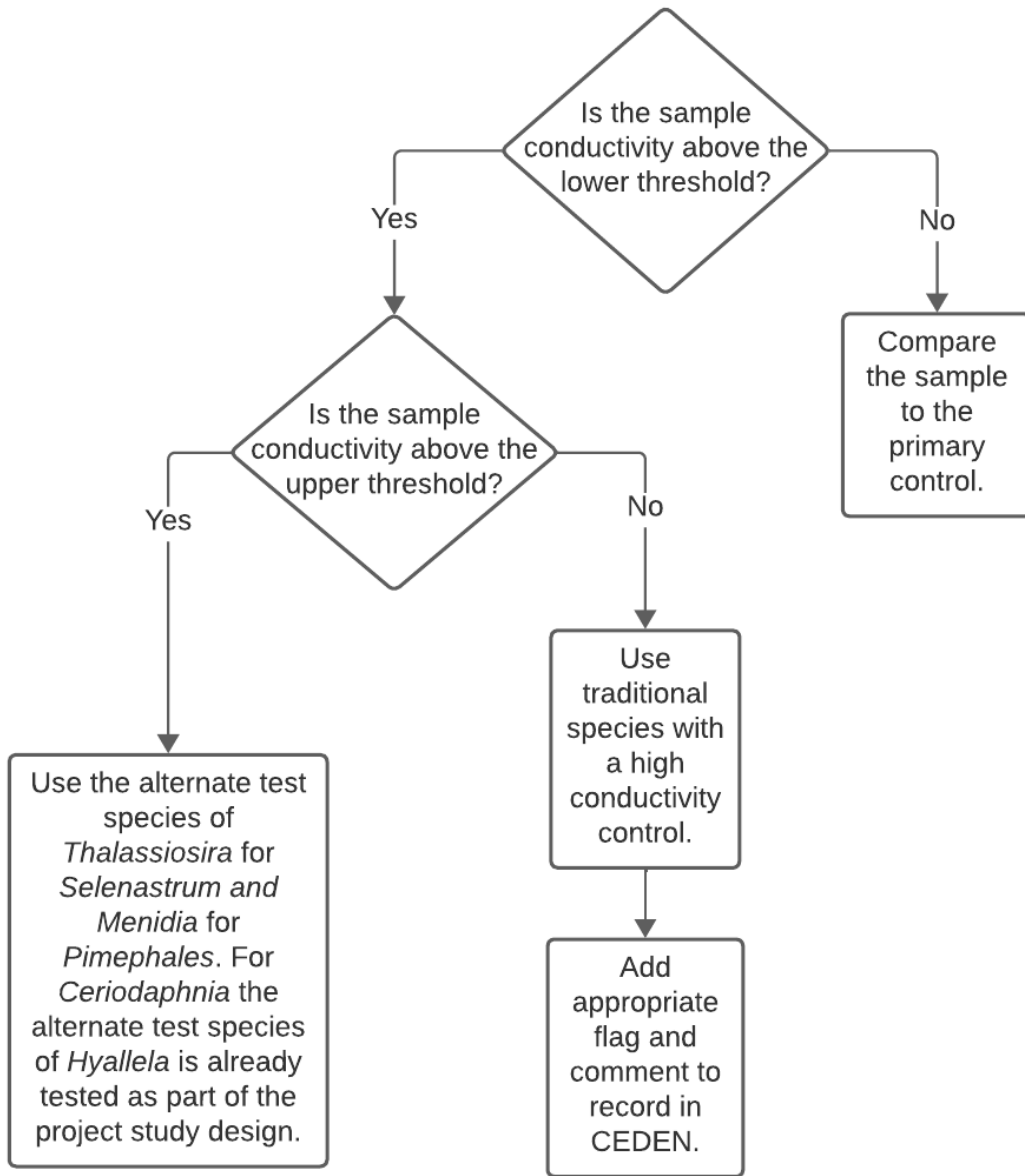


Table 14. Field and laboratory analytical methods

Constituent (CEDEN Analyte Name)	Agency	Method	Analysis	Fraction	Units	MDL	RL	Water Quality Metric	SOP
Ancillary Parameters									
Dissolved Organic Carbon	Babcock	SM 5310 B	Combustion	Dissolved	mg/L	0.19	0.30	--	Appendix III - Organic Carbon by SM 5310 B
Total Organic Carbon	Babcock	SM 5310 B	Combustion	Total	mg/L	0.13	0.70	--	
Nitrate + Nitrite as N	Babcock	EPA 353.2	Colorimetry	Total	mg/L	0.0038	0.010	--	Appendix III - Nitrate + Nitrite by EPA 353.2
TKN	Babcock	EPA 351.2	Colorimetry	Total	mg/L	0.093	0.10	--	Appendix III - TKN by EPA 351.2
TKN	Babcock	EPA 351.2	Colorimetry	Dissolved	mg/L	0.093	0.10	--	
Total Suspended Solids	OCRL	EPA 160.2	--	Particulate	mg/L	2	2	--	NA
Hardness	Babcock	SM 2340 B	Calculation	Dissolved	mg/L	1.0	1.0	--	Appendix III - Cations by EPA 200.7
Calcium	Babcock	EPA 200.7	ICP-AES	Dissolved	mg/L	0.33	1.0	--	
Magnesium	Babcock	EPA 200.7	ICP-AES	Dissolved	mg/L	0.33	1.0	--	
Trace Metals									
Copper	Babcock	EPA 200.8	ICP-MS	Dissolved	µg/L	0.25 0.33	0.50	--	Appendix III - Trace Elements by EPA 200.8

Constituent (CEDEN Analyte Name)	Agency	Method	Analysis	Fraction	Units	MDL	RL	Water Quality Metric	SOP
Aquatic Toxicity									
<i>Ceriodaphnia dubia</i>	PER	EPA 821/R-02-013	Chronic (6-8 day)	Survival	%	--	--	--	Appendix III - Chronic <i>C. dubia</i>
<i>Ceriodaphnia dubia</i>	PER	EPA 821/R-02-013	Chronic (6-8 day)	Young/female	Num/Rep	--	--	--	
<i>Chironomus dilutus</i>	PER	EPA 600/R-99-064M	Chronic (10-day)	Growth (ash-free dry wt/surv indiv)	mg/ind	--	--	--	Appendix III - Chronic <i>C. dilutus</i>
<i>Chironomus dilutus</i>	PER	EPA 600/R-99-064M	Chronic (10-day)	Survival	%	--	--	--	
<i>Hyalella azteca</i>	PER	EPA 821/R-02-012	Acute (96-hour)	Survival	%	--	--	--	Appendix III - Acute <i>H. Azteca</i>
<i>Pimephales promelas</i>	PER	EPA 821/R-02-013	Chronic (7-day)	Biomass (wt/orig indiv)	mg/ind	--	--	--	Appendix III - Chronic <i>P. promelas</i>
<i>Pimephales promelas</i>	PER	EPA 821/R-02-013	Chronic (7-day)	Survival	%	--	--	--	
<i>Selenastrum capricornutum</i>	PER	EPA 821/R-02-013	Chronic (96-hour)	Total Cell Count	cells/mL	--	--	--	Appendix III - Chronic <i>S. capricornutum</i>
Pesticides									
Acetamiprid	OCRL	OCRL-WATER-PEST_06	LC-MS/MS	Particulate	ng/L	2.2	4.4	2,100	Appendix III - SOP - OCRL-

Constituent (CEDEN Analyte Name)	Agency	Method	Analysis	Fraction	Units	MDL	RL	Water Quality Metric	SOP
Acetamiprid	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.0	2.1	2,100	WATER- PEST_06
Acibenzolar-S- methyl	OCRL	OCRL-WATER- PEST_06	GC-MS/MS	Particulate	ng/L	5.6	11.1	26,000	
Acibenzolar-S- methyl	OCRL	OCRL-WATER- PEST_06	GC-MS/MS	Dissolved	ng/L	5.3	10.7	26,000	
Allethrin	OCRL	OCRL-WATER- PEST_06	GC-MS/MS	Particulate	ng/L	3.1	6.2	1,050	
Allethrin	OCRL	OCRL-WATER- PEST_06	GC-MS/MS	Dissolved	ng/L	1.9	3.8	1,050	
Atrazine	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.4	2.7	1,000	
Atrazine	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.4	1.7	1,000	
Azoxystrobin	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	2.2	4.3	44,000	
Azoxystrobin	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	0.8	1.6	44,000	
Benfluralin	OCRL	OCRL-WATER- PEST_06	GC-MS/MS	Particulate	ng/L	3.4	6.8	1,900	
Benfluralin	OCRL	OCRL-WATER- PEST_06	GC-MS/MS	Dissolved	ng/L	1.8	3.6	1,900	
Bentazon	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.3	2.5	4,500,0 00	
Benzobicyclon	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.8	3.5	1,475	
Benzobicyclon	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.2	2.3	1,475	

Constituent (CEDEN Analyte Name)	Agency	Method	Analysis	Fraction	Units	MDL	RL	Water Quality Metric	SOP
Benzovindiflupyr	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.8	3.6	950	
Benzovindiflupyr	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.2	2.3	950	
Bifenthrin	OCRL	OCRL-WATER- PEST_06	GC-MS/MS	Particulate	ng/L	0.8	1.5	0.05	
Bifenthrin	OCRL	OCRL-WATER- PEST_06	GC-MS/MS	Dissolved	ng/L	0.6	1.1	0.05	
Boscalid	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.7	3.5	116,00 0	
Boscalid	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1	2	116,00 0	
Broflanilide	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	2.1	4.2	5,930	
Broflanilide	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.9	3.9	5,930	
Bromuconazole	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.9	3.8	20,000	
Bromuconazole	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.0	1.9	20,000	
Butralin	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.8	3.6	600,00 0	
Butralin	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.2	2.5	600,00 0	
Carbaryl	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.7	3.5	500	
Carbaryl	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	0.8	1.7	500	

Constituent (CEDEN Analyte Name)	Agency	Method	Analysis	Fraction	Units	MDL	RL	Water Quality Metric	SOP
Carbendazim	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	2.5	4.9	830,00 0	
Carbendazim	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.2	2.5	830,00 0	
Carbofuran	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.5	3.1	750	
Carbofuran	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	0.6	1.3	750	
Chlorantranilipr ole	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.8	3.7	3,020	
Chlorantranilipr ole	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	0.7	1.5	3,020	
Chlorfenapyr	OCRL	OCRL-WATER- PEST_06	GC-MS/MS	Particulate	ng/L	2.5	5	2,915	
Chlorfenapyr	OCRL	OCRL-WATER- PEST_06	GC-MS/MS	Dissolved	ng/L	1.8	3.6	2,915	
Chloro-N- (ethoxymethyl)- N-(2-ethyl-6- methylphenyl)ac etamide, 2-	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.7	3.4	1,430	
Chloro-N- (ethoxymethyl)- N-(2-ethyl-6- methylphenyl)ac etamide, 2-	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.5	3.1	1,430	
Chlorothalonil	OCRL	OCRL-WATER- PEST_06	GC-MS/MS	Particulate	ng/L	9	18	600	

Constituent (CEDEN Analyte Name)	Agency	Method	Analysis	Fraction	Units	MDL	RL	Water Quality Metric	SOP
Chlorothalonil	OCRL	OCRL-WATER- PEST_06	GC-MS/MS	Dissolved	ng/L	1.9	3.9	600	
Chlorpyrifos	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.9	3.9	15	
Chlorpyrifos	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.2	2.4	15	
Chlorpyrifos Oxon	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	2	3.9	--	
Chlorpyrifos Oxon	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1	2	--	
Clomazone	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.8	3.6	167,00 0	
Clomazone	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.2	2.4	167,00 0	
Clothianidin	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	2.8	5.7	50	
Clothianidin	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1	2	50	
Clothianidin- Desmethyl	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	2.8	5.6	--	
Clothianidin- Desmethyl	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.8	3.7	--	
Coumaphos	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.8	3.7	33.7	
Coumaphos	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.1	2.3	33.7	
Cyantraniliprole	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	2	3.9	6,560	

Constituent (CEDEN Analyte Name)	Agency	Method	Analysis	Fraction	Units	MDL	RL	Water Quality Metric	SOP
Cyantraniliprole	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.1	2.2	6,560	
Cyazofamid	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.8	3.6	8,700	
Cyazofamid	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	0.8	1.7	8,700	
Cyclaniliprole	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.4	2.9	9,600	
Cyclaniliprole	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.4	2.7	9,600	
Cycloate	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.7	3.4	30,000	
Cycloate	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	0.9	1.8	30,000	
Cyfluthrin, total	OCRL	OCRL-WATER- PEST_06	GC-MS/MS	Particulate	ng/L	1	2.1	0.12	
Cyfluthrin, total	OCRL	OCRL-WATER- PEST_06	GC-MS/MS	Dissolved	ng/L	0.8	1.7	0.12	
Cyhalofop-butyl	OCRL	OCRL-WATER- PEST_06	GC-MS/MS	Particulate	ng/L	2.2	4.4	47,400	
Cyhalofop-butyl	OCRL	OCRL-WATER- PEST_06	GC-MS/MS	Dissolved	ng/L	1.5	3	47,400	
Cyhalothrin, Total	OCRL	OCRL-WATER- PEST_06	GC-MS/MS	Particulate	ng/L	1	1.9	6,200	
Cyhalothrin, Total	OCRL	OCRL-WATER- PEST_06	GC-MS/MS	Dissolved	ng/L	0.6	1.2	6,200	
Cymoxanil	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	2.2	4.3	980	

Constituent (CEDEN Analyte Name)	Agency	Method	Analysis	Fraction	Units	MDL	RL	Water Quality Metric	SOP
Cymoxanil	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	2.3	4.6	980	
Cypermethrin, Total	OCRL	OCRL-WATER- PEST_06	GC-MS/MS	Particulate	ng/L	1.1	2.2	0.05	
Cypermethrin, Total	OCRL	OCRL-WATER- PEST_06	GC-MS/MS	Dissolved	ng/L	0.9	1.8	0.05	
Cyproconazole	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.9	3.8	60,000	
Cyproconazole	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.4	2.8	60,000	
Cyprodinil	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.6	3.2	8,200	
Cyprodinil	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	2.1	4.3	8,200	
Dacthal	OCRL	OCRL-WATER- PEST_06	GC-MS/MS	Particulate	ng/L	1.2	2.5	11,000, 000	
Dacthal	OCRL	OCRL-WATER- PEST_06	GC-MS/MS	Dissolved	ng/L	1.2	2.3	11,000, 000	
DDD(p,p')	OCRL	OCRL-WATER- PEST_06	GC-MS/MS	Particulate	ng/L	1.1	2.3	--	
DDD(p,p')	OCRL	OCRL-WATER- PEST_06	GC-MS/MS	Dissolved	ng/L	1.3	2.7	--	
DDE(p,p')	OCRL	OCRL-WATER- PEST_06	GC-MS/MS	Particulate	ng/L	1.2	2.5	--	
DDE(p,p')	OCRL	OCRL-WATER- PEST_06	GC-MS/MS	Dissolved	ng/L	1.5	3	--	
DDT(p,p')	OCRL	OCRL-WATER- PEST_06	GC-MS/MS	Particulate	ng/L	1.8	3.6	1	

Constituent (CEDEN Analyte Name)	Agency	Method	Analysis	Fraction	Units	MDL	RL	Water Quality Metric	SOP
DDT(p,p')	OCRL	OCRL-WATER- PEST_06	GC-MS/MS	Dissolved	ng/L	1.3	2.7	1	
Deltamethrin	OCRL	OCRL-WATER- PEST_06	GC-MS/MS	Particulate	ng/L	1.4	2.8	0.026	
Deltamethrin	OCRL	OCRL-WATER- PEST_06	GC-MS/MS	Dissolved	ng/L	0.7	1.4	0.026	
Desethyl- Atrazine	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	2.3	4.5	--	
Desethyl- Atrazine	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.6	3.2	--	
Desisopropyl- Atrazine	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	2.8	5.6	--	
Desisopropyl- Atrazine	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.8	3.7	--	
Desnitro- imidacloprid	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	5.4	10.8	--	
Desnitro- imidacloprid	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	3.7	7.4	--	
Desthio- prothioconazole	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.4	2.8	4,800	
Desthio- prothioconazole	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	0.7	1.3	4,800	
Diazinon	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.6	3.3	100	
Diazinon	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.1	2.3	100	
Diazoxon	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	2.1	4.1	--	

Constituent (CEDEN Analyte Name)	Agency	Method	Analysis	Fraction	Units	MDL	RL	Water Quality Metric	SOP
Diazoxon	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	0.7	1.5	--	
Dichloroaniline, 3,5-	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	3	5.9	--	
Dichloroaniline, 3,5-	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	2.8	5.6	--	
Dichlorobenzena mine, 3,4-	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.2	2.5	10,000	
Dichlorobenzena mine, 3,4-	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.2	2.3	10,000	
Dichlorophenyl Urea, 3,4-	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.7	3.5	--	
Dichlorophenyl Urea, 3,4-	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.1	2.1	--	
Dichlorophenyl- 3-methyl Urea, 3,4-	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.3	2.6	7,100	
Dichlorophenyl- 3-methyl Urea, 3,4-	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	0.7	1.5	7,100	
Dichlorvos	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	0.9	1.8	5.8	
Dichlorvos	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.2	2.4	5.8	
Difenoconazole	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.4	2.8	860	
Difenoconazole	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.3	2.7	860	

Constituent (CEDEN Analyte Name)	Agency	Method	Analysis	Fraction	Units	MDL	RL	Water Quality Metric	SOP
Dimethomorph	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	2.8	5.5	107,00 0	
Dimethomorph	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	0.7	1.4	107,00 0	
Dinotefuran	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	3.6	7.3	6,000,0 00	
Dinotefuran	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.8	3.6	6,000,0 00	
Dithiopyr	OCRL	OCRL-WATER- PEST_06	GC-MS/MS	Particulate	ng/L	1.3	2.5	6,110	
Dithiopyr	OCRL	OCRL-WATER- PEST_06	GC-MS/MS	Dissolved	ng/L	1.1	2.3	6,110	
Diuron	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.9	3.8	130	
Diuron	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	0.7	1.4	130	
EPTC	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.4	2.8	40,000	
EPTC	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.3	2.6	40,000	
Esfenvalerate	OCRL	OCRL-WATER- PEST_06	GC-MS/MS	Particulate	ng/L	1.2	2.4	0.0309	
Esfenvalerate	OCRL	OCRL-WATER- PEST_06	GC-MS/MS	Dissolved	ng/L	0.7	1.5	0.0309	
Ethaboxam	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.7	3.5	50,000	
Ethaboxam	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.5	3	50,000	

Constituent (CEDEN Analyte Name)	Agency	Method	Analysis	Fraction	Units	MDL	RL	Water Quality Metric	SOP
Ethalfuralin	OCRL	OCRL-WATER- PEST_06	GC-MS/MS	Particulate	ng/L	3.1	6.2	400	
Ethalfuralin	OCRL	OCRL-WATER- PEST_06	GC-MS/MS	Dissolved	ng/L	2.7	5.4	400	
Ethofenprox	OCRL	OCRL-WATER- PEST_06	GC-MS/MS	Particulate	ng/L	1.7	3.4	170	
Ethofenprox	OCRL	OCRL-WATER- PEST_06	GC-MS/MS	Dissolved	ng/L	1.9	3.8	170	
Etoxazole	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.9	3.7	130	
Etoxazole	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.2	2.4	130	
Famoxadone	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	9	18	85	
Famoxadone	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	6.9	13.9	85	
Fenamidone	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1	1.9	4,700	
Fenamidone	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	0.9	1.7	4,700	
Fenbuconazole	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.5	2.9	27,000	
Fenbuconazole	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	0.9	1.8	27,000	
Fenhexamid	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	10.4	20.8	101,00 0	
Fenhexamid	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	8.9	17.8	101,00 0	

Constituent (CEDEN Analyte Name)	Agency	Method	Analysis	Fraction	Units	MDL	RL	Water Quality Metric	SOP
Fenpropathrin	OCRL	OCRL-WATER- PEST_06	GC-MS/MS	Particulate	ng/L	1.7	3.3	1.5	
Fenpropathrin	OCRL	OCRL-WATER- PEST_06	GC-MS/MS	Dissolved	ng/L	0.8	1.6	1.5	
Fenpyroximate	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	2.2	4.3	110	
Fenpyroximate	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.4	2.8	110	
Fipronil	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.2	2.4	11	
Fipronil	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	0.9	1.8	11	
Fipronil Desulfinyl	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1	2.1	530	
Fipronil Desulfinyl	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1	1.9	530	
Fipronil Desulfinyl Amide	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.2	2.4	--	
Fipronil Desulfinyl Amide	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1	2.1	--	
Fipronil Sulfide	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1	1.9	830	
Fipronil Sulfide	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	0.7	1.5	830	
Fipronil Sulfone	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.2	2.4	220	

Constituent (CEDEN Analyte Name)	Agency	Method	Analysis	Fraction	Units	MDL	RL	Water Quality Metric	SOP
Fipronil Sulfone	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	0.9	1.7	220	
Flonicamid	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	2.5	5	200,00 0	
Flonicamid	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	0.8	1.5	200,00 0	
Florpyrauxifen- Benzyl	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.7	3.3	16.2	
Florpyrauxifen- Benzyl	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.5	3.1	16.2	
Fluazinam	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.4	2.8	690	
Fluazinam	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.2	2.4	690	
Fludioxonil	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.3	2.7	14,000	
Fludioxonil	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.2	2.4	14,000	
Flufenacet	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.9	3.8	2,450	
Flufenacet	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.8	3.7	2,450	
Fluindapyr	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.6	3.2	31,000	
Fluindapyr	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.3	2.7	31,000	
Flumetralin	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.9	3.8	770	

Constituent (CEDEN Analyte Name)	Agency	Method	Analysis	Fraction	Units	MDL	RL	Water Quality Metric	SOP
Flumetralin	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.7	3.4	770	
Fluopicolide	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.9	3.8	151,00 0	
Fluopicolide	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	0.8	1.6	151,00 0	
Fluopyram	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.8	3.6	71,000	
Fluopyram	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	0.8	1.5	71,000	
Fluoxastrobin	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.9	3.8	45,000	
Fluoxastrobin	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.4	2.8	45,000	
Flupyradifurone	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.7	3.3	460,00 0	
Flupyradifurone	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	0.7	1.4	460,00 0	
Fluridone	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	2.1	4.2	480,00 0	
Fluridone	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.5	2.9	480,00 0	
Flutolanil	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.9	3.7	220,00 0	
Flutolanil	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.3	2.6	220,00 0	
Flutriafol	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.9	3.8	300,00 0	

Constituent (CEDEN Analyte Name)	Agency	Method	Analysis	Fraction	Units	MDL	RL	Water Quality Metric	SOP
Flutriafol	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.4	2.7	300,00 0	
Fluxapyroxad	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.7	3.4	120,00 0	
Fluxapyroxad	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	0.7	1.4	120,00 0	
Halauxifen- methyl	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.1	2.2	135	
Halauxifen- methyl	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	0.7	1.4	135	
Hexazinone	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.7	3.3	7,000	
Hexazinone	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	0.6	1.2	7,000	
Hydroxy- Boscalid, 5-	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.7	3.3	--	
Hydroxy- Boscalid, 5-	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	0.8	1.6	--	
Hydroxy- Imidacloprid, 5-	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	2.2	4.4	--	
Hydroxy- Imidacloprid, 5-	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	2	4.1	--	
Imazalil	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.5	3	639,00 0	
Imidacloprid	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1	2.1	10	
Imidacloprid	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1	2	10	

Constituent (CEDEN Analyte Name)	Agency	Method	Analysis	Fraction	Units	MDL	RL	Water Quality Metric	SOP
Imidacloprid olefin	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	5.5	11	--	
Imidacloprid olefin	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	3.3	6.6	--	
Imidacloprid urea	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	2	4	47,400, 000	
Imidacloprid urea	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.4	2.8	47,400, 000	
Indaziflam	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	2	4	100,00 0	
Indaziflam	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.3	2.5	100,00 0	
Indoxacarb	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.7	3.5	75,000	
Indoxacarb	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.6	3.2	75,000	
Ipconazole	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	2.1	4.1	180	
Ipconazole	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.2	2.4	180	
Iprodione	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.9	3.8	120,00 0	
Iprodione	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.2	2.4	120,00 0	
Isofetamid	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.5	3	86,000	
Isofetamid	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.7	3.3	86,000	

Constituent (CEDEN Analyte Name)	Agency	Method	Analysis	Fraction	Units	MDL	RL	Water Quality Metric	SOP
Kresoxim- methyl	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.6	3.1	30,300	
Kresoxim- methyl	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.1	2.2	30,300	
Malaoxon	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.9	3.8	--	
Malaoxon	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	0.7	1.4	--	
Malathion	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	2	4	49	
Malathion	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.1	2.2	49	
Mandestrobin	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.7	3.3	5,400,0 00	
Mandestrobin	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.6	3.2	5,400,0 00	
Mandipropamid	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	2.3	4.6	76,000	
Mandipropamid	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.3	2.6	76,000	
Metalaxyl	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	2.2	4.4	1,200,0 00	
Metalaxyl	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	0.6	1.1	1,200,0 00	
Metalaxyl- hydroxymethyl	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	2	4	--	
Metalaxyl- hydroxymethyl	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.3	2.5	--	

Constituent (CEDEN Analyte Name)	Agency	Method	Analysis	Fraction	Units	MDL	RL	Water Quality Metric	SOP
Metconazole	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	2.1	4.1	2,900	
Metconazole	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1	2.1	2,900	
Methoprene	OCRL	OCRL-WATER- PEST_06	GC-MS/MS	Particulate	ng/L	6.8	13.5	48,000	
Methoprene	OCRL	OCRL-WATER- PEST_06	GC-MS/MS	Dissolved	ng/L	5.8	11.5	48,000	
Methoxyfenozid e	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.5	3.1	3,100	
Methoxyfenozid e	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1	1.9	3,100	
Metolachlor	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.5	3	8,000	
Metolachlor	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.5	3.1	8,000	
Myclobutanil	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	2.1	4.2	122,00 0	
Myclobutanil	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	0.6	1.1	122,00 0	
Naled	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	11.8	23.7	10	
Naled	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	10.6	21.1	10	
Napropamide	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.5	3	350,00 0	

Constituent (CEDEN Analyte Name)	Agency	Method	Analysis	Fraction	Units	MDL	RL	Water Quality Metric	SOP
Napropamide	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1	2	350,00 0	
Nitrapyrin	OCRL	OCRL-WATER- PEST_06	GC-MS/MS	Particulate	ng/L	1.6	3.3	103,00 0	
Nitrapyrin	OCRL	OCRL-WATER- PEST_06	GC-MS/MS	Dissolved	ng/L	1.1	2.1	103,00 0	
Novaluron	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	2.2	4.4	30	
Novaluron	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	2.2	4.5	30	
Oryzalin	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.6	3.2	13,000	
Oryzalin	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.9	3.8	13,000	
Oxadiazon	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.9	3.9	880	
Oxadiazon	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	0.9	1.7	880	
Oxathiapiprolin	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.5	3	140,00 0	
Oxathiapiprolin	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.4	2.7	140,00 0	
Oxyfluorfen	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.3	2.5	330	
Oxyfluorfen	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.4	2.7	330	
Paclobutrazol	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	2.3	4.5	8,000	

Constituent (CEDEN Analyte Name)	Agency	Method	Analysis	Fraction	Units	MDL	RL	Water Quality Metric	SOP
Paclobutrazol	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.1	2.2	8,000	
Pentachloronitro benzene	OCRL	OCRL-WATER- PEST_06	GC-MS/MS	Particulate	ng/L	3	6	6,000	
Pentachloronitro benzene	OCRL	OCRL-WATER- PEST_06	GC-MS/MS	Dissolved	ng/L	1.4	2.9	6,000	
Pendimethalin	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	2	3.9	5,200	
Pendimethalin	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.0	2.0	5,200	
Penoxsulam	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	2.2	4.4	3,000	
Pentachloroanis ole	OCRL	OCRL-WATER- PEST_06	GC-MS/MS	Particulate	ng/L	2.3	4.7	--	
Pentachloroanis ole	OCRL	OCRL-WATER- PEST_06	GC-MS/MS	Dissolved	ng/L	1.1	2.3	--	
Penthiopyrad	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.9	3.9	100,00 0	
Penthiopyrad	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.1	2.2	100,00 0	
Permethrin, Total	OCRL	OCRL-WATER- PEST_06	GC-MS/MS	Particulate	ng/L	0.7	1.5	3.3	
Permethrin, Total	OCRL	OCRL-WATER- PEST_06	GC-MS/MS	Dissolved	ng/L	0.7	1.4	3.3	
Phenothrin	OCRL	OCRL-WATER- PEST_06	GC-MS/MS	Particulate	ng/L	1.3	2.6	470	
Phenothrin	OCRL	OCRL-WATER- PEST_06	GC-MS/MS	Dissolved	ng/L	1.1	2.2	470	

Constituent (CEDEN Analyte Name)	Agency	Method	Analysis	Fraction	Units	MDL	RL	Water Quality Metric	SOP
Phosmet	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.6	3.3	750	
Phosmet	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	0.7	1.4	750	
Picarbutrazox	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.6	3.2	76,000	
Picarbutrazox	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.3	2.7	76,000	
Picoxystrobin	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	2	4.1	1,000	
Picoxystrobin	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.3	2.6	1,000	
Piperonyl Butoxide	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	2.1	4.3	7,800	
Piperonyl Butoxide	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1	2.1	7,800	
Prodiamine	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	2.1	4.1	1,500	
Prodiamine	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.1	2.2	1,500	
Prometon	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.4	2.8	98,000	
Prometon	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.4	2.9	98,000	
Prometryn	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.7	3.3	1,040	
Prometryn	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	0.7	1.4	1,040	

Constituent (CEDEN Analyte Name)	Agency	Method	Analysis	Fraction	Units	MDL	RL	Water Quality Metric	SOP
Propanil	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.9	3.8	2,400	
Propanil	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.2	2.5	2,400	
Propargite	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.7	3.4	7,000	
Propargite	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.2	2.4	7,000	
Propiconazole	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.3	2.6	15,000	
Propiconazole	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	0.7	1.5	15,000	
Propyzamide	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.9	3.7	77,000	
Propyzamide	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1	2.1	77,000	
Pydiflumetofen	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	2	4.1	540,000	
Pydiflumetofen	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1	2.1	540,000	
Pyraclostrobin	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.8	3.6	1,500	
Pyraclostrobin	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.5	2.9	1,500	
Pyridaben	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.3	2.6	44	
Pyridaben	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.4	2.7	44	

Constituent (CEDEN Analyte Name)	Agency	Method	Analysis	Fraction	Units	MDL	RL	Water Quality Metric	SOP
Pyrimethanil	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.1	2.2	20,000	
Pyrimethanil	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.3	2.6	20,000	
Pyriproxyfen	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.7	3.3	15	
Pyriproxyfen	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.1	2.3	15	
Quinoxifen	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.7	3.4	13,000	
Quinoxifen	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.1	2.3	13,000	
Sedaxane	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.5	3	650,00 0	
Sedaxane	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	0.9	1.8	650,00 0	
Simazine	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.4	2.7	4,000	
Simazine	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	0.9	1.7	4,000	
Sulfoxaflor	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	2.4	4.8	300,00 0	
Sulfoxaflor	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.2	2.4	300,00 0	
Tebuconazole	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	2.3	4.6	11,000	
Tebuconazole	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	0.6	1.3	11,000	

Constituent (CEDEN Analyte Name)	Agency	Method	Analysis	Fraction	Units	MDL	RL	Water Quality Metric	SOP
Tebuconazole- tert- Butylhydroxy	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	0.7	1.3	--	
Tebufenozide	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.5	3	29,000	
Tebufenozide	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.2	2.4	29,000	
Tebupirimfos	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	2.3	4.6	11	
Tebupirimfos	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.3	2.5	11	
Tebupirimfos oxon	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.4	2.8	--	
Tebupirimfos oxon	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	0.8	1.5	--	
Tefluthrin	OCRL	OCRL-WATER- PEST_06	GC-MS/MS	Particulate	ng/L	1.2	2.4	4	
Tefluthrin	OCRL	OCRL-WATER- PEST_06	GC-MS/MS	Dissolved	ng/L	0.7	1.3	4	
Tetraconazole	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	2.3	4.6	43,000	
Tetraconazole	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	0.6	1.2	43,000	
Tetramethrin	OCRL	OCRL-WATER- PEST_06	GC-MS/MS	Particulate	ng/L	1.4	2.7	1,850	
Tetramethrin	OCRL	OCRL-WATER- PEST_06	GC-MS/MS	Dissolved	ng/L	0.9	1.9	1,850	

Constituent (CEDEN Analyte Name)	Agency	Method	Analysis	Fraction	Units	MDL	RL	Water Quality Metric	SOP
T-Fluvalinate	OCRL	OCRL-WATER- PEST_06	GC-MS/MS	Particulate	ng/L	1.1	2.1	64	
T-Fluvalinate	OCRL	OCRL-WATER- PEST_06	GC-MS/MS	Dissolved	ng/L	0.8	1.6	64	
Thiabendazole	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	2.2	4.5	42,000	
Thiabendazole	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.7	3.4	42,000	
Thiacloprid	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	2.2	4.3	970	
Thiacloprid	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.2	2.5	970	
Thiamethoxam	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.7	3.5	740	
Thiamethoxam	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	0.5	1.1	740	
Thiamethoxam Degradate (CGA- 355190)	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	2.6	5.2	--	
Thiamethoxam Degradate (CGA- 355190)	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.4	2.9	--	
Thiamethoxam Degradate (NOA-407475)	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	2.7	5.4	--	
Thiobencarb	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	2	4	1,000	

Constituent (CEDEN Analyte Name)	Agency	Method	Analysis	Fraction	Units	MDL	RL	Water Quality Metric	SOP
Thiobencarb	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.2	2.4	1,000	
Tolfenpyrad	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.7	3.5	81.5	
Tolfenpyrad	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.6	3.3	81.5	
Triadimefon	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.7	3.4	52,000	
Triadimefon	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	0.8	1.5	52,000	
Triadimenol	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.1	2.2	20,000	
Triadimenol	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.2	2.4	20,000	
Triallate	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	4.8	9.6	14,000	
Triallate	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	4.7	9.4	14,000	
Tributyl Phosphorotrithio ate, S,S,S-	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.1	2.2	1,000	
Tributyl Phosphorotrithio ate, S,S,S-	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.4	2.8	1,000	
Trifloxystrobin	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	2	4	2,760	
Trifloxystrobin	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.3	2.6	2,760	

Constituent (CEDEN Analyte Name)	Agency	Method	Analysis	Fraction	Units	MDL	RL	Water Quality Metric	SOP
Triflumizole	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.6	3.1	33,000	
Triflumizole	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.3	2.5	33,000	
Trifluralin	OCRL	OCRL-WATER- PEST_06	GC-MS/MS	Particulate	ng/L	2.2	4.3	1,900	
Trifluralin	OCRL	OCRL-WATER- PEST_06	GC-MS/MS	Dissolved	ng/L	1.3	2.6	1,900	
Triticonazole	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.9	3.7	12,000	
Triticonazole	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1.3	2.6	12,000	
Valifenalate	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	2.4	4.8	500,00 0	
Valifenalate	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	1	2	500,00 0	
Zoxamide	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Particulate	ng/L	1.9	3.8	3,480	
Zoxamide	OCRL	OCRL-WATER- PEST_06	LC-MS/MS	Dissolved	ng/L	0.8	1.7	3,480	

Table 16. Analytical QC

Sample Type	Frequency	Acceptable Limits	Corrective Action	Analytical SOP
Ancillary Parameters by EPA 160.2 – TSS				
Laboratory Blank	1 per 20 samples, minimum 1 per batch	< MDL	Determine cause of problem, remove sources of contamination, reanalyze suspect samples or flag all suspect data.	--
Laboratory Duplicate	1 per 20 samples, minimum 1 per batch	RPD<25% (n/a if native concentration of either sample<RL)	Visually inspect the samples to determine if a high RPD could be attributed to sample heterogeneity. Reanalyze suspect samples or qualify the results and document the heterogeneity.	--
Ancillary Parameters				
Laboratory Blanks	1 per 20 samples, minimum 1 per batch	< MDL	Determine cause of problem, remove sources of contamination, reanalyze suspect samples or flag all suspect data.	Appendix III – Organic Carbon by SM 5310 B, TKN by EPA 351.2, Cations by EPA 200.7
Laboratory Control Spike	1 per 20 samples, minimum 1 per batch	80-120%	Determine cause, take appropriate corrective action. Recalibrate and reanalyze all suspect samples or flag all suspect data.	
Matrix Spike	1 per 20 samples, minimum 1 per batch	80-120%	Determine cause, take appropriate corrective action. Recalibrate and reanalyze all suspect samples or flag all suspect data.	
Matrix Spike Duplicate	1 per 20 samples, minimum 1 per batch	RPD ≤ 25	Determine cause, take appropriate corrective action. Recalibrate and reanalyze all suspect samples or flag all suspect data.	

Sample Type	Frequency	Acceptable Limits	Corrective Action	Analytical SOP
Trace Metals				
Laboratory Blanks	1 per 20 samples, minimum 1 per batch	< MDL	Determine cause of problem, remove sources of contamination, reanalyze suspect samples or flag all suspect data.	Appendix III - Trace Elements by EPA 200.8
Laboratory Control Spike	1 per 20 samples, minimum 1 per batch	75-125%	Determine cause, take appropriate corrective action. Recalibrate and reanalyze all suspect samples or flag all suspect data.	
Matrix Spike	1 per 20 samples, minimum 1 per batch	75-125%	Determine cause, take appropriate corrective action. Recalibrate and reanalyze all suspect samples or flag all suspect data.	
Matrix Spike Duplicate	1 per 20 samples, minimum 1 per batch	RPD ≤ 25	Determine cause, take appropriate corrective action. Recalibrate and reanalyze all suspect samples or flag all suspect data.	
Pesticides				
Laboratory Blanks	1 per 20 samples, minimum 1 per batch	< MDL	Determine cause of problem, remove sources of contamination, reanalyze suspect samples or flag all suspect data.	Appendix III - SOP - OCRL-WATER-PEST_06
Laboratory Control Spike	1 per 20 samples, minimum 1 per batch	70-130%	Determine cause, take appropriate corrective action. Recalibrate and reanalyze all suspect samples or flag all suspect data.	
Matrix Spike	1 per 20 samples	70-130%	Determine cause, take appropriate corrective action. Recalibrate and reanalyze all suspect samples or flag all suspect data.	

Sample Type	Frequency	Acceptable Limits	Corrective Action	Analytical SOP
Laboratory Duplicate ¹ Matrix Spike Duplicate	1 per 20 samples minimum 1 per batch	RPD ≤ 25	Determine cause, take appropriate corrective action. Recalibrate and reanalyze all suspect samples or flag all suspect data.	
Surrogates	Every sample	70-130%	Determine cause, take appropriate corrective action. Recalibrate and reanalyze all suspect samples or flag all suspect data.	
Aquatic Toxicity				
Lab Control Sample, <i>Ceriodaphnia dubia</i>	1 per 20 samples, minimum 1 per batch	≥80% mean survival; 60% of the surviving control females must produce 3 broods with an average of 15 or more young per female; all performance criteria outlined in SOP are met.	Determine cause, take appropriate corrective action. Reanalyze all suspect data.	Appendix III – Chronic S. capricornutum Growth, Chronic C. dubia Survival and Reproduction, Chronic P. promelas Survival and Growth, Acute H. azteca Survival, Chronic C. dilutus Survival and Growth
Lab Control Sample, <i>Chironomus dilutus</i>	1 per 20 samples, minimum 1 per batch	≥80% mean survival; an average of ≥0.60 mg ash-free dry weight for surviving individuals; all performance criteria outlined in SOP are met.	Determine cause, take appropriate corrective action. Reanalyze all suspect data.	
Lab Control Sample, <i>Hyalella azteca</i>	1 per 20 samples, minimum 1 per batch	≥90% mean survival in the controls; all performance criteria outlined in SOP are met.	Determine cause, take appropriate corrective action. Reanalyze all suspect data.	
Lab Control Sample, <i>Pimephales promelas</i>	1 per 20 samples, minimum 1 per batch	≥80% mean survival; an average of ≥0.25 mg dry weight for surviving individuals; all performance criteria outlined in SOP are met.	Determine cause, take appropriate corrective action. Reanalyze all suspect data.	

Sample Type	Frequency	Acceptable Limits	Corrective Action	Analytical SOP
Lab Control Sample, <i>Selenastrum capricornutum</i>	1 per 20 samples, minimum 1 per batch	$\geq 200,000$ cells/mL; variability of control replicates $\leq 20\%$; all performance criteria outlined in SOP are met.	Determine cause, take appropriate corrective action. Reanalyze all suspect data.	

¹For the purposes of this project, it is acceptable for the matrix spike duplicate or the laboratory control spike duplicate to represent the lab duplicate as a measure of the precision of the analytical method. Both samples will be evaluated according to the laboratory duplicate MQO for precision provided here.

Approval:

The amendment(s) detailed within this document has been conditionally approved by the Water Board signatories. By signing this amendment, all parties listed below acknowledge and accept these changes. A copy of this document shall be distributed to all parties within the QAPP distribution list and shall be included and/or attached to all distributed copies of the original QAPP.

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