

Process 1 – No EO list and Reference Values are EPA Aquatic Life Acute Benchmark values as provided by CDPR

Step	Sub-step	Interpretation
Monitoring Watershed's Pesticide Use Data		
	<ul style="list-style-type: none"> A. Use 3 years of PUR data to determine candidate pesticides B. Remove anomalies C. Remove zero use pesticides D. Group chemicals with same toxicant in water E. Calculate impurity quantities for listed impurities 	<p>Develop list of pesticides used in 2011-2013; sum applications over the 3 years</p> <p>Data screened previously, no anomalies</p> <p>Only use list of pesticides used in watershed, no zero use pesticides to remove</p> <p>Chemicals grouped if groupings easily determined, e.g. copper</p> <p>Not performed, anticipated to be minor component</p>
Preliminary Ranking based on ratio of pesticide use (lbs) to reference value	<ul style="list-style-type: none"> A. Develop two ratios; aquatic life and human health <ul style="list-style-type: none"> 1. Ranking includes degradates and contaminants 2. Use degradate toxicity when available 3. Note any pesticides with no reference value B. Calculate separate aquatic life and human health ratios 	<p>Ratios calculated for all pesticides using EPA AL Benchmark Values with lower pyrethroid toxicity values as specified in UCD criteria; no degradate toxicity used; only pesticide with no reference value is copper</p> <p>Separate ratios calculated and rankings developed on monthly basis</p>
Evaluate EO list pesticides (excluding zero use pesticides) for each watershed	<ul style="list-style-type: none"> A. Review available monitoring data <ul style="list-style-type: none"> 1. Do sufficient samples exist to characterize the pesticide in the watershed at all vulnerable times (usually 20)? 2. Has sampling occurred in last 5 years? 3. Are concentrations of any detected pesticides $\geq 10\%$ of reference value? 4. If yes to 1 and 2 and no to 3, not a priority B. Use patterns and application methods <ul style="list-style-type: none"> 1. Eliminate pesticides with low risk use patterns; indoors, containerized baits, traps, impregnated materials, spot use C. Environmental Fate <ul style="list-style-type: none"> 1. Eliminate pesticides with hydrolysis half-life < 1 day 2. Eliminate high volatility pesticides if vapor 	<p>Monitoring data for Coalition reviewed to determine number of samples collected in zone</p> <p>Review ESJWQC monitoring history</p> <p>Review product information</p> <p>Review hydrolysis half-life and vapor pressure data for pesticides</p>

	<p style="text-align: center;">pressure > 10⁻⁴</p> <p>D. Site specific or regulatory basis for inclusion/exclusion</p> <ol style="list-style-type: none"> 1. Include: pesticides with drinking water standards, EPA WQC, 303(d) list, trend for increasing use, conditional DPR registration 2. Exclude: regulatory controls in place and demonstrated to prevent pollution, growers terminated or greatly reduced use, no use in watershed <p>E. Chemical analysis method – available analytical methods</p> <p>F. Final selection - prioritize</p> <ol style="list-style-type: none"> 1. Pesticides with detections ≥10% of reference value 2. Pesticides without data 3. DPR “high exposure potential” pesticides <ol style="list-style-type: none"> i. Aquatic ii. Crops with gravity irrigation iii. Crops with top acreage iv. Winter application v. Pre-emergent application 	<p>Review list of drinking water standards, WQC, 303(d) list</p> <p>Review trend data</p> <p>Unavailable for this analysis</p> <p>Evaluate based on criteria below</p>
Monitoring Recommendation		

Process proposed by ESJWQC

Step	Substep	Explanation of ESJ process
Monitoring Watershed's Pesticide Use Data		
	<ul style="list-style-type: none"> A. Use 3 years of PUR data to determine candidate pesticides B. Remove anomalies C. Group chemicals with same toxicant in water 	Develop list of pesticides used in 2011-2013; sum applications over the 3 years Data screened previously, no anomalies Chemicals grouped if groupings easily determined, e.g. copper, 2,4-D, glyphosate, bromoxynil
Preliminary Ranking based on ratio of pesticide use (lbs) to reference value		
	<ul style="list-style-type: none"> A. Develop ratio for most restrictive Water Quality Trigger Limit <ul style="list-style-type: none"> 1. Note any pesticides with no reference value 	Ratios calculated for all pesticides using EPA AL Benchmark Values or lower pyrethroid toxicity values as specified in UCD criteria; only pesticide with no reference value is copper because calculated Trigger Limit is lower than MCL; Separate ratios calculated and rankings developed on monthly basis
Evaluate EO list pesticides (excluding zero use pesticides) for each watershed		
	<ul style="list-style-type: none"> A. Review available monitoring data <ul style="list-style-type: none"> 1. Do sufficient samples exist to characterize the pesticide in the watershed at all vulnerable times (usually 20)? 2. Has sampling occurred in last 5 years? 3. Any exceedance of WQTLs? 4. If yes to 1 and 2 and no to 3, not a priority B. Use patterns and application methods <ul style="list-style-type: none"> 1. Eliminate pesticides with low risk use patterns; indoors, containerized baits, traps, impregnated materials, spot use C. Environmental Fate <ul style="list-style-type: none"> 1. Eliminate pesticides with hydrolysis half-life < 1 day 2. Eliminate high volatility pesticides if vapor pressure > 10⁻⁴ 	Monitoring data for Coalition reviewed to determine number of samples collected in zone Review ESJWQC monitoring history Review ESJWQC monitoring history Review product information Review hydrolysis half-life, vapor pressure and K _{oc} data for pesticides

	<p>3. Review K_{oc} data for probability of water column occurrence</p> <p>D. Site specific or regulatory basis for inclusion/exclusion</p> <ol style="list-style-type: none"> 1. Include: pesticides with drinking water standards, EPA WQC, 303(d) list, trend for increasing use, conditional DPR registration 2. Exclude: regulatory controls in place and demonstrated to prevent pollution, growers terminated or greatly reduced use, no use in watershed <p>E. Chemical analysis method – available analytical methods</p> <p>F. Final selection – prioritize</p> <ol style="list-style-type: none"> 1. Remove fumigants (first step) 2. Remove pesticides with $K_{oc} > 10,000$ except pyrethroids 3. Remove pesticides with applications < 10 pounds AI/year 4. Remove pesticides with sufficient sampling record in the zone (> 20 samples) of no exceedances within last 5 years 5. Remove pesticides with ratio < .1 6. Negotiate final list based on total number of pesticides, analytical method, member applications 	<p>Review list of drinking water standards, WQC, 303(d) list</p> <p>Review trend data</p> <p>Unavailable for this analysis</p> <p>Evaluation criteria</p>
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