SAN FRANCISCO BAYKEEPER®

September 14, 2016

Mike Napolitano
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Transmitted via Electronic Mail

Re: Draft Environmental Impact Report for Discharges from Vineyard Properties in the Napa River and Sonoma Creek Watersheds

Dear Mr. Napolitano,

On behalf of San Francisco Baykeeper ("Baykeeper") and our more than five thousand members and supporters who use and enjoy the environmental, recreational, and aesthetic qualities of San Francisco Bay and its surrounding tributaries and ecosystems, including the Napa River and Sonoma Creek, I respectfully submit these comments for consideration by the California Regional Water Quality Control Board, San Francisco Bay Region ("Regional Board") regarding the Draft Environmental Impact Report ("EIR") for General Waste Discharge Requirements for Vineyard Properties Located in the Napa River and Sonoma Creek Watersheds ("General Permit" or "Project"). The General Permit's primary objective is to implement the Total Daily Maximum Loads ("TMDLs") for sediment for the Napa River and Sonoma Creek. If the General Permit only authorized sediment discharges from vineyard properties, then the EIR's analyses appear to be relatively complete. However, in addition to sediment discharges, the General Permit also authorizes pesticide and nutrient discharges from vineyard properties. These secondary objectives must be explicitly recognized and fully analyzed in the EIR.

The basic purposes of the California Environmental Quality Act ("CEQA") are "to inform the public and decision makers of the consequences of environmental decisions before those decisions are made," and "to protect and maintain California's environmental quality. (*Woodward Park Homeowners Assn., Inc. v. City of Fresno* (2007) 150 Cal.App.4th 683, 691; *Communities for a Better Envt. v. Cal. Res. Agency* (2002) 103 Cal.App.4th 98, 106; *see* Pub. Res. Code § 21000 *et seq.*; *see also* 14 Cal. Code Regs. (hereinafter, "Guidelines") § 15121.) Generally, when a public agency proposes to approve or carry out a project, it must prepare and certify an EIR if the project *may* have a significant effect on the environment. (Pub. Res. Code §§ 21080(a), 21100(a), 21151(a).) As the California Supreme Court has explained, the EIR is "the heart of CEQA." (*Laurel Heights Improvement Assn. v. Regents of University of Cal.* (1988) 47 Cal.3d 376, 392.) An EIR must reflect a good faith effort at full disclosure, including "detail sufficient to enable those who did not participate in its preparation to understand and to consider meaningfully the issues raised by the proposed project." (*Id.* at 405.) In accordance with the purposes of CEQA, an EIR must fully consider and disclose all significant environmental impacts of a project, and, where deemed to be

significant, describe and implement all feasible mitigation measures and alternatives that would reduce such impact to less-than-significant levels.

As currently drafted, the EIR does not include an adequate analysis to inform the public of the environmental impacts of authorizing pesticide and nutrient discharges to the Napa River and Sonoma Creek watersheds, neglects to mitigate the environmental impacts from pesticide discharges, and fails to include a reasonable range of alternatives. In order to correct the deficiencies in the EIR, the Regional Board must make the following seven revisions:

(1) *Include the control of pesticide and nutrient discharges as objectives in the Project Description;*
(2) *Establish the baseline for pesticide discharges from vineyard properties;*
(3) *Analyze the effects of pesticide discharges on special-status species;*
(4) *Analyze the environmental impacts of authorizing pesticide discharges on water quality;*
(5) *Require additional mitigation measures to reduce environmental impacts from pesticide discharges;*
(6) *Discuss additional alternatives to complete a reasonable range of alternatives; and*
(7) *Redefine the no project alternative.*

Each of Baykeeper's suggested revisions to the EIR are discussed in detail below.

I. The EIR Fails to Include the Control of Pesticide and Nutrient Discharges as Objectives in the Project Description.

The EIR repeatedly states that the General Permit would control pesticide and nutrient discharges, in addition to the primary project objective of implementing the Napa River and Sonoma Creek sediment TMDLs, but these secondary objectives are omitted from the Project Description. Because the Project Description does not include all aspects of the Project, the EIR fails to meet CEQA's requirements.

"An accurate, stable and finite project description is the *sine qua non* of an informative and legally sufficient EIR." (*County of Inyo v. City of Los Angeles* (1977) 71 Cal.App.3d 185, 193.) The CEQA Guidelines define the Project as the "whole of the action." (Guidelines § 15378(a).) An EIR's Project Description must include a statement of the objectives sought by the proposed project. (Guidelines § 15124(b).) Stating the objectives of a project aids decision makers in preparing findings and identifying alternatives. (*Id.*; *see also County of Inyo*, 71 Cal.App.3d at 192-93.)

Here, Section 2.2, Project Objectives, of the EIR lists several secondary project objectives, but is silent regarding pesticide and nutrient discharge controls. (*See* EIR at 45; *see also* EIR at 275.) Despite not being included as part of the Project Description, controlling pesticide and nutrient discharges is clearly part of the Project; the EIR consistently refers to these objectives when discussing the General Permit's requirements. (*See* EIR at 1, 30, 40, 47, 53, 85, 110, 245.) Because the Project Description fails to include this aspect of the Project, it is legally deficient. (*See Santiago County Water Dist. v. County of Orange* (1981) 118 Cal.3d 818, 829.) Moreover, the way that

controlling pesticide and nutrient discharges is referenced in the EIR is confusing and inconsistent, as they appear to have been included in the EIR as an afterthought. These inconsistencies must be corrected by explicitly recognizing the control of pesticide and nutrient discharges as secondary project objectives in the Project Description.

Had the Regional Board included the control of pesticide and nutrient discharges in the Project Description, it is likely that the EIR would have included related environmental impacts, mitigation measures, and alternatives, which are also omitted from the EIR. The lack of discussion of pesticides and nutrient discharges in the EIR is shocking, considering the impacts associated with these potentially toxic discharges on special-status fish species and water quality, as described more fully below. Based on Baykeeper's knowledge, the Regional Board does not plan to issue a conditional waiver for irrigated lands, like in Region 3[1], or additional waste discharge requirements ("WDRs") for the discharge of pesticides and/or nutrients in Region 2. Thus, the General Permit is the only means by which the Regional Board intends to permit and regulate pesticide and nutrient discharges by the permittees.[2] Without the addition of the control of pesticide and nutrient discharges to the Project Description, the EIR is deficient. Once these objectives have been properly included in the Project Description, the Regional Board must revise the EIR to analyze the impacts from permitting and regulating pesticide and nutrient discharges.

II. The EIR Fails to Establish the Baseline for Pesticide Discharges from Vineyard Properties.

The EIR's description of the Environmental Setting must be revised to describe existing pesticide discharges to the Napa River and Sonoma Creek and establish the baseline for such discharges. An EIR must include "a description of the physical environmental conditions in the vicinity of the project, as they exist at the time the notice of preparation is published." (Guidelines § 15125(a); *Communities for a Better Envt. v. S. Coast Air Quality Mgmt. Dist.* (2010) 48 Cal. 4th 310, 315, 321.) The environmental setting typically constitutes the "baseline physical conditions by which a lead agency determines whether an impact is significant." (*Id*.) Additionally, an EIR must demonstrate "that the significant environmental impacts of the proposed project were adequately investigated and discussed and it must permit the significant effects of the project to be considered in the full environmental context." (Guidelines § 15125(c).)

Here, the Regional Board cannot properly determine whether or not impacts from pesticide discharges are significant, since they have failed to establish a baseline for comparison. (*See* EIR at 31-39.) At a minimum, the EIR must be revised to include a description of what pesticides are being applied and what quantities of pesticides are being applied at vineyard properties in the Napa River and Sonoma Creek watersheds. The Regional Board should consult the California Department of Pesticide Regulation to obtain this information. (Guidelines § 15129.)

Without an established baseline, the Regional Board cannot conclude that the General Permit will not increase pesticide discharges, nor can it conclude pesticide discharges will decrease, as there

[1] *See generally* California Regional Water Quality Control Board, Central Coast Region, Order No. R3-2012-0011, as modified by Order No. WQ-2013-0101, *Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands* (2013) ("Region 3 Ag Waiver"). Attached hereto as Attachment 1.

[2] Although local programs somewhat control pesticide and nutrient discharges, the General Permit is the only mandatory requirement with which all permittees must comply.

are no factual bases for these conclusions. "The EIR must contain facts and analysis, not just the bare conclusions of a public agency." (*Santiago County Water Dist.*, 118 Cal.App.3d at 831.) CEQA mandates public access to "the basis for [an EIR's] opinion so as to enable [the public] to make an independent, reasoned judgment." (*Id*.) Establishing a baseline for pesticide discharges from vineyard properties will enable the Regional Board and the public to determine the full environmental impacts of the General Permit. The EIR must be revised to establish a baseline for pesticide discharges from vineyard properties to the Napa River and Sonoma Creek watersheds.

III. The EIR Fails to Analyze the Effects of Pesticide Discharges on Special-Status Species.

Pesticide discharges to the Napa River and Sonoma Creek watersheds have adverse impacts on special-status species and must be analyzed in the EIR. (*See* Pub. Res. Code § 21002.1(a) ["the purpose of an [EIR] is to identify the significant effects on the environment of a project"].) The EIR recognizes that critical habitat for the federally-listed Central California Coast Steelhead has been designated in both watersheds. (EIR at 177.) In addition to Central California Coast Steelhead, locally rare Chinook salmon also inhabit the Project area. (EIR at 30.) However, there is *no* discussion of the impacts of pesticide discharges on special-status fish species in the EIR.[3] The EIR must be revised to include a full discussion of the impacts of pesticide discharges on special-status *fish* species. (*See City of Maywood v. Los Angeles Unified School Dist.* (2012) 208 Cal.App.4th 362, 391 [an EIR is legally inadequate if there is no evidence that a lead agency studied an environmental impact].)

Scientific studies indicate that federally-listed Central California Coast Steelhead and locally rare Chinook salmon are adversely impacted by pesticide discharges. The National Marine Fisheries Service ("NMFS") has issued biological opinions under Section 7 of the Federal Endangered Species Act for the Environmental Protection Agency's registration of pesticides containing Chlorpyrifos, Diazinon, and Malathion,[4] and pesticides Oryzalin, Pendimethalin, and Trifluralin.[5] Both of NMFS' biological opinions concluded that exposure to the listed pesticides is likely "to jeopardize the continued existence" of Central California Coast Steelhead and Chinook salmon, and is likely "to result in the destruction or adverse modification of the critical habitat."[6] Furthermore, scientists have identified pesticide exposure as a cause of feminization of male Chinook salmon in the Napa River due to exposure to high levels of xenoestrogens (compounds that mimic the effects of estrogen).[7]

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[3] In fact, the only discussion of impacts of pesticides on any biological resources is a tangential reference to pesticide controls in the analysis of environmental impacts on special-status bird species. (EIR at 194 [Impact 6-3 Noise generated by heavy equipment used to construct/install BMPs could disrupt breeding and/or nesting by special-status bird species].)

[4] National Marine Fisheries Service, *Endangered Species Act Section 7 Consultation Biological Opinion: Environmental Protection Agency Registration of Pesticides Containing Chlorpyrifos, Diazinon, and Malathion* (2008) (NFMS 2008), *available at* http://www.nmfs.noaa.gov/pr/pdfs/pesticide_biop.pdf. Excerpt attached hereto as Attachment 2.

[5] National Marine Fisheries Service, *Endangered Species Act Section 7 Consultation Final Biological Opinion: Environmental Protection Agency Registration of Pesticides Oryzalin, Pendimethalin, Trifluralin* (2012) (NMFS 2012), *available at* http://www.nmfs.noaa.gov/pr/pdfs/consultations/pesticides_batch5opinion.pdf. Excerpt attached hereto as Attachment 3.

[6] NMFS 2008 at 391-92; *see* NMFS 2012 at 639-40.

[7] *See* Sedlak, David, *Identifying the Causes of Feminization of Chinook Salmon in the Sacramento and San Joaquin River System*, Delta Stewardship Council, http://deltacouncil.ca.gov/scienceprogram/projects/identifying-causes-

Despite these known impacts of pesticides on special-status fish species, the EIR fails to discuss the impact of permitting discharges of such substances on these species, as required by CEQA. Pesticide discharges and associated water toxicity will likely have significant impacts on special-status fish species and their habitats, and must be fully analyzed in the EIR.

IV. The EIR Fails to Analyze the Environmental Impacts on Water Quality of Authorizing the Discharge of Pesticides.

The EIR must be revised to include an analysis of the environmental impacts of authorizing pesticide discharges on the water quality of the Napa River and Sonoma Creek watersheds. (*See* Pub. Res. Code § 21100; Guidelines § 15126.) The General Permit requires the control of pesticide discharges, but in doing so, it also authorizes the permittees to discharge pesticides to surface waters. Thus, the EIR must evaluate the impact of authorizing such pesticide discharges. One would expect to find some reference, if not a full environmental impact analysis, on pesticides in Section 8.2, Water Quality, of the EIR, (EIR at 233-34) but pesticides are not even mentioned.

Neither Section 8.2, Water Quality, nor Section 8.6, Hydrology and Water Quality Impacts and Mitigation Measures, of the EIR analyze the impacts of pesticide use permitted by the General Permit on water quality. Section 8.2 does not even mention pesticides. (*See* EIR at 233-34.) While Section 8.6 at least mentions pesticides, these references do not amount to an environmental impact analysis. In fact, the EIR only mentions the potential beneficial impact of the Project on water quality, without recognizing the potential negative impacts of pesticide discharges on water quality. (*See* EIR at 244 [Impact 8.1 Compliance with the General Permit would enhance water quality in the Napa River and Sonoma Creek watersheds], 255 [Impact 8.7 Actions taken to comply with the General Permit would result in substantial beneficial reductions in the discharge of polluted runoff and enhancement of water quality].)[8] Pesticide discharges have an evident impact on water quality, and it is unacceptable for the EIR to not include a robust discussion of these impacts.

Pesticide discharges from vineyard properties regulated by the General Permit will likely have significant impacts on water quality in the Napa River and Sonoma Creek watersheds, and must be evaluated in the EIR. (Guidelines §§ 15126, 15216.2.) In Region 2, the highest use of agricultural pesticides is in the Napa River, and subsequently San Pablo Bay.[9] High risk ratio pesticides applied in the Napa River watershed include: Naled, Oxyfluorfen, Flumioxazin,

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feminization-chinook-salmon-sacramento-and-san-joaquin (last visited Sept. 10, 2016); Lavado, Ramon, et al., Site-Specific Profiles for Estrogenic Activity in Agricultural Areas of California's Inland Waters, 43(24) Envtl. Science & Tech. 9110 (2009). Attached hereto as Attachments 4 and 5, respectively.

[8] The EIR has two tangential references to pesticide controls in its analysis of environmental impacts on water quality. The first notes that BMPs to control for pesticide discharges would not reduce groundwater recharge. (EIR at 245 [Impact 8.2 The overall effect of actions taken to comply with the General Permit would be beneficial, enhancing groundwater recharge].) The second notes that pesticide discharge controls would not affect placement or location of housing in a flood hazard area. (EIR at 255 [Impact 8.8 Actions taken to comply with the General Permit would not affect placement of housing in flood hazard areas].)

[9] Willis-Norton, Ellen and Rebecca Sutton, *Identifying Current Use Pesticides (CUP) to Include in Future RMP Monitoring*, San Francisco Estuary Institute, *available at* http://www.sfei.org/sites/default/files/events/Item_3.2_CUP_monitoring_ECWG_proposal.pdf. Attached hereto as Attachment 6.

Pyraclostrobin, Mancozeb, 1,3-dichloropropene, Dimethoate, Imidacloprid, Paraquat Dichloride, Metam-Sodium, Thiophanate-Methyl, Cyprodinil, Trifloxystrobin, Methomyl, Pendimethalin, 2,4-Dichlorophenoxyacetic acid, Diquat Dibromide, Oryzalin, PCNB, and Triflumizole.[10] According to the most recent data on pesticide use on wine grapes in Napa County, most of these pesticides are still heavily in use.[11]

While the Napa River and Sonoma Creek are not listed as impaired for pesticides, the Regional Board is not excused from analyzing the environmental impacts of permitting pesticide discharges to water quality. Impaired status on a Clean Water Act 303(d) List for a constituent is not a prerequisite for environmental impact analysis of that constituent. The Regional Board must take this opportunity to fully evaluate the impacts of pesticide discharges and prevent the Napa River and Sonoma Creek from becoming impaired for pesticides.

The Regional Board may find that the control of pesticide discharges will have a beneficial impact on water quality, thereby justifying the lack of environmental impact analysis in the EIR, but that would be improper under CEQA. An EIR must state the reasons that possible significant effects of a project were determined not to be significant, and therefore not fully discussed in the EIR. (Pub. Res. Code § 21100(c); Guidelines § 15128.) This type of statement may be included in an initial study. (*Id*.) Here, the EIR fails to discuss the environmental impacts of pesticide discharges to water quality. Furthermore, the discussion of pesticide discharge controls in Initial Study: General Waste Discharge Requirements for Vineyard Discharges in the Napa River and Sonoma Creek Watersheds ("Initial Study" or "IS"), attached at Appendix C to the EIR, also fails to meet this burden. (IS at 27.) The IS concludes that "[r]eduction in the use of agricultural chemicals would result in beneficial impacts to water quality and are not further evaluated in the IS." (*Id*.) First, the Initial Study does not state that environmental impacts from pesticide discharges are *not significant*. Second, the short discussion in the IS fails to provide the basis for its conclusion, and merely presents a circular argument. The EIR must provide an "analytically complete and coherent explanation" of its conclusions. (*Vineyard Area Citizens for Responsible Growth v. City of Rancho Cordova* (2007) 40. Cal.4th 412, 440.) The EIR must be revised to include a meaningful environmental impact analysis of pesticide discharges on water quality.

V. <u>The EIR Fails to Require Mitigation Measures to Adequately Reduce the Environmental Impacts from Pesticide Discharges.</u>

Since the EIR does not analyze the environmental impacts of authorizing the discharge of pesticides from vineyard properties on special-status fish species and water quality, as discussed *supra* in Sections III and IV, it follows that the EIR fails to require mitigation measures to adequately reduce the environmental impacts from pesticide discharges. CEQA requires that an EIR describe feasible measures to minimize each significant environmental effect identified in the EIR. (Guidelines § 15126.4(a)(1)(A).) Furthermore, mitigation measures must "be fully enforceable." (Guidelines § 15126.4(a)(2).) Although the EIR and General Permit include several best management practices ("BMPs") to be implemented which might mitigate the impacts from

[10] *Id.*
[11] Department of Pesticide Regulation, *2014 Annual Pesticide Use Report Indexed by Chemical: Napa County*, *available at* http://www.cdpr.ca.gov/docs/pur/pur14rep/chemcnty/napa14_ai.pdf. Attached hereto as Attachment 7.

pesticide discharges, these BMPs alone are likely insufficient to mitigate impacts to less-than-significant levels.

The Napa River and Sonoma Creek are at risk of becoming impaired for pesticides, and mitigation measures must be required to significantly reduce pesticide discharges to these threatened watersheds. It is unlikely that the BMPs required in the EIR will achieve this goal. BMP 22, requiring the calibration of pesticide sprayers and protocols to avoid drift; BMP 24, requiring minor construction projects to protect well heads from pesticide spills; and BMP 25, requiring the construction of pesticide storage facilities, (EIR at 59, 81) are not intended to reduce the use of pesticides on vineyard properties—they require controls to prevent accidental pesticide discharges. BMP 23 requires the implementation of integrated pest management practices ("IPM"). (EIR at 59, 81.) While IPM utilizes pest management strategies in addition to pesticide application, the EIR and General Permit do not specify the extent to which IPM should be used (*i.e.*, to the maximum extent practicable). The Regional Board admits in the EIR that the BMPs intended to control pesticide discharges, relative to the CEQA baseline, which the Regional Board has not even established as discussed *supra* in Section II, would be a *modest reduction* in pesticide discharges to state waters. (EIR at 81.) Assuming *arguendo* that a comparison can even be made, a "modest reduction" is inadequate to protect the water quality of the Napa River and Sonoma Creek from the impacts of pesticide discharges, and must be further mitigated.

The Regional Board should implement additional mitigation measures to reduce impacts from pesticide discharges to the Napa River and Sonoma Creek watersheds to a less-than-significant level. Prohibiting the discharge of certain pesticides is within the Regional Board's authority. As discussed *supra* in Section III, NMFS has identified several pesticides that put special-status fish species in jeopardy, which the Regional Board should prohibit. Additionally, the Regional Board should require surface water monitoring to track reductions in pesticide discharges. The Farm Water Quality Protection Plan ("Farm Plan") required in section F of the General Permit only requires photo point monitoring. (General Permit, Attachment A at 5.) Pesticide discharges to surface waters cannot be meaningfully monitored via photographs alone. Only by requiring surface water sampling and monitoring can the Regional Board assure that pesticide discharges are reduced. By requiring these additional mitigation measures, impacts from pesticide discharges could be reduced to less-than-significant levels.

VI. The EIR Fails to Adequately Consider a Reasonable Range of Alternatives to the General Permit.

Additional alternatives to the General Permit should be included in the EIR, including expanding the scope of the permittees and adoption of alternative regulatory methods. Under CEQA, the range of alternatives to the proposed project shall include "those that could feasibly accomplish most of the basic objectives of the project and could avoid or substantially lessen one or more of the significant effects." (Guidelines § 15126.6(c); *see* Pub. Res. Code §§ 21100, 21002, 21061.) The range of alternatives required in an EIR is governed by a "rule of reason" that requires the EIR to "set forth only those alternatives necessary to permit a reasoned choice," and shall be selected and discussed "in a manner to foster meaningful public participation and informed decision making." (Guidelines § 15126.6(f).)

All of the alternatives considered in the EIR reduce the scope of permittee coverage. Thus, the EIR improperly reviews only alternatives that would result in more environmental impacts by regulating fewer vineyards. The EIR must evaluate alternatives that "would avoid or substantially lessen any of the significant effects of the project." (Guidelines § 15126(a).) The EIR should have considered, for instance, an alternative which expands permittee coverage to all vineyard properties greater than 1 acre, and then evaluated the comparative merits. Construction sites greater than 1 acre require permitting under the state-wide general permit regulating discharges of pollutants in stormwater associated with construction activity ("Construction Permit").[12] Like the General Permit, sediment is the primary constituent of concern regulated by the Construction Permit.[13] It is inconsistent for the General Permit, which requires construction activities for compliance, to be applicable to vineyard properties greater than 5 acres, when the Construction Permit is applicable to sites one-fifth that size. Arguably, expanding the scope of permittee coverage would still meet the project objectives, and would result in additional beneficial impacts by further reducing polluted discharges to surface waters.

The EIR also should have included an alternative that adopts a different regulatory method to control discharges from vineyard properties, such as a conditional waiver of WDRs or discharge prohibitions. Pursuant to Water Code section 13269, discussed *infra* at Section VII, the Regional Board is authorized to waive WDR requirements. (Water Code § 13269(a)(1).) Region 3 has chosen to regulate discharges from irrigated lands in its jurisdiction via a conditional waiver.[14] Waivers of WDRs are conditioned with monitoring program requirements designed to protect water quality, including verification of the adequacy and effectiveness of the waiver's conditions. (Water Code § 13269(a)(2).) Although the EIR does briefly discuss Alternative 10.2.4, Waiver Enrollment Criteria Project Alternative, this alternative merely seeks to reduce the scope of permittees based on proposed enrollment criteria for a terminated waiver of WDRs permitting effort. (EIR at 278.) Under a conditional waiver of WDRs, the objectives of the General Permit would likely be met, and in addition, this alternative would probably require surface water quality monitoring in addition to the photographic monitoring required by the General Permit.

Adding Baykeeper's suggested alternatives would make the EIR's range of alternatives reasonable. Considering alternatives which merely narrow the scope of permittees based on varying criteria is not reasonable.

VII. The EIR Incorrectly Defines the No Project Alternative.

The EIR's characterization of the no project alternative is incomplete, and does not comport with the requirements of CEQA. Analyzing the no project alternative allows decision makers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project. (Guidelines § 15126.6(e)(1).) In addition to discussing the existing conditions at the time the notice of preparation is published, the no project alternative "must discuss what would be reasonably expected to occur in the foreseeable future if the project were not approved."

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[12] State Water Resources Control Board, Order No. 2009-0009-DWQ, NPDES No. CAS000002, *National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities*, Finding B.18. Attached hereto as Attachment 8.
[13] *Id*. at Finding B.11.
[14] *See generally* Region 3 Ag Waiver.

(Guidelines § 15126.6(e)(2).) Here, the General Permit is not an existing regulatory plan, so the no project alternative is "the circumstance in which the project does not proceed." (Guidelines § 15126.6(e)(3)(B).) However, the analysis should not end there. CEQA is forward-looking, and requires that where the disapproval of the proposed project "would result in predictable action by others, this 'no project' consequence should be discussed." (*Id*.) The EIR must be revised to include a full discussion of the no project alternative and its consequences, as required under CEQA.

The Regional Board must supplement the no project alternative analysis in the EIR to comply with CEQA by discussing the predictable consequences of not approving the General Permit. Section 10.3.1, Alternative 1: No Project, of the EIR only discusses the existing conditions in the project area, stating:

> Under the No Project Alternative, Vineyard Property sediment discharges as identified in the sediment TMDLs, *would not be regulated*. It is highly probable that sediment impairments in the Napa River and Sonoma Creek watersheds would not be resolved. Degraded streambed substrate conditions would persist, and cause significant adverse impacts to spawning and rearing habitat for [special-status species].
>
> As such, the fundamental objective of the proposed project would not be achieved.
>
> Under the No Project alternative, significant impacts to river habitat and to dependent native fish would persist. Because the No Project alternative fails to meet the basic objectives, this EIR does not consider the No Project alternative in further detail.

(EIR at 281 [emphasis added].) This analysis is improperly based on the conclusion that if the General Permit is not approved, then discharges from vineyard properties will continue unregulated. Such a conclusion fails to comply with the requirements of the Porter-Cologne Water Quality Control Act (Water Code § 13000, *et seq*.), and is thus contrary to law.

Porter-Cologne provides several mechanisms for a Regional Board to regulate discharges of waste to waters of the state. First, a person or entity discharging or proposing to discharge waste which could affect water quality must submit a report to the Regional Board, unless the Regional Board takes action. (Water Code § 13260; 23 Cal. Code Regs. § 2205 [section 13260 applies to nonpoint source discharges].) Second, the Regional Board may prescribe WDRs for proposed discharges or existing discharges, or, as here, prescribe general WDRs for categories of discharges which meet certain criteria. (Water Code § 13263(a), (i).) Third, the Regional Board may waive the requirements of sections 13260(a) and (c), 13263(a), and 13264(a) and issue a conditioned waiver for discharges of waste. (Water Code § 13269(a)(1).) Through these mechanisms, all discharges of waste to waters of the state should be regulated.

Porter-Cologne makes clear that dischargers must comply with one of the three regulatory mechanisms. "No discharge of waste into waters of the state, whether or not the discharge is made pursuant to [WDRs], shall create a vested right to continue the discharge. All discharges of waste into waters of the state are *privileges, not rights*." (Water Code § 13263(g) [emphasis added]; *see* 23

Cal. Code Regs. § 2208(a).) In fact, Porter-Cologne explicitly prohibits the discharge of waste prior to filing the report required by section 13260, issuance of WDRs pursuant to section 13263, or issuance of a conditional waiver pursuant to section 13269. (Water Code § 13264(a).) As required under Porter-Cologne, if the General Permit is not approved, then dischargers would be required to comply with a different regulatory mechanism—unregulated discharges from vineyard properties are not an option.

Under the no project alternative, it is a predictable consequence, and required by law, that either dischargers file reports pursuant to section 13260, or the Regional Board issue different WDRs (individual or general) or a conditional waiver of WDRs. Implementation of the Napa River and Sonoma Creek TMDLs is not optional. The non-approval of one regulatory mechanism does not limit the Regional Board's authority to pursue alternative routes to control waste discharges from vineyard properties. The EIR must be revised to supplement the no project alternative analysis to comply with the requirements of CEQA and Porter-Cologne.

VIII. Conclusion.

In closing, Baykeeper requests that the EIR be revised and recirculated to provide an appropriate level of public review in accordance with these comments. The General Permit is an important step to reduce sediment discharges and improve the water quality of the Napa River and Sonoma Creek watersheds; however, the General Permit regulates more than just sediment, and these additional constituents—pesticides and nutrients—must be fully discussed, and their environmental impacts fully analyzed and mitigated, in the EIR. Additionally, the alternatives analysis in the EIR must be revised to include a reasonable range of alternatives and to redefine the no project alternative. As written the EIR is fundamentally flawed and fails to fulfill the basic purposes of CEQA. This is the Regional Board's chance to protect the Napa River and Sonoma Creek from all constituents that pose a threat to water quality. Please take this opportunity and revise the EIR to meaningfully analyze and mitigate the impacts of pesticide discharges, and provide for the protection of these threatened watersheds to the fullest extent of the Regional Board's authority.

Very truly yours,

Nicole C. Sasaki
Associate Attorney
San Francisco Baykeeper

Attachments.

Attachment 1

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION

ORDER NO. R3-2012-0011
AS MODIFIED BY ORDER WQ-2013-0101

CONDITIONAL WAIVER OF WASTE DISCHARGE REQUIREMENTS
FOR
DISCHARGES FROM IRRIGATED LANDS

The California Regional Water Quality Control Board, Central Coast Region finds that:

1. The Central Coast Region has approximately 435,000 acres of irrigated land and approximately 3000 agricultural operations, which may be generating wastewater that falls into the category of discharges of waste from irrigated lands.

2. The Central Coast Region has more than 17,000 miles of surface waters (linear streams/rivers) and approximately 4000 square miles of groundwater basins that are, or may be, affected by discharges of waste from irrigated lands.

3. The State Water Resources Control Board (State Water Board) and Regional Water Quality Control Boards (Regional Water Boards) are the principal state agencies with primary responsibility for the coordination and control of water quality pursuant to the Porter-Cologne Water Quality Control Act (Porter-Cologne Act, codified in Water Code Division 7). The legislature, in the Porter-Cologne Act, directed the Water Board to exercise its full power and jurisdiction to protect the quality of the waters in the State from degradation, considering precipitation, topography, population, recreation, agriculture, industry, and economic development (Water Code § 13000).

4. On July 9, 2004, the Central Coast Regional Water Quality Control Board (Central Coast Water Board) adopted Resolution No. R3-2004-0117 establishing a Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands (2004 Agricultural Order). In the 2004 Agricultural Order, the Central Coast Water Board found that the discharge of waste from irrigated lands has impaired and polluted the waters of the State and of the United States within the Central Coast Region, has impaired the beneficial uses, and has caused nuisance. The 2004 Agricultural Order expired on July 9, 2009, and the Central Coast Water Board renewed it for a term of one year until July 10, 2010 (Order No. R3-2009-0050). On July 8, 2010, the Central Coast Water Board renewed the 2004 Agricultural Order

again for an additional eight months until March 31, 2011 (Order No. R3-2010-0040). The Central Coast Water Board did not have a quorum to take action to adopt a renewal of the 2004 Agricultural Order with modifications by the March 31, 2011 termination date. On March 29, 2011, the Executive Officer signed Executive Officer Order No. R3-2011-0208 to extend the 2004 Agricultural Order again for an additional six months, with a September 30, 2011 termination date. The Central Coast Water Board did not have a quorum to take action to adopt a renewal of the 2004 Agricultural Order with modifications by the September 30, 2011 termination date. On September 30, 2011, the Executive Officer issued Executive Officer Order No. R3-2011-0017 to extend the 2004 Agricultural Order again for an additional year, with a September 30, 2012 termination date. Executive Officer Order No. R3-2011-0017 also required dischargers to implement an updated Monitoring and Reporting Program No. R3-2011-0018. This *Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands,* Order No. R3-2012-0011 (Order) renews and revises the 2004 Agricultural Order as set forth herein.

5. Since the issuance of the 2004 Agricultural Order, the Central Coast Water Board has compiled additional and substantial empirical data demonstrating that water quality conditions in agricultural areas of the region continue to be severely impaired or polluted by waste discharges from irrigated agricultural operations and activities that impair beneficial uses, including drinking water, and impact aquatic habitat on or near irrigated agricultural operations. The most serious water quality degradation is caused by fertilizer and pesticide use, which results in runoff of chemicals from agricultural fields into surface waters and percolation into groundwater. Runoff and percolation include both irrigation water and stormwater. Every two years, the Water Board is required by Section 303(d) of the federal Clean Water Act to assess water quality data for California's waters to determine if they contain pollutants at levels that exceed protective water quality criteria and standards. This Order prioritizes conditions to control pollutant loading in areas where water quality impairment is documented in the 2010 Clean Water Act section 303(d) List of Impaired Waterbodies (hereafter referred to as 2010 List of Impaired Waterbodies). As new Clean Water Act section 303(d) Lists of Impaired Waterbodies are adopted, the Central Coast Water Board will consider such lists for inclusion in tiering criteria and conditions for this and subsequent Orders.

6. Nitrate pollution of drinking water supplies is a critical problem throughout the Central Coast Region. Studies indicate that fertilizer from irrigated agriculture is the largest primary source of nitrate pollution in drinking water wells and that significant loading of nitrate continues as a result of agricultural fertilizer practices[1]. Researchers estimate that tens of millions of pounds of nitrate leach into groundwater in the Salinas Valley alone each year. Studies indicate that irrigated

[1] Carle, S.f., B.K. Esser, J.E. Moran, High-Resolution Simulation of Basin-Scale Nitrate Transport Considering Aquifer System Heterogeneity, Geosphere, June 2006, v.2, no. 4, pg. 195-209.

agriculture contributes approximately 78 percent of the nitrate loading to groundwater in agricultural areas[2]. Hundreds of drinking water wells serving thousands of people throughout the region have nitrate levels exceeding the drinking water standard[3]. This presents a significant threat to human health as pollution gets substantially worse each year, and the actual numbers of polluted wells and people affected are unknown. Protecting public health and ensuring safe drinking water is among the highest priorities of this Order. This Order prioritizes conditions to control nitrate loading to groundwater and impacts to public water systems. In the case where further documentation indicates nitrate impacts to small water systems and/or private domestic wells, the Central Coast Water Board will consider proximity to impacted small water systems and private domestic wells for inclusion in tiering criteria.

7. Agricultural use rates of pesticides in the Central Coast Region and associated toxicity are among the highest in the State[4]. Agriculture-related toxicity studies conducted on the Central Coast since 1999 indicate that toxicity resulting from agricultural discharges of pesticides has severely impacted aquatic life in Central Coast streams[5,6,7]. Some agricultural drains have shown toxicity nearly every time the drains are sampled. Twenty-two sites in the region, 13 of which are located in the lower Salinas/Tembladero watershed area, and the remainder in the lower Santa Maria area, have been toxic in 95% (215) of the 227 samples evaluated. This Order prioritizes conditions to address pesticides that are known sources of toxicity and sources of a number of impairments on the 2010 List of Impaired Waterbodies, specifically chlorpyrifos and diazinon. In the case where further documentation indicates that additional pesticides are a primary source of toxicity and impairments in the Central Coast region, the Central Coast Water Board will consider such pesticides for inclusion in tiering criteria.

8. Existing and potential water quality impairment from agricultural waste discharges takes on added significance and urgency, given the impacts on public health, limited

[2] Monterey County Flood Control and Water Conservation District, "Report of the Ad Hoc Salinas Valley Nitrate Advisory Committee." Zidar, Snow, and Mills. November 1990.
[3] California Department of Public Health Data obtained using GeoTracker GAMA (Groundwater Ambient Monitoring and Assessment) online database, http://geotracker.waterboards.ca.gov/gama/.
[4] Starner, K., J. White, F. Spurlock and K. Kelley. Pyrethroid Insecticides in California Surface Waters and Bed Sediments: Concentrations and Estimated Toxicities. California Department of Pesticide Regulation. 2006.
[5] Anderson, B.S., J.W. Hunt, B.M. Phillips, P.A. Nicely, V. De Vlaming, V. Connor, N. Richard, R.S. Tjeerdema. Integrated assessment of the impacts of agricultural drainwater in the Salinas River (California, USA). Environmental Pollution 124, 523 - 532. 2003.
[6] Anderson B.S., B.M. Phillips, J.W. Hunt, V. Connor, N. Richard, R.S. Tjeerdema. "Identifying primary stressors impacting macroinvertebrates in the Salinas River (California, USA): Relative effects of pesticides and suspended particles" Environmental Pollution 141(3):402-408. 2006a.
[7] Anderson, B.S., B.M. Phillips, J.W. Hunt, N. Richard, V. Connor, K.R. Worcester, M.S. Adams, R.S. Tjeerdema. Evidence of pesticide impacts in the Santa Maria River Watershed (California, USA). Environmental Toxicology and Chemistry, 25(3):1160 - 1170. 2006b.

sources of drinking water supplies and proximity of the region's agricultural lands to critical habitat for species of concern.

9. This Order regulates discharges of waste[8] from irrigated lands by requiring individuals subject to this Order to comply with the terms and conditions set forth herein to ensure that such discharges do not cause or contribute to the exceedance of any Regional, State, or Federal numeric or narrative water quality standard (hereafter referred to as exceedance of water quality standards) in waters of the State and of the United States.

10. This Order requires compliance with water quality standards. Dischargers must implement, and where appropriate update or improve, management practices, which may include local or regional control or treatment practices and changes in farming practices to effectively control discharges, meet water quality standards and achieve compliance with this Order. Consistent with the Water Board's Policy for Implementation and Enforcement of the Nonpoint Source Pollution Control Program (NPS Policy, 2004), dischargers comply by implementing and improving management practices and complying with the other conditions, including monitoring and reporting requirements. This Order requires the discharger to address impacts to water quality by evaluating the effectiveness of management practices (e.g., waste discharge treatment and control measures), and taking action to improve management practices to reduce discharges. If the discharger fails to address impacts to water quality by taking the actions required by this Order, including evaluating the effectiveness of their management practices and improving as needed, the discharger may then be subject to progressive enforcement and possible monetary liability. The Discharger has the opportunity to present their case to the Central Coast Water Board before any monetary liability may be assessed.

11. The Central Coast Water Board encourages Dischargers to coordinate the effective implementation of cooperative water quality improvement efforts, local or regional scale water quality protection and treatment strategies (such as managed aquifer recharge projects), and cooperative monitoring and reporting efforts to lower costs, maximize effectiveness, and achieve compliance with this Order. In cases where Dischargers are participating in effective local or regional treatment strategies, and individual on-farm discharges continue to cause exceedances of water quality standards in the short term, the Executive Officer will take into consideration such participation in the local or regional treatment strategy and progress made towards compliance with water quality standards in evaluating compliance with this Order. In cases where cooperative water quality improvement efforts, or local or regional treatment strategies, coordinated by a third-party group (e.g., watershed group,

[8] This Order regulates discharge of "waste" as defined in Water Code section 13050 and "pollutants" as defined in the Clean Water Act. For simplicity, the term "waste" or "wastes" is used throughout. The term "waste" is very broad and includes "pollutants" as defined in the Clean Water Act.

water quality coalition, or other similar cooperative effort) or by a group of Dischargers, necessitate alternative water quality monitoring or a longer time schedule to achieve compliance than required by this Order, Dischargers may submit an alternative water quality monitoring and reporting plan or time schedule for approval by the Executive Officer. Groups of Dischargers and/or third party groups (e.g., a watershed group or water quality coalition) may submit to the Executive Officer for approval alternative water quality monitoring and reporting programs. An alternative monitoring and reporting program must include collection of data that will provide indicators of water quality improvement or pollution load reduction, and aggregate monitoring and reporting must be on a scale sufficient to track progress in small sub-basins and be sufficiently representative of conditions. Aggregate monitoring may apply to surface and groundwater. The Executive Officer will evaluate the alternative monitoring and reporting programs on a case-by-case basis considering the potential effectiveness of the aggregate or alternative monitoring (e.g., request to conduct aggregate monitoring for a certain timeframe to give new practices or treatment time to maximize effectiveness, and other factors such as whether the farms are currently significantly contributing to impaired surface water or ground water with drinking water wells, or whether farms are in compliance with other provisions such as enrollment, or submittal of annual compliance information). Dischargers who participate in an alternative monitoring and reporting program maintain individual responsibility to comply with this Order's conditions.

Dischargers may continue to implement alternative treatment or monitoring programs approved by the Executive Officer as long as they demonstrate continuous improvement and sufficient progress towards water quality improvement based upon measurable indicators of pollutant load reduction. Dischargers may seek review of Executive Officer decisions by the Water Board.

12. The Central Coast Water Board encourages Dischargers to coordinate the implementation of management practices with other Dischargers discharging to common tile drains, including efforts to develop regional salt and nutrient management plans. The Executive Officer may require additional monitoring and reporting for discharges to tile drains as necessary to evaluate compliance with this Order.

13. The Central Coast Water Board encourages Dischargers to participate in regional or local groundwater monitoring efforts conducted as part of existing or anticipated groundwater monitoring programs, including efforts related to regional and local salt and nutrient management plans, integrated regional water management (IRWM) plans, or the State Water Board's Groundwater Ambient Monitoring and Assessment (GAMA) Program.

14. Dischargers have the option of complying with surface receiving water quality monitoring conditions identified in MRP Order No. R3-2012-0011, either individually

or through a cooperative monitoring program. The Central Coast Water Board encourages Dischargers to participate in a cooperative monitoring program to comply with surface receiving water quality monitoring conditions. In the development of any cooperative monitoring program fee schedule, the Central Coast Water Board encourages Dischargers to scale the assessment of fees based on relative level of waste discharge and threat to water quality.

15. The Central Coast Water Board will evaluate various types of information to determine compliance with this Order such as, a) management practice implementation and effectiveness, b) treatment or control measures, c) individual discharge monitoring results, d) receiving water monitoring results, and e) related reporting.

16. Many owners and operators of irrigated lands within the Central Coast Region have taken actions to protect water quality. In compliance with the 2004 Agricultural Order, most owners and operators enrolled in the 2004 Agricultural Order, implemented the Cooperative Monitoring Program (CMP), participated in farm water quality education, developed farm water quality management plans and implemented management practices as required in the 2004 Agricultural Order. The 2004 Agricultural Order did not include conditions that allowed for determining individual compliance with water quality standards or the level of effectiveness of actions taken to protect water quality, such as individual discharge monitoring or evaluation of water quality improvements. This Order includes new or revised conditions to allow for such evaluations.

17. Water Code section 13260(a) requires that any person discharging waste or proposing to discharge waste that could affect the quality of the waters of the State, other than into a community sewer system, shall file with the appropriate Regional Board a report of waste discharge (ROWD) containing such information and data as may be required by the Central Coast Water Board, unless the Central Coast Water Board waives such requirement.

18. Water Code section 13263 requires the Central Coast Water Board to prescribe waste discharge requirements (WDRs), or waive WDRs, for the discharge. The WDRs must implement relevant water quality control plans and the Water Code.

19. Water Code section 13269(a) provides that the Central Coast Water Board may waive the requirement to obtain WDRs for a specific discharge or specific type of discharge, if the Central Coast Water Board determines that the waiver is consistent with any applicable water quality control plan and such waiver is in the public interest, provided that any such waiver of WDRs is conditional, includes monitoring conditions designed to support the development and implementation of the waiver program, including, but not limited to verifying the adequacy and effectiveness of the

waiver's conditions, unless waived, does not exceed five years in duration, and may be terminated at any time by the Central Coast Water Board.

20. As authorized by Water Code section 13269, this Order conditionally waives the requirement to obtain WDRs for Dischargers who comply with the terms of this Order. See Attachment A to this Order for additional findings related to legal and regulatory considerations, and rationale for this Order.

21. Pursuant to Water Code section 13267, the Executive Officer may require Dischargers to locate (inventory) and conduct monitoring of private domestic wells in or near agricultural areas with high nitrate in groundwater and submit technical reports evaluating the monitoring results. In addition, in compliance with Water Code section 13304, the Central Coast Water Board may require Dischargers to provide alternative water supplies or replacement water service, including wellhead treatment, to affected public water suppliers or private domestic well owners.

SCOPE OF ORDER NO. R3-2012-0011

Irrigated Lands and Agricultural Discharges Regulated Under this Order

22. This Order regulates (1) discharges of waste from irrigated lands, including, but not limited to, land planted to row, vineyard, field and tree crops where water is applied for producing commercial crops; (2) discharges of waste from commercial nurseries, nursery stock production, and greenhouse operations with soil floors that do not have point-source type discharges and are not currently operating under individual WDRs; and (3) discharges of waste from lands that are planted to commercial crops that are not yet marketable, such as vineyards and tree crops.

23. Discharges from irrigated lands regulated by this Order include discharges of waste to surface water and groundwater, such as irrigation return flows, tailwater, drainage water, subsurface drainage generated by irrigating crop land or by installing and operating drainage systems to lower the water table below irrigated lands (tile drains), stormwater runoff flowing from irrigated lands, stormwater runoff conveyed in channels or canals resulting from the discharge from irrigated lands, runoff resulting from frost control, and/or operational spills. These discharges can contain wastes that could affect the quality of waters of the State and impair beneficial uses.

Dischargers Regulated Under this Order

24. This Order regulates both landowners and operators of irrigated lands on or from which there are discharges of waste that could affect the quality of any surface water or groundwater (Dischargers). Dischargers are responsible for complying with the

conditions of this Order. The Central Coast Water Board will hold both the landowner and the operator liable for noncompliance with this Order.

25. The Central Coast Water Board recognizes that due to different types of operations and/or locations, discharges of waste from irrigated lands may have the potential for different levels of impacts on waters of the State or of the United States. This Order establishes three tiers of regulation to take into account the variation, including different regulatory conditions for the three tiers.

26. Dischargers who have not enrolled to comply with a previous order must submit to the Central Coast Water Board a completed electronic Notice of Intent (NOI) to comply with the conditions of this Order to comply with the Water Code.

27. Dischargers who have submitted a completed electronic NOI to the Central Coast Water Board to comply with a previous order must update their NOI to reflect current operation and farm/ranch information.

28. Landowners and operators of irrigated lands who obtain a pesticide use permit from a local County Agricultural Commissioner and that have a discharge of waste that could affect surface water or groundwater, must submit to the Central Coast Water Board, a completed electronic NOI to comply with the conditions of this Order to comply with the Water Code.

29. The NOI serves as a report of waste discharge (ROWD) for the purposes of this Order.

30. The Central Coast Water Board recognizes that certain limited resource farmers (as defined by the U.S. Dept. of Agriculture) may have difficulty achieving compliance with this Order. The Central Coast Water Board will prioritize assistance for these farmers, including but not limited to technical assistance, grant opportunities, and necessary flexibility to achieve compliance with this Order (e.g., adjusted monitoring, reporting, or time schedules).

<u>Agricultural Discharges Not Covered Under this Order and Who Must Apply for Individual Waste Discharge Requirements</u>

31. This Order does not waive WDRs for commercial nurseries, nursery stock production and greenhouse operations that have point-source type discharges, and fully contained greenhouse operations (those that have no groundwater discharge due to impervious floors). These operations must eliminate all such discharges of wastes or submit a ROWD to apply for individual WDRs as set forth in Water Code section 13260.

PUBLIC PARTICIPATION PROCESS

32. The Central Coast Water Board notified interested persons that the Central Coast Water Board will consider the adoption of this Order, which conditionally waives individual WDRs and establishes conditions for the control of discharges of waste from irrigated lands to waters of the State, and provided several opportunities for public input.

33. In December 2008, the Central Coast Water Board invited members of the public to participate in development of this Order and provide recommendations to Central Coast Water Board staff. In particular, the Central Coast Water Board requested the assistance of an agricultural advisory panel in developing appropriate milestones, timetables, and verification monitoring programs to resolve water quality problems and achieve compliance with the Basin Plan. Additionally, in early 2009, the Central Coast Water Board notified all water purveyors, water districts and municipalities that staff was developing recommendations for this Order.

34. In December 2009, the Central Coast Water Board encouraged any interested person who wanted to present alternative recommendations to this Order to provide those recommendations in writing by April 1, 2010.

35. On February 1, 2010, the Central Coast Water Board publicly released a preliminary report and preliminary draft order for the regulation of discharges from irrigated lands and accepted comments on the preliminary draft order through June 4, 2010.

36. The Central Coast Water Board held two public workshops (May 12, 2010, and July 8, 2010) to discuss the preliminary draft order, public comments, and alternative recommendations.

37. The Central Coast Water Board released a Draft Agricultural Order and staff report on November 19, 2010, for public review and comment, and held an additional public workshop on February 3, 2011. The Central Coast Water Board released further revised versions of the Draft Agricultural Order in March, July, and August 2011 and held an additional public workshop on February 1, 2012.

38. Between November 2009 and February 2012, Central Coast Water Board staff attended more than 60 meetings and conferences to describe the process for developing the Draft Agricultural Order, discuss options, and hear public input regarding the Draft Agricultural Order. These events included numerous stakeholders representing the agricultural industry and its technical assistance providers, environmental and environmental justice organizations, local and state government agencies and other members of the public.

39. Interested persons were notified that the Central Coast Water Board will consider adoption of an Order, which conditionally waives WDRs for discharges of waste from irrigated lands, as described in this Order, and were provided an opportunity for a public hearing and an opportunity to submit written comments.

CALIFORNIA ENVIRONMENTAL QUALITY ACT

40. For purposes of adoption of this Order, the Central Coast Water Board is the lead agency pursuant to the California Environmental Quality Act (CEQA) (Pub. Res. Code §§ 21100 et seq.).

41. In 2004, the Central Coast Water Board adopted the 2004 Agricultural Order and a Negative Declaration prepared in compliance with CEQA. CEQA Guidelines state that no subsequent environmental impact report (SEIR) shall be prepared when an EIR has been certified or negative declaration adopted for a project unless the lead agency determines based on substantial evidence in light of the whole record, one or more of the following:

> *(1) if substantial changes are proposed in the project which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified effects; or,*
>
> *(2) if substantial changes occur with respect to the circumstances under which the project is undertaken which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental impacts or a substantial increase in the severity of previously identified significant effects; or*
>
> *(3) if new information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete or the negative declaration was adopted, becomes available.*

(Cal. Code Regs., tit. 14, § 15162(a).)

This regulation applies if there is a modification of a previous project. In this case, the Central Coast Water Board is proposing to renew the 2004 Agricultural Order, which is the previous project, with clarifications and new conditions. To assist in determining whether an SEIR would be necessary, the Central Coast Water Board staff held a CEQA scoping meeting on August 16, 2010, to receive input from interested persons and public agencies on potentially significant environmental effects of the proposed project. Staff also accepted written comments regarding

scoping up until August 27, 2010, in order to allow for comments from those who were unable to attend the meeting and/or for those who wished to submit additional comments. Members of the public and representatives of public agencies provided comments regarding their views on significant environmental effects associated with the adoption of a renewed Agricultural Order. As described in Findings 30 - 37 and prior to the scoping meeting in August 2010, significant public participation activities had occurred.

In preparing the Draft SEIR, Central Coast Water Board staff reviewed the 2004 Negative Declaration, including the Initial Study (Environmental Checklist), considered the comments received during the public participation process with respect to renewal of the 2004 Agricultural Order, including evidence in the record, written and oral comments, proposed alternatives, and information provided at and following the August 16, 2010 scoping meeting, and comments received on the Draft SEIR. Review of this information did not result in identification of any new environmental effects that had not already been evaluated in the 2004 Negative Declaration. Staff identified two areas included on the Environmental Checklist where there was a potential for an increase in the severity of environmental effects previously identified. These areas are (1) the potential for more severe impacts on agricultural resources due to the potential for an increase in the use of vegetated buffer strips and economic impacts due to new requirements that could take some land out of direct agricultural use and (2) the potential for more severe impacts on biological resources due to the potential for a reduction in water flows in surface waters.

The Central Coast Water Board issued a Notice of Availability on October 25, 2010, and provided the public with 45 days to submit written comments on the Draft SEIR. The Water Board received 12 written comment letters. Responses to the comments are in Section 7 of the Final SEIR. In response to comments, the Central Coast Water Board staff revised the Draft SEIR and prepared a draft Final SEIR for the Central Coast Water Board's certification. The 2004 Negative Declaration and the Final SEIR constitute the environmental analysis under CEQA for this Order.

42. With respect to Agricultural Resources, the Final SEIR concludes that adoption of the proposed alternative could result in some economic or social changes but that there was insufficient evidence to conclude that the economic changes would result in adverse physical changes to the environment. Commenters speculated that the economic impacts would be so large as to result in large scale end to agriculture and that land would be sold for other uses that would result in impacts on the environment. No significant information was provided to justify that concern. As described in Section 2.4 of this Final SEIR, the draft 2012 Agricultural Order would impose additional conditions on approximately 100 to 300 of the estimated 3000 owners or operators currently enrolled in the 2004 Agricultural Order. CEQA states that economic or social effects of a project shall not be treated as significant effects on the environment. (Pub.

Res. Code § 21083.) The Final SEIR concludes that due to some new conditions, particularly the requirement that some dischargers may be required to implement vegetated buffer strips, could result in loss of land for agricultural production since the buffer strips would generally not produce crops and some land could be converted to other uses. This impact was found to be less than significant and that mitigation could reduce impacts further. The Central Coast Water Board may not generally specify the manner of compliance and therefore, dischargers may choose among many ways to comply with the requirement to control discharges of waste to waters of the State. Even if all dischargers who could be subject to the condition to use vegetated buffers or some other method to control discharges in the draft 2012 Agricultural Order (Tier 3 dischargers) chose to use vegetated buffers or converted to other uses, the total acreage is quite small compared to the total amount of acreage used for farming and was, therefore, found to be less than significant. In addition, since the land would be used as a vegetated buffer to comply with the Order, this would result in beneficial impacts on the environment, not adverse impacts.

With respect to Biological Resources, the Final SEIR concludes that wide scale water conservation could result in lower flows into surface water resulting in impacts on aquatic life. The Central Coast Water Board may not specify the manner of compliance so it has insufficient information to evaluate the extent to which dischargers would choose to use water conservation to comply and to evaluate potential physical changes to the environment that could result. Reduction in toxic runoff may offset impacts due to the reduced flows that could occur. In addition, reduction in water use could result in increased groundwater levels that would also result in more clean water to surface water.

Based on this information, the Final SEIR concludes that the environmental effects associated with the draft 2012 Agricultural Order may be significant with respect to biological resources. However, given the uncertainty associated with evaluating the available information, it is possible that the effects may turn out to be less than significant. In Resolution R3-2012-0012, the Central Coast Water Board has made findings consistent with the CEQA Guidelines (Cal. Code Regs., tit. 14, § 15091) and a statement of overriding considerations (Cal. Code Regs., tit. 14, § 15093) with respect to biological resources.

ADDITIONAL FINDINGS

43. Attachment A to this Order, incorporated herein, includes additional findings that further describe a) the Water Board's legal and regulatory authority, b) the rationale for this Order, c) a description of the environmental and agricultural resources in the Central Coast Region, and d) impacts to water quality from agricultural discharges. Attachment A also identifies applicable plans and policies adopted by the State Water Board and the Central Coast Water Board that contain regulatory condition

that apply to the discharge of waste from irrigated lands. Attachment A also includes definitions of terms for purposes of this Order.

IT IS HEREBY ORDERED that:

1. Pursuant to Water Code sections 13260, 13263, 13267, and 13269, Dischargers must comply with the terms and conditions of this Order to meet the provisions contained in Water Code Division 7 and regulations and plans and policies adopted there under.

2. This Order shall not create a vested right to discharge, and all discharges of waste are a privilege, not a right, as provided for in Water Code section 13263(g).

3. Dischargers must not discharge any waste not specifically regulated by this Order except in compliance with the Water Code.

4. Pursuant to Water Code section 13269, the Central Coast Water Board waives the requirement that Dischargers obtain WDRs pursuant to Water Code section 13263(a) for discharges of waste from irrigated lands, if the Discharger enrolls in and complies with this Order, including Attachments and Monitoring and Reporting Program (MRP) Order No. R3-2012-0011.

5. Pursuant to Water Code section 13269, this action waiving the issuance of WDRs for certain specific types of discharges: 1) is conditional; 2) may be terminated by the Central Coast Water Board at any time; 3) may be superseded if the State Water Board or Central Coast Water Board adopts specific WDRs or general WDRs for this type of discharge or any individual discharger; 4) does not permit any illegal activity; 5) does not preclude the need for permits which may be required by other local or governmental agencies; 6) does not preclude the Central Coast Water Board from requiring WDRs for any individual discharger or from administering enforcement remedies (including civil liability) pursuant to the Water Code; and 7) includes conditions for the performance of individual, group, and watershed-based monitoring in the form of monitoring requirements designed to support the development and implementation of the waiver program, including, but not limited to, verifying the adequacy and effectiveness of the waiver's conditions.

6. Dischargers or groups of Dischargers seeking regulatory requirements tailored to their specific operation, farm/ranch, geographic area, or commodity may submit an ROWD to obtain individual or general orders for a specific discharge or type of discharge (e.g., commodity-specific general order). This Order remains applicable until such individual or general orders are adopted by the Central Coast Water Board.

7. The Executive Officer may propose, and the Water Board may adopt, individual WDRs for any Discharger at any time.

8. The Central Coast Water Board or the Executive Officer may, at any time, terminate applicability of this Order with respect to an individual Discharger upon written notice to the Discharger.

9. Dischargers are defined in this Order as both the landowner and operator of irrigated cropland, and both must comply with this Order.

10. Dischargers may comply with this Order by participating in third-party groups (e.g., watershed group, or water quality coalition, or other similar cooperative effort) approved by the Executive Officer or Central Coast Water Board. In this case, the third-party group will assist individual growers in achieving compliance with this Order, including implementing water quality improvement projects and required monitoring and reporting programs as described in MRP Order No. R3-2012-0011-01, MRP Order No. R3-2012-0011-02, and MRP Order No. R3-2012-0011-03, or alternative monitoring and reporting programs as provided in Condition 11 below. Consistent with the Water Board's Policy for Implementation and Enforcement of the Nonpoint Source Pollution Control Program (NPS Policy, 2004), the ineffectiveness of a third-party group through which a Discharger participates in nonpoint source control efforts cannot be used as an excuse for lack of individual discharger compliance. Individual Dischargers continue to be responsible for complying with this Order.

11. Dischargers may form third party groups to develop and implement alternative water quality improvement projects or programs or cooperative monitoring and reporting programs to comply with this Order. At the discretion of the Executive Officer, Dischargers that are a participant in a third party group that implements Executive Officer-approved water quality improvement projects or programs or Executive Officer-approved alternative monitoring and reporting programs may be moved to a lower Tier (e.g., Tier 3 to Tier 2, Tier 2 to Tier 1) and/or provided alternative project or program-specific requirements timelines, and/or milestones.

    To qualify for Tier changes or alternative requirements, timelines, and/or milestones, third party water quality improvement projects and programs will be evaluated for, among other elements:

    - Project or Program Description. Description must include identification of participants, methods, and time schedule for implementation.
    - Purpose. Proposal must state desired outcomes or goals of the project or program (e.g., pollutants to be addressed, amount of pollution load to be reduced, water quality improvement expected).
    - Scale. Solutions must be scaled to address impairment.

- Chance of Success. Projects or programs must demonstrate a reasonable chance of improving water quality and/or reducing pollutant loading.
- Long term solutions and contingencies. Proposals must address what new actions will be taken if the project or program does not meet goals and how the project or program will be sustained through time.
- Accountability. Proposals must set milestones that indicate progress towards goals stated as above in "purpose."
- Project or program monitoring and reporting. Description of monitoring and measuring methods, and information to be provided to the Water Board. Monitoring points must be representative but may not always be at the edge-of-farm so long as monitoring results provide indicators of water quality improvement and/or pollutant load reductions and the efficacy of a project or program. The monitoring and reporting may be a third party monitoring and reporting program consistent with the requirements in the next paragraph.

To qualify for Tier changes or alternative requirements, timelines, and/or milestones, third party monitoring and reporting programs will be evaluated for, among other elements:

- Program Description: Description of monitoring methodologies, schedule and reporting.
- Purpose: Third party monitoring and reporting programs must include collection of data that will provide indicators of water quality improvement and/or pollutant load reduction and aggregate monitoring and reporting must be on a scale sufficient to track progress in small sub-basins and be sufficiently representative of conditions in the sub-basins.

Third party water quality improvement project or program and third party monitoring and reporting program proposals will be evaluated by a Technical Advisory Committee (TAC) comprised of: Two researchers or academics skilled in agricultural practices and/or water quality, one farm advisor (e.g., from Natural Resources Conservation Service or local Resource Conservation Districts), one grower representative, one environmental representative, one environmental justice or environmental health representative, and one Regional Board staff. The TAC must have a minimum of five members to evaluate project or program proposals and make recommendations to the Executive Officer. The Executive Officer has discretion to approve any third party water quality improvement project or program or third party monitoring and reporting program after receiving project or program evaluation results and recommendations from the committee. The Executive Officer may waive the requirement for TAC review of a project or program if the Executive Officer determines that three or more of the seven specified representatives are unavailable for serving on a TAC. The Executive

Officer shall document efforts to convene representatives from each category. Third party projects or programs specifically allowed elsewhere in this Order, such as cooperative receiving water monitoring and cooperative groundwater monitoring, are subject to the specific provisions authorizing such third party projects and programs, rather than the requirements of Provision 11.

An interested person may seek discretionary review by the Regional Board of the Executive Officer's approval or denial of a third party project or program. As stated in the NPS Policy, management practice implementation is not a substitute for compliance with water quality requirements. If the project is not effective in achieving water quality standards, additional management practices by individual Dischargers or the third party group will be necessary.

12. Dischargers who are subject to this Order shall implement management practices, as necessary, to improve and protect water quality and to achieve compliance with applicable water quality standards.

Part A. Tiers

13. Dischargers are classified into a tier based upon criteria that define the risk to water quality and the level of waste discharge. The Central Coast Water Board may update the criteria, as necessary.

14. Dischargers must determine the tier that applies to the individual farm(s)/ranch(es) at their operation or lands when they enroll or update their Notice of Intent (NOI), via electronic submittal. See Part D. Submittal of Technical Reports.

15. **Tier 1** – Applies to all Dischargers whose individual farm/ranch meets all of the criteria described in **(1a), (1b), and (1c)**, or whose individual farm/ranch is certified in a sustainable agriculture program identified in **(1d)** that requires and verifies effective implementation of management practices that protect water quality:

    1a. Discharger does not use chlorpyrifos or diazinon at the farm/ranch, which are documented to cause toxicity in surface waters in the Central Coast Region;

    1b. Farm/ranch is located more than 1000 feet from a surface waterbody listed for toxicity, pesticides, nutrients, turbidity or sediment on the 2010 List of Impaired Waterbodies[9] (Table 1);

[9] The 2010 List of Impaired Waterbodies is available on the Water Board's Impaired Water Bodies website at http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml.

1c. If the Discharger grows crop types with high potential to discharge nitrogen to groundwater (as defined in Attachment A) at the farm/ranch, and the farm/ranch total irrigated acreage is *less than* 50 acres, and is *not* within 1000 feet of a well that is part of a public water system (as defined by the California Health and Safety Code, section 116275) that exceeds the maximum contaminant level (MCL) for nitrate, nitrite, or nitrate + nitrite[10];

1d. Sustainability in Practice (SIP, certified by the Central Coast Vineyard Team) or other certified programs approved by the Central Coast Water Board.

16. **Tier 2** – Applies to all Dischargers whose individual farm/ranch does not meet the Tier 1 or Tier 3 criteria. In general, a Tier 2 Discharger's farm/ranch meets at least one of the characteristics described in **(2a), (2b), or (2c)**:

2a. Discharger applies chlorpyrifos or diazinon at the farm/ranch, which are documented to cause toxicity in surface waters in the Central Coast Region;

2b. Farm/ranch is located within 1000 feet of a surface waterbody listed for toxicity, pesticides, nutrients, turbidity or sediment on the 2010 List of Impaired Waterbodies[9] (see Table 1);

2c. Discharger grows crop types with high potential to discharge nitrogen to groundwater (as defined in Attachment A) at the farm/ranch, and the farm/ranch total irrigated acreage is greater or equal to 50 acres and *less than* 500 acres, or the farm/ranch is *within* 1000 feet of a well that is part of a public water system (as defined by the California Health and Safety Code, section 116275) that exceeds the maximum contaminant level (MCL) for nitrate, nitrite, or nitrate + nitrite[10];

17. **Tier 3** – Applies to all Dischargers whose individual farm/ranch meets one of the following sets of criteria ***(3a) or (3b)***:

[10] California Department of Health Services (CDPH) has determined that public water system well location records are confidential and exempt from disclosure to the public. Until such time that public water system well location records become available to the public, the Central Coast Water Board will identify Dischargers who are within 1000 feet of a public water system well that exceeds the maximum contaminant level (MCL) for nitrate, nitrite, or nitrate + nitrite. Dischargers should evaluate their tier for the purposes of this Order based on all information available. In the case where a Discharger should be placed into a different tier based on proximity to a public water system well, the Central Coast Water Board will provide appropriate notice to the Discharger. Approximate locations for public water system wells are available on the Water Board's GeoTracker GAMA website at http://geotracker.waterboards.ca.gov/gama/.

3a. Discharger grows crop types with high potential to discharge nitrogen to groundwater (as defined in Attachment A) at the farm/ranch, and farm/ranch total irrigated acreage is *greater than or equal* to 500 acres;

3b. Discharger applies chlorpyrifos or diazinon at the farm/ranch, and the farm/ranch discharges irrigation or stormwater runoff to a waterbody listed for toxicity or pesticides on the 2010 List of Impaired Waterbodies[9] (Table 1);

18. Dischargers may submit a request to the Executive Officer to approve transfer to a lower tier. The Discharger must provide information to demonstrate a lower level of waste discharge and a lower threat to water quality, including site-specific operational and water quality information to characterize the waste discharge and resulting effect on water quality. Dischargers remain in the tier determined by the criteria above and must meet all conditions for that tier until the Executive Officer approves the request to transfer to a lower tier. At a minimum, information provided by Dischargers requesting transfer to a lower tier must include the following:
    a. Farm/ranch maps(s) identifying discharge points and any water quality sampling locations;
    b. Schematic showing the flow of irrigation and stormwater runoff, including where it leaves the farm/ranch and where the discharge enters receiving water;
    c. Description of the volume of discharges and when the discharge is present;
    d. Description of type of chemicals applied (e.g., pesticide and fertilizer use);
    e. Description of estimated pollutant loading to groundwater;
    f. Description and results of any individual discharge water quality sampling information available (e.g., irrigation runoff and stormwater sampling, lysimeter sampling);

    If the Executive Officer approves a transfer to a lower tier, any interested person may request that the Central Coast Water Board conduct a discretionary review of the Executive Officer's determination.

19. The Executive Officer may elevate Tier 1 or Tier 2 Dischargers to a higher tier if the Discharger poses a higher threat to water quality based on information submitted as part of the NOI, MRP, or information observed upon inspection of a ranch/farm, or any other appropriate evidence that indicates the ranch/farm meets the criteria for a higher tier. If the Executive Officer requires a transfer to a higher tier, any interested person may request that the Central Coast Water Board conduct a discretionary review of the Executive Officer's determination.

20. The Executive Officer may require Dischargers to enroll irrigated land with similar characteristics (e.g., same landowner or operator), and proximal, adjacent, or contiguous location, as a single operation or farm/ranch.

21. Unless otherwise specified, the conditions of this Order apply to all Dischargers, including Tier 1, Tier 2, and Tier 3.

Part B. General Conditions and Provisions for All Dischargers - Tier 1, Tier 2, and Tier 3

Water Quality Standards-

22. Dischargers shall not cause or contribute to exceedances of applicable water quality standards, as defined in Attachment A, shall protect the beneficial uses of waters of the State and shall prevent nuisance as defined in Water Code section 13050.

23. Dischargers must comply with applicable provisions of the Central Coast Region Water Quality Control Plan (Basin Plan) and all other applicable water quality control plans as identified in Attachment A.

24. Dischargers must comply with applicable Total Maximum Daily Loads (TMDLs), including any plan of implementation for the TMDL, commencing with the effective date or other date for compliance stated in the TMDL. A list of TMDLs adopted by the Central Coast Water Board is available on the Central Coast Water Board website at:
http://www.waterboards.ca.gov/centralcoast/water_issues/programs/ tmdl/index.shtml.

25. Discharges shall not discharge any waste not specifically regulated by the Order described herein, unless the Discharger complies with Water Code section 13260(a) by submitting a ROWD and the Central Coast Water Board either issues WDRs pursuant to Water Code section 13263 or an individual waiver pursuant to Water Code section 13269, or the conditions specified in Water Code section 13264(a) must be met by the Discharger. Waste specifically qualifying for conditional discharge under this Waiver includes earthen materials, including soil, silt, sand clay, rock: inorganic materials (such as metals, salts boron, selenium, potassium, nitrogen, etc.); organic materials; and pesticides that may enter or threaten to enter into waters of the State. Examples of wastes not qualifying for conditional discharge under this Order include hazardous waste and human waste.

26. Dischargers shall not discharge any waste at a location or in a manner different from that described in the NOI.

27. Dischargers shall not discharge chemicals such as fertilizers, fumigants or pesticides down a groundwater well casing.

28. Dischargers shall not discharge chemicals used to control wildlife (such as bait traps or poison) directly into surface waters, or place the chemicals in a location where they may be discharged to surface waters.

29. Dischargers shall not discharge agricultural rubbish, refuse, irrigation tubing or tape, or other solid wastes into surface waters, or place such materials where they may contact or may eventually be discharged to surface waters.

30. This Order does not authorize persons to discharge pollutants from point sources to waters of the United States, including wetlands, where the Discharger is required to obtain an NPDES permit under Clean Water Act section 402 (NPDES), or a dredge and fill permit under Clean Water Act section 404 (dredge and fill), except as authorized by an NPDES permit or section 404 permit. An area is considered a wetland, subject to Clean Water Act section 404, if it meets the United States Army Corps of Engineers' definition as described in the Code of Federal Regulations and associated wetland delineation procedures, or relevant Water Board definitions.

Waste Discharge Control-

31. **By March 1, 2013**, Dischargers that apply fertilizers, pesticides, fumigants or other chemicals through an irrigation system must have functional and properly maintained back flow prevention devices installed at the well or pump to prevent pollution of groundwater or surface water, consistent with any applicable DPR requirements or local ordinances. Back flow prevention devices used to protect water quality must be those approved by USEPA, DPR, CDPH, or the local public health or water agency.

32. **By October 1, 2015,** Dischargers must properly destroy all abandoned groundwater wells, exploration holes or test holes, as defined by Department of Water Resources (DWR) Bulletin 74-81 and revised in 1988, in such a manner that they will not produce water or act as a conduit for mixing or otherwise transfer groundwater or waste constituents between permeable zones or aquifers. Proper well abandonment must be consistent with any applicable DWR requirements or local ordinances.

33. Dischargers who utilize containment structures (such as retention ponds or reservoirs) to achieve treatment or control of the discharge of wastes must manage, construct, and maintain such containment structures to avoid discharges of waste to groundwater and surface water that cause or contribute to exceedances of water quality standards. Dischargers may choose the method of compliance appropriate for the individual farm, which may include, but is not limited to:
    - implementing chemical treatment (e.g., enzymes);

- implementing biological treatment (e.g., wood chips);
- recycling or reusing contained water to minimize infiltration or discharge of waste;
- minimizing volume of water in the containment structure to minimize percolation of waste;
- minimizing percolation of waste via a synthetic, concrete, clay, or low permeability soil liner;

34. Dischargers must implement proper handling, storage, disposal and management of pesticides, fertilizer, and other chemicals to prevent or control the discharge of waste to waters of the State that causes or contributes to exceedances of water quality standards.

35. Upon request, Dischargers must submit information regarding compliance with any Department of Pesticide Regulation (DPR) adopted or approved surface water or groundwater protection requirements.

36. Dischargers must implement water quality protective management practices (e.g., source control or treatment) to prevent erosion, reduce stormwater runoff quantity and velocity, and hold fine particles in place.

37. Dischargers must minimize the presence of bare soil vulnerable to erosion and soil runoff to surface waters and implement erosion control, sediment, and stormwater management practices in non-cropped areas, such as unpaved roads and other heavy use areas.

38. Dischargers must comply with any applicable stormwater permit.

39. Dischargers must a) maintain existing, naturally occurring, riparian vegetative cover (such as trees, shrubs, and grasses) in aquatic habitat areas as necessary to minimize the discharge of waste; and b) maintain riparian areas for effective streambank stabilization and erosion control, stream shading and temperature control, sediment and chemical filtration, aquatic life support, and wildlife support to minimize the discharge of waste;

40. In the case where disturbance of aquatic habitat is necessary for the purposes of water quality improvement, restoration activities, or other permitted activities, Dischargers must implement appropriate and practicable measures to avoid, minimize, and mitigate erosion and discharges of waste, including impacts to aquatic habitat.

41. Upon request, where required by California Fish and Game Code, Dischargers must submit proof of an approved Streambed Alteration Agreement from the California Department of Fish and Game (CDFG) for any work conducted within

the bed, bank or channel of a lake or stream, including riparian areas, that has the potential to result in erosion and discharges of waste to waters of the State.

42. Upon request, where required by California Forest Practice Rules, Dischargers must submit proof of California Department of Forestry and Fire Protection authorization, and enrollment in the Central Coast Water Board's General Conditional Waiver of WDRs – Timber Harvest Activities in the Central Coast Region, for any commercial harvesting of timber that has the potential to result in erosion and discharges of waste to waters of the State.

43. Upon request, where required by Clean Water Act Section 404, Dischargers must submit proof of a dredge and fill permit from the United States Army Corps of Engineers (USACOE) for any work that has the potential to discharge wastes considered "fill," such as sediment, to wetlands.

44. **By October 1, 2012**, Dischargers must develop a farm water quality management plan (Farm Plan), or update the Farm Plan as necessary, and implement it to achieve compliance with this Order. Farm Plans must be kept current, kept on the farm, and a current copy must be made available to Central Coast Water Board staff, upon request. At a minimum, Farm Plans must include:

    a. Copy of this Order and a copy of the Notice of Intent (NOI) submitted to the Central Coast Water Board for reference by operating personnel and inspection by Central Coast Water Board staff;
    b. Date the Farm Plan was last updated;
    c. Farm/ranch maps(s) identifying irrigation and stormwater runoff discharge locations where irrigation and stormwater runoff leaves or may leave the farm/ranch and where the discharge enters or may enter receiving water;
    d. Description of the typical volume of discharges and when the discharge is typically present;
    e. Description of type of chemicals applied (e.g., pesticide and fertilizer use);
    f. Description and time schedule for any farm water quality management practices, treatment and/or control measures implemented to comply with this Order. This includes, but is not limited to, management practices related to irrigation efficiency and management, pesticide management, nutrient management, salinity management, sediment and erosion control (including stormwater management), and aquatic habitat protection to achieve compliance with this Order. In addition, Farm Plans must describe tile drain discharges and the management measures Dischargers have implemented or will implement to minimize impacts to water quality;
    g. A description of the method and schedule for assessing the effectiveness of each management practice, treatment, and control measure identified in accordance with subsection(f). Such methods for assessing effectiveness are expected to be based on standard practices such as, but not limited

to: visual inspections, photographs, soil nutrient testing, soil moisture measurements, and recordkeeping. Dischargers may also choose more advanced methods for assessing effectiveness, such as water quality sampling, modeling software, calculated reductions in pollutant loading, toxicity testing, biological indicators evaluations, and other measurement types that prove useful to determining the effectiveness of a management practice. The use of advanced methods is not required.

45. Dischargers must obtain appropriate farm water quality education and technical assistance necessary to achieve compliance with this Order. Education should focus on meeting water quality standards by identifying on-farm water quality problems, implementing pollution prevention strategies and implementing practices designed to protect water quality and resolve water quality problems to achieve compliance with this Order.

Other Provisions and Conditions-

46. Pursuant to Water Code section 13267(c), the Central Coast Water Board staff or its authorized representatives may investigate the property of persons subject to this Order to ascertain whether the purposes of the Porter-Cologne Act are being met and whether the Discharger is complying with the conditions of this Order. The inspection shall be made with the consent of the owner or possessor of the facilities, or if consent is withheld, with a duly issued warrant pursuant to the procedure set forth in Title 13 Code of Civil Procedure Part 3 (commencing with Section 1822.50). However, in the event of an emergency affecting the public health or safety, an inspection may be performed without consent or the issuance of a warrant.

47. This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code Sections 2050 to 2097) or the federal Endangered Species Act (16 U.S.C.A. Sections 1531 to 1544). If a "take" will result from any act authorized under this Order, the Dischargers must obtain authorization for an incidental take prior to taking action. Dischargers must be responsible for meeting all requirements of the applicable Endangered Species Act for the discharge authorized by this Order.

48. Dischargers must pay a fee to the State Water Resources Control Board in compliance with the fee schedule contained in Title 23 California Code of Regulations**.**

49. Dischargers must pay any relevant monitoring fees (e.g., Cooperative Monitoring Program) necessary to comply with monitoring and reporting conditions of this Order or comply with monitoring and reporting requirements individually.

Part C. Monitoring Conditions for All Dischargers- Tier 1, Tier 2, and Tier 3

50. Dischargers must comply with MRP Order No. R3-2012-0011, as ordered by the Executive Officer or alternative monitoring and reporting programs approved by Executive Officer as set forth in Finding 11 and Condition 11.

    Monitoring and reporting conditions are different for each tier, based on level of waste discharge and affect on water quality. Attached to this Order are three specific MRPs, one for each tier:

    a. Tier 1 Dischargers must comply with monitoring and reporting conditions specified in MRP Order No. R3-2012-0011-01;
    b. Tier 2 Dischargers must comply with monitoring and reporting conditions specified in MRP Order No. R3-2012-0011-02;
    c. Tier 3 Dischargers must comply with monitoring and reporting conditions specified in MRP Order No. R3-2012-0011-03;

51. Tier 1, Tier 2, and Tier 3 Dischargers must conduct groundwater monitoring and reporting in compliance with MRP Order No. R3-2012-0011-01, MRP Order No. R3-2012-0011-02, and MRP Order No. 2012-0011-03, or alternative monitoring and reporting programs approved by Executive Officer as set forth in Finding 11 and Condition 11, so that the Central Coast Water Board can evaluate groundwater conditions in agricultural areas, identify areas at greatest risk for waste discharge and nitrogen loading and exceedance of drinking water standards, and identify priority areas for nutrient management.

52. Tier 1, Tier 2, and Tier 3 Dischargers must conduct surface receiving water quality monitoring and reporting in compliance with MRP Order No. R3-2012-0011-01, MRP Order No. R3-2012-0011-02, and MRP Order No. 2012-0011-03, either individually or through a cooperative monitoring program, or alternative monitoring and reporting programs approved by Executive Officer as set forth in Finding 11 and Condition 11.

53. For Dischargers who choose to participate in a cooperative monitoring program, failure to pay cooperative monitoring program fees voids a selection or notification of the option to participate in a cooperative monitoring and hence requires individual monitoring report submittal per MRP Order No. R3-2012-0011, MRP Order No. R3-2012-0011-02, and MRP Order No. 2012-0011-03.

Part D. Submittal of Technical Reports for All Dischargers- Tier 1, Tier 2, Tier 3

Notice of Intent (NOI) to Enroll under the Order for All Dischargers in Tier 1, Tier 2 and Tier 3

54. Submittal of the electronic NOI is required pursuant to Water Code section 13260. Submittal of all other technical reports pursuant to this Order is required pursuant to Water Code section 13267. Failure to submit technical reports or the attachments in accordance with schedules established by this Order or MRP, or failure to submit a complete technical report (i.e., of sufficient technical quality to be acceptable to the Executive Officer), may subject the Discharger to enforcement action pursuant to Water Code sections 13261, 13268, or 13350. Dischargers must submit technical reports in the format specified by the Executive Officer.

55. Dischargers seeking authorization to discharge under this Order must submit a completed electronic NOI form to the Central Coast Water Board. Dischargers already enrolled in the 2004 Agricultural Order and who have submitted their NOI electronically are not required to submit a new NOI. Upon submittal of an accurate and complete electronic NOI, the Discharger is enrolled under the Order, unless otherwise informed by the Executive Officer.

    a. In the case where an operator may be operating for a period of less than 12 months, the landowner must submit the electronic NOI.

    b. **Within 60 days** of the adoption of this Order, any Discharger who did not enroll in the 2004 Agricultural Order must submit an electronic NOI, unless otherwise directed by the Executive Officer.

    c. **Prior to any discharge or commencement of activities that may cause a discharge,** including land preparation prior to crop production, any Discharger proposing to control or own a new operation or farm/ranch that has the potential to discharge waste that could directly or indirectly reach waters of the State and affect the quality of any surface water or groundwater must submit an electronic NOI.

    d. Dischargers must submit any updates to the electronic NOI by **October 1, 2012 and annually thereafter by October 1,** to reflect changes to operation or ranch/farm information.

    e. **Within 60 days**, in the event of a change in control or ownership of an operation, farm/ranch, or land presently owned or controlled by the Discharger, the Discharger must notify the succeeding owner and operator of

the existence of this Order by letter, and forward a copy of the letter to the Executive Officer.

f. **Within 60 days** of acquiring control or ownership of an operation or farm/ranch, any Discharger acquiring control or ownership of an existing operation or farm/ranch must submit an electronic NOI.

56. Dischargers must submit all the information required in the electronic NOI form including, but not limited to, the following information for the operation and individual farm/ranch:
    a. Identification of each property covered by enrollment,
    b. Tier applicable to each farm/ranch,
    c. Landowner(s),
    d. Operator(s),
    e. Contact information,
    f. Option selected to comply with surface receiving water quality monitoring conditions (cooperative monitoring or individual),
    g. Option selected to comply with groundwater monitoring conditions (cooperative monitoring or individual),
    h. Location of operation, including specific farm(s)/ranch(es),
    i. Farm/ranch map with discharge locations and groundwater wells identified,
    j. Total and irrigated acreage,
    k. Crop type,
    l. Irrigation type,
    m. Discharge type,
    n. Chemical use,
    o. Presence and location of any perennial, intermittent, or ephemeral streams or riparian or wetland area habitat.

57. Dischargers must submit a statement of understanding of the conditions of the Order and MRP signed by the Discharger (landowner or operator) with the electronic NOI form. If the operator signs and submits the electronic NOI, the operator must provide a copy of the completed NOI form to the landowner(s).

58. Dischargers must identify in the electronic NOI if the farm/ranch is a Tier 1, Tier 2, or Tier 3 and provide complete and accurate information in the NOI that allows the Central Coast Water Board to confirm the appropriate tier. For Dischargers who do not provide adequate information for the Water Board to confirm or determine the appropriate tier, the Executive Officer will place the farm/ranch in the appropriate tier based upon information submitted in the Notice of Intent or further communication with the Discharger.

59. Coverage under this Order is not transferable to any person except after submittal of an updated electronic NOI and approval by the Executive Officer.

60. For Dischargers who do not enroll in the Order in a timely manner as specified in this Order, the Executive Officer may require submittal of an ROWD, and the Discharger may be subject to WDRs.

Notice of Termination (NOT) for All Dischargers

61. **Immediately**, if a Discharger wishes to terminate coverage under the Order for the operation or an individual farm/ranch, the Discharger must submit a completed Notice of Termination (NOT). Termination from coverage is the date specified in the NOT, unless specified otherwise. All discharges, as defined in Attachment A, must cease before the date of termination, and any discharges on or after the date of termination shall be considered in violation of the Order, unless covered by other waivers of WDRs, general WDRs, or individual WDRs cover the discharge.

Monitoring and General Technical Reports for All Dischargers

62. Dischargers must submit monitoring reports in compliance with MRP Order No. R3-2012-0011, or alternative monitoring and reporting programs approved by Executive Officer as set forth in Finding 11 and Condition 11, electronically in a format specified by the Executive Officer.

63. Any laboratory data submitted to the Central Coast Water Board by Dischargers must be submitted by, or under the direction of, a State registered professional engineer, registered geologist, State certified laboratory or other similarly qualified professional. Surface water quality data must be submitted electronically, in a format that is compatible with the Central Coast Ambient Monitoring Program (CCAMP), the State's Surface Water Assessment Program (SWAMP) or as directed by the Executive Officer. Groundwater quality data must be submitted in a format compatible with the electronic deliverable format (EDF) used by the State Water Board's GeoTracker data management system, or as directed by the Executive Officer.

64. Dischargers must submit technical reports that the Executive Officer may require to determine compliance with this Order as authorized by Water Code section 13267, electronically in a format specified by the Executive Officer.

65. If the Discharger asserts that all or a portion of a report submitted pursuant to this Order is subject to an exemption from public disclosure (e.g., trade secrets or secret processes), the Discharger must provide an explanation of how those portions of the reports are exempt from public disclosure. Also, the Discharger must clearly indicate on the cover of the report (typically an electronic submittal) that the Discharger asserts that all or a portion of the report is exempt from public disclosure, submit a complete report with those portions that are asserted to be

exempt in redacted form, submit separately (in a separate electronic file) unredacted pages (to be maintained separately by staff). The Central Coast Water Board staff will determine whether any such report or portion of a report qualifies for an exemption from public disclosure. If the Central Coast Water Board staff disagrees with the asserted exemption from public disclosure, the Central Coast Water Board staff will notify the Discharger prior to making such report or portions of such report available for public inspection. In the interest of public health and safety, the Central Coast Water Board will not make available for public inspection, the precise location of any groundwater well monitored in compliance with this Order. Consistent with the reporting of groundwater wells on GeoTracker, groundwater well location and data will only be referenced within a one-half mile radius of the actual well location.

66. Dischargers or a representative authorized by the Discharger must sign technical reports submitted to comply with the Order. Any person signing a report submitted as required by this Order must make the following certification:

"In compliance with Water Code section *13267, I certify under penalty of perjury that this document and all attachments were prepared by me, or under my direction or supervision, following a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. To the best of my knowledge and belief, this document and all attachments are true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."*

Part E. Additional Conditions that Apply to Tier 2 and Tier 3 Dischargers

Annual Compliance Reporting for Tier 2 and Tier 3 Dischargers

67. By **October 1, 2012, and updated by October 1 annually thereafter**, Tier 2 and Tier 3 Dischargers must submit an Annual Compliance Form electronically, in a format specified by the Executive Officer that includes all the information requested, per MRP Order No. R3-2012-0011-02 and MRP Order No. R3-2012-0011-03, respectively. The purpose of the electronic Annual Compliance Form is to provide up-to-date information to the Central Coast Water Board to assist in the evaluation of affect on water quality from agricultural waste discharges and evaluate progress towards compliance with this Order, including implementation of management practices, treatment or control measures, or changes in farming practices.

68. **By January 15, 2014**, Tier 2 and Tier 3 Dischargers must determine nitrate loading risk factor(s) in accordance with MRP Order No. R3-2012-0011-02 and MRP Order No. R3-2012-0011-03 and report the nitrate loading risk factors and

overall Nitrate Loading Risk level calculated for each ranch/farm or nitrate loading risk unit in the Annual Compliance Form, electronically (or in a format specified by the Executive Officer).

Photo Monitoring for Tier 2 and Tier 3 Dischargers with farms/ranches *adjacent to or containing* a waterbody identified on the 2010 List of Impaired Waterbodies as impaired for temperature, turbidity, or sediment

69. **By June 1, 2014, and by June 1, 2017, and every four years thereafter**, Tier 2 and Tier 3 Dischargers with farms/ranches adjacent to or containing a waterbody identified on the 2010 List of Impaired Waterbodies as impaired for temperature, turbidity, or sediment (identified in Table 1) must conduct photo monitoring per MRP Order No. R3-2012-0011-02 and MRP Order No. R3-2012-0011-03, respectively. Photo monitoring must document the condition of perennial, intermittent, or ephemeral streams and riparian and wetland area habitat, and demonstrate compliance with Basin Plan erosion and sedimentation requirements (see Part F. 80 of this Order), including the presence of bare soil vulnerable to erosion and relevant management practices and/or treatment and control measures implemented to address impairments. Aerial photography and photography from an elevated vantage point are permitted methodologies for photo monitoring. Photo documentation must be maintained in the Farm Plan and must be submitted upon request of the Executive Officer.

Total Nitrogen Reporting for Tier 2 and Tier 3 Dischargers with farms/ranches with High Nitrate Loading Risk

70. **By October 1, 2014 and by October 1 annually thereafter**, Tier 2 and Tier 3 Dischargers with a farm/ranch with High Nitrate Loading Risk must record and report total nitrogen applied in the Annual Compliance Form, electronically in a format specified by the Executive Officer, per MRP Order No. R3-2012-0011-02 and MRP Order No. R3-2012-0011-03, respectively.

71. As an alternative to reporting total nitrogen applied in the electronic Annual Compliance Form, Tier 2 and Tier 3 Dischargers with a farm/ranch with High Nitrate Loading Risk may propose an individual discharge groundwater monitoring and reporting program (GMRP) plan for approval by the Executive Officer. The GMRP plan must evaluate waste discharge to groundwater from each ranch/farm or nitrate loading risk unit with a High Nitrate Loading Risk.

Part F. Additional Conditions that Apply to Tier 3 Dischargers

72. **By December 1, 2013,** Tier 3 Dischargers must initiate individual surface water discharge monitoring per MRP Order No. R3-2012-0011-03 or alternative

monitoring and reporting programs approved by Executive Officer as set forth in Finding 11 and Condition 11.

73. **By March 15, 2014, October 1, 2014** and annually thereafter by October 1, Tier 3 Dischargers must submit individual surface water discharge monitoring data and reports per MRP Order No. R3-2012-0011-03, electronically, in a format specified by the Executive Officer, or alternative monitoring and reporting programs approved by Executive Officer as set forth in Finding 11 and Condition 11 .

Irrigation and Nutrient Management Plan for Tier 3 Dischargers with farms/ranches with High Nitrate Loading Risk

74. Tier 3 Dischargers with High Nitrate Loading Risk farms/ranches must develop and initiate implementation of an Irrigation and Nutrient Management Plan (INMP) certified by a Professional Soil Scientist, Professional Agronomist, or Crop Advisor certified by the American Society of Agronomy, or similarly qualified professional, per MRP Order No. R3-2012-0011-03.

75. **By October 1, 2016,** Tier 3 Dischargers with High Nitrate Loading Risk farms/ranches must verify the overall effectiveness of the INMP per MRP Order No. R3-2012-0011-03. Dischargers must identify the methods used to verify effectiveness and include the results as a report with the Annual Compliance Form, submitted electronically in a format specified by the Executive Officer.

Water Quality Buffer Plan for Tier 3 Dischargers with farms/ranches adjacent to or containing a waterbody identified on the 2010 List of Impaired Waterbodies as impaired for temperature, turbidity, or sediment

76. **By October 1, 2016,** Tier 3 Dischargers with farms/ranches adjacent to or containing a waterbody identified on the 2010 List of Impaired Waterbodies as impaired for temperature, turbidity, or sediment (see Table 1) must develop a Water Quality Buffer Plan per MRP Order No. R3-2012-0011-03 that protects the listed waterbody and its associated perennial and intermittent tributaries, including adjacent wetlands as defined by the Clean Water Act. Dischargers must submit the Water Quality Buffer Plan as a report with the Annual Compliance Form, submitted electronically in a format specified by the Executive Officer. The purpose of the Water Quality Buffer Plan is to control discharges of waste that cause or contribute to exceedances of water quality standards in waters of the State or United States in compliance with this Order and the following Basin Plan requirement:

    a. Basin Plan (Chapter 5, p. V-13, Section V.G.4 – Erosion and Sedimentation, *"A filter strip of appropriate width, and consisting of undisturbed soil and riparian vegetation or its equivalent, shall be maintained, wherever possible,*

between significant land disturbance activities and watercourses, lakes, bays, estuaries, marshes, and other water bodies. For construction activities, minimum width of the filter strip shall be thirty feet, wherever possible. .."

b. As an alternative to the development and implementation of a Water Quality Buffer Plan, Tier 3 Dischargers may submit evidence to the Executive Officer to demonstrate that any discharge of waste is sufficiently treated or controlled such that it is of sufficient quality that it will not cause or contribute to exceedances of water quality standards in waters of the State or of the United States.

77. Tier 3 Dischargers with farms/ranches adjacent to or containing a waterbody identified on the 2010 List of Impaired Waterbodies as impaired for temperature, turbidity, or sediment must implement the Water Quality Buffer Plan immediately upon submittal, unless the plan requests a time extension that is approved by the Executive Officer. If the Executive Officer determines the Water Quality Buffer Plan is not in compliance with this Order, the Executive Officer will notify the Discharger and the Discharger must make necessary modifications accordingly.

Part G. TIME SCHEDULE

78. Time schedules for compliance with conditions are identified in Conditions 80 – 83, and described in Table 2 (all Dischargers) and Table 3 (Tier 2 and Tier 3 Dischargers). Milestones are identified in Table 4. Dischargers must comply with Order Conditions by dates specified in Tables 2 and 3 in accordance with the MRP. The Water Board will consider the following information in determining the extent to which the Discharger is effectively controlling individual waste discharges and compliance with this Order:
    a) compliance with the time schedules;
    b) effectiveness of management practice implementation;
    c) effectiveness of treatment or control measures (including cooperative water quality improvement efforts, and local and regional treatment strategies);
    d) results of individual discharge monitoring (Tier 3);
    e) results of surface receiving water monitoring downstream of the point where the individual discharge enters the receiving water body;
    f) other information obtained by Water Board staff during inspections at operations or farms/ranches, or submitted in response to Executive Officer orders;

79. The Executive Officer may require additional monitoring and reporting as authorized by Water Code section 13267 in cases where Dischargers fail to demonstrate adequate progress towards compliance as indicated by milestones and compliance with other Conditions of the Order.

80. **By October 1, 2014**, Tier 3 Dischargers must effectively control individual waste discharges of pesticides and toxic substances to waters of the State and of the United States.

81. **By October 1, 2015**, Tier 3 Dischargers must effectively control individual waste discharges of sediment and turbidity to surface waters of the State or of the United States.

82. **By October 1, 2016**, Tier 3 Dischargers must effectively control individual waste discharges of nutrients to surface waters of the State or of the United States.

83. **By October 1, 2016,** Tier 3 Dischargers must effectively control individual waste discharges of nitrate to groundwater.

83.5. To comply with Provisions 22, 23, 33, and 80 - 83 of this Order. Dischargers must (1) implement management practices that prevent or reduce discharges of waste that are causing or contributing to exceedances of water quality standards: and (2) to the extent practice effectiveness evaluation or reporting, monitoring data, or inspections indicate that the implemented management practices have not been effective in preventing the discharges from causing or contributing to exceedances of water quality standards, the Discharger must implement improved management practices.

84. This Order becomes effective on March 15, 2012 and expires on March 14, 2017, unless rescinded or renewed by the Central Coast Water Board.

I, Kenneth A. Harris, Jr., Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order and Attachments adopted by the California Regional Water Quality Control Board, Central Coast Region, on March 15, 2012 and as modified by the State Water Resources Control Board Order WQ-2013-0101 on September 24, 2013 .

Kenneth A. Harris, Jr.
Executive Officer

January 16, 2014
Date

Table 1. 2010 Clean Water Act Section 303(d) List of Impaired Waterbodies Impaired for Toxicity, Pesticides, Nutrients, Temperature, Turbidity, or Sediment

Waterbody Name	Impairment(s)[1]
Alisal Creek (Monterey Co.) [3]	Toxicity, Nutrients
Aptos Creek[2]	Sediment
Arana Gulch[3]	Pesticides
Arroyo Paredon[3]	Toxicity, Pesticides, Nutrients
Beach Road Ditch[2]	Nutrients, Turbidity
Bean Creek[2]	Sediment
Bear Creek (Santa Cruz Co.)[2]	Sediment
Bell Creek (Santa Barbara Co.) [3]	Toxicity, Nutrients
Blanco Drain[2,3]	Pesticides, Nutrients, Turbidity
Blosser Channel	Toxicity, Nutrients
Boulder Creek[2]	Sediment
Bradley Canyon Creek[2,3]	Toxicity, Nutrients, Turbidity
Bradley Channel[3]	Toxicity, Pesticides, Nutrients
Branciforte Creek[2,3]	Pesticides, Sediment
Carbonera Creek[2]	Nutrients, Sediment
Carnadero Creek	Nutrients, Turbidity
Carneros Creek (Monterey Co.) [2]	Nutrients, Turbidity
Carpinteria Creek[3]	Pesticides
Carpinteria Marsh (El Estero Marsh)	Nutrients
Casmalia Canyon Creek[2]	Sediment
Chorro Creek[2]	Nutrients, Sediment
Chualar Creek[2,3]	Toxicity, Pesticides, Nutrients, Turbidity, Temperature
Corralitos Creek[2]	Turbidity
Elkhorn Slough[2,3]	Pesticides, Sediment
Esperanza Creek	Nutrients
Espinosa Lake[3]	Pesticides
Espinosa Slough[2,3]	Toxicity, Pesticides, Nutrients, Turbidity
Fall Creek[2]	Sediment
Franklin Creek (Santa Barbara Co.)[3]	Pesticides, Nutrients
Furlong Creek[2,3]	Pesticides, Nutrients, Turbidity
Gabilan Creek[2,3]	Toxicity, Nutrients, Turbidity
Glen Annie Canyon[3]	Toxicity, Nutrients

Greene Valley Creek (Santa Barbara Co.) [2,3]	Toxicity, Pesticides, Nutrients, Turbidity, Temperature
Kings Creek[2]	Sediment
Little Oso Flaco Creek[3]	Toxicity, Nutrients
Llagas Creek (below Chesbro Reservoir) [2,3]	Pesticides, Nutrients, Sediment, Turbidity
Lompico Creek[2]	Nutrients, Sediment
Los Berros Creek	Nutrients
Los Carneros Creek	Nutrients
Los Osos Creek[2]	Nutrients, Sediment
Love Creek[2]	Sediment
Main Street Canal[2,3]	Toxicity, Pesticides, Nutrients, Turbidity
McGowan Ditch	Nutrients
Merrit Ditch[2,3]	Toxicity, Nutrients, Turbidity
Millers Canal[2,3]	Pesticides, Turbidity, Temperature
Mission Creek (Santa Barbara Co.)[3]	Toxicity
Monterey Harbor[3]	Toxicity
Moro Cojo Slough[2,3]	Pesticides, Nutrients, Sediment
Morro Bay[2]	Sediment
Moss Landing Harbor[2,3]	Toxicity, Pesticides, Sediment
Mountain Charlie Gulch[2]	Sediment
Natividad Creek[2,3]	Toxicity, Nutrients, Turbidity, Temperature
Newell Creek (Upper) [2]	Sediment
Nipomo Creek[3]	Toxicity, Nutrients
North Main Street Channel	Nutrients
Old Salinas River Estuary[3]	Pesticides, Nutrients
Old Salinas River[2,3]	Toxicity, Pesticides, Nutrients, Turbidity
Orcutt Creek[2,3]	Toxicity, Pesticides, Nutrients, Turbidity, Temperature
Oso Flaco Creek[3]	Toxicity, Nutrients
Oso Flaco Lake[3]	Pesticides, Nutrients
Pacheco Creek[2]	Turbidity
Pacific Ocean (Point Ano Nuevo to Soquel Point)[3]	Pesticides
Pajaro River[2,3]	Pesticides, Nutrients, Sediment, Turbidity
Prefumo Creek[2]	Nutrients, Turbidity
Quail Creek[2,3]	Toxicity, Pesticides, Nutrients, Turbidity, Temperature
Rider Creek[2]	Sediment
Rincon Creek[2,3]	Toxicity, Turbidity
Rodeo Creek Gulch[2]	Turbidity

Salinas Reclamation Canal[2,3]	Toxicity, Pesticides, Nutrients, Turbidity
Salinas River (lower, estuary to near Gonzales Rd crossing, watersheds 30910 and 30920) [2,3]	Toxicity, Pesticides, Nutrients, Turbidity
Salinas River (middle, near Gonzales Rd crossing to confluence with Nacimiento River) [2,3]	Toxicity, Pesticides, Turbidity, Temperature
Salinas River Lagoon (North) [3]	Pesticides, Nutrients
Salinas River Refuge Lagoon (South) [2]	Turbidity
Salsipuedes Creek (Santa Cruz Co.) [2]	Turbidity
San Antonio Creek (below Rancho del las Flores Bridge at Hwy 135) [3]	Pesticides, Nutrients
San Benito River[2,3]	Toxicity, Sediment
San Juan Creek (San Benito Co.) [2,3]	Toxicity, Nutrients, Turbidity
San Lorenzo River[2,3]	Pesticides, Nutrients, Sediment
San Luis Obispo Creek (below Osos St.) [3]	Pesticides, Nutrients
San Simeon Creek	Nutrients
San Vicente Creek (Santa Cruz Co.) [2]	Sediment
Santa Maria River[2,3]	Toxicity, Pesticides, Nutrients, Turbidity
Santa Rita Creek (Monterey Co.) [2]	Nutrients, Turbidity
Santa Ynez River (below city of Lompoc to Ocean)[2]	Nutrients, Sediment, Temperature
Santa Ynez River (Cachuma Lake to below city of Lompoc)	Sediment, Temperature
Schwan Lake	Nutrients
Shingle Mill Creek[2]	Nutrients, Sediment
Shuman Canyon Creek[2]	Sediment
Soda Lake	Nutrients
Soquel Creek[2]	Turbidity
Soquel Lagoon[2]	Sediment
Tembladero Slough[2,3]	Toxicity, Pesticides, Nutrients, Turbidity
Tequisquita Slough[2]	Turbidity
Uvas Creek (below Uvas Reservoir) [2]	Turbidity
Valencia Creek[2]	Sediment
Warden Creek	Nutrients
Watsonville Creek	Nutrients
Watsonville Slough[2,3]	Pesticides, Turbidity
Zayante Creek[2,3]	Pesticides, Sediment

[1]Dischargers with farms/ranches located within 1000 feet of a surface waterbody listed for toxicity, pesticides, nutrients, turbidity or sediment on the 2010 List of Impaired Waterbodies are included as Tier 2 or Tier 3;
[2]Tier 2 and Tier 3 Dischargers with farms/ranches adjacent to or containing a waterbody identified on the 2010 List of Impaired Waterbodies as impaired for temperature, turbidity, or sediment must conduct photo monitoring, and Tier 3 Dischargers must also implement a Water Quality Buffer Plan.

[3]Dischargers who apply chemicals known to cause toxicity to surface water to a farm/ranch that discharges to a waterbody on the 2010 303(d) List of Impaired Waterbodies for toxicity or pesticides must meet conditions in this Order for Tier 3.

Table 2. Time Schedule for Compliance with Conditions for All Dischargers (Tier 1, Tier 2, and Tier 3)

CONDITIONS	COMPLIANCE DATE[1]
Submit Notice of Intent (NOI)	Within 60 days of adoption of Order or Within 60 days acquiring ownership/ control, and prior to any discharge or commencement of activities that may cause discharge.
Submit Update to NOI	Within 60 days, upon adoption of Order and upon change of control or ownership
Submit Notice of Termination	Immediately, when applicable
Submit Monitoring Reports per MRP	Per date in MRP
Implement, and update as necessary, management practices to achieve compliance with this Order.	Ongoing
Protect existing aquatic habitat to prevent discharge of waste	Immediately
Submit surface receiving water quality monitoring annual report	Within one year, and annually thereafter by January 1
Develop/update and implement Farm Plan	October 1, 2012
Install and maintain adequate backflow prevention devices.	March 1, 2013
Submit groundwater monitoring results and information	October 1, 2013
Properly destroy abandoned groundwater wells.	October 1, 2015

Table 3. Additional Time Schedule for Compliance with Conditions Tier 2 and Tier 3 Dischargers

CONDITIONS	COMPLIANCE DATE
Tier 2 and Tier 3:	
Submit electronic Annual Compliance Form	October 1, 2012, and updated annually thereafter by October 1.
Submit photo documentation of riparian or wetland area habitat (if farm/ranch contains or is adjacent to a waterbody impaired for temperature, turbidity, or sediment)	June 1, 2014. June 1, 2017, and every four years thereafter by June 1.
Calculate Nitrate Loading Risk level and report in electronic Annual Compliance Form	,January 15, 2014 and annually thereafter by October 1.
Submit total nitrogen applied in electronic Annual Compliance Form (if discharge has High Nitrate Loading Risk)	October 1, 2014, and annually thereafter by October 1.
Only Tier 3:	
Initiate individual surface water discharge monitoring	December 1, 2013
Submit individual surface water discharge monitoring data	March 15, 2014, October 1, 2014 and annually thereafter by October 1
Submit Water Quality Buffer Plan or alternative (if farm/ranch contains or is adjacent to a waterbody impaired for temperature, turbidity, or sediment)	October 1, 2016
Submit INMP Effectiveness Report (if discharge has High Nitrate Loading Risk)	October 1, 2016

Table 4. Time Schedule for Milestones

MILESTONES[1]	DATE
Tier 1, Tier 2 and Tier 3:	
Measurable progress towards water quality standards in waters of the State or of the United States[1], or	Ongoing
Water quality standards met in waters of the State or of the United States.	October 1, 2016
Only Tier 3:	
Pesticide and Toxic Substances Waste Discharges to Surface Water	
- One of two individual surface water discharge monitoring samples is not toxic	*October 1, 2014*
- Two of two individual surface water discharge monitoring samples are not toxic	*October 1, 2015*
Sediment and Turbidity Waste Discharges to Surface Water	
- Four individual surface water discharge monitoring samples are collected and analyzed for turbidity.	*October 1, 2014*
- 75% reduction in turbidity or sediment load in individual surface water discharge relative to October 1, 2012 load (or meet water quality standards for turbidity or sediment in individual surface water discharge)	*October 1, 2015*
Nutrient Waste Discharges to Surface Water	
- Four individual surface water discharge monitoring samples are collected and analyzed	*October 1, 2014*
- 50% load reduction in nutrients in individual surface water discharge relative to October 1, 2012 load (or meet water quality standards for nutrients in individual discharge)	*October 1, 2015*

- 75% load reduction in nutrients in individual surface water discharge relative to October 1, 2012 load (or meet water quality standards for nutrients in individual surface water discharge)	*October 1, 2016*
Nitrate Waste Discharges to Groundwater *- Achieve annual reduction in nitrogen loading to groundwater based on Irrigation and Nutrient Management Plan effectiveness and load evaluation*	*October 1, 2016 and annually thereafter*

[1] Indicators of progress towards milestones includes, but is not limited to data and information related to a) management practice implementation and effectiveness, b) treatment or control measures, c) individual discharge monitoring results, d) receiving water monitoring results, and e) related reporting.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION

ORDER NO. R3-2012-0011
ATTACHMENT A

ADDITIONAL FINDINGS, APPLICABLE WATER QUALITY CONTROL PLANS AND DEFINITIONS
FOR
CONDITIONAL WAIVER OF WASTE DISCHARGE REQUIREMENTS
FOR
DISCHARGES FROM IRRIGATED LANDS

Order No. R3-2012-0011 (Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands) requires Dischargers to comply with applicable state plans and policies and applicable state and federal water quality standards and to prevent nuisance. Water quality standards are set forth in state and federal plans, policies, and regulations. The California Regional Water Quality Control Board Central Coast Region's (Central Coast Water Board) Water Quality Control Plan contains specific water quality objectives, beneficial uses, and implementation plans that are applicable to discharges of waste and/or waterbodies that receive discharges of waste from irrigated lands. The State Water Resources Control Board (State Water Board) has adopted plans and policies that may be applicable to discharges of waste and/or surface waterbodies or groundwater that receive discharges of waste from irrigated lands. The United States Environmental Protection Agency (USEPA) has adopted the *National Toxics Rule* and the *California Toxics Rule*, which constitute water quality criteria that apply to waters of the United States.

The specific waste constituents required to be monitored and the applicable water quality standards that protect identified beneficial uses for the receiving water are set forth in Monitoring and Reporting Program (MRP) Order No. R3-2012-0011-01, MRP Order No. R3-2012-0011-02, and MRP Order No. R3-2012-0011-03.

This Attachment A lists additional findings (Part A), relevant plans, policies, regulations (Part B), and definitions of terms (Part C) used in Order No. R3-2012-0011.

PART A. ADDITIONAL FINDINGS

The California Regional Water Quality Control Board, Central Coast Region additionally finds that:

1. The Central Coast Water Board is the principal state agency in the Central Coast Region with primary responsibility for the coordination and control of water quality. (Cal. Wat. Code § 13001, Legislative Intent) The purpose of this Order is to is focus on the highest water quality priorities and maximize water quality protection to ensure the long-term reliability and availability of water resources of sufficient supply and quality for all present and future beneficial uses, including drinking water and aquatic life. Given the magnitude and severity of water quality impairment and impacts to beneficial uses caused by irrigated agriculture and the significant cost to the public, the Central Coast Water Board finds that it is reasonable and necessary to require specific actions to protect water quality.

2. The Central Coast Water Board recognizes that Dischargers may not achieve immediate compliance with all requirements. Thus, this Order provides reasonable schedules for Dischargers to reach full compliance over many years by implementing management practices and monitoring and reporting programs that demonstrate and verify measurable progress annually. This Order includes specific dates to achieve compliance with this Order and milestones that will reduce pollutant loading or impacts to surface water and groundwater in the short term (e.g., a few years) and achieve water quality standards in surface water and groundwater in the longer term (e.g., decades); some compliance dates extend beyond the term of this Order. The focus of this Order is non-tile drain discharges, although Tier 3 tile drain discharges on individual farms/ranches must be monitored. Dischargers with tile drains must also describe management practices used or proposed to be used to attain water quality standards or minimize exceedances in receiving waters while making progress to attain water quality standards. The Executive Officer will evaluate any proposed longer timeframes to address tile-drain discharges.

3. According to California Water Code Section 13263(g), the discharge of waste to waters of the State is a privilege, not a right. It is the responsibility of dischargers of waste from irrigated lands to comply with the Water Code by seeking waste discharge requirements (WDRs) or by complying with a waiver of WDRs. This Order waiving the requirement to obtain WDRs provides a mechanism for dischargers of waste from irrigated lands to meet their responsibility to comply with the Water Code and to prevent degradation of waters of the State, prevent nuisance, and to protect the beneficial uses. Dischargers are responsible for the quality of surface waters and ground waters that have received discharges of waste from their irrigated lands.

AGRICULTURAL AND WATER RESOURCES IN THE CENTRAL COAST REGION

4. In the Central Coast Region, nearly all agricultural, municipal, industrial, and domestic water supply comes from groundwater. Groundwater supplies approximately 90 percent of the drinking water on the Central Coast. Currently, more than 700 municipal public supply wells in the Central Coast Region provide drinking water to the public. In addition, based on 1990 census data, there are more than 40,000 permitted private wells in the Region, most providing domestic drinking water to rural households and communities from shallow sources. The number of private domestic wells has likely significantly increased in the past 20 years due to population growth.

5. In the Salinas, Pajaro, and Santa Maria groundwater basins, agriculture accounts for approximately 80 to 90 percent of groundwater pumping (MCWRA, 2007; PVWMA, 2002; Luhdorff and Scalmanini Consulting Engineers. April 2009).

6. The Central Coast Region supports some of the most significant biodiversity of any temperate region in the world and is home to the last remaining population of the California sea otter, three sub-species of threatened or endangered steelhead (*Oncorhynchus mykiss*) and one sub-species of endangered coho salmon (*Oncorhynchus kisutch*). The endangered marsh sandwort (*Arenaria paludicola*), Gambel's watercress (*Nasturtium rorippa gambelii*), California least tern (*Sterna antillarum browni*), and threatened red-legged frog (*Rana aurora*) are present in the region.

7. Several watersheds drain into Monterey Bay National Marine Sanctuary, one of the largest marine sanctuaries in the world. Elkhorn Slough is one of the largest remaining tidal wetlands in the United States and one of the National Oceanic and Atmospheric Administration (NOAA) designated National Estuarine Research Reserves. The southern portion includes the Morro Bay National Estuary and its extensive salt marsh habitat.

8. The two endangered plants, marsh sandwort and Gambel's watercress, are critically imperiled and their survival depends upon the health of the Oso Flaco watershed. The last remaining known population of marsh sandwort and one of the last two remaining known populations of Gambel's watercress occur in Oso Flaco Lake (United States Department of the Interior Fish and Wildlife Service, 2007).

9. The Central Coast of California is one of the most productive and profitable agricultural regions in the nation, reflecting a gross production value of more than six billion dollars in 2008 and contributing to more than 14 percent of California's agricultural economy. The region produces many high value specialty crops including lettuce, strawberries, raspberries, artichokes, asparagus, broccoli, carrots, cauliflower, celery, fresh herbs, mushrooms, onions, peas, spinach, wine

grapes, tree fruit and nuts. An adequate water supply of sufficient quality is critical to supporting the agricultural industry on the Central Coast.

LEGAL AND REGULATORY CONSIDERATIONS

10. This Attachment A to Order No. R3-2012-0011 identifies applicable plans and policies adopted by the State Water Board and the Central Coast Water Board that contain regulatory requirements that apply to the discharge of waste from irrigated lands. This Attachment A also provides definitions of terms for purposes of this Order.

11. The Water Code grants authority to the State Water Board with respect to State water rights and water quality regulations and policy, and establishes nine Regional Water Boards with authority to regulate discharges of waste that could affect the quality of waters of the State and to adopt water quality regulations and policy.

12. As further described in the Order, discharges from irrigated lands affect the quality of the waters of the State depending on the quantity of the waste discharge, quantity of the waste, the quality of the waste, the extent of treatment, soil characteristics, distance to surface water, depth to groundwater, crop type, implementation of management practices and other site-specific factors. Discharges from irrigated lands have impaired and will continue to impair the quality of the waters of the State within the Central Coast Region if such discharges are not controlled.

13. Water Code Section 13267(b)(1) authorizes the Central Coast Water Board to require dischargers to submit technical reports necessary to evaluate Discharger compliance with the terms and conditions of this Order and to assure protection of waters of the State. The Order, this Attachment A, and the records of the Water Board provide the evidence demonstrating that discharges of waste from irrigated lands have degraded and/or polluted the waters of the state. Persons subject to this Order discharge waste from irrigated lands that impacts the quality of the waters of the state. Therefore it is reasonable to require such persons to prepare and submit technical reports.

14. Water Code Section 13269 provides that the Central Coast Water Board may waive the requirement in Water Code section 13260(a) to obtain WDRs. Water Code section 13269 further provides that any such waiver of WDRs shall be conditional, must include monitoring requirements unless waived, may not exceed five years in duration, and may be terminated at any time by the Central Coast Water Board or Executive Officer.

15. Water Code Section 13269(a)(4)(A) authorizes the Central Coast Water Board to include as a condition of a conditional waiver the payment of an annual fee established by the State Water Board. California Code of Regulations, Title 23, Division 3, Chapter 9, Article 1, Section 2200.3 sets forth the applicable fees. The Order requires each Discharger to pay an annual fee to the State Water Board in compliance with the fee schedule.

16. The Water Quality Control Plan for the Central Coast Basin (Basin Plan) designates beneficial uses, establishes water quality objectives, contains programs of implementation needed to achieve water quality objectives, and references the plans and policies adopted by the State Water Board. The water quality objectives are required to protect the beneficial uses of waters of the State identified in this Attachment A.

17. The Order is consistent with the Basin Plan because it requires Dischargers to comply with applicable water quality standards, as defined in this Attachment A, and requires terms and conditions, including implementation of management practices. The Order also requires monitoring and reporting as defined in MRP Order No. R3-2012-0011-01, MRP Order No. R3-2012-0011-02, and MRP Order No. R3-2012-0011-03 to determine the effects of discharges of waste from irrigated lands on water quality, verify the adequacy and effectiveness of this Order's terms and conditions, and to evaluate individual Discharger's compliance with this Order.

18. Water Code Section 13246 requires boards, in carrying out activities that affect water quality to comply with State Water Board policy for water quality control. This Order requires compliance with applicable State Water Board policies for water quality control.

19. This Order is consistent with the requirements of the *Policy for Implementation and Enforcement of the Nonpoint Source Pollution Control Program* (NPS Policy) adopted by the State Water Board in May 2004. The NPS Policy requires, among other key elements, that an NPS control implementation program's ultimate purpose shall be explicitly stated and that the implementation program must, at a minimum, address NPS pollution in a manner that achieves and maintains water quality objectives and beneficial uses, including any applicable anti-degradation requirements. The NPS Policy improves the State's ability to effectively manage NPS pollution and conform to the requirements of the Federal Clean Water Act and the Federal Coastal Zone Act Reauthorization Amendments of 1990. The NPS Policy provides a bridge between the State Water Board's January 2000 *NPS Program Plan* and its 2010 *Water Quality Enforcement Policy*. The NPS Policy's five key elements are:

a. Key Element #1 - Addresses NPS pollution in a manner that achieves and maintains water quality objectives and beneficial uses
b. Key Element #2 - Includes an implementation program with descriptions of the Management Practices (MPs) and other program elements and the process to be used to ensure and verify proper MP implementation
c. Key Element #3 - Includes a specific time schedule and corresponding quantifiable milestones designed to measure progress toward reaching the specified requirements
d. Key Element #4 - Contains monitoring and reporting requirements that allow the Water Board, dischargers, and the public to determine that the program is achieving its stated purpose(s) and/or whether additional or different MPs or other actions are required
e. Key Element #5 - Clearly discusses the potential consequences for failure to achieve the NPS control implementation program's stated purposes

20. Consistent with the NPS Policy, management practice implementation assessment may, in some cases, be used to measure nonpoint source control progress. However, management practice implementation never may be a substitute for meeting water quality requirements.

21. This Order is consistent with provisions of State Water Resources Control Board Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality of Waters in California." Regional boards, in regulating the discharge of waste, must maintain high quality waters of the State until it is demonstrated that any change in quality will be consistent with maximum benefit to the people of the State, will not unreasonably affect beneficial uses, and will not result in water quality less than that described in the Regional Board's policies. The Order will result in improved water quality throughout the region. Dischargers must comply with all applicable provisions of the Basin Plan, including water quality objectives, and implement best management practices to prevent pollution or nuisance and to maintain the highest water quality consistent with the maximum benefit to the people of the State. The conditions of this waiver will protect high quality waters and restore waters that have already experienced some degradation.

22. This Order is consistent with State Water Board Resolution 68-16. This Order requires Dischargers to 1) comply with the terms and conditions of the Order and meet applicable water quality standards in the waters of the State; 2) develop and implement management practices, treatment or control measures, or change farming practices, when discharges are causing or contributing to exceedances of applicable water quality standards; 3) conduct activities in a manner to prevent nuisance; and 4) conduct activities required by MRP Order No. R3-2012-0011-01, MRP Order No. R3-2012-0011-02, and MRP Order No. R3-2012-0011-03, and revisions thereto.

RATIONALE FOR THIS ORDER

23. On April 15, 1983, the Central Coast Water Board approved a policy waiving WDRs for 26 categories of discharges, including irrigation return flows and non-NPDES stormwater runoff. Pursuant to Water Code Section 13269, these waivers terminated on January 1, 2003.

24. On July 9, 2004, the Central Coast Water Board adopted Resolution No. R3-2004-0117 establishing the 2004 Agricultural Order.

25. Dischargers enrolled in the 2004 Agricultural Order established the Cooperative Monitoring Program (CMP) in compliance with monitoring requirements. The CMP collected and analyzed data for 15 to 20 parameters from 50 sites in multiple watersheds and identified severe surface water quality impairments resulting from agricultural land uses and discharges. CMP did not attempt to identify the individual farm operations that are causing the surface water quality impairments. The lack of discharge monitoring and reporting, the lack of verification of on-farm water quality improvements, and the lack of public transparency regarding on-farm discharges, are critical limitations of the 2004 Agricultural Order, especially given the scale and severity of the surface water and groundwater impacts and the resulting costs to society. The Order addresses these limitations.

26. The Central Coast Water Board extended the 2004 Agricultural Order multiple times. The 2004 Agricultural Order expires on September 30, 2012.

27. The Central Coast Water Board reviewed all available data, including information collected in compliance with the 2004 Agricultural Order, and determined that discharges of waste from irrigated lands continue to result in degradation and pollution of surface water and groundwater, and impairment of beneficial uses, including drinking water and aquatic habitat, and determined that additional conditions are necessary to ensure protection of water quality and to measure the effectiveness of implementation of the Order.

28. It is appropriate to adopt a waiver of WDRs for this category of discharges because, as a group, the discharges have the same or similar waste from the same or similar operations and use the same or similar treatment methods and management practices (e.g., source control, reduced agricultural surface runoff, reduced chemical use, holding times, cover crops, etc.).

29. It is appropriate to regulate discharges of waste from irrigated lands under a conditional waiver rather than individual WDRs in order to simplify and streamline the regulatory process. Water Board staff estimate that there are more than 3000 individual owners and/or operators of irrigated lands who discharge waste from

irrigated lands; therefore, it is not an efficient use of resources to adopt individual WDRs for all Dischargers within a reasonable time.

30. This Order is in the public interest because:

    a. The Order was adopted in compliance with Water Code Sections 13260, 13263, and 13269 and other applicable law;
    b. The Order requires compliance with water quality standards;
    c. The Order includes conditions that are intended to eliminate, reduce and prevent pollution and nuisance and protect the beneficial uses of the waters of the State;
    d. The Order contains more specific and more stringent conditions for protection of water quality compared to the 2004 Agricultural Order;
    e. The Order contains conditions that are similar to the conditions of municipal stormwater NPDES permits, including evaluation and implementation of management practices to meet applicable water quality standards and a more specific MRP;
    f. The Order focuses on the highest priority water quality issues and most severely impaired waters;
    g. The Order provides for an efficient and effective use of Central Coast Water Board resources, given the magnitude of the discharges and number of persons who discharge waste from irrigated lands;
    h. The Order provides reasonable flexibility for the Dischargers who seek coverage under this Order by providing them with a reasonable time schedule and options for complying with the Water Code.

31. This Order waives the requirement for Dischargers to obtain WDRs for discharges of waste from irrigated lands if the Dischargers are in compliance with the Order. This Order is conditional, may be terminated at any time, does not permit any illegal activity, does not preclude the need for permits that may be required by other State or local government agencies, and does not preclude the Central Coast Water Board from administering enforcement remedies (including civil liability) pursuant to the Water Code.

32. The Central Coast Water Board may consider issuing individual WDRs to some Dischargers because of their actual or potential contribution to water quality impairments, history of violations, or other factors.

IMPACTS TO WATER QUALITY FROM AGRICULTURAL DISCHARGES

Impacts to Groundwater – Drinking Water and Human Health

33. Nitrate pollution of drinking water supplies is a critical problem throughout the Central Coast Region. Studies indicate that fertilizer from irrigated agriculture is

the primary source of nitrate pollution of drinking water wells and that significant loading of nitrate continues as a result of agricultural fertilizer practices (Carle, S.F., et al., June 2006).

34. Groundwater pollution from nitrate severely impacts public drinking water supplies in the Central Coast Region. A Department of Water Resources (DWR, 2003) survey of groundwater quality data collected between 1994 and 2000 from 711 public supply wells in the Central Coast Region found that 17 percent of the wells (121 wells) detected a constituent at concentrations above one or more California Department of Public Health (CDPH) drinking water standards or primary maximum contaminant levels (MCLs). Nitrate caused the most frequent MCL exceedances (45 mg/L nitrate as nitrate or 10 mg/L nitrate as nitrogen), with approximately 9 percent of the wells (64 wells) exceeding the drinking water standard for nitrate. According to data reported by the State Water Resources Control Board's Groundwater Ambient Monitoring and Assessment Program (GAMA) GeoTracker website (http://www.waterboards.ca.gov/gama/), recent impacts to public supply wells are greatest in portions of the Salinas Valley (up to 20 percent of wells exceeding MCLs) and Santa Maria (approximately 17 percent) groundwater basins. In the Gilroy-Hollister Groundwater Basin, 12.5 percent of the public supply wells exceed MCLs (data obtained using the GeoTracker DPH Public Supply Well Search Tool for nitrate for wells located in the Gilroy-Hollister groundwater basin. The well data includes Department of Public Health data for well sampling information ranging from 2006 until 2009). CDPH identified over half of the drinking water supply wells as vulnerable to discharges from agricultural-related activities in that basin. This information is readily tracked and evaluated because data are collected on a regular frequency, made publicly available, and public drinking water supplies are regulated by CDPH as required by California law.

35. Groundwater pollution from nitrate severely impacts shallow domestic wells in the Central Coast Region resulting in unsafe drinking water in rural communities. Domestic wells (wells supplying one to several households) are typically drilled in relatively shallow groundwater, and as a result exhibit higher nitrate concentrations than deeper public supply wells. Water quality monitoring of domestic wells is not generally required and water quality information is not readily available; however, based on the available data, the number of domestic wells that exceed the nitrate drinking water standard is likely in the range of hundreds or thousands. Private domestic well water quality is not regulated and rural residents are likely drinking water from these impaired sources without treatment and without knowing the quality of their drinking water.

36. In the northern Salinas Valley, 25 percent of 352 wells sampled (88 wells) had concentrations above the nitrate drinking water standard. In other portions of the Salinas Valley, up to approximately 50 percent of the wells surveyed had

concentrations above the nitrate drinking water standard, with average concentrations nearly double the drinking water standard and the highest concentration of nitrate approximately nine times the drinking water standard (Monterey County Water Resources Agency [MCWRA], 1995). Nitrate exceedances in the Gilroy-Hollister and Pajaro groundwater basins reflect similar severe impairment, as reported by local water agencies/districts for those basins (SCVWD, 2001; SWRCB, 2005; San Benito County Water District, 2007; Kennedy/Jenks Consultants, 2008).

37. Local county and water district reports indicate that in the Pajaro River watershed, the highest recent nitrate concentration (over 650 mg/L nitrate, more than 14 times the drinking water standard) occurred in shallow wells in the eastern San Juan subbasin under intense agricultural production. High values of nitrate concentration in groundwater (greater than 500 mg/L nitrate) have also been reported in the Llagas subbasin and the lower Pajaro coastal aquifer.

38. The costs of groundwater pollution and impacts to beneficial uses caused by irrigated agriculture are transferred to the public. Public drinking water systems expend millions of dollars in treatment and replacement costs and private well owners must invest in expensive treatment options or find new sources. Rural communities, those least able to buy alternative water sources, have few options to replace the contaminated water in their homes. This Order addresses groundwater pollution to ensure protection of beneficial uses and public health.

39. Excessive concentrations of nitrate or nitrite in drinking water are hazardous to human health, especially for infants and pregnant women. The United States Environmental Protection Agency (USEPA) established a nitrate drinking water standard of 45 mg/L nitrate as nitrate (10 mg/L nitrate as nitrogen). While acute health effects from excessive nitrate levels in drinking water are primarily limited to infants (methemoglobinemia or "blue baby syndrome"), research evidence suggests there may be adverse health effects (i.e., increased risk of non-Hodgkin's, diabetes, Parkinson's disease, alzheimers, endrocrine disruption, cancer of the organs) among adults as a result of long-term consumption exposure to nitrate (Sohn, E., 2009; Pelley, J., 2003; Weyer, P., et. al., 2001, Ward, M.H., et. al., 1996).

40. Nitrogen compounds are known to cause cancer. University of Iowa research found that up to 20 percent of ingested nitrate is transformed in the body to nitrite, which can then undergo transformation in the stomach, colon, and bladder to form N-nitroso compounds that are known to cause cancer in a variety of organs in more than 40 animal species, including primates (Weyer, P., et. al., 2001).

41. In many cases, whole communities that rely on groundwater for drinking water are threatened due to nitrate pollution, including the community of San Jerardo and

other rural communities in the Salinas Valley. Local agencies and consumers have reported impacts to human health resulting from nitrate contaminated groundwater likely due to agricultural land uses, and spent significant financial resources to ensure proper drinking water treatment and reliable sources of safe drinking water for the long-term (CCRWQCB, 2009).

42. Current strategies for addressing nitrate in groundwater to achieve levels protective of human health typically include avoidance (abandoning impacted wells or re-drilling to a deeper zone), groundwater treatment to remove nitrate (i.e., dilution using blending, ion exchange, reverse osmosis, biological denitrification, and distillation), or developing additional water supplies (i.e., percolation ponds, surface water pipelines, reservoirs) to dilute nitrate-impacted sources (Lewandowski, A.M., May 2008; Washington State Department of Health, 2005).

43. The costs to treat and clean up existing nitrate pollution to achieve levels that are protective of human health are very expensive to water users (e.g., farmers, municipalities, domestic well users). Research indicates that the cost to remove nitrate from groundwater can range from hundreds of thousands to millions of dollars annually for individual municipal or domestic wells (Burge and Halden, 1999; Lewandowski, May 2008). Wellhead treatment on a region-wide scale is estimated to cost billions of dollars. Similarly, the cost to actively clean up nitrate in groundwater on a region wide scale would also cost billions of dollars, and would be logistically difficult. If the nitrate loading due to agricultural activities is not significantly reduced, these costs are likely to increase significantly.

44. Many public water supply systems are required to provide well-head treatment or blending of drinking water sources, at significant cost, to treat nitrate before delivery to the drinking water consumer due to elevated concentrations of nitrate in groundwater. The community of San Jerardo (rural housing cooperative of primarily low-income farmworker families with approximately 250 residents) initially installed well-head treatment to treat groundwater contaminated with nitrate and other chemicals at significant cost, with on-going monthly treatment costs of approximately $17,000. Monterey County public health officials determined that the community of San Jerardo requires a new drinking water well to ensure safe drinking water quality protective of public health at an approximate cost of more than $4 million. The City of Morro Bay uses drinking water supplies from Morro and Chorro groundwater basins. Study results indicate that agricultural activities in these areas, predominantly over-application of fertilizer, have impacted drinking water supplies resulting in nitrate concentrations more than four times the drinking water standard (Cleath and Associates, 2007). The City of Morro Bay must blend or provide well-head treatment to keep nitrate concentrations at levels safe for drinking water at significant cost (City of Morro Bay, 2006). The City of Santa Maria public supply wells are also impacted by nitrate (in some areas nearly twice

the drinking water standard) and must also blend sources to provide safe drinking water (City of Santa Maria, 2008).

Impacts to Groundwater – Nitrate and Salts

45. Groundwater pollution due to salts is also one of the most significant and critical problems in the Central Coast Region. Agricultural activities are a significant cause of salt pollution (Monterey County Flood Control and Water Conservation District, 1990). Salt increases in irrigated agricultural coastal basins are primarily due to the following:

    a. Seawater intrusion within the coastal basins (e.g., Salinas and Pajaro groundwater basins) caused primarily by excessive agricultural pumping (MCWRA, 2007).
    b. Agricultural pumping/recycling of groundwater that concentrates salts in the aquifers.
    c. Agricultural leaching of salts from the root zone.
    d. The importation of salts into the basin from agricultural soil amendments and domestic/municipal wastewater discharges.

46. Based on the high proportion of groundwater extractions, agricultural pumping of groundwater contributes to saltwater intrusion into the Salinas and Pajaro groundwater basins, which is causing increasing portions of the groundwater basins to be unusable for agriculture and municipal supply (MCWRA, 2008 and Pajaro Valley Water Resource Agency, 2002).

47. Agricultural activities contribute significant loading of nitrates into groundwater from the following sources (Monterey County Flood Control and Water Conservation District, 1988):

    a. Intensive fertilizer applications on permeable soils.
    b. Liquid fertilizer hookups on well pump discharge lines lacking backflow prevention devices.
    c. Groundwater wells that are screened through multiple aquifers, thereby acting as conduits for pollution transport into deeper groundwater.
    d. Spills and/or uncontrolled wash water or runoff from fertilizer handling and storage operations.

48. Agricultural waste discharges contribute to pollution of groundwater basins most vulnerable to waste migration, including major portions of the Santa Maria, Salinas, and Gilroy-Hollister groundwater basins. However, any groundwater basin, including those that are confined (pressured), are susceptible to downward waste migration through improperly constructed, operated (e.g., fertigation or chemigation without backflow prevention), or abandoned wells. Additionally, land with

permeable soils and shallow groundwater are susceptible to downward waste migration. Such areas of groundwater vulnerability often overlap with important recharge areas that serve to replenish drinking water supplies.

49. Agricultural discharges of fertilizer are the main source of nitrate pollution to shallow groundwater based on nitrate loading studies conducted in the Llagas subbasin and the lower Salinas groundwater basin (Carle, S.F., et al., June 2006). In 2007, the California Department of Food and Agriculture (CDFA) reported that approximately 56 million pounds of nitrogen were purchased as fertilizer in Monterey County. A 1990 Monterey County study of nitrate sources leaching to soil and potentially groundwater in Santa Cruz and Monterey Counties indicated that irrigated agriculture contributes approximately 78 percent of the nitrate loading to groundwater in these areas (Monterey County Flood Control and Water Conservation District, November 1990).

50. A groundwater study in the Llagas subbasin indicates that nitrate pollution in groundwater is elevated in the shallow aquifer because it is highly vulnerable due to high recharge rates and rapid transport, and that the dominant source of nitrate is synthetic fertilizers. Groundwater age data in relation to nitrate concentration indicate that the rate of nitrate loading to the shallow aquifer is not yet decreasing in the areas sampled. In areas east of Gilroy, groundwater nitrate concentrations more than double the drinking water standard correspond to younger groundwater ages (less than seven years old and in some cases less than two years old), indicating that the nitrate pollution is due to recent nitrate loading and not legacy farming practices (Moran et al., 2005).

51. The University of California Center for Water Resources (WRC) developed the Nitrate Groundwater Pollution Hazard Index (Nitrate Hazard Index) in 1995. The Nitrate Hazard Index identifies agricultural fields with the highest vulnerability for nitrate pollution to groundwater, based on soil, crop, and irrigation practices. Based on the Nitrate Hazard Index, the following crop types present the greatest risk for nitrate loading to groundwater: Beet, Broccoli, Cabbage, Cauliflower, Celery, Chinese Cabbage (Napa),Collard, Endive, Kale, Leek, Lettuce, Mustard, Onion, Spinach, Strawberry, Pepper, and Parsley.

Impacts to Groundwater – Pesticides

52. The Department of Pesticide Regulation (DPR) has identified two Groundwater Protection Areas that are vulnerable to pesticide contamination in San Luis Obispo County (south of Arroyo Grande, west of Nipomo Mesa, and north of the Santa Maria River) and Monterey County (Salinas area).

53. Based on a 2007 DPR report, pesticide detections in groundwater are rare in the Central Coast region. Of 313 groundwater wells sampled in the Central Coast

region, six wells (1.9%) had pesticide detections in less than two samples (considered unverified detections).

54. A review of DPR data collected from 1984 – 2009 indicates that the three pesticides/pesticide degradates with the highest detection frequency in groundwater were chlorthal-dimethyl and degradates (total), TPA (2,3,5,6-tetrachloroterephthalic acl) and carbon disulfide. Compounds reported by DPR above a preliminary health goal (PHG) or drinking water standard include (by county): ethylene dibromide (2002), atrazine (1993), and dinoseb (1987) Monterey; heptachlor (1989), ethylene dibromide (1989) Santa Barbara; benzene (various dates 1994-2007), 1,2,4-trichlorobenzene (1991) Santa Cruz; ethylene dibromide (1994, 2008, 2009) San Luis Obispo; and 1,1,2,2-tetrachloroethane (1998) Santa Clara.

55. Results from pesticide analyses conducted as part of the Groundwater Ambient Monitoring and Assesment Program (GAMA) studies in the Central Coast region (Kulongoski, 2007; Mathany 2010) indicate a significant presence of pesticides in groundwater. GAMA achieved ultra-low detection levels of between 0.004 and 0.12 micrograms per liter (generally less than .01 micrograms per liter). Out of 54 wells sampled in groundwater basins in the south coast range study unit (bounded by the Santa Lucia and San Luis Ranges, and San Raphael Mountains to the north and east, and the Santa Ynez mountains to the south), 28 percent of the wells had 11 pesticides or pesticide degradates detected in groundwater samples, with the three most abundant detections being deethylatrazine (18.5 percent), atrazine (9.3 percent), and simazine (5.6 percent). Twenty-eight percent of 97 wells sampled in the Monterey Bay and Salinas Valley Basins had pesticide detections, including 18 percent for simazine, 11 percent for deethylatrazine, and 5 percent for atrazine. None of the pesticides detected as part of the GAMA program exceeded any drinking water standard or health-based threshold value.

Impacts to Surface Water

56. The 2010 Clean Water Act Section 303(d) List of Impaired Waterbodies for the Central Coast Region (2010 List of Impaired Waterbodies) identified surface water impairments for approximately 700 waterbodies related to a variety of pollutants (e.g. salts, nutrients, pesticides/toxicity, and sediment/turbidity). Sixty percent of the surface water listings identified agriculture as one of the potential sources of water quality impairment.

57. The impact from agricultural discharges on surface water quality is or has been monitored by various monitoring programs, including:

    a. The Central Coast Water Board's Ambient Monitoring Program: Over the past 10 years, the Central Coast Ambient Monitoring Program (CCAMP) has

collected and analyzed water quality data to address 25 conventional water quality parameters from 185 sites across the Central Coast Region to assess surface water quality. To support analysis of conventional water quality data CCAMP has collected bioassessment data from 100 of the 185 sites, water toxicity data from 134 of the 185 sites, and sediment toxicity from 57 of the 185 sites. CCAMP data show widespread toxicity and pollution in agricultural areas.

b. Cooperative Monitoring Program (CMP): Over the last five years, the CMP has focused on assessing agricultural water quality for the 2004 Agricultural Order, and collected and analyzed data for 15 to 20 parameters from 50 sites in multiple watersheds. CMP data show widespread toxicity and pollution in agricultural areas.

58. Data from CCAMP and CMP indicate that surface waterbodies are severely impacted in the lower Salinas and Santa Maria watersheds due to the intensive agricultural activity in these areas, and water quality in these areas are the most severely impaired in the Central Coast Region.

Impacts to Surface Water – Nutrients

59. Nitrate pollution in surface water is widespread in the Central Coast Region, with 46 waterbodies listed as impaired for this pollutant on the 2010 List of Impaired Waterbodies List. Seventy percent of these nitrate listings occur in the three major agricultural watersheds: Salinas area (16 waterbodies), Pajaro River (5 waterbodies) and Santa Maria River (12 waterbodies). Other significant nitrate listings fall in small drainages in areas of intensive agriculture or greenhouse activity along the south coast, including Arroyo Paredon, Franklin Creek, Bell Creek, Los Carneros and Glen Annie creeks (CCRWQCB, 2009a)

60. The California Department of Public Health (CDPH) drinking water standard is 10 mg/L nitrate as N. The drinking water standard is not intended to protect aquatic life and Water Board staff estimates that 1 mg/L nitrate is necessary to protect aquatic life beneficial uses from biostimulation based on an evaluation of CCAMP data (CCRWQCB, 2009b). Water Board staff used this criteria to evaluate surface water quality impairment to aquatic life beneficial uses in the 2010 Impaired Waterbodies List.

61. In a broadly scaled analysis of land uses, nitrate pollution is associated with row crop agriculture. In addition, discharge from even a single agricultural operation can result in adjacent creek concentrations exceeding the drinking water standard and the much lower limits necessary to protect aquatic life. Many heavily urbanized creeks show only slight impacts from nitrate, with most urban impact associated with wastewater discharges. (CCAMP, 2010a).

62. Agricultural discharges result in significant nitrate pollution in the major agricultural areas of the Central Coast Region (CCAMP, 2010a). More than sixty percent of all sites from CCAMP and CMP combined datasets have average nitrate concentrations that exceed the drinking water standard and limits necessary to protect aquatic life (CCAMP, 2010b). Ten percent of all sites have average nitrate concentrations that exceed the drinking water standard by five-fold or more. Some of the most seriously polluted waterbodies include the following:

    a. Tembladero Slough system (including Old Salinas River, Alisal Creek, Alisal Slough, Espinosa Slough, Gabilan Creek and Natividad Creek),
    b. Pajaro River (including Llagas Creek, San Juan Creek, and Furlong Creek),
    c. Lower Salinas River (including Quail Creek, Chualar Creek and Blanco Drain),
    d. Lower Santa Maria River (including Orcutt-Soloman Creek, Green Valley Creek, and Bradley Channel),
    e. Oso Flaco watershed (including Oso Flaco Lake, Oso Flaco Creek, and Little Oso Flaco Creek).

63. Dry season flows decreased over the last five years in some agricultural areas that have large amounts of tailwater runoff. Detailed flow analysis by the CMP showed that 18 of 27 sites in the lower Salinas and Santa Maria watersheds had statistically significant decreases in dry season flow over the first five years of the program. Some sites that show increasing concentrations of nitrate have coincident declining trends in flow, possibly due to reductions in tailwater (CCWQP, 2009a). CCAMP monitoring has detected declining flows at other sites elsewhere in the Region through the end of 2009 (CCAMP, 2010a), likely because of drought.

64. Some statistically significant changes in nitrate concentration are evident in CCAMP and CMP data. Several drainages are improving in water quality in the Santa Barbara area (such as Bell Creek, which supports agricultural activities) and on Pacheco Creek in the Pajaro watershed. However, in some of the most polluted waters (Old Salinas River, Orcutt Creek, Santa Maria River mouth), nitrate concentrations are getting worse (CCAMP, 2010a). In the lower Salinas and Santa Maria watersheds, flow volumes are declining at some sites (CCWQP, 2009a; CCAMP, 2010a).

65. Nitrate concentrations in Oso Flaco Lake exceed the levels that support aquatic life beneficial uses, threatening remaining populations of two endangered plants, marsh sandwort and Gambel's watercress. In 25 water samples taken from Oso Flaco Lake in 2000-2001 and 2007, levels of nitrate/nitrite (as N) averaged 30.5 mg/L with a minimum of 22.0 mg/L and a maximum of 37.1 mg/L (CCAMP, 2010a). Biostimulation in Oso Flaco Lake has caused the rapid and extreme growth of

common wetland species, which are now crowding out sensitive species that have not become similarly vigorous (United States Department of the Interior Fish and Wildlife Service, 2010).

66. Agricultural discharges result in un-ionized ammonia concentrations at levels that are toxic to salmonids at some sites in areas dominated by agricultural activity (USEPA, 1999). The waterbodies where these sites are located are on the 2010 List of Impaired Waterbodies due to un-ionized ammonia, particularly in the lower Salinas and Santa Maria river areas (CCRWQCB, 2009).

Impacts to Surface Water – Toxicity and Pesticides

67. The Basin Plan general objective for toxicity states the following: "All waters shall be maintained free of toxic substances in concentrations which are toxic to, or which produce detrimental physiological responses in human, plant, animal or aquatic life." The Basin Plan general objective for pesticides states the following: "No individual pesticide or combination of pesticides shall reach concentrations that adversely affect beneficial uses. There shall be no increase in pesticide concentrations found in bottom sediments or aquatic life."

68. Based on CCAMP, CMP, and other monitoring data, multiple pesticides and herbicides have been detected in Central Coast surface waterbodies (identified below). The Basin Plan general objective for pesticides states that no individual pesticide or combination of pesticides shall reach concentrations that adversely affect beneficial uses, and no increase in pesticide concentrations shall be found in bottom sediments or aquatic life. Many currently applied pesticides have not been tested for, and staff is only recently aware of data showing several relatively new fungicides (azoxystrobin, pyraclostrobin and boscalid) in fish tissue and sediment of lagoons in the Central Coast Region.[1] This is a violation of the Basin Plan general objective for pesticides. Additional monitoring for individual pesticides is needed to identify changes in pesticide loading and to identify concentrations of toxic and/or bioaccumulating substances not previously identified.

2,4-D	esfenvalerate	oryzalin
Alachlor	ethalfluralin	oxadiazon
Aldicarb	ethoprop	oxamyl
Atrazine	fenamiphos	oxyfluorfen

[1] "Watershed-scale Evaluation of Agricultural BMP Effectiveness in Protecting Critical Coastal Habitats: Final Report on the Status of Three Central California Estuaries" (Anderson et al, 2010). http://www.ccamp.org/ccamp/documents/EstuariesFinalReport022311.pdf.

azinphos-methyl
Azoxystrobin
Benefin
bentazon, sodium salt
Bifenthrin
Boscalid
Bromacil
bromoxynil octanoate
butylate
Carbaryl
Carbofuran
Chlorpyrifos
chlorthal-dimethyl
cycloate
Cyfluthrin
Cypermethrin
DDVP
Deltamethrin
Diazinon
Dicamba
Dicofol
Dimethoate
Disulfoton
Diuron
Endosulfan
EPTC
fenoxycarb
fenpropathrin
fipronil
glyphosate
hexazinone
hydramethylnon
imidacloprid
lambda cyhalothrin
linuron
malathion
MCPA
MCPA, dimethylamine salt
metalaxyl
methidathion
methiocarb
methomyl
methyl isothiocyanate
methyl parathion
metolachlor
metribuzin
molinate
naled
napropamide
norflurazon
paraquat dichloride
pendimethalin
permethrin
phorate
phosmet
prodiamine
prometon
prometryn
propanil
propargite
propiconazole
propoxur
propyzamide
Pyriproxyfen
pyraclostrobin
S.S.S-tributyl phosphorotrithioate
siduron
simazine
tebuthiuron
terbuthylazine
tetrachlorvinphos
thiobencarb
triallate
triclopyr
trifluralin

69. Multiple studies, including some using Toxicity Identification Evaluations (TIEs), have shown that organophosphate pesticides and pyrethroid pesticides in Central Coast waters are likely causing toxicity to fish and invertebrate test organisms (CCAMP, 2010a, CCWQP, 2008a; CCWQP, 2009; CCWQP, 2010a; CCWQP, 2010d (in draft); Hunt et al., 2003, Anderson, et al. 2003; Anderson et al., 2006b. This is a violation of the Basin Plan general objective for toxicity.

70. Agricultural use rates of pesticides in the Central Coast Region and associated toxicity is among the highest in the State. In a statewide study of four agricultural areas conducted by the Department of Pesticide Regulation (DPR), the Salinas study area had the highest percent of surface water sites with pyrethroid pesticides detected (85 percent), the highest percent of sites that exceeded levels expected

to be toxic and lethal to aquatic life (42 percent), and the highest rate (by three-fold) of active ingredients applied (113 lbs/acre) (Starner, et al. 2006).

71. Agriculture-related toxicity studies conducted on the Central Coast since 1999 indicated that toxicity resulting from agricultural waste discharges of pesticides has caused declining aquatic insect and macroinvertebrate populations in Central Coast streams (Anderson et al., 2003; Anderson et al., 2006a; Anderson et al., 2006b; Anderson et al., 2010). This is a violation of the Basin Plan general objective for toxicity.

72. The breakdown products of organophosphate pesticides are more toxic to amphibians than are the products themselves (Sparling and Fellers, 2007).

73. The lower Salinas and Santa Maria areas have more overall water column invertebrate toxicity than other parts of the Central Coast Region, with much of the toxicity explained by elevated diazinon and chlorpyrifos concentrations (CCAMP, 2010a, CCWQP, 2008a; CCWQP, 2009; Hunt et al., 2003, Anderson, et al. 2003; Anderson et al., 2006a). Some agricultural drains have shown toxicity nearly every time the drains are sampled (CCAMP, 2010a).

74. Fish and sand crabs from the Salinas, Pajaro, and Santa Maria estuaries had detectable levels of currently applied fungicides, herbicides, and legacy pesticides like DDT based on a recently completed study of these central coast lagoons Anderson et al. (2010). Multiple samples from the Santa Maria Estuary, the most impacted of the three estuaries, also contained chlorpyrifos, diazinon, and malathion (organophosphate pesticides) and bifenthrin and cyfluthrin (pyrethroid pesticides). Department of Public Health human consumption guideline levels for these pesticides in fish tissue are not available. This is the first study in this Region documenting these currently applied pesticides in fish tissue. The Basin Plan requires that "there shall be no increase in pesticide concentrations found in bottom sediments or **aquatic life** (emphasis added)".

75. The National Oceanic Atmospheric Administration National Marine Fisheries Service (NMFS) issued a Biological Opinion that concluded that US EPA's registration of pesticides containing chlorpyrifos, diazinon, and malathion is likely to jeopardize the continued existence of 27 endangered and threatened Pacific salmonids and is likely to destroy or adversely modify designated critical habitat for 25 threatened and endangered salmonids because of adverse effects on salmonid prey and water quality in freshwater rearing, spawning, migration, and foraging areas (NMFS, 2008)

76. Three court-ordered injunctions impose limitations on pesticide use (including chlorpyrifos, diazinon, and malathion) within certain proximity of waterbodies to protect endangered species (DPR, 2010).

77. Creek bottom sediments are most consistently toxic in the lower Salinas and Santa Maria watersheds, areas dominated by intensive agricultural activity. Seventy percent of sites sampled for sediment in the Central Coast region have been toxic at least once (although sites selected for sediment toxicity sampling typically represent higher risk areas) (CCAMP, 2010a).

78. A CMP follow-up study on sediment toxicity (CCWQP, 2010d, in draft) showed pyrethroid pesticides to be the most prevalent and severe source of toxicity to sediments. Santa Maria area sites averaged 7.5 toxic units (TUs) from pyrethroid pesticides and 1.3 TUs from chlorpyrifos. One TU is sufficient to kill 50% of the test organisms in a toxicity test). All Santa Maria area sites were toxic to test organisms. Second highest pesticide levels were found in Salinas tributaries and the Salinas Reclamation canal, averaging 5.4 TUs pyrethroids and 0.8 TUs chlorpyrifos. Organochlorine pesticides were present, but not at levels sufficient to cause toxicity.

79. Peer-reviewed research has also shown pyrethroid pesticides are a major source of sediment toxicity in agricultural areas of the Central Coast Region (Ng et al., 2008; Anderson et al., 2006a, Phillips et al., 2006; Starner et al., 2006).

80. Agricultural sources of metals are particulate emissions, irrigation water, pesticides, biosolids, animal manure, and fertilizer applied directly to the soil (Chang et al, 2004). Metals, including arsenic, boron, cadmium, copper, lead, nickel, and zinc are common active ingredients in many pesticides (Fishel, 2008; Nesheim, 2002; Holmgren, 1998; Reigert and Roberts, 1999). Metals can be present in subsurface drainage discharge and may be associated with sediment in tailwater discharge. Some phosphate fertilizers contain cadmium, which can lead to an increase in the concentration of cadmium in soil. Past studies have found soils containing high concentrations of cadmium and lead in major vegetable production areas of the Salinas Valley (Chang et al, 2004; Page et al, 1987; USEPA, 1978; Jelinek and Braude, 1978).

81. The Basin Plan contains the following general objective for Phenols, 0.1 mg/L or 100 µg/L. Phenols are components or breakdown products of a number of pesticide formulations, including 2,4 D, MCPA, carbaryl, propoxur, carbofuran, and fenthion (Crespin, et al., 2001, Agrawal, et al., 1999). Phenolic compounds can cause odor and taste problems in fish tissue, some are directly toxic to aquatic life, and some are gaining increasing notice as endocrine disruptors (e.g., bisphenol A and nonylphenol). The original water quality standards were developed in response to concerns about odor and taste and direct toxicity.

82. One phenolic compound of known concern in Central Coast waters is nonylphenol. Agricultural sources of nonylphenol and the related nonylphenol

ethoxylates include pesticide products as "inert" ingredients and as adjuvants added by the pesticide user. Adjuvant ingredients are not reported in California's Pesticide Use Database. Adjuvants enhance a chemical's effect. Nonylphenol and related compounds are used as surfactants to make the pesticide product more potent and effective (Cserhati, 1995). Nonylphenol and its ethoxylates are acutely toxic to a wide variety of animals, including aquatic invertebrates and fish. In some cases, the nonylphenol is more toxic to aquatic species than the pesticide itself (National Research Council of Canada, 1982). Concern exists about these adverse effects of nonylphenol and its ethoxylates increases because these compounds also bioaccumulate in algae, mussels, shrimp, fish, and birds (Ahel et al, 1993; Ekelund (1990).

83. The San Luis Obispo Science and Ecosystem Alliance (SLOSEA) at California Polytechnic State University has found nonylphenol in elevated concentrations in fish tissue and has linked the occurrence to gonadal abnormalities and liver damage in fish in Morro Bay and other Central Coast locations. The Basin Plan standard of 100 µg/L for phenols is relatively protective for direct toxicity of nonylphenol to rainbow trout, which have an LC50 (lethal concentration impacting 50% of test organisms) of 194 µg/L. However, this limit is not protective for endocrine disruption purposes, which for rainbow trout is estimated at an EC50 (estrogenic concentration impacting 50% of test organisms) of 14.14 µg/L (Lech, 1996). Regardless of the limitations of the Basin Plan standard, it is important to assess this chemical in areas that are heavily influenced by agricultural activity.

Impacts to Surface Water – Turbidity and Temperature

84. Turbidity is a cloudy condition in water due to suspended silt or organic matter. Waters that exceed 25 nephalometric turbidity units (NTUs) can reduce feeding ability in trout (Sigler et al., 1984). Elevated turbidity during the dry season is an important measure of discharge across bare soil, and thus can serve as an indicator of systems with heavy irrigation runoff to surface waters.

85. The Basin Plan requires that "Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses" (CCRWQCB, 1994).

86. Most CCAMP sites outside of agricultural areas have a median turbidity level less than 5 NTUs (CCAMP, 2010a). Many sampling sites that include significant agricultural discharge have turbidity levels that exceed 100 NTUs as a median value (CCAMP, 2010a).

87. Agricultural discharges cause and contribute to sustained turbidity throughout the dry season at many sampling sites dominated by agricultural activities. Resulting turbidity greatly exceeds levels that impact the ability of salmonids to feed. Many

of these sites are located in the lower Santa Maria and Salinas-Tembladero watersheds. The CMP detected some increasing trends in turbidity on the main stem of the Salinas River (CCRWQCB, 2009a; CCAMP, 2010a; CCWQP, 2009a).

88. Agricultural discharges and vegetation removal along riparian areas cause and contribute to water temperatures that exceed levels that are necessary to support salmonids at some sites in areas dominated by agricultural activity. Several of these sites are in major river corridors that provide rearing and/or migration habitat for salmonids. A good example of this is Orcutt Creek (CCAMP, 2010a), where upstream shaded areas are cooler than downstream exposed areas, in spite of lower upstream flows. Tailwater discharge and removal of riparian vegetation in downstream areas cause temperatures to rise above levels safe for trout. Several locations impacted by temperature are in major river corridors that provide rearing and/or migration habitat for salmonids. These include the Salinas, Santa Maria, and Santa Ynez rivers (CCAMP, 2010a).

89. Biological sampling shows that benthic biota are impaired in the lower Salinas and Santa Maria watersheds, and also shows that several measures of habitat quality, such as in-stream substrate and canopy cover, are poor compared to the upper watersheds and to other high quality streams in the Central Coast Region (CCWQP, 2009b; CCWQP, 2009c, CCWQP, 2009d; CCWQP, 2009e; CCAMP, 2010b)

90. Agricultural land use practices, such as removal of vegetation and stream channelization, and discharges from agricultural fields, can cause the deposition of fine sediment and sand over stream bottom substrate (Waters, 1995). This problem is especially prevalent in areas dominated by agricultural activity (lower Salinas and Santa Maria rivers) (CCWQP, 2009b; CCWQP, 2009c, CCWQP, 2009d; CCWQP, 2009e; CCAMP, 2010b). This deposition of fine sediment and sand in streams causes major degradation of aquatic life beneficial uses by eliminating pools and by clogging gravel where fish eggs, larvae, and benthic invertebrates that serve as a food source typically live (CCAMP, 2010b; Waters, 1995). Effective erosion control and sediment control management practices include but are not limited to cover crops, filter strips, and furrow alignment to reduce runoff quantity and velocity, hold fine particles in place, and increase filtration to minimize the impacts to water quality (USEPA, 1991).

91. Orchards, vineyards, and row crops have the greatest erosion rates in irrigated agriculture, especially those that are managed with bare soil between tree or vine rows (ANR, 2006). A vegetative filter strip offers one way to control erosion rates and discharge of sediment rather than letting it be carried off site in drainage water. A vegetative filter strip is an area of vegetation that is planted intentionally to help remove sediment and other pollutants from runoff water (Dillaha et al., 1989) Vegetative filter strips intercept surface water runoff and trap as much as 75 to 100

percent of the water's sediment. They capture nutrients in runoff, both through plant uptake through adsorption to soil particles. They promote degradation and transformation of pollutants into less-toxic forms, and they remove over 60% of certain pathogens from the runoff. (ANR, 2006).

Impacts to the Marine Environment

92. The marine environment in the Central Coast Region is impacted by runoff from irrigated agriculture and other sources. Legacy pesticides have impacted the marine environment and are still found in sediment and tissue at levels of concern today (CCLEAN, 2007; Miller et al., 2007; Dugan, 2005, BPTCP, 1998). Currently applied pesticides are persistent in the aquatic environment, but initial testing has not found them in offshore areas of Monterey Bay (CCAMP, 2010b).

93. Two Marine Protected Areas (MPAs), Elkhorn Slough and Moro Cojo Slough, are heavily impacted by agricultural chemicals and activities in the vicinity. The Elkhorn Slough and Moro Cojo Slough MPAs are at very high to extremely high risk for additional degradation of beneficial uses. Other MPAs that are relatively near shore in agricultural areas are at medium risk for degradation of beneficial uses; these include the South Santa Ynez River MPA, and the two Monterey Bay MPAs. Other MPAs that are not near agricultural areas are at medium to low risk from agricultural discharges (CCAMP, 2010b).

94. Nitrate loading from the Pajaro and Salinas Rivers to Monterey Bay has been found to be a potential driver of plankton blooms during certain times of year. Research shows a clear onshore to offshore gradient in nitrate load influence from rivers, and also shows overall increasing trends in loading from rivers, whereas nitrate loading from upwelling shows no trends (Lane, 2009; Lane et al., in review). Using infrared remote sensing, Monterey Bay Aquarium Research Institute researchers have documented bloom initiation immediately following "first flush" events just offshore Moss Landing and Pajaro River discharges, that then evolved into very large red tides that killed many sea birds (Ryan, 2009; Jessup et al., 2009). These bloom initiation events were documented in 2007 and 2008.

Impacts to Aquatic Habitat and Riparian and Wetland Areas

95. Riparian and wetland areas play an important role in protecting several of the beneficial uses designated in the Basin Plan. Agricultural activities have degraded, and threaten to degrade, these beneficial uses related to aquatic habitat, which include, but are not limited to:

    a. Ground Water Recharge;
    b. Fresh Water Replenishment;
    c. Warm Fresh Water Habitat;

d. Cold Fresh Water Habitat;
e. Inland Saline Water Habitat;
f. Estuarine Habitat;
g. Marine Habitat;
h. Wildlife Habitat;
i. Preservation of Biological Habitats of Special Significance;
j. Rare, Threatened or Endangered Species;
k. Migration of Aquatic Organisms;
l. Spawning, Reproduction and/or Early Development;
m. Areas of Special Biological Significance;

96. The Basin Plan contains requirements to protect aquatic habitat, including, but not limited to, Chapter 2, Section II Water Quality Objectives to Protect Beneficial Uses, and Chapter 5, Page V-13, V.G. Erosion and Sedimentation: A filter strip of appropriate width, and consisting of undisturbed soil and riparian vegetation or its equivalent, shall be maintained, wherever possible, between significant land disturbance activities and watercourses, lakes, bays, estuaries, marshes, and other water bodies. For construction activities, minimum width of the filter strip shall be thirty feet, wherever possible.

97. Riparian and wetland areas play an important role in achieving several water quality objectives established to protect specific beneficial uses. These include, but are not limited to, those water quality objectives related to natural receiving water temperature, dissolved oxygen, suspended sediment load, settleable material concentrations, chemical constituents, and turbidity.

98. The 2004 Agricultural Order required protection of beneficial uses including aquatic and wildlife habitat. This Order includes that requirement to achieve protection of aquatic life beneficial uses and to address water quality degradation that has occurred, in part, as a result of encroachment by agricultural land uses on riparian and wetland areas.

99. In particular, seasonal and daily water temperatures are strongly influenced by the amount of solar radiation reaching the stream surface, which is influenced by riparian vegetation (Naiman, 1992; Pierce's Disease/Riparian Habitat Workgroup (PDRHW), 2000.). Removal of vegetative canopy along surface waters threatens maintenance of temperature water quality objectives, which in turn negatively affects dissolved oxygen related water quality objectives, which in turn negatively affects the food web (PDRHW, 2000).

100. Riparian and wetland areas function to retain and recycle nutrients (National Research Council (NRC), 2002; Fisher and Acreman, 2004), thereby reducing nutrient loading directly to surface water or groundwater. Riparian and wetland areas trap and filter sediment and other wastes contained in agricultural runoff

(NRC, 2002; Flosi et al., 1998; PDRHW, 2000; Palone and Todd,1998), and reduce turbidity (USEPA, 2009). Riparian and wetland areas temper physical hydrologic functions, protecting aquatic habitat by dissipating stream energy and temporarily allowing the storage of floodwaters (Palone and Todd, 1998), and by maintaining surface water flow during dry periods (California Department of Water Resources, 2003). Riparian and wetland areas regulate water temperature and dissolved oxygen, which must be maintained within healthy ranges to protect aquatic life (PDRHW, 2000). In the absence of human alteration, riparian areas stabilize banks and supply woody debris (NRC 2002), having a positive influence on channel complexity and in-stream habitat features for fish and other aquatic organisms (California Department of Fish and Game 2003).

101. Riparian areas are critical to the quality of in-stream habitat. Riparian vegetation provides woody debris, shade, food, nutrients and habitat important for fish, amphibians and aquatic insects (California Department of Fish and Game 2003). Riparian areas help to sustain broadly based food webs that help support a diverse assemblage of wildlife (NRC, 2002). More than 225 species of birds, mammals, reptiles, and amphibians depend on California's riparian habitats (Riparian Habitat Joint Venture, 2004).

102. Riparian vegetation provides important temperature regulation for instream resources. In shaded corridors of the Central Coast region, temperatures typically stay under 20 degrees Celsius or 68 degrees F (within optimum temperature ranges for salmonids), but can rapidly increase above 20 degrees Celsius when vegetation is removed. Orcutt Creek in the lower Santa Maria watershed is an example where upstream shaded areas remain cooler than downstream exposed areas, in spite of lower upstream flows (CCAMP, 2010a).

103. Land management and conservation agencies describe three vegetated zones within a riparian buffer that can provide water quality protection (NRCS, 2006; Welsch, 1991, Tjaden and Weber). These zones are described below:
    a. Zone 1 – The goal for this zone is to control temperature and turbidity discharges by establishing a mix of trees and shrubs that provide shade and streambank stability. A mix of native woody species that vary from large tree species as they mature to understory trees and shrubs will provide canopy cover and shading next to the water.
    b. Zone 2 – The goal for this zone is to establish a mix of trees and shrubs that will absorb and treat waterborne nutrients and other pollutants and allow water to infiltrate into the soil.
    c. Zone 3 – The goal for this zone is to act as a transitional zone between cropland and zones 1 and 2, serving to slow flows, disperse flows out into more diffuse, sheet flow, and promote sediment deposition. The use of stiff multi-stemmed grasses and forbs are preferred and will help disperse concentrated flows.

104. CCAMP and CMP bioassessment data show that streams in areas of heavy agricultural use are typically in poor condition with respect to benthic community health and that habitat in these areas is often poorly shaded, lacking woody vegetation, and heavily dominated by fine sediment. Heavily sedimented stream bottoms can result from the immediate discharge of sediment from nearby fields, the loss of stable, vegetated stream bank habitat, the channelization of streams and consequent loss of floodplain, and from upstream sources.

105. Up to approximately 43 percent of the federally threatened and endangered species rely directly or indirectly on wetlands for their survival (United States Environmental Protection Agency, 2008). Of all the states, California has the greatest number of at-risk animal species (15) and, by far, the greatest number of at-risk plant species (104) occurring within isolated wetlands (Comer et al., 2005).

106. California has lost an estimated 91 percent of its historic wetland acreage, the highest loss rate of any state. Similarly, California has lost between 85 and 98 percent of its historic riparian areas (State Water Resources Control Board, 2008). Landowners and operators of agricultural operations historically removed riparian and wetland areas to plant cultivated crops (Braatne et al., 1996; Riparian Habitat Joint Venture, 2004).

107. The California Wetlands Conservation Policy (Executive Order W-59-93), also known as "the No Net Loss Policy," adopted by Governor Wilson in 1993, established the State's intent to develop and adopt a policy framework and strategy to protect California's unique wetland ecosystems. One of the goals of this policy is to ensure no overall net loss and achieve a long-term net gain in the quantity, quality, and permanence of wetlands acreage and values in California in a manner that fosters creativity, stewardship and respect for private property.

108. Real and/or perceived incompatible demands between food safety and environmental protection are a major issue in the Central Coast Region. Technical Assistance Providers have reported that growers have removed vegetated management practices intended to protect water quality (in some cases, after receiving substantial public funds to install vegetated management practices).

109. According to a spring 2007 survey by the Resource Conservation District of Monterey County (RCDMC), 19 percent of 181 respondents said that their buyers or auditors had suggested they remove non-crop vegetation from their ranches to prevent pollution from pathogens such as the O157:H7 bacteria. In response to pressures by auditors and/or buyers, approximately 15 percent of all growers surveyed indicated that they had removed or discontinued use of previously adopted management practices used for water quality protection. Grassed waterways, filter or buffer strips, and trees or shrubs were among the management

practices removed (RCDMC, 2007). According to a follow-up spring 2009 survey by RCDMC, growers are being told by their auditors and/or buyers that wetland or riparian plants are a risk to food safety (RCDMC, 2009). To assist in the co-management of water quality protection and food safety, the RCDMC has developed a handbook of agricultural conservation practices, photos, and descriptions with food safety considerations (RCDMC, 2009).

110. The Food Safety Modernization Act (FSMA) was signed into law on January 4, 2011 giving the U.S Food and Drug Administration (FDA) a mandate to pursue a farm to table system that is based on science and addresses food safety hazards. The law requires FDA to apply sound science to any requirements that might impact wildlife and wildlife habitat on and near farms, and take into consideration conservation and environmental practice standards and policies.

111. Riparian vegetation and vegetated buffer zones are critically important to prevent the transport of sediment and bacteria, which may include the downstream transport of O157:H7 bacteria. Tate et al. (2006) tested vegetated buffers on cattle grazing lands and found that they are a very effective way to reduce inputs of waterborne E. coli into surface waters. Data indicates that the major source of O157:H7 bacteria are cattle, not wildlife (RCDMC, 2006). In many agricultural areas of the Central Coast Region, cattle operations are located upstream of irrigated agricultural fields. Therefore, the removal of riparian and wetland vegetation and their buffer zones increases the transport of pathogens such as O157:H7 and the risk of food contamination. The removal of riparian and wetland vegetation for food safety purposes is not warranted, is not supported by the literature, and may increase the risk of food contamination.

112. Agriculture near surface waterbodies can lead to removal or reduction of riparian vegetation and the impairment of its ecological functions (ANR, 2007). Once riparian vegetation is removed, it no longer serves to shade water, provide food for aquatic organisms, maintain stream banks, provide a source of large woody debris, or slow or filter runoff to streams. The result is degraded water quality and fish habitat (ANR, 2007). For these reasons, maintenance of riparian vegetation is a critical element of any type of land use (ANR, 2007).

113. Buffer strips are areas of vegetation left beside a stream or lake to protect against land use impacts (ANR, 2007). Whether or not harvesting is permitted within the buffer strip, well-designed and managed buffers can contribute significantly to the maintenance of aquatic and riparian habitat and the control of pollution. Riparian buffer strips protect aquatic and riparian plants and animals from upland sources of pollution by trapping or filtering sediments, nutrients, and chemicals from forestry, agricultural and residential activities. (ANR, 2007).

114. Vegetated riparian areas provide greater environmental value than unvegetated floodplains or cropped fields. Riparian forests provide as much as 40 times the water storage of a cropped field and 15 times that of grass turf (Palone and Todd, 1998). Agricultural floodplains are approximately 80 to 150 percent more erodible than riparian forest floodplains (Micheli et al., 2004) and riparian forest floodplains serve a valuable function by trapping sediment from agricultural fields (National Resource Council, 2002; Flosi and others, 1998; PDRHW 2000; Palone and Todd 1998).

115. Riparian and wetland areas are an effective tool in improving agricultural land management. Wide riparian areas act as buffers to debris that may wash onto fields during floods, thereby offsetting damage to agricultural fields and improving water quality (Flosi et al., 1998; PDRHW, 2000).

116. Exotic plant species exclude native riparian and wetland vegetation by out-competing native species for habitat. Additionally, exotic plants do not support the same diversity of wildlife native to riparian forests, often use large amounts of water, and can exist as monocultural stands of grass. Grass habitat is very different from the complex habitat structure provided by a diversity of riparian trees and shrubs, and results in habitat changes that affect the aquatic based food web (California Department of Fish and Game, 2003).

MANAGEMENT PRACTICE IMPLEMENTATION

117. Commercial agriculture is an intensive use of land. Relatively sophisticated agronomic and engineering approaches are available and necessary to minimize the discharge of waste from irrigated lands, including sediment, nutrients, and pesticides that impact water quality and beneficial uses of waters of the State. Traditionally, conservation practices available to Dischargers were developed for irrigation efficiency or for erosion control, and not necessarily for water quality protection. To achieve water quality protection and improvement, Dischargers are responsible for selecting and effectively implementing management strategies to resolve priority water quality problems associated with the specific operation and receiving water, utilize proper management practice design and maintenance, and implement effectiveness monitoring.

118. The Central Coast Water Board recognizes efforts to maximize water quality improvement using innovative and effective local or regional treatment strategies and it is the Central Coast Water Board's intent to provide flexibility in the implementation of this Order to encourage discharger participation in such efforts. The Central Coast Water Board will evaluate proposed local or regional treatment strategies based upon the anticipated effectiveness, time schedule for implementation, and proposed verification monitoring and reporting to measure progress towards water quality improvement and compliance with this Order.

119. The Central Coast Water Board recognizes efforts to improve recharge conditions and restore groundwater recharge function that have been lost due to urbanization and agricultural development. Managed aquifer recharge (MAR) has been successfully applied in areas of the Central Coast region, improving both water supply and water quality in the basin (Racz et al., in review). Water applied to percolation basins for MAR projects often have a high quality relative to that in underlying aquifers in many locations, despite exceedances of water quality standards. Recharging this water into the ground is important for improving and maintaining water quality in critical aquifers. In addition, considerable improvement in water quality can be achieved during percolation of surface water because of beneficial microbial and filtering processes that occur (Schmidt et al., in review). The Central Coast Water Board encourages MAR efforts, which will result in improving both water supply and water quality.

120. Dischargers are responsible for implementing management measures to achieve water quality improvement, including practices and projects at the scale of a single farm, or cooperatively among multiple farms in a watershed or sub watershed.

121. The Farm Plan is an effective tool to identify the management practices that have been or will be implemented to protect and improve water quality in compliance with this Order. Elements of the Farm Plan include irrigation management, pesticide management, nutrient management, salinity management, sediment and erosion control, and aquatic habitat protection. Farm Plans also contain a schedule for implementation of practices and an evaluation of progress in achieving water quality improvement. The development and implementation of Farm Plans was a requirement of the 2004 Agricultural Order. This Order renews the requirement to prepare the Farm Plan, and adds new conditions requiring each Discharger to verify the effective implementation of management practices focused on resolving water quality issues and for a subset of Dischargers considered a higher threat to water quality to conduct individual discharge monitoring to verify the effective implementation of management practices.

122. Dischargers can significantly reduce the potential impact from agricultural discharges by the effective implementation of management practices identified in Farm Plans focused on priority water quality issues related to the specific operation and watershed.

123. Individual on-farm water quality monitoring is critical to adaptively manage and effectively implement practices to protect water quality. The data and reporting will inform the Discharger, the Water Board, and the public regarding compliance with this Order, and increases the potential success in adapting management practices to address priority water quality issues. Dischargers participating in on-farm water quality monitoring have reported, in some cases, significant reduction or

elimination of their discharge of waste through effective and adaptive management practice implementation.

124. Agricultural discharges, especially surface irrigation runoff, have the potential to transport sediments and associated waste constituents that exceed water quality standards. Minimizing irrigation runoff is an effective way to minimize and/or eliminate agricultural discharges of waste to waters of the State.

125. Agricultural water quality research identifies the importance of minimizing the amount of water runoff coming from farms. Irrigation runoff occurs when the application rate of the irrigation system exceeds the infiltration rate of the soil due to numerous factors, including poor irrigation efficiency. The percent of applied water lost to runoff may start off low, and increase towards the end of longer irrigations, or with frequent irrigation where soil is saturated. Fields with soils susceptible to low infiltration rates may lose 5 percent to 30 percent or more of their applied water to runoff.

126. Applying fertilizer, soil amendments, or agricultural products directly through an irrigation system (fertigation) increases nitrate levels in irrigation water. Runoff from fertigations is likely to be extremely high in nitrate concentrations. Agricultural research conducted in the Pajaro Valley and Salinas Valley watersheds has identified nitrate values in agricultural tailwater and drainage ditches exceeding 100 mg/L nitrate as N in some cases (more than ten times the drinking water standard, and likely more than 100 times the level necessary to protect aquatic life) (Anderson, 2003).

127. Agricultural studies document the common over-application of fertilizers, and fertilizer and animal manure are the most dominant and widespread nitrate sources to groundwater (Harter, 2009; Kitchen, 2008; Lawrence Livermore National Lab GAMA Studies Llagas subbasin, 2005). Effective irrigation and nutrient management practices to reduce the concentration of nutrients in irrigation runoff, deep percolation, and stormwater include but are not limited to, irrigation efficiency to reduce runoff and deep percolation, nutrient budgeting to optimize fertilizer application and eliminate excessive nutrient applications, and techniques to trap nutrients between crop growing seasons and during intense periods of rainfall.

128. Agricultural studies and practices demonstrate that minimizing the production of polluted tailwater through irrigation efficiency and nutrient management practices and keeping runoff from leaving the farm is cost effective (Meals, 1994). Improving irrigation water application according to real time soil moisture data has resulted in some of the lowest concentrations of nutrients in percolating waters, confirming that irrigation efficiency is a key factor in reducing leaching of nutrients (United Water Conservation District, 2007).

129. Nitrate in water leaving subsurface drain ("tile") systems often exceeds drinking water standards and contributes to low-oxygen in marine environments. Denitrification, including the use of wood-chip bioreactor treatment systems, is an effective method of removing nitrate from soil water before it enters subsurface drains (Jaynes, et al., 2006; Starrett, 2009).

130. Agricultural land uses can disrupt the natural vegetation-soil cycles and biota diversity, keeping the soil surface unprotected and vulnerable to erosive forces (wind and rain), which increases the amount of sediments dispersed and transported from agricultural lands into surface water (USEPA, 2003).

131. Agricultural mechanization and tillage of soil and land for bed preparation, crop maintenance and pest control, can destroy the soil structure and degrade the land, which increases the amount of sediment and associated waste constituents discharged into surface water (Fawcett, 2005).

132. Managing uncropped areas, minimizing and protecting bare soil and heavy use areas and unpaved road from concentrated flows of water, and implementing practices to detain or filter sediment and runoff before it leaves agricultural operations are effective ways to reduce soil erosion and capture sediment before it enters waterways, where it can cause water quality impairments downstream (ANR Publications 8124 and 8071).

133. Stormwater runoff from irrigated lands often results in significant erosion and the discharge of sediment, nutrients, and pesticides. Effective erosion control and sediment control management practices include but are not limited to cover crops, filter strips, and furrow alignment to reduce runoff quantity and velocity, hold fine particles in place, and increase filtration to minimize the impacts to water quality (USEPA, 1991). Crops grown using impervious plastic can be particularly problematic as they often result in significantly increased irrigation runoff volumes and velocities in agricultural furrows and ditches that may drain to waters of the State.

134. Education and technical assistance is an important tool in advancing the implementation of new effective management practices that protect and enhance water quality.

135. There are many technical resources available to the agricultural industry to assist farmers in pollution prevention and addressing water quality problems associated with irrigated agriculture. The United States Department of Agriculture - Natural Resources Conservation Service (NRCS), Resource Conservation Districts (RCD), and University of California Cooperative Extension (UCCE) provide non-regulatory technical services and research to promote conservation and address natural resource problems. There are also many non-profit agricultural and commodity-

specific organizations and initiatives that promote sustainable agriculture, and provide education and technical support. Private consulting companies and individual professionals working in the field of environmental and engineering sciences, investigations, site remediation and corrective actions, treatment system design, sampling, and reporting are available to assist the agricultural industry in water quality improvement and achieving compliance with this Order.

136. The State and Regional Water Boards have made over $600 Million of public grant funds available to address agricultural water quality issues from approximately 2000 – 2011. These funds came from Bond Propositions 13, 40, 50, and 84, and addressed a myriad of water quality projects, watershed protection, and nonpoint source pollution control throughout California. In addition, the State Water Board, in coordination with USEPA, also allocates approximately $4.5 Million per year in 319(h) program funding to address nonpoint source pollution. The amount of Water Board public grant funds recently awarded in the Central Coast Region for agricultural related projects is more than $55 Million.

AGRICULTURAL REGULATORY PROGRAM IMPLEMENTATION

137. The Central Coast Water Board is maximizing regulatory effectiveness by identifying and prioritizing actions that address the most significant agricultural water quality problems in the Central Coast Region, including nitrate in groundwater from discharge related to excess fertilizer application, the discharge of waste in agricultural tailwater, surface water toxicity resulting from pesticides, surface water nutrients from fertilizer, increasing salinity, sediment discharge, and degradation of aquatic habitat.

138. The Central Coast Water Board is addressing priority agricultural water quality issues, on a watershed basis in coordination with other Water Board programs and efforts, focused in the most intensive agricultural areas of the region including the Salinas, Pajaro, and Santa Maria watersheds. In addition, Central Coast Water Board staff will assess and track progress towards specific measures of water quality improvement, and adapt to the feedback the tracking provides.

139. The Central Coast Water Board will evaluate compliance of individual Dischargers with the terms and conditions of this Order based on enrollment information, threat of water quality impairment, content of technical reports (including Annual Compliance Document, Farm Plan, Irrigation and Nutrient Management Plan, and Water Quality Buffer Plan), prioritized inspections, and water quality monitoring data. Failure to comply with enrollment requirements may result in enforcement action for individual landowners and operators. In addition to the determination of noncompliance and water quality impairment, the Central Coast Water Board will enforce the conditions of this Order in a manner similar to enforcement of WDRs

and consistent with the State Water Board's Enforcement Policy, focusing on the highest priority water quality issues and most severely impaired waters.

140. The Central Coast Water Board will consider the history of compliance and violations and progress made toward compliance and water quality improvement demonstrated by individual Dischargers when determining potential enforcement actions. In some cases, the Central Coast Water Board may terminate coverage under this Order and require the Discharger to submit a ROWD and comply with the Water Code pursuant to individual WDRs.

PART B. RELEVANT PLANS, POLICIES, AND REGULATIONS

Water Quality Control Plan

The *Water Quality Control Plan for the Central Coast Region* (Basin Plan) was adopted by the Central Coast Water Board in 1975 and is periodically revised. Tables 1A and 1B include a summary of Narrative and Numeric Water Quality Objectives. The Basin Plan is available by contacting the Central Coast Water Board at (805) 549-3147 or by visiting the Central Coast Water Board's website at: http://www.waterboards.ca.gov/centralcoast/publications_forms/publications/basin_plan/

Other Relevant Plans, Policies, and Regulations

State Water Resources Control Board, Resolution No. 68-16, *Statement of Policy with Respect to Maintaining High Quality of Waters in California,* October 1968.

State Water Resources Control Board, *Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California*, June 1972.

State Water Resources Control Board, Resolution No. 74-43, *Water Quality Control Policy for the Enclosed Bays and Estuaries of California*, May 1974.

State Water Resources Control Board, Resolution No. 88-63, *Sources of Drinking Water Policy*, May 1988. Amended February 1, 2006.

State Water Resources Control Board, *Policy for Implementation and Enforcement of the Nonpoint Source Pollution Control Program,* May 2004.

State Water Resources Control Board, Resolution No. 2004-0063, *Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List,* December 13, 2004.

State Water Resources Control Board, *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (SIP)*, February 2005

"State Water Resources Control Board, Resolution No. 2008-0070, *Water Quality Control Plan for Enclosed Bays and Estuaries - Part 1 Sediment Quality,* August 25, 2009.

State Water Resources Control Board, *Water Quality Control Plan for Ocean Waters of California (CA Ocean Plan),* September 2009.

State Water Resources Control Board, Resolution No. 2009-0011, *Recycled Water Policy*, May 20,2010.

State Water Resources Control Board, *Water Quality Enforcement Policy,* May 20, 2010.

US EPA, *National Toxics Rule*, 40 CFR 131.36, 57 FR 60848, December 1992.

US EPA, *California Toxics Rule*, 40 CFR 131.38, 65 FR 31682, May 2000.

Table 1A. Narrative and Numeric Water Quality Objectives for Surface Water.

SURFACE WATER QUALITY OBJECTIVE *(Source of WQO-Page in Basin Plan)* (Objectives are numeric unless labeled "narrative")	BENEFICIAL USE
TOXICITY	
Toxicity *(BPGO, III-4)* *Narrative Objective:* All waters shall be maintained free of toxic substances in concentrations which are toxic to, or which produce detrimental physiological responses in, human, plant, animal, or aquatic life. *Indicators of Narrative Objective:* Chemical concentrations in excess of toxic levels for aquatic life including but not limited to the following: Chlorpyrifos 0.025 ug/L Diazinon 0.14 ug/L *(Source: Sipmann and Finlayson 2000)*	All Surface Waters
TOXICANTS	
Nutrients	
Ammonia, Total (N) *(BPSO, Table 3.3)* >30 mg/L NH4-N	AGR
Ammonia, **Un-ionized** *(BPGO, III-4)* 0.025 mg/L NH3 as N	All Surface Waters
Nitrate *(a. BPSO, Table 3-2* *b. BPSO, Table 3-3)* a. 10 mg/L NO3-N b. >30 mg/L NO3-N	a. MUN b. AGR
Organics	
Chemical Constituents *(BPSO, III-5 and* *Table 3-2)* Waters shall not contain concentrations of chemical constituents in excess of the limits specified in California Code of Regulations, Title 22, Article 4, Chapter 15,	MUN

SURFACE WATER QUALITY OBJECTIVE *(Source of WQO-Page in Basin Plan)* (Objectives are numeric unless labeled "narrative")	**BENEFICIAL USE**
Section 64435, Tables 2 and 3 as listed in Table 3-2.	
Chemical Constituents *(BPSO, III-5 and Table 3-3)* Waters shall not contain concentrations of chemical constituents in amounts which adversely affect the agricultural beneficial use. Interpretation of adverse effect shall be as derived from the University of California Agricultural Extension Service guidelines provided in Table 3-3. In addition, waters used for irrigation and livestock watering shall not exceed concentrations for those chemicals listed in Table 3-4	AGR
Chemical Constituents *(BPSO, III-10, Table 3-5, Table 3-6)* Waters shall not contain concentrations of chemical constituents known to be deleterious to fish or wildlife in excess of the limits listed in Table 3-5 or Table 3-6.	COLD, WARM, MAR
Oil and Grease *(BPGO, III-3)* *Narrative Objective:* Waters shall not contain oils, greases, waxes, or other similar materials in concentrations that result in a visible film or coating on the surface of the water or on objects in the water, that cause nuisance, or that otherwise adversely affect beneficial uses.	All Surface Waters
Organic Chemicals *(BPSO, III-5 and Table 3-1)* All inland surface waters, enclosed bays, and estuaries shall not contain concentrations of organic chemicals in excess of the limiting concentrations set forth in California Code of Regulations, Title 22, Chapter 15, Article 5.5, Section 64444.5, Table 5 and listed in Table 3-1.	MUN
Other Organics *(BPGO, III-3)* **Phenol** *(BPSO, III-5)* Waters shall not contain organic substances in concentrations greater than the following:	All Surface Waters

SURFACE WATER QUALITY OBJECTIVE *(Source of WQO-Page in Basin Plan)* (Objectives are numeric unless labeled "narrative")	**BENEFICIAL USE**
Methylene Blue Activated Substances < 0.2 mg/L Phenols < 0.1 mg/L Phenol (MUN) ≤ 1.0 µg/L PCBs < 0.3 µg/L Phthalate Esters < 0.002 µg/L	
Metals	
Chromium *(BOSP, III-12)* ≤ 0.01 mg/L	SHELL
Cadmium *(BPGO, III-11)* ≤ 0.03 mg/L in hard water or ≤.0.004 mg/L in soft water (Hard water is defined as water exceeding 100 mg/L $CaCO_3$).	COLD, WARM
Chromium *(BPGO, III-11)* ≤ 0.05 mg/L	COLD, WARM
Copper *(BPGO, III-11)* ≤ 0.03 mg/L in hard water or ≤.0.01 mg/L in soft water (Hard water is defined as water exceeding 100 mg/L $CaCO_3$).	COLD, WARM
Lead *(BPGO, III-11)* ≤ 0.03 mg/L	COLD, WARM
Mercury *(BPGO, III-11)* ≤ 0.0002 mg/L	COLD, WARM
Nickel *(BPGO, III-11)* ≤ 0.4 mg/L in hard water or	COLD, WARM

SURFACE WATER QUALITY OBJECTIVE *(Source of WQO-Page in Basin Plan)* (Objectives are numeric unless labeled "narrative")	**BENEFICIAL USE**
≤.0.1 mg/L in soft water (Hard water is defined as water exceeding 100 mg/L $CaCO_3$).	
Zinc *(BPGO, III-11)* ≤ 0.2 mg/L in hard water or ≤.0.004 mg/L in soft water (Hard water is defined as water exceeding 100 mg/L $CaCO_3$).	COLD, WARM
CONVENTIONALS	
Biostimulatory Substances *(BPGO, III-3)* *Narrative Objective:* Waters shall not contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses. *Indicators of Narrative Objective:* Indicators of biostimulation include chlorophyll-a, dissolved oxygen, phosphorous, and nitrate. *(Source: Central Coast Water Board. April 2009. Central Coast Ambient Monitoring Program Technical Paper: Interpreting Narrative Objectives for Biostimulatory Substances Using the Technical Approach for Developing California Nutrient Numeric Endpoints)*	All Surface Waters
Boron *(BPSO, III-13)* Waterbody specific. Median values, shown in Table 3-7 for surface waters. Sub-Basins Objectives range from 0.2 – 0.5 mg/L.	Specific Surface Waters
Chloride *(BPSO, III-13)* Waterbody specific. Median values, shown in Table 3-7 for surface waters. Sub-Basins Objectives range from 150-1400 mg/L.	Specific Surface Waters
Color *(BPGO, III-3)* Waters shall be free of coloration that causes nuisance or adversely affects beneficial uses. Coloration attributable to materials of waste origin shall not be greater than 15 units or 10 percent above natural background color, whichever is	All Surface Waters

SURFACE WATER QUALITY OBJECTIVE *(Source of WQO-Page in Basin Plan)* (Objectives are numeric unless labeled "narrative")	**BENEFICIAL USE**
greater.	
Conductivity *(BPSO, III-8, Table 3-3)* >3.0 mmho/cm	AGR
Dissolved Oxygen (DO) *(BPGO, III-2)* Mean annual DO ≥ 7.0 mg/L Minimum DO ≥ 5.0 mg/L	All Ocean Waters
Dissolved Oxygen *(BPGO, III-4)* For waters not mentioned by a specific beneficial use: DO ≥ 5.0 mg/L DO Median values ≥ 85 percent saturation	All Surface Waters
Dissolved Oxygen *(BPSO, III-10)* DO ≥ 7.0 mg/L	COLD, SPWN
Dissolved Oxygen *(BPSO, III-10)* DO ≥ 5.0 mg/L	WARM
Floating Material *(BPGO, III-3)* *Narrative Objective:* Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses.	All Surface Waters
pH *(BPSO, III-10)* The pH value shall not be depressed below 7.0 nor above 8.5. Changes in normal ambient pH levels shall not exceed 0.5 in fresh waters.	COLD, WARM,
pH *(BPSO, III-10)*	MAR

SURFACE WATER QUALITY OBJECTIVE *(Source of WQO-Page in Basin Plan)* (Objectives are numeric unless labeled "narrative")	**BENEFICIAL USE**
The pH value shall not be depressed below 7.0 or raised above 8.5[2]. Changes in normal ambient pH levels shall not exceed 0.2 units.	
pH *(BPSO, III-5)* The pH value shall not be depressed below 6.5 nor above 8.3.	MUN, REC-1, REC-2, AGR
Settleable Material *(BPGO, III-3)* *Narrative Objective:* Waters shall not contain settleable material in concentrations that result in deposition of material that causes nuisance or adversely affects beneficial uses.	All Surface Waters
Sediment *(BPGO, III-3)* *Narrative Criteria:* The suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses.	All Surface Waters
Sodium *(BPSO, III-13)* Waterbody specific. Median values, shown in Table 3-7 for surface waters. Sub-Basins Objectives range from 20-250 mg/L.	
Sulfate *(BPSO, III-13)* Waterbody specific. Median values, shown in Table 3-7 for surface waters. Sub-Basins Objectives range from 10-700 mg/L.	
Suspended Material *(BPGO, III-3)* *Narrative Criteria:* Waters shall not contain suspended material in concentrations that cause nuisance or adversely affect beneficial uses.	All Surface Waters
Taste and Odor *(BPGO, III-3)*	All Surface Waters

SURFACE WATER QUALITY OBJECTIVE *(Source of WQO-Page in Basin Plan)* (Objectives are numeric unless labeled "narrative")	**BENEFICIAL USE**
Narrative Criteria: Waters shall not contain taste or odor-producing substances in concentrations that impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin, that cause nuisance, or that adversely affect beneficial uses.	
Temperature *(BPGO, III-3)* *Narrative Criteria:* Natural receiving water temperature of intrastate waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Board that such alteration in temperature does not adversely affect beneficial uses.	All Surface Waters
Temperature *(BPGO, III-4)* *Narrative Objective:* Natural receiving water temperature of intrastate waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Board that such alteration in temperature does not adversely affect beneficial uses. *a) Indicators of Narrative Objective for COLD Habitat:* **Coho** December - April 48-54 ºF 7-DAM[3] 56-58 ºF 1-DAM May – November 57-63 ºF 7-DAM 68-70 ºF 1-DAM **Steelhead** December - April 55-57 ºF 7-DAM 56-58 ºF 1-DAM May – November 56-63 ºF 7-DAM 70-73 ºF 1-DAM *(Source: Hicks 2000)* *b) Indicators of Narrative Objective for WARM Habitat:* **<u>Stickleback</u>** Upper optimal limit = 75 ºF (This temperature is also the low end of the upper	All Surface Waters a) COLD b) WARM

SURFACE WATER QUALITY OBJECTIVE *(Source of WQO-Page in Basin Plan)* (Objectives are numeric unless labeled "narrative")	**BENEFICIAL USE**
lethal limit for steelhead) *(Source: Moyle 1976)* Note: 7-DAM refers to the rolling arithmetic average of seven consecutive daily maximum temperatures. 1-DAM refers to the highest daily maximum temperature.	
Temperature *(BPSO, III-10)* At no time or place shall the temperature be increased by more than 5^{o}F above natural receiving water temperature.	COLD, WARM
Total Dissolved Solids (TDS) *(BPSO, III-13)* Waterbody specific. Median values, shown in Table 3-7 for surface waters. Sub-Basins Objectives range from 10-250 mg/L.	
Turbidity *(BPGO, III-3)* *Narrative Objective:* Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses. *Indicators of Narrative Objective:* Turbidity greater than 25 NTU's causes reduction in juvenile salmonid growth due to interference with their ability to find food. *(Source: Central Coast Water Board. April 2009. Clean Water Act Sections 305(b) and 303(d) Integrated Report for the Central Coast Region; Sigler et al. 1984. Effects of chronic turbidity on density and growth of steelheads and coho salmon. Transactions of the American Fisheries Society 113:142-150)*	All Surface Waters
PATHOGEN INDICATORS	
Fecal Coliform *(BOSP,III-5)* Log mean 200 MPN/100mL. Max 400 MPN/100mL.	REC-1
Fecal Coliform *(BOSP,III-10)*	REC-2

SURFACE WATER QUALITY OBJECTIVE *(Source of WQO-Page in Basin Plan)* (Objectives are numeric unless labeled "narrative")	**BENEFICIAL USE**
Log mean 2000 MPN/100mL. Max 4000 MPN/100mL.	
E. coli *(USEPA)* Max 235 MPN/100 mL	REC-1
Total Coliform *(BOSP,III-12)* Median ≤ 70/100 MPN/100mL Max 230 MPN/100 mL	SHELL

Table 1B. Narrative and Numeric Water Quality Objectives for Groundwater.

GROUNDWATER QUALITY OBJECTIVE *(Source of WQO-Page in BP)* (Objectives are numeric unless labeled "narrative")	**BENEFICIAL USE**
TOXICANTS	
Chemical Constituents *(BPSO, III-14)* Groundwaters shall not contain concentrations of chemical constituents in excess of federal or state drinking water standards.	MUN
Chemical Constituents *(BPSO, III-14 and Tables 3-3 and 3-4)* Groundwaters shall not contain concentrations of chemical constituents in amounts that adversely affect such beneficial use. Interpretation of adverse effect shall be as derived from the University of California Agricultural Extension Service guidelines provided in Table 3-3. In addition, water used for irrigation and livestock watering shall not exceed the concentrations for those chemicals listed in Table 3-4.	AGR
Total Nitrogen *(BPSO, III-15 and Table 3-8)* Groundwater Basin Objectives for Median values range from	Specific Groundwater Basins

GROUNDWATER QUALITY OBJECTIVE *(Source of WQO-Page in BP)* (Objectives are numeric unless labeled "narrative")	**BENEFICIAL USE**
1-10 mg/L as N.	
CONVENTIONALS	
Total Dissolved Solids (TDS) *(BPSO, III-15)* Groundwater Basin Objectives for median values range from 100-1500 mg/L TDS.	Specific Groundwater Basins
Chloride (Cl) *(BPSO, III-15)* Groundwater Basin Objectives for median values range from 20-430 mg/L Cl.	Specific Groundwater Basins
Sulfate (SO_4) *(BPSO, III-15)* Groundwater Basin Objectives for median values range from 10-1025 mg/L SO_4.	Specific Groundwater Basins
Boron (B) *(BPSO, III-15)* Groundwater Basin Objectives for median values range from 0.1-2.8 mg/L B.	Specific Groundwater Basins
Sodium (Na) *(BPSO, III-15)* Groundwater Basin Objectives for median values range from 10-730 mg/L.	Specific Groundwater Basins

Acronyms:
BP = Basin Plan or Water Quality Control Plan for the Central Coast Region
BPGO = Basin Plan General Objective
BPSO = Basin Plan Specific Objective related to a designated beneficial use
TMDL = Specific Objective related to an adopted Total Maximum Daily Load
WDR = Waste Discharge Requirements
SB = State Board established guideline
USEPA = US Environmental Protection Agency
CCAMP = Central Coast Ambient Monitoring Program
SWAMP = Surface Water Ambient Monitoring Program

MCL = Maximum Contaminant Level, California drinking water standards set forth in California Code of Regulations, Title 22.
NTU = Nephelometric Turbidity Unit
mg/L = milligram/Liter
MPN = Most Probable Number

PART C. DEFINITIONS

The following definitions apply to Order No. R3-2012-0011and MRP Order No. R3-2012-0011-01, MRP Order No. R3-2012-0011-02, and MRP Order No. R3-2012-0011-03 as related to discharges of waste from irrigated lands. The terms are arranged in alphabetical order. All other terms not explicitly defined for the purposes of this Order and Monitoring and Reporting Program shall have the same definitions as prescribed by California Water Code Division 7 or are explained within the Order or the MRP documents.

1. Anti-degradation. The State Water Board established a policy to maintain high quality waters of the State - Resolution 68-16 "*Statement of Policy with Respect to Maintaining High Quality Waters in California*." Resolution 68-16 requires existing high quality water to be maintained until it has been demonstrated that any change will be consistent with maximum benefit to the people of the State, will not unreasonably affect present and anticipated beneficial use of water, and will not result in water quality less than that prescribed in the policies. Regional Water Boards are required to ensure compliance with Resolution 68-16. The Central Coast Water Board must require discharges to be subject to *best practicable treatment or control* of the discharge necessary to avoid pollution or nuisance and to maintain the highest water quality consistent with maximum benefit to the people of the State. Resolution 68-16 has been approved by the USEPA to be consistent with the federal anti-degradation policy.

2. Aquatic Habitat. The physical, chemical, and biological components and functions of streams and lakes, including riparian areas and wetlands and their buffer zones.

3. Aquifer. A geologic formation, group of formations, or part of a formation capable of yielding a significant amount of groundwater to wells or springs. (see also uppermost aquifer).

4. Back flow Prevention. Back flow prevention devices are installed at the well or pump to prevent contamination of groundwater or surface water when fertilizers, pesticides, fumigants, or other chemicals are applied through an irrigation system. Back flow prevention devices used to comply with this Order must be those approved by USEPA, DPR, CDPH, or the local public health or water agency.

5. Basin Plan. The Basin Plan is the Central Coast's Region Water Quality Control Plan. The Basin Plan describes how the quality of the surface and groundwater in the Central Coast Region should be managed to provide the highest water quality reasonably possible. The Basin Plan includes beneficial uses, water quality objectives, and a program of implementation.

6. Beneficial Uses. The Basin Plan establishes the beneficial uses to be protected in the Central Coast Region. Beneficial uses for surface water and groundwater are divided into twenty-four standard categories identified below. The following beneficial uses have been identified in waterbodies within the Region:

- agricultural supply (AGR)
- aquaculture (AQUA)
- areas of special biological significance (ASBS)
- cold freshwater habitat (COLD)
- commercial and sportfishing (COMM)
- estuarine habitat (EST)
- freshwater replenishment (FRESH)
- groundwater recharge (GWR)
- hydropower generation (POW)
- industrial process supply (PRO)
- industrial service supply (IND)
- inland saline water habitat (SAL)
- marine habitat (MAR)
- municipal and domestic supply (MUN)
- migration of aquatic organisms (MIGR)
- navigation (NAV)
- non-contact recreation (REC2)
- preservation of biological habitats of special significance (BIOL)
- rare, threatened or endangered species (RARE)
- shellfish harvesting (SHELL
- spawning, reproduction, and development (SPWN)
- warm freshwater habitat (WARM)
- water contact recreation (REC1)
- wildlife habitat (WILD)

7. Chemigation. The application of pesticides, fertilizers, fumigants or other chemicals through an irrigation system.

8. Commercial. Irrigated lands producing commercial crops are those operations that have one or more of the following characteristics:

   a. The landowner or operator holds a current Operator Identification Number/Permit Number for pesticide use reporting;
   b. The crop is sold, including but not limited to (1) an industry cooperative, (2) harvest crew/company, or (3) a direct marketing location, such as Certified Farmers Markets;.
   c. The federal Department of Treasury Internal Revenue Service form 1040 Schedule F Profit or Loss from Farming is used to file federal taxes.

9. Concentration. The relative amount of a substance mixed with another substance. An example is 5 parts per million (ppm) of nitrogen in water or 5 mg/L.

10. Crop Types with High Potential to Discharge Nitrogen to Groundwater. Based on the Groundwater Pollution Nitrate Hazard Index developed by the University of California Division of Agriculture and Natural Resources (UCANR), the following crop types present the greatest risk for nitrogen loading to groundwater: beet, broccoli, cabbage, cauliflower, celery, Chinese cabbage (napa),collard, endive, kale, leek, lettuce (leaf and head), mustard, onion (dry and green), spinach, strawberry, pepper (fruiting), and parsley.

11. Discharge. A release of a waste to waters of the State, either directly to surface waters or through percolation to groundwater. Wastes from irrigated agriculture include but are not limited to earthen materials (soil, silt, sand, clay, and rock), inorganic materials (metals, plastics, salts, boron, selenium, potassium, nitrogen, phosphorus, etc.) and organic materials such as pesticides.

12. Discharger. The owner and operator of irrigated lands that discharge or have the potential to discharge waste that could directly or indirectly reach waters of the State and affect the quality of any surface water or groundwater. See also Responsible Party.

13. Discharges of Waste from Irrigated Lands. Surface water and groundwater discharges, such as irrigation return flows, tailwater, drainage water, subsurface drainage generated by irrigating crop land or by installing and operating drainage systems to lower the water table below irrigated lands (tile drains), stormwater runoff flowing from irrigated lands, stormwater runoff conveyed in channels or canals resulting from the discharge from irrigated lands, runoff resulting from frost control, and/or operational spills containing waste.

14. Ephemeral Stream. A channel that holds water during and immediately after rain events.

15. Erosion. The wearing away of land surface by wind or water, intensified by land-clearing practices related to farming, residential or industrial development, road building, or logging.

16. Erosion and Sediment Control Practices. Practices used to prevent and reduce the amount of soil and sediment entering surface water in order to protect or improve water quality.

17. Environmental Justice. Providing equal and fair access to a healthy environment for communities of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies; and proactive efforts to take into account existing

environmental injustices and to protect from new or additional environmental hazards and inequitable environmental burdens;

18. Exceedance. A reading using a field instrument or a detection by a California State-certified analytical laboratory where the detected result is above an applicable water quality standard for the parameter or constituent. For toxicity tests, an exceedance is a result that is statistically lower than the control sample test result.

19. Farm or Ranch. For the purposes of this Order, a tract of land where commercial crops are produced or normally would have been produced. Individual farms/ranches typically have a similar farm/ranch manager, operator or landowner(s) and are categorized by farm size, primary output(s), and/or geographic location.

20. Farm Water Quality Management Plan (Farm Plan). The Farm Plan is a document that contains, at a minimum, identification of management practices that are being or will be implemented to protect and improve water quality by addressing irrigation management, pesticide management, nutrient management, salinity management, sediment and erosion control, and aquatic habitat protection. Farm Plans also contain a schedule for the effective implementation of management practices and verification monitoring to determine compliance with the requirements of this Order (schedules, milestones, effluent limits, etc.). Consistent with the Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands adopted by the Board in July 2004 (Order No. R3-2004-0117), this Order requires Dischargers to develop and implement a Farm Plan focused on the priority water quality issues associated with a specific operation and the priority water quality issues associated with a specific watershed or subwatershed.

21. Fertigation. The application of fertilizers through an irrigation system.

22. Freshwater Habitat. Uses of water that support cold or warm water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.

23. Groundwater. The supply of water found beneath the earth's surface, usually in aquifers, which supply wells and springs.

24. Groundwater Protection Practices. Management practices designed to reduce or eliminate transport of nitrogen, pesticides, and other waste constituents into groundwater.

25. Integrated Pest Management Program (IPM). A pest management strategy that focuses on long-term prevention or suppression of pest problems through a

combination of techniques such as encouraging biological control, use of resistant varieties, or adoption of alternative cultivating, pruning, or fertilizing practices or modification of habitat to make it incompatible with pest development. Pesticides are used only when careful field monitoring indicates they are needed according to pre-established guidelines or treatment thresholds.

26. Intermittent Stream. A stream that holds water during wet portions of the year.

27. Irrigated Lands. For the purpose of this Order, irrigated lands include lands where water is applied for the purpose of producing commercial crops and include, but are not limited to, land planted to row, vineyard, field and tree crops as well as commercial nurseries, nursery stock production and greenhouse operations with soil floors, that do not have point-source type discharges, and are not currently operating under individual Waste Discharge Requirements (WDRs). Lands that are planted to commercial crops that are not yet marketable, such as vineyards and tree crops, must also obtain coverage under this Order.

28. Irrigation. Applying water to land areas to supply the water and nutrient needs of plants.

29. Irrigation Management Practices. Management practices designed to improve irrigation efficiency and reduce the amount of irrigation return flow or tailwater, and associated degradation or pollution of surface and groundwater caused by discharges of waste associated with irrigated lands.

30. Irrigation Runoff or Return Flow. Surface and subsurface water that leaves the field following application of irrigation water. See also, Tailwater.

31. Irrigation System Distribution Uniformity. Irrigation System Distribution Uniformity is a measure of how uniformly irrigation water is applied to the cropping area, expressed as a percentage. A nonuniform distribution can deprive portions of the crop of sufficient irrigation water, and can result in the excessive irrigation leading to water-logging, plant injury, salinization, irrigation runoff and transport of chemicals to surface water and groundwater.

32. Landowner. An individual or entity who has legal ownership of a parcel(s) of land. For the purposes of this Order, the landowner is responsible for ensuring compliance with this Order and for any discharge of waste occurring on or from the property.

33. Limited Resource Farmer. A Limited Resource Farmer is defined by the U.S. Dept. of Agriculture (USDA) as:

a. A person with direct or indirect gross farm sales not more than the current indexed value (determined by USDA) in each of the previous 2 years, and

b. A person who has a total household income at or below the national poverty level for a family of four, or less than 50 percent of county median household income in each of the previous 2 years.

The USDA's Limited Resource Farmer "Self Determination Tool" is available at: http://www.lrftool.sc.egov.usda.gov/DeterminationTool.aspx?fyYear=2012

34. Load. The concentration or mass of a substance discharged over a given amount of time, for example 10 mg/day or 5 Kg/day, respectively.

35. Monitoring. Sampling and analysis of receiving water quality conditions, discharge water quality, aquatic habitat conditions, effectiveness of management practices, and other factors that may affect water quality conditions to determine compliance with this Order or other regulatory requirements. Monitoring includes but is not limited to: surface water or groundwater sampling, on-farm water quality monitoring undertaken in connection with agricultural activities, monitoring to identify short and long-term trends in in-stream water quality or discharges from sites, inspections of operations, management practice implementation and effectiveness monitoring, maintenance of on-site records and management practice reporting.

36. Nitrate Hazard Index. In 1995, the University of California Center for Water Resources (WRC) developed the Nitrate Groundwater Pollution Hazard Index (Nitrate Hazard Index) (Wu, 2005). The purpose of the Nitrate Hazard Index is to identify agricultural fields with the highest vulnerability for nitrate pollution to groundwater, based on soil, crop, and irrigation practices. The hazard index number can range from 1 through 80 with the hazard increasing with increasing hazard index number. The WRC states that an index number greater than 20 indicates greater risk for nitrate pollution to groundwater and should receive careful attention.

http://ucanr.org/sites/wrc/Programs/Water_Quality/Nitrate_Groundwater_Pollution_Hazard_Index/

37. Nitrate Loading Risk Factor. A measure of the relative risk of loading nitrate to groundwater based on the following criteria a) Nitrate Hazard Index Rating by Crop Type, b) Irrigation System Type, and c) Irrigation Water Nitrate Concentration.

38. Non-point Source Pollution (NPS). Diffuse pollution sources that are generally not subject to NPDES permitting. The wastes are generally carried off the land by runoff. Common non-point sources are activities associated with agriculture, timber harvest, certain mining, dams, and saltwater intrusion.

39. Non-Point Source Management Measures. To combat NPS pollution, the State Water Board NPS Program adopted management measures as goals for the reduction of polluted runoff generated from five major categories, including agriculture. Management measures address the following components for agriculture: Erosion and sediment control; facility wastewater and runoff from confined animal facilities; nutrient management; pesticide management; irrigation water management; grazing management, and groundwater protection.

40. Non-Point Source Management Practices. Methods or practices selected by entities managing land and water to achieve the most effective, practical means of preventing or reducing pollution from diffuse sources, such as wastes carried off the landscape via urban runoff, excessive hill, slope or streambed and bank erosion, etc. Management Practices include, but are not limited to, structural and nonstructural controls and operation and maintenance procedures. Management Practices can be applied before, during, and after pollution-causing activities to prevent, reduce, or eliminate the introduction of wastes into receiving waters.

41. Nutrient. Any substance assimilated by living things that promotes growth.

42. Nutrient Management Practices. Management practices designed to reduce the nutrient loss from agricultural lands, which occur through edge-of-field runoff or leaching from the root zone.

43. Operator. Person responsible for or otherwise directing farming operations in decisions that may result in a discharge of waste to surface water or groundwater, including, but not limited to, a farm/ranch manager, lessee or sub-lessee. The operator is responsible for ensuring compliance with this Order and for any discharge of waste occurring on or from the operation.

44. Operation. A distinct farming business, generally characterized by the form of business organization, such as a sole proprietorship, partnership, corporation, and/or cooperative. A farming operation may be associated with one to many individual farms/ranches.

45. Operational Spill. Irrigation water that is diverted from a source such as an irrigation well or river, but is discharged without being delivered to or used on an individual field.

46. Perennial Stream. A stream that holds water throughout the year.

47. Pesticide Management Practices. Management practices designed to reduce or eliminate pesticide runoff into surface water and groundwater.

48. Point Source. Any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which wastes are or may be discharged.

49. Pollutant. The man-made or man-induced alteration of the chemical, physical, biological, and radiological integrity of water, including dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water.

50. Public Water System. A system for the provision of water for human consumption through pipes or other constructed conveyances that has 15 or more service connections or regularly serves at least 25 individuals daily at least 60 days out of the year. A public water system includes the following: (1) Any collection, treatment, storage, and distribution facilities under control of the operator of the system which are used primarily in connection with the system; (2) Any collection or pretreatment storage facilities not under, the control of the operator that are used primarily in connection, with the system; (3) Any water system that treats water on behalf of one or more public water systems for the purpose of rendering it safe for human consumption.

51. Quality of the Water. The "chemical, physical, biological, bacteriological, radiological, and other properties and characteristics of water which affect its use" as defined in the California Water Code Sec. 13050(g).

52. Receiving Waters. Surface waters or groundwater that receive or have the potential to receive discharges of waste from irrigated lands.

53. Requirements of Applicable Water Quality Control Plans. Water quality objectives, prohibitions, Total Maximum Daily Load (TMDL) Implementation Plans, or other requirements contained in the Basin Plan, as adopted by the Central Coast Water Board and approved according to applicable law.

54. Responsible Party. The owner and operator of irrigated lands that discharge or have the potential to discharge waste that could directly or indirectly reach waters of the State and affect the quality of any surface water or groundwater. See also Discharger.

55. Riparian Area. Vegetation affected by the surface water or groundwater of adjacent perennial or intermittent streams, lakes or other waterbodies. Vegetation species are distinctly different from adjacent areas or are similar to adjacent areas

but exhibit more vigorous or robust growth forms indicative of increased soil moisture. Riparian areas may also include floodplains. Floodplains are critical areas for retaining floodwaters, allowing for sediment deposition and the natural movement of riparian areas, as well as space for colonization of new riparian and wetland vegetation necessary due to natural meandering. (Dall et. al. 1997, p.3)

56. Source of Drinking Water. Any water designated as municipal or domestic supply (MUN) in a Regional Water Board Basin Plan and/or as defined in SWRCB Resolution No. 88-63.

57. Stormwater. Stormwater runoff, snow melt runoff, and surface runoff and drainage, as defined in 40 CFR 122.26(b)(13).

58. Subsurface Drainage. Water generated by installing drainage systems to lower the water table below irrigated lands. The drainage can be generated by subsurface drainage systems, deep open drainage ditches or drainage wells.

59. Surface Runoff. Precipitation, snow melt, or irrigation water in excess of what can infiltrate the soil surface and be stored in small surface depressions; a major transporter of non-point source wastes in rivers, streams, and lakes.

60. Tailwater. Runoff of irrigation water from the lower end of an irrigated field. See also, Irrigation Runoff or Return Flow.

61. Tile Drains. Subsurface drainage which removes excess water from the soil profile, usually through a network of perforated tile tubes installed 2 to 4 feet below the soil surface. This lowers the water table to the depth of the tile over the course of several days. Drain tiles allow excess water to leave the field. Once the water table has been lowered to the elevation of the tiles, no more water flows through the tiles. The Central Coast Water Board anticipates evaluating longer timeframes necessary to address tile-drain discharges, for inclusion in a subsequent Agricultural Order.

62. Total Maximum Daily Load (TMDL). The condition of an impaired surface waterbody (on the List of Impaired Waterbodies) that limits the amount of pollution that can enter the waterbody without adversely affecting its beneficial uses, usually expressed as a concentration (e.g., mg/L) or mass (e.g., kg); TMDLs are proportionally allocated among dischargers to the impaired surface waterbody.

63. Total Nitrogen Applied. Total nitrogen applied includes nitrogen in any product, form or concentration) including, but not limited to, organic and inorganic fertilizers, slow release products, compost, compost teas, manure, extracts, nitrogen present in the soil, and nitrate in irrigation water; Reported in units of nitrogen per crop, per acre for each farm/ranch or nitrate loading risk unit;

64. Uppermost Aquifer. The geologic formation nearest the natural ground surface that is an aquifer, as well as lower aquifers that are hydraulically interconnected with this aquifer.

65. Waste. "Includes sewage and any and all other waste substances, liquid, solid, gaseous, or radioactive, associated with human habitation, or of human or animal origin, or from any producing, manufacturing, or processing operation, including waste placed within containers of whatever nature prior to, and for purposes of, disposal" as defined in the California Water Code Sec. 13050(d). "Waste" includes irrigation return flows and drainage water from agricultural operations containing materials not present prior to use. Waste from irrigated agriculture includes *earthen materials* (such as soil, silt, sand, clay, rock), *inorganic materials* (such as metals, salts, boron, selenium, potassium, nitrogen, phosphorus), and *organic materials* such as pesticides.

66. Water Quality Buffer. A water quality protection zone surrounding perennial or intermittent channels, including adjacent wetlands (as defined by the Clean Water Act), with riparian vegetation and/or riparian functions that support beneficial uses and protect water quality.

67. Water Quality Control. The "regulation of any activity or factor which may affect the quality of the waters of the State and includes the prevention and correction of water pollution and nuisance" as defined in the California Water Code Sec. 13050(i).

68. Water Quality Criteria. Levels of water quality required under Sec. 303(c) of the Clean Water Act that are expected to render a body of water suitable for its designated uses. Criteria are based on specific levels of pollutants that would make the water harmful if used for drinking, swimming, farming, fish production, or industrial processes. The *California Toxics Rule* adopted by USEPA in April 2000, sets numeric Water Quality Criteria for non-ocean waters of California for a number of pollutants. See also, Water Quality Objectives.

69. Water Quality Objectives. "Limits or levels of water quality constituents or characteristics which are established for the reasonable protection of beneficial uses of water or the prevention of nuisance within a specified area," as defined in Sec. 13050(h) of the California Water Code. Water Quality Objectives may be either numerical or narrative and serve as Water Quality Criteria for purposes of Section 303 of the Clean Water Act. Specific Water Quality Objectives relevant to this Order are identified in this Appendix A in Tables 1A and 1B.

70. Water Quality Standard. Provisions of State or Federal law that consist of the beneficial designated uses or uses of a waterbody, the numeric and narrative

water quality criteria that are necessary to protect the use or uses of that particular waterbody, and an anti-degradation statement. Water quality standards includes water quality objectives in the Central Coast Water Board's Basin Plan, water quality criteria in the California Toxics Rule and National Toxics Rule adopted by USEPA, and/or water quality objectives in other applicable State Water Board plans and policies. For groundwater with the beneficial use of municipal or domestic water supply, the applicable drinking water standards are those established by the United States Environmental Protection Agency (USEPA) or California Department of Public Health (CDPH), whichever is more stringent. Under Sec. 303 of the Clean Water Act, each State is required to adopt water quality standards.

71. Waters of the State. "Any surface water or groundwater, including saline waters, within the boundaries of the State" as defined in the California Water Code Sec. 13050(e), including all waters within the boundaries of the State, whether private or public, in natural or artificial channels, and waters in an irrigation system.

72. Wetland. Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas (40 CFR 230.3(t)).

73. Wildlife Habitat. Uses of water that support terrestrial or wetland ecosystems including, but not limited to, preservation and enhancement of terrestrial habitats or wetlands, vegetation, wildlife (e.g., mammals, birds, reptiles, amphibians, invertebrates), or wildlife water and food sources.

Attachment 2

National Marine Fisheries Service
Endangered Species Act Section 7 Consultation

Biological Opinion

Environmental Protection Agency Registration of Pesticides Containing Chlorpyrifos, Diazinon, and Malathion

Photograph: Tom Maurer, USFWS

Conclusion

After reviewing the current status of California coastal Chinook salmon, Central Valley spring-run Chinook salmon, LCR Chinook salmon, Puget Sound Chinook salmon, Sacramento River winter-run Chinook salmon, Snake River fall-run Chinook salmon, Snake River spring/summer-run Chinook salmon, UCR spring-run Chinook salmon, Upper Willamette River Chinook salmon, Columbia River chum salmon, Hood Canal summer run chum salmon, Central California Coast coho salmon, LCR coho salmon, Southern Oregon and Northern Coastal California coho salmon, Oregon Coast coho salmon, , Snake River sockeye salmon, California Central Valley steelhead, Central California Coast steelhead, LCR steelhead, MCR steelhead, Northern California steelhead, Puget Sound steelhead, Snake River Basin steelhead, South Central California coast steelhead, Southern California steelhead, UCR steelhead, and Upper Willamette River steelhead, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is NMFS' Opinion that the project, as proposed, is likely to jeopardize the continued existence of these endangered or threatened species.

It is NMFS' Opinion that the project, as proposed, is not likely to jeopardize the continued existence of Ozette Lake sockeye salmon.

After reviewing the current status of designated critical habitat for California coastal Chinook salmon, Central Valley spring-run Chinook salmon, LCR Chinook salmon, Puget Sound Chinook salmon, Sacramento River winter-run Chinook salmon, Snake River fall-run Chinook salmon, Snake River spring/summer-run Chinook salmon, UCR spring-run Chinook salmon, Upper Willamette River Chinook salmon, Columbia River chum salmon, Hood Canal summer run chum salmon, Central California Coast coho salmon, Southern Oregon/Northern Coastal California coho salmon, Oregon Coast coho, Snake River sockeye salmon, California Central Valley steelhead, Central California Coast steelhead, LCR steelhead, MCR steelhead, Northern California steelhead, Snake River Basin steelhead, South-Central California coast steelhead, Southern California steelhead, UCR steelhead, and Upper Willamette River steelhead, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is NMFS' Opinion that the project, as proposed, is likely to result in the destruction or adverse modification of critical habitat of these endangered and threatened species.

It is NMFS' Opinion that the project, as proposed, is not likely to result in the destruction or adverse modification of critical habitat of Ozette Lake sockeye salmon.

Reasonable and Prudent Alternative

This Opinion has concluded that EPA's proposed registration of pesticides containing chlorpyrifos, diazinon, and malathion is likely to jeopardize the continued existence of 27 endangered and threatened Pacific salmonids and is likely to destroy or adversely modify designated critical habitat for 25 threatened and endangered salmonids. The clause "jeopardize the continued existence of" means "to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species" (50 CFR §402.02).

Regulations (50 CFR §402.02) implementing section 7 of the ESA define reasonable and prudent alternatives as alternative actions, identified during formal consultation, that: (1) can be implemented in a manner consistent with the intended purpose of the action; (2) can be implemented consistent with the scope of the action agency's legal authority and jurisdiction; (3) are economically and technologically feasible; and (4) NMFS believes would avoid the likelihood of jeopardizing the continued existence of listed species or result in the destruction or adverse modification of critical habitat.

NMFS reached this conclusion because measured and predicted concentrations of the three active ingredients in salmonid habitats, particularly in off-channel habitats, are likely to cause adverse effects to listed species including significant reductions in survival, reproduction, migration, and growth. Further, all but one population of listed Pacific salmonids are likely to suffer reductions in viability given the severity of expected changes in abundance and productivity associated with the proposed action. These adverse effects are expected to appreciably reduce the likelihood of both the survival and recovery of the listed Pacific salmonids. EPA's proposed registration of chlorpyrifos, diazinon, and malathion is likely to result in the destruction or adverse modification of critical habitat of these endangered and threatened species because of adverse effects on salmonid prey and water quality in freshwater rearing, spawning, migration, and foraging areas.

The Reasonable and Prudent Alternative (RPA) accounts for the following issues: (1) the action will result in exposure to other chemical stressors that may increase the risk of the action to listed species including unspecified inert ingredients, adjuvants, and tank mixes; (2) exposure to chemical mixtures containing chlorpyrifos, diazinon, and malathion and other cholinesterase-inhibiting compounds result in additive and synergistic responses; (3) exposure to other chemicals and physical stressors (e.g., temperature) in the baseline habitat will likely intensify response to chlorpyrifos, diazinon, and malathion.

The action as implemented under the RPA will remove the likelihood of jeopardy and of destruction or adverse modification of critical habitat. In the proposed RPA, NMFS is not attempting to ensure that there is no take of listed species. NMFS believes take will occur, and has provided an incidental take statement exempting that take from the take prohibitions, as long as the action is conducted according to the RPA and reasonable and prudent measures (RPM). Avoiding take would most likely entail cancelling registration, or prohibiting use in watersheds inhabitated by salmonids. The goal of the RPA is to

Attachment 3

National Marine Fisheries Service

Endangered Species Act Section 7 Consultation

Final Biological Opinion

Environmental Protection Agency

Registration of Pesticides

Oryzalin, Pendimethalin, Trifluralin

May 31, 2012

Conclusion

In the *Integration and Synthesis of Effects to Listed Species* section, we described NMFS' assessment of the likelihood of negative effects posed to the survival and recovery of listed Pacific salmonids as a result of EPA's registration of oryzalin, pendimethalin, and trifluralin. The likelihood of effects assigned to each ESU/DPS for each a.i. reflects NMFS' evaluation of the likelihood that a compound will cause reductions in species' viability.

We expect oryzalin, pendimethalin, and trifluralin will have an adverse effect on most listed salmonids. For some ESUs/DPSs, the effects may be extensive enough to rise to the level of jeopardy, and for other ESUs/DPSs the effects may not. This is primarily of function of the extent of registered use sites in the watershed. Final determinations for jeopardy are presented in Table 115.

We expect oryzalin, pendimethalin, and trifluralin will have an adverse effect on most listed salmonids. For some ESUs/DPSs, the effects may be extensive to constitute adverse modification or destruction of designated critical habitat and in other cases it may not. This is primarily of function of the extent of registered use sites in the watershed. Final determinations for adverse modification are presented in Table 116

Table 115. Jeopardy determinations for a.i.s.

Species	ESU/DPS	Oryzalin	Pendimethalin	Trifluralin
Chinook	Puget Sound	No	**Jeopardy**	**Jeopardy**
	Lower Columbia River	No	**Jeopardy**	**Jeopardy**
	Upper Columbia River Spring - Run	No	No	No
	Snake River Fall - Run	No	No	No
	Snake River Spring/Summer - Run	No	No	No
	Upper Willamette River	**Jeopardy**	**Jeopardy**	**Jeopardy**
	California Coastal	**Jeopardy**	**Jeopardy**	**Jeopardy**
	Central Valley Spring - Run	**Jeopardy**	**Jeopardy**	**Jeopardy**
	Sacramento River Winter - Run	**Jeopardy**	**Jeopardy**	**Jeopardy**
Chum	Hood Canal Summer - Run	No	No	No
	Columbia River	No	No	No
Coho	Lower Columbia River	No	**Jeopardy**	**Jeopardy**
	Oregon Coast	No	No	No
	Southern Oregon and Northern California Coast	No	No	No
	Central California Coast	**Jeopardy**	**Jeopardy**	**Jeopardy**
Sockeye	Ozette Lake	No	No	No
	Snake River	No	No	No
Steelhead	Puget Sound	No	**Jeopardy**	**Jeopardy**
	Lower Columbia River	No	**Jeopardy**	**Jeopardy**
	Upper Willamette River	**Jeopardy**	**Jeopardy**	**Jeopardy**
	Middle Columbia River	**Jeopardy**	**Jeopardy**	**Jeopardy**
	Upper Columbia River	No	No	No
	Snake River	No	No	No
	Northern California	No	No	No
	Central California Coast	**Jeopardy**	**Jeopardy**	**Jeopardy**
	California Central Valley	**Jeopardy**	**Jeopardy**	**Jeopardy**
	South-Central California Coast	**Jeopardy**	**Jeopardy**	**Jeopardy**
	Southern California	No	**Jeopardy**	**Jeopardy**

Attachment 4

Published on *Delta Stewardship Council* (http://deltacouncil.ca.gov)

Identifying the Causes of Feminization of Chinook Salmon in the Sacramento and San Joaquin River System

[1]

Primary Investigator

David Sedlak

[2]

Chinook Salmon
http://estuaries.noaa.gov/About/FishFactsheet.aspx?id=507

Introduction

Starting in the early 1990s, scientists began to report the presence of feminized male fish in rivers around the world. Sex reversal in male fish, which is a form of endocrine disruption, has attracted the attention of scientists, policymakers and the general public. Most research on feminization of fish has focused on rivers in which the discharge of municipal wastewater accounts for a significant fraction of the overall flow. In these systems, a large percentage of the male fish often exhibit elevated levels of a molecule related to egg yolk and contain egg cells in their testes (Purdom et al, 1994; Harries et al, 1996; Jobling et al, 1998). Related studies have demonstrated that the feminization of male fish in these systems usually is attributable to the presence in wastewater effluent of trace concentrations of steroid hormones (Desbrow et al, 1998; Snyder et al, 2001).
The Sacramento and San Joaquin watersheds likely contain a variety of chemical contaminants that are known to act as xenoestrogens (compounds that mimic the effects of estrogen). Dietary exposures or injections of steroid hormones and pesticides can cause feminization of salmon (Devlin, 2002). Although waterborne exposures to sewage effluent can also cause feminization of Chinook salmon (Afonso et al, 2002), few studies involving waterborne exposures of Chinook salmon to specific contaminants have been performed. However, waterborne exposure to xenoestrogens can cause feminization of the closely related species, rainbow trout. Observations with rainbow trout provide insight into the types of chemical contaminants that might be responsible for feminization of Chinook salmon.

1. Purdom, C.E., et al., Estrogenic effects of effluents from sewage treatment works.

Chemistry and Ecology, 1994. 8(4): p. 275-285.
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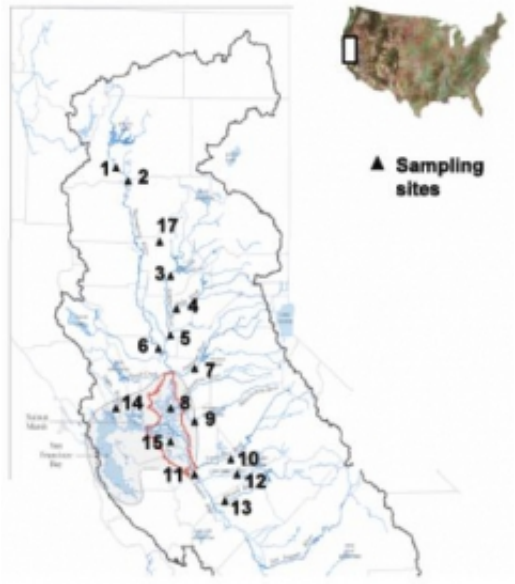
5. Snyder, S.A., et al., Identification and quantification of estrogen receptor agonists in wastewater effluents. Environmental Science & Technology, 2001. 35(18): p. 3620-3625.
6. Devlin, R.H. and Y. Nagahama, Sex determination and sex differentiation in fish: an overview of genetic, physiological, and environmental influences. Aquaculture, 2002. 208(3-4): p. 191-364.
7. Afonso, L.O.B., et al., Y-chromosomal DNA markers for discrimination of chemical substance and effluent effects on sexual differentiation in salmon. Environmental Health Perspectives, 2002. 110(9): p. 881-887.

Project Purpose

The main purpose of this research project was to assess the potential importance of endocrine-disrupting chemical contaminants to salmon and other resident species of waters that are discharged into the San Francisco-San Joaquin Delta. To achieve these objectives, endocrine-disrupting compounds were quantified through a combination of field sampling, state-of-the-art chemical analyses and laboratory bioassays (analyses). An initial survey of sites representative of California's inland waters was followed by focused sampling, toxicity identification evaluations and fish exposures at sites where endocrine disrupting compounds were observed.



[3]
Sampling sites in the San Joaquin and Sacramento River system
David Sedlak

Project Information

Funding Amount:
$1,167,141
Status:
Completed
Recipient Organization:
Regents of the University of California at Berkeley
PSP Year:
2004
Start and End Dates:
04/01/2006 to 12/31/2010

Grant Documents

Executive Summary

Click here for the Executive Summary [4]

Scope of Work

Click here foe the Scope of Work [5]

Final Project Report

Click here for the Final Project Report [6]

What We Learned

Chemical characterization of water samples
Ten sampling events were conducted in the Delta and Central Valley from July 2006 to January 2008: seven during dry-weather conditions and three during storm events. Comparison of the values for dry weather with values from rangeland runoff and canals near dairy farms shows that the known endocrine- disrupting compounds are much lower in the rivers than in the other two potential sources. Furthermore, the data from rivers indicate that values were below the threshold for fish feminization in approximately 99 percent of the samples.

Bioassays of water samples
Extracts from water samples described in the previous section were analyzed for estrogenicity by examining fish. Unlike the chemical analyses, the examinations of fish showed more evidence of endocrine-disrupting compounds during wet and dry seasons. Analysis of storm samples from sites where water discharge information from U.S. Geological Survey gauges was available suggested that some responses were related to discharge magnitude.

Targeted sampling
Sampling in the region of the Napa Valley with the highest pesticide use suggested a correlation between pesticide use or agricultural practices and bioassay response. Results from sites in the Napa and Tuolumne rivers fell within previous observations: all the hormones were below detection limits or present in very low concentrations, so under the thresholds for

rainbow trout feminization.
Analysis of samples in the Delta found no or low concentrations of steroid hormones at most of the sites. The highest levels for hormones were found at the mouths of the Sacramento and Napa rivers, consistent with our previous observations. However, analysis of fish showed elevated levels of estrogenicity in the Carquinez Strait and the Sacramento River.

Toxicity/xenoestrogen identification evaluation
Samples from the Napa, Sacramento, and Tuolumne rivers were sent to the California Department of Fish and Game for pesticide analysis and to the Southern Nevada Water Authority for analysis of unknowns. Only the pesticide diuron was present in all of the samples. The occurrence of diuron in samples from these locations is not surprising because it is one of the most heavily used herbicides in California (Green, 2006).

Salmonid bioassays
Results from salmonid bioassays indicated a significant elevation in production of vitellogenin (an egg yolk protein), relative to the control, at the Napa River site. The Sacramento River Delta sample, collected at Walnut Grove, showed vitellogenin concentrations slightly below the control sample.

Estrogenicity of local rivers
The Napa River and Sacramento River Delta sites generally displayed similar levels of estrogenicity. At both sites the analyses performed during the winter (resident fish collection and site-water exposure) showed no difference from controls.
The Napa River and Sacramento River Delta sites were previously identified as being among the most likely places in the San Francisco Bay and Sacramento/San Joaquin Delta for the presence of estrogenic endocrine-disrupting chemicals (EDCs). However, of the three analyses performed, this prediction only held true in one analysis. The analysis took place in early August, which tends to be a hot, dry time of year in the Bay/Delta area. The other two analyses were both during the winter of 2009/10, which was characterized by particularly heavy and consistent rains. Temperature, oxygen levels, estrogenic EDCs, and other stressors are all possible contributors to these seasonal differences. Once again, further research is required to determine what, if any, effect seasonal weather patterns have on levels of endocrine disruption in area fishes.

The tasks for this project were conducted in collaboration with those of Dr. Bernie May, the principal investigator for the research proposal, “Are ‘Apparent’ Sex Reversed Chinook Salmon a Symptom of Genotoxicity? [link to project page]”

Green, P.G. and T.M. Young, Loading of the herbicide diuron into the California water system. Environmental Engineering Science, 2006. 23(3): p. 545-551.

Publications

Lavado R., Loyo-Rosales J.E., Floyd E., Kolodziej E.P., Snyder S.A., Sedlak, D.L. and Schlenk D. (2009) Site-specific profiles of estrogenic activity in agricultural areas of California's inland waters Environ. Sci. Technol 43(24): 9110-9116.

Source URL: http://deltacouncil.ca.gov/scienceprogram/projects/identifying-causes-feminization-chinook-salmon-sacramento-and-san-joaquin

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[3] http://deltacouncil.ca.gov/sites/default/files/image2_9.JPG
[4] http://deltacouncil.ca.gov/sites/default/files/documents/files/psp/2011-12/ES_Sedlak_SCI_06_C04_111.pdf
[5] http://deltacouncil.ca.gov/sites/default/files/documents/files/psp/2011-12/SOW_6.pdf
[6] http://deltacouncil.ca.gov/sites/default/files/documents/files/psp/2011-12/FR_Sedlak_SCI_6_C04_111.pdf

Attachment 5

Site-Specific Profiles of Estrogenic Activity in Agricultural Areas of California's Inland Waters

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To evaluate the occurrence and sources of compounds capable of feminizing fish in agriculturally impacted waterways of the Central Valley of California, water samples were extracted and subjected to chemical analyses as well as in vitro and in vivo measurements of vitellogenin in juvenile rainbow trout (*Oncorhynchus mykiss*). Among the 16 sites sampled, 6 locations frequently exhibited elevated concentrations of estrogenic substances with 17β-estradiol equivalents up to 242 ng/L in vitro and 12 μg/kg in vivo. The patterns of activity varied among sites, with two sites showing elevated activity only in vitro, two showing elevated activity only in vivo, and two showing elevated activity in both assays. Sequential elution of solid-phase extraction (SPE) disks followed by bioassay-guided fractionation was used to characterize water samples from the two locations where activity was observed in both bioassays. The highest estrogenic activity was observed in the most nonpolar fractions (80−100% methanol eluent) from the Napa River, while most of the activity in the Sacramento River Delta eluted in the 60% methanol eluent. Quantitative analyses of SPE extracts and additional HPLC fractionation of the SPE extracts by GC−MS/MS and LC−MS/MS indicated concentrations of steroid hormones, alkylphenol polyethoxylates, and herbicides that were at least 1−3 orders of magnitude below bioassay 17β-estradiol equivalent calculations. Given the different patterns of activity and chemical properties of the estrogenic compounds, it appears that estrogenic activity in these agriculturally impacted surface waters is attributable to multiple compounds. Further investigation is needed to identify the compounds causing the estrogenic activity and to determine the potential impacts of these compounds on feral fish.

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Introduction

Starting in the 1990s, scientists began reporting the presence of male fish with an ovotestis and elevated concentrations of the blood serum protein vitellogenin in surface waters in which a significant fraction of the overall flow consisted of wastewater effluent (*1*−*3*). Subsequent surveys of feral fish in effluent-impacted waters in Europe, North America, and Japan confirmed the presence of intersex or feminized fish (*4*−*6*).

Coincident with studies of effluent-impacted waters, scientists began to document the occurrence and effects of estrogenic contaminants in agricultural watersheds. Initial studies focusing on hydrophobic compounds, such as DDT and its metabolites, indicated that sediment-associated pesticides could cause endocrine disruption in alligators (*7*). More recent studies have documented the presence of steroid hormones at concentrations high enough to feminize sensitive species of fish in runoff from confined animal feeding operations (*8*−*11*) and grazing rangelands (*12*). Furthermore, runoff from cultivated fields may contain naturally occurring estrogenic compounds, such as mycotoxins (*13*), while some commonly used pesticides (*14*) and nonionic detergents (used as wetting agents in pesticide formulations), can be converted to estrogenic compounds either in the environment or in the liver (*15*).

In vivo bioassays employing caged fish (*16*), flow-through aquaria (*17*, *18*), static renewal (*18*), and intraperitoneal injection (*18*, *19*) have been used to assess the estrogenicity of specific contaminants, to compare the estrogenicity of municipal wastewater effluent (*20*), and to evaluate temporal and spatial variations of estrogenic contaminants in surface waters (*21*, *22*). However, the large volume of water required and limited throughput of these assays has precluded their widespread use for bioassay-directed fractionation. To identify the compounds responsible for fish feminization, inexpensive in vitro bioassays that require relatively small volumes of water or water extracts, such as the yeast estrogen screen (*23*) and the trout liver hepatocyte assay (*24*), have been developed. Studies that have used these bioassays indicate that steroid hormones (i.e., ethinylestradiol, 17β-estradiol, and estrone) account for most of the in vitro estrogenic activity in wastewater effluent and in effluent-impacted waters (*25*, *26*). In some cases, detergent metabolites (e.g., nonylphenol and nonylphenol ethoxylates) also contribute to the estrogenic activity (*27*).

Several recent studies have considered the possibility that estrogenic compounds in agricultural runoff could feminize fish in agricultural watersheds, but thus far results have been ambiguous. For example, Hinck et al. (*28*) observed intersex fish at several sites impacted by agricultural runoff along the Colorado River basin, but simultaneous measurements of pesticides did not indicate the presence of elevated concentrations of estrogenic compounds at locations where feminized fish were observed. The use of in vitro bioassays has indicated estrogenic activity in waters impacted by agriculture, but most of the activity was attributed to endogenous steroids excreted by the animals (*9*−*11*) despite the many other potential sources of estrogenic compounds in the agricultural watersheds. Preliminary data from caged

10.1021/es902583q
Published on Web 11/18/2009

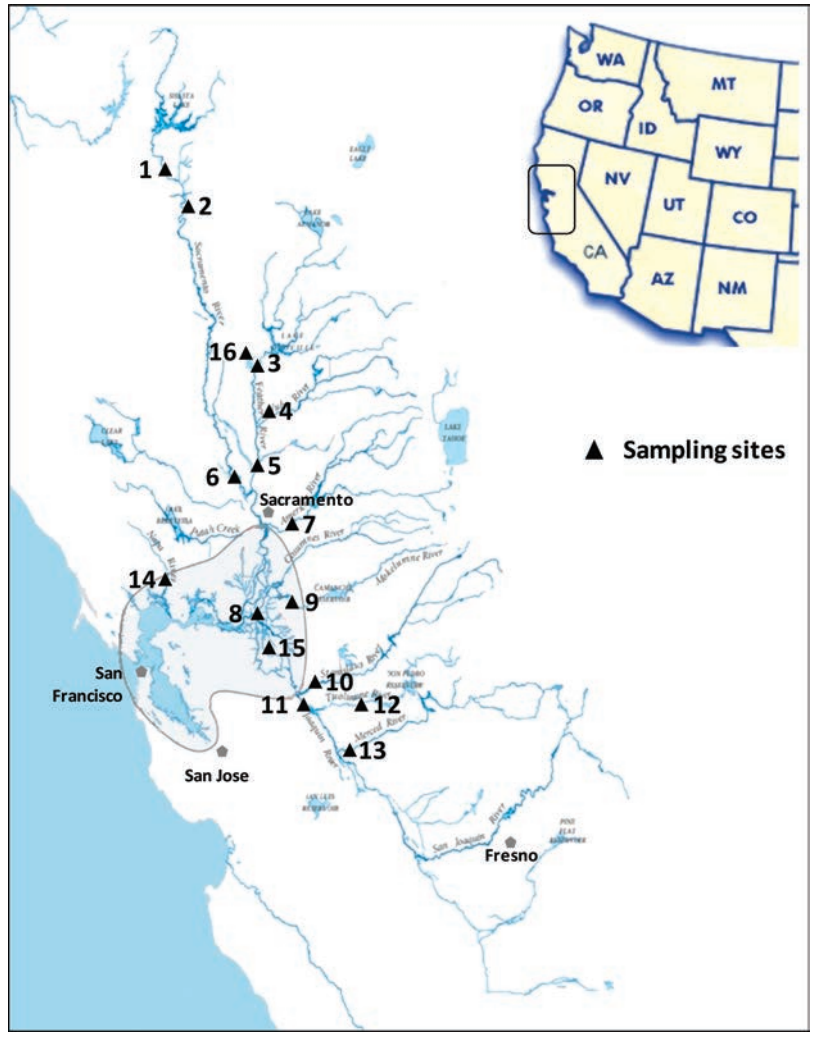

FIGURE 1. Location of the sampling sites in the Sacramento-San Joaquin River system (Central Valley of California).

fish studies in California's Central Valley have indicated feminization of fathead minnows (Lazorchak et al., personal communication) and feral *Menidia* sp. (Brander and Cherr, personal communication).

To assess the importance of modern agricultural practices as a source of estrogenic compounds in surface waters, surface water samples from 16 locations in California were extracted and subjected to bioassays and analysis for steroid hormones, detergent metabolites, agrochemicals, and other commonly occurring anthropogenic contaminants (i.e., pharmaceuticals and personal care products). At two locations where estrogenic activity was frequently detected, bioassay-directed fractionation was employed to gain insight into the chemical properties and possible identity of the contaminants responsible for the observed estrogenic activity.

Experimental Section

Study Area and Chemical Analysis. Sampling locations were selected to represent the prevalent land use types in California's Central Valley (Table S1 in the Supporting Information and Figure 1). Grab water samples were collected on six different occasions during 2006−2007 in previously baked 4 L amber glass bottles. Samples were immediately packed in containers with ice and transported to the laboratory, where they were processed for water quality measurements (Table S2, Supporting Information; chemical and estrogenicity analysis). Chemical analysis (see the supplemental Experimental Section and Table S3 in the Supporting Information) involved filtration, solid-phase extraction (SPE), and GC−MS/MS analysis for steroid hormones and nonionic detergents and their degradation products (i.e., nonylphenol, octylphenol, octylphenol mono- and diethoxylates, and nonylphenol mono- and diethoxylates) using modifications to previously published methods (*29, 30*). Positive controls consisted of E2-amended river (site 9) water and dechlorinated tap water. Selected extracts also were analyzed by HPLC-MS/MS (see the supplemental Experimental Section in the Supporting Information).

Bioassays. Estrogenicity of SPE extracts of the unfiltered samples was evaluated through the production of vitellogenin in both in vitro and in vivo bioassays as described below. In vitro activity was evaluated by measuring the expression of vitellogenin mRNA by quantitative polymerase chain reaction (qPCR) in primary rainbow trout (*Oncorhynchus mykiss*) hepatocytes as described previously (*31*) (see the supplemental Experimental Section in the Supporting Information). In vivo estrogenic activity was quantified by measuring vitellogenin protein by enzyme-linked immunosorbent assays after injecting fractions and extracts into rainbow trout as previously reported (*30*) (see the supplemental Experimental Section). Estradiol equivalents were calculated from E2 dose−response curves (Figure S1, Supporting Information).

Fractionation Studies. To characterize the causative agents responsible for the estrogenic activity observed in biologically active samples, bioassay-guided fractionation was performed on a select number of water samples with elevated bioassay activities as described previously (*31, 32*) with minor modifications (see the supplemental Experi-

TABLE 1. EEQs Determined in the Selected Sampling Sites by an in Vitro Bioassay[a]

code	site	July 2006	September 2006	November 2006	January 2007	March 2007	April 2007
1	Upper Sacramento River	1.8 ± 0.6	3.7 ± 2.9	1.1 ± 0.5	1.7 ± 1.7	bdl	bdl
2	Battle Creek	bdl	0.2 ± 0.1	bdl	bdl	bdl	0.2 ± 0.1
3	Upper Feather River	1.2 ± 1.1	0.9 ± 0.5	4.8 ± 2.8	0.6 ± 0.4	0.5 ± 0.1	0.6 ± 0.3
4	Yuba River	bdl	12.5 ± 11.2	10.4 ± 11.9	0.4 ± 0.3	1.8 ± 0.9	0.9 ± 0.1
5	Lower Feather River	0.3 ± 0.1	15.3 ± 7.0	na	na	bdl	na
6	Lower Sacramento River	bdl	bdl	1.2 ± 0.2	0.9 ± 0.5	bdl	bdl
7	Lower American River	bdl	bdl	bdl	bdl	na	bdl
8	Sacramento River Delta	164.0 ± 117.7	8.6 ± 6.1	51.2 ± 31.9	107.5 ± 35.6	40.1 ± 11.9	71.3 ± 5.8
9	Mokelumne River	bdl	bdl	bdl	bdl	bdl	bdl
10	Stanislau River	bdl	bdl	bdl	0.5 ± 0.3	bdl	bdl
11	San Joaquin River	bdl	bdl	bdl	bdl	bdl	bdl
12	Tuolumne River	91.6 ± 50.1	241.8 ± 46.3	24.6 ± 4.1	129.5 ± 47.1	68.5 ± 6.3	43.9 ± 14.1
13	Merced River	6.4 ± 3.4	56.1 ± 27.8	0.9 ± 0.4	10.9 ± 7.3	bdl	0.4 ± 0.2
14	Napa River	0.2 ± 0.1	68.3 ± 22.6	13.6 ± 14.1	2.3 ± 0.9	6.8 ± 3.1	10.1 ± 5.4
15	Clifton Court Forebay	bdl	bdl	bdl	bdl	bdl	bdl
16	Butte Creek	na	na	2.8 ± 0.6	6.5 ± 2.0	1.4 ± 0.3	1.6 ± 0.7

[a] Data are presented in units of nanograms per liter and as the mean ± SD (n = 4). Abbreviations: bdl, below the detection limit (<0.15 ng/L); na, not analyzed.

TABLE 2. EEQs Determined in the Selected Sampling Sites by an in Vivo Bioassay[a]

code	site	July 2006	September 2006	November 2006	January 2007	March 2007	April 2007
1	Upper Sacramento River	4.8 ± 2.8	0.3 ± 0.1	2.5 ± 1.2	1.2 ± 0.3	3.2 ± 0.03	1.1 ± 0.3
2	Battle Creek	bdl	bdl	bdl	bdl	bdl	bdl
3	Upper Feather River	bdl	0.2 ± 0.02	bdl	bdl	bdl	bdl
4	Yuba River	0.2 ± 0.01	0.3 ± 0.01	bdl	bdl	bdl	bdl
5	Lower Feather River	7.7 ± 0.2	3.4 ± 2.4	na	na	bdl	na
6	Lower Sacramento River	bdl	0.3 ± 0.03	bdl	bdl	bdl	bdl
7	Lower American River	bdl	bdl	bdl	bdl	na	bdl
8	Sacramento River Delta	4.6 ± 5.2	bdl	2.4 ± 0.5	3.1 ± 0.2	5.1 ± 0.7	4.1 ± 1.3
9	Mokelumne River	0.2 ± 0.01	0.2 ± 0.02	bdl	bdl	bdl	bdl
10	Stanislau River	0.3 ± 0.01	0.2 ± 0.01	bdl	bdl	bdl	bdl
11	San Joaquin River	0.2 ± 0.01	0.2 ± 0.1	bdl	bdl	bdl	bdl
12	Tuolumne River	bdl	bdl	bdl	0.8 ± 0.1	0.3 ± 0.1	bdl
13	Merced River	0.2 ± 0.01	0.7 ± 0.03	0.4 ± 0.01	0.7 ± 0.4	bdl	bdl
14	Napa River	0.2 ± 0.01	12.4 ± 0.8	5.2 ± 0.6	0.2 ± 0.01	0.4 ± 0.02	3.1 ± 0.04
15	Clifton Court Forebay	0.3 ± 0.02	0.2 ± 0.02	bdl	bdl	bdl	bdl
16	Butte Creek	na	na	bdl	bdl	bdl	bdl

[a] Data are presented in units of micrograms per kilogram (ww) and as the mean ± SD (n = 3–5). Abbreviations: bdl, below the detection limit (<0.15 μg/kg ww); na, not analyzed.

mental Section in the Supporting Information). Biologically active as well as inactive SPE fractions were evaluated for 51 current use pesticides and alkylphenol surfactants (mixture centered around nonylphenol C1–10 ethoxylates) by the California Fish and Game Laboratory in Rancho Cordova, CA, using established methods (see Table S4a for results and Table S4b for the full list of analytes, Supporting Information). Biologically active SPE fractions were subjected to HPLC fractionation as described above, and all HPLC fractions from the positive control, Napa River, and Sacramento River Delta were evaluated for the compounds listed in Table S5 (Supporting Information) using previously published methods (*33*–*35*).

Results

A total of 101 surface water samples were analyzed from the 16 sites between July 2006 and April 2007. The water quality parameters and chemical analyses indicated good water quality with relatively low concentrations of suspended solids (median 5 mg/L), low concentrations of dissolved organic carbon (median 2 mg/L), and the infrequent presence of low concentrations of herbicides and other trace organic compounds (Tables S1 and S3, Supporting Information). The concentrations of compounds most frequently associated with feminization of fish (i.e., selected steroid hormones, alkylphenol polyethoxylates, and alkylphenols) were well below the threshold values for steroids and for alkylphenols (*36*) for feminization of sensitive species, such as rainbow trout.

Estrogenic activity was detected consistently at 6 of the 16 sites in the two bioassays (Tables 1 and 2). The highest estradiol equivalents (EEQs) measured with the in vitro bioassay were observed at the Sacramento River Delta (site 8; 8.6–164 ng/L), Napa River (site 14; 0.2–68.3 ng/L), Tuolumne River (site 12; 24.6–242 ng/L), and Merced River (site 13; <0.15–56.1 ng/L) sites (Table 1). Elevated EEQs were observed throughout the year in these locations. The highest in vitro estrogenicity was observed in the Tuolumne River in September 2006, and the highest activity in the Sacramento River Delta was observed in July 2006.

The in vivo bioassays indicated the highest EEQs in the Sacramento River Delta (<0.15–5.1 μg/kg ww), Lower Feather River (site 5; <0.15–7.7 μg/kg ww), Upper Sacramento River (site 1; 0.3–4.8 μg/kg ww), and Napa River (site 14; 0.2–12.4 μg/kg ww) (Table 2). Estrogenic activity was consistent throughout the entire year, but was more variable relative to the in vitro bioassay.

The Tuolumne River (site 12) and the Merced River (site 13) sites exhibited measurable EEQs in the in vitro assay but had estrogenicity at or below the limits of detection in the

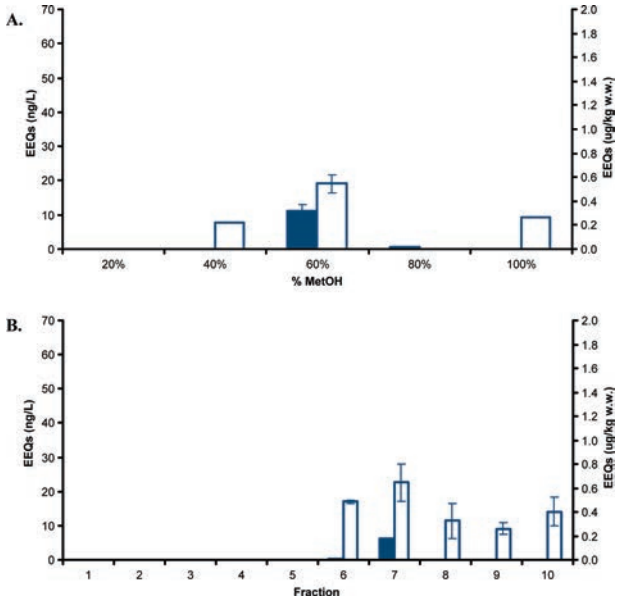

FIGURE 2. In vitro and in vivo estrogenic activities of fractions resulting from methanol elution of water samples from the Sacramento River Delta following solid-phase extraction (A) and subsequent HPLC fractionation of the 60% methanol eluent (B). Data are expressed in EEQs for in vitro (dark bars; ng/L) and in vivo (clear bars; μg/kg ww). Each value represents the mean average of 3−4 replicate measurements ± SD.

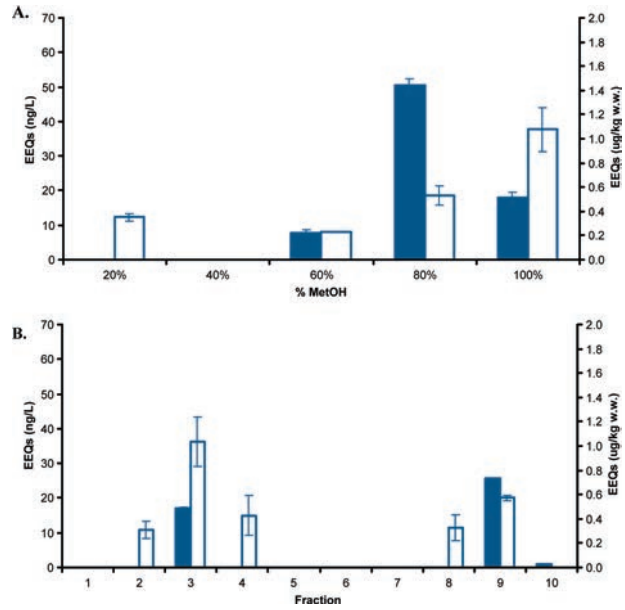

FIGURE 3. In vitro and in vivo estrogenic activities (EEQs) of fractions resulting from methanol elution of water samples from the Napa River following solid-phase extraction (A) and subsequent HPLC fractionation of the 80% methanol eluent (B). Data are expressed in EEQs for in vitro (dark bars; ng/L) and in vivo (clear bars; μg/kg ww). Each value represents the mean average of 3−4 replicate measurements ± SD.

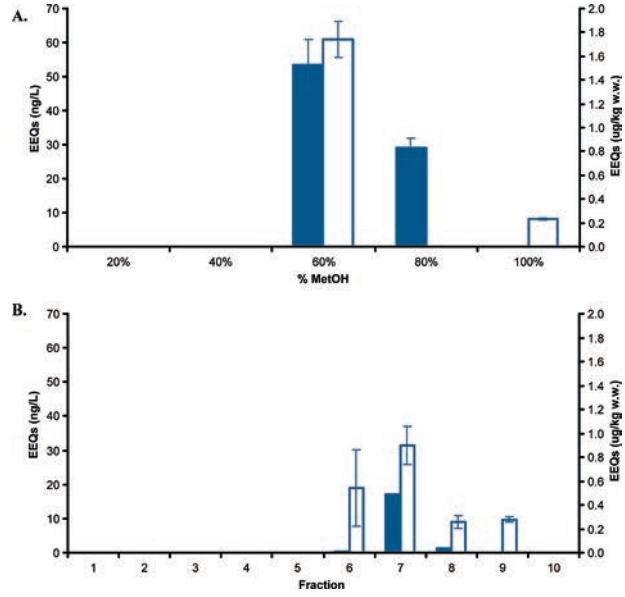

FIGURE 4. In vitro and in vivo estrogenic activities (EEQs) of fractions resulting from methanol elution of water samples from dechlorinated tap water amended with 30 ng/L 17β-estradiol following solid-phase extraction (A) and subsequent HPLC fractionation of the 60% methanol eluent (B). Data are expressed in EEQs for in vitro (dark bars; ng/L) and in vivo (clear bars; μg/kg ww). Each value represents the mean average of 3−4 replicate measurements ± SD.

in vivo bioassay. Two different sites, the Upper Sacramento River (site 1) and the Lower Feather River (site 5), had elevated in vivo activity but low in vitro activity.

The Sacramento River Delta and the Napa River samples had the highest EEQs in both in vitro and in vivo bioassays. Consequently, they were chosen for additional characterization with HPLC fractionation coupled with bioassay analyses. Solid-phase extraction with sequential methanol/water elution was carried out on two sets of samples taken at different times (July 2007 and August 2008). The two sets of samples yielded similar results (see Figures S2 and S3, Supporting Information). The majority of the estrogenic activity measured by in vitro and in vivo bioassays using the Sacramento River Delta sample extracts eluted in the 60% methanol fraction (Figure 2A). In samples from the Napa River, most of the estrogenic activity was observed in the 80% and 100% methanol fractions. The highest in vitro estrogenicity was observed in the 80% methanol fraction, while the highest in vivo activity was observed in the 100% methanol fraction (Figure 3A). In the first positive control sample, extracts of river water amended with 100 ng/L E2 yielded an in vitro EEQ of 32 ng/L and an in vivo EEQ of 0.4 μg/kg in the 60% methanol fraction. In a second positive control (i.e., dechlorinated tap water with 30 ng/L E2), the in vitro (54 ± 8 ng/L EEQ) and in vivo estrogenicities were largely restricted to the 60% methanol fraction, with some carryover into the 80% fraction (Figure 4A). Chemical analysis of the second set of positive controls indicated 16 ± 1 ng/L E2 in the 60% methanol fraction after fractionation and 29 ± 3 ng/L when the cartridge was extracted with 100% methanol in one step. Evaluation of SPE extracts of dechlorinated tap water without E2 spiking or distilled water without E2 yielded no measurable estrogenic activity in either bioassay (data not shown).

In an attempt to identify other potential agents responsible for the estrogenic activity, additional chemical analyses of 51 pesticides and nonylphenol C1−10 ethoxylates (NPEOs) were conducted in the bioactive fractions from the Sacramento River Delta, the Napa River, and the 30 ng/L E2 positive control (Table S4, Supporting Information). Both surface water samples contained low concentrations of herbicides: the 80% methanol fraction from Napa River contained 6.2 ng/L diuron, 4.1 ng/L simazine, and 2.8 ng/L 2-hydroxyatrazine, while the 60% methanol fraction from the Sacramento River Delta contained 2.5 ng/L diuron and 0.2 ng/L 2-hydroxyatrazine. A mixture of the NPEOs (i.e., 421 ng/L) was only detected in the 80% methanol fraction from the Sacramento Delta extract.

To further characterize the active fractions, the 60% methanol fraction from the Sacramento River Delta, the 80%

methanol fraction from the Napa River, and the 60% methanol fraction from the positive control were subjected to HPLC fractionation (Figures 2B, 3B, and 4B). Fraction 7, which corresponded to a retention time of 19−21 min from the Sacramento River Delta possessed the highest in vitro and in vivo estrogenic activities (Figure 2B). Similar levels of in vivo activity were observed in fractions 6, 8, 9, and 10. After HPLC fractionation, recovery of in vitro activity (i.e., the sum of the activity from the fractions) was approximately 80% of that measured in the extract that was not subjected to sequential elution, but recovery of in vivo activity was >300%.

In the Napa River samples, in vitro activity was observed in fractions 3, 9, and 10 (Figure 3B). In vivo activity was observed in fractions 2, 3, 4, 8, and 9. Recovery of in vitro activity was approximately 80% and in vivo recovery was >500% after HPLC fractionation.

In the positive control, fraction 7 (corresponding to 18−21 min) also showed the highest EEQs in vitro and in vivo with some in vivo activity in fractions 6, 8, and 9 (Figure 4B). The retention time for a 17β-estradiol standard in this HPLC method was 20.4 min, corresponding to fraction 7. Overall recovery of E2, as measured by GC−MS/MS was 110% (33 ng/L) from the 60% methanol fraction (30 ng/L) of the SPE extraction. The recovery of estradiol, as measured by the in vitro bioassay (i.e., 22 ng/L EEQ), was 73%.

All HPLC fractions were analyzed for 30 compounds commonly observed in domestic wastewater by LC−MS/MS and GC−MS/MS (Table S5, Supporting Information). Six human pharmaceuticals with no known estrogenic activity were detected in fractions 1−5 at low concentrations (Table S5a). No compounds were detected in the bioactive fractions from the Sacramento Delta.

For the Napa River samples, estrone (<1 ng/L total) was observed in fractions 8, 9, and 10 and carbamazepine (0.6 ng/L) was observed in fraction 8 (Table S5b, Supporting Information).

Discussion

Occurrence of Estrogenic Substances. Estrogenic activity was repeatedly observed at 6 of 16 locations in the inland waters that drain into San Francisco Bay. At the remaining sites, estrogenic activity was near or below the detection limit of the assay. Measured concentrations of selected steroid hormones and APEs could not explain the biological observations, and screening for modern use pesticides and wastewater-derived contaminants did not indicate contamination (concentrations were <10 ng/L). In most previous studies in which in vitro bioassay-guided fractionation data were coupled with chemical analyses, steroid estrogens were the class of compounds responsible for most of the activity (*26, 36, 37*). For example, studies of wastewater effluent in Switzerland indicated that the calculated estrogenicity from chemical analyses was of the same order of magnitude as that calculated from YES activity and other in vitro assays (*38*). However, the previous studies were almost exclusively focused on municipal wastewater or effluent-impacted surface waters. In contrast, the sites targeted in the current study were primarily within agriculturally impacted areas.

In contrast to the calculated EEQs from chemical analyses (typically less than 1 ng/L), bioassay-derived EEQs for in vitro activity averaged 52 ng/L. When samples from locations where municipal wastewater is not the source of estrogenic activity are considered, the calculated chemical EEQs rarely correspond to the EEQs measured with bioassays. For example, Pawlowski et al. (*40*) observed higher YES activity than that predicted from chemical analyses in surface waters from the Rhine River in Germany. Other authors also have reported discrepancies between measurements from in vitro bioassays and EEQs based on chemical analyses of selected steroid hormones or other known estrogenic chemicals (*41*). In waters impacted by agricultural activities, estrogenic activity may result from the presence of pesticide mixtures and/or their degradates as well as phytoestrogens, adjuvants, and other compounds with multiple endocrine targets and modes of action (*37, 39, 42*).

While YES and in vitro estrogen receptor (ER)-based assays frequently used in studies of this nature are rapid and cost-effective, the ability of these ER-based assays to detect mechanisms of feminization other than direct binding to the receptor is limited. For example, compounds that require biotransformation to a metabolite that activates the receptor, such as the organochlorine insecticide methoxychlor, require demethylation to phenolic metabolites prior to interaction with the estrogen receptor (*43*). The inability of in vitro assays or cell lines to detect these compounds was illustrated by comparisons of feminization caused by methoxychlor and nonylphenol in fish relative to MCF-7 cell lines where the estrogenic signal in fish was 1000 times more sensitive (*44*). In this regard, the use of isolated hepatocytes from fish circumvents this issue because the full contingent of biotransformation enzymes are present to potentially activate or deactivate putative estrogens as would occur in vivo. When hepatocyte-based in vitro assays have been used in bioassay-guided fractionation studies to identify estrogenic compounds in surface and wastewater effluents at other locations, estrogenic activity has been observed in fractions that do not have steroid estrogens (*45, 46*).

The occurrence of estrogenic activity in surface waters of central California was initially reported by Johnson et al. (*47*), who observed estrogen receptor activation from water extracts in agricultural regions. De Vlaming et al. (*48*) found limited in vivo estrogenic activity in a study that included a larger number of rural and urban sites throughout central and northern California, with activity being detected in only 6 of 113 samples. The low frequency of detection in the de Vlaming study may have been due to shorter exposure durations, which raised the detection limits for the assay to 5 ng/L EE2. EE2 is up to 10 times more potent than estradiol in rainbow trout estrogenic responses (*49*). If this value for the estrogenicity of EE2 is used, the LOEC of the study would be approximately 50 ng/L for E2, which significantly exceeds biological thresholds for E2 in fish (0.35 ng/L) (*50*).

Discrepancies between in vitro and in vivo responses clearly show that the causative agent(s) responsible for feminization differ in mode of action, as well as identity. Estrogenicity observed with in vivo bioassays but not in vitro bioassays suggests that the causative agent(s) affects circulating estrogen biosynthesis or disposition. For example, an in vivo response that would not be observed in the hepatocyte bioassay could be caused by one or more compounds that increase the release of gonadotropins or inhibit elimination of estrogens within the organism (*51*). Compounds that are active in vitro but not in vivo may undergo detoxification and elimination through extrahepatic biotransformation or may be rapidly cleared prior to distribution to tissues where estrogen receptors are located. For example, the androgen testosterone has been shown to induce vitellogenin in hepatocytes when cells are exposed to high concentrations (2×10^{-5} M) due to transformation to E2, but the transformation does not occur when animals are treated in vivo (*52*) or if the cells are exposed to lower concentrations (10^{-13}−10^{-7} M) (*53*). Additional characterization is needed to resolve this complex issue.

Characterization of Estrogenic Substances. A fractionation procedure guided by the two bioassays used for Sacramento River Delta and Napa River samples that had both elevated and consistent estrogenic activity in both bioassays provided insight into the chemical properties of the estrogenic compounds. Bioactive fractions from sequential elution from SPE cartridges followed by HPLC separation

differed significantly between the two sites. SPE separation indicated most of the activity from the Napa River (site 14) was associated with the two most hydrophobic fractions, whereas the Sacramento River Delta sample indicated activity in the less hydrophobic 60% methanol fractions, where the steroid estrogens would be eluted. Chemical analyses did not indicate the presence of compounds in either sample at sufficient concentrations to explain the observed high levels of estrogenic activity.

Fractionation of the sample extracts enhanced in vivo biological activity 2−5-fold in each of the three samples. SPE fractionation enhanced in vitro activity of the E2-spiked tap water more than 2-fold, and HPLC fractionation of the Sacramento Delta and Napa River SPE fractions enhanced in vivo activities 3−5-fold. Since extraction of dechlorinated tap water or distilled water failed to elicit responses, these data suggest that fractionation may separate estrogenic compounds from antagonistic compounds that dampen their effects in the whole extracts. Similar results have been reported previously in TIE experiments carried out in wastewater effluents (*25, 26*) and indicate that bioassay-guided fractionation may not allow mass balance comparisons even though methods are useful for qualitative end points. The identities of these antagonistic materials are unknown, but the interaction of antagonistic compounds with the ER and estrogenic response is well established (*54*). Alternatively, variability associated with quantification of bioassay signals at the limits of detection (0.15 μg/kg), especially in the in vivo assays, also may have contributed to our inability to obtain a mass balance.

As a result of the difficulties associated with identification of the compound(s) responsible for the observed estrogenic activity, future efforts to identify the sources of the unknown compounds may need to focus on the behavior of the compounds in the TIE experiments. The differences in activity patterns (i.e., Figures 2 and 3) between the two sites, which were identical in two separate years, suggest that different compounds may be responsible for the estrogenic response (i.e., more hydrophobic compounds seem to be responsible for estrogenic activity at the Napa River site). Potential candidates include unknown degradation products of pesticides and phytoestrogens. While preliminary efforts to identify the compounds by GC− and LC−MS/MS have proven unsuccessful, use of high-resolution mass spectrometry and different ionization techniques may help identify the causative agent(s).

Acknowledgments

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Supporting Information Available

Additional technical details (standards and reagents, sample preparation for bioassays and chemical analysis, analysis of steroid estrogens, alkylphenol ethoxylates, current use pesticides, water quality analyses, estrogenicity bioassays, fractionation methods, and statistical procedures), additional tables (description of sampling sites, water quality parameters, steroid hormones and APEs, current use pesticides in SPE fractions, and phytoestrogens, pharmaceuticals, pesticides, and potential endocrine disruptors in HPLC fractions), and additional figures (standard curves for in vitro and in vivo estrogenicity bioassays and in vitro and in vivo estrogenic activities of samples from the Sacramento River Delta, the Napa River, and E2-spiked water). This information is available free of charge via the Internet at http://pubs.acs.org.

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Attachment 6

IDENTIFYING CURRENT USE PESTICIDES (CUP) TO INCLUDE IN FUTURE RMP MONITORING

Ellen Willis-Norton and Rebecca Sutton, SFEI, Richmond, CA, and Kelly Moran, TDC Environmental, San Mateo, CA

ESTIMATED COST: $55,000
OVERSIGHT GROUP: Emerging Contaminants Work Group (ECWG)

PROPOSED DELIVERABLES AND TIMELINE

Deliverable	Due Date
Task 1. Project Management (write and manage sub-contracts, track budgets)	Fall 2014 – Dec 2015
Task 2. Desktop analysis of CUP application timing	Fall 2014
Task 3. Collection of first round of CUP water and sediment samples	Spring 2015
Task 2. Collection of second round of CUP water and sediment samples	Aug/Sept 2015
Task 3. Laboratory analysis	Spring/ Fall 2015
Task 4. QA/QC and data management	Dec 2015
Task 5. Presentation and report to ECWG	Spring 2016

Background

The RMP monitors legacy pesticides (e.g., DDT, chlordanes, dieldrin) as part of the Status and Trends (S&T) program. Use of these legacy pesticides ended between 40 and 50 years ago and the RMP has observed a slow decline in concentrations since 1993 (SFEI 2014). As many S&T contaminant concentrations begin to decline or stabilize, the RMP has begun focusing efforts on Contaminants of Emerging Concern (CECs), including current use pesticides (CUPs).

The RMP's CEC Strategy includes ranking the relative risk of CECs to the Bay based on a tiered risk framework. All CUPs are ranked in Tier I (Possible Concern), excluding Fipronil and Pyrethroids (Moderate Concern and Low Concern respectively). CUPs are included in Tier I because there is uncertainty in their predicted concentrations, the level of effect on Bay wildlife, and their environmental fate. The CEC Strategy suggests screening level monitoring efforts for Tier I contaminants to help determine their concentration in ambient Bay water and sediment, effluent, runoff, and biota (Sutton et al., 2013).

There are over 1,000 CUPs in existence; therefore, prioritizing which CUPs to monitor in the Bay is essential (SFEI 2013). The RMP developed a comprehensive monitoring priority list for agricultural CUPs. The list was created using spatially-explicit use data provided by the Department of Pesticide Regulation's California Pesticide Information Portal. Only agricultural pesticides, rather than both urban and agricultural, were included in the list because agricultural use data is reported to the township level. The RMP evaluated the top 50 highest use pesticides within the Region 2 Water Quality Control Board boundary and determined their risk ratio (total use/lowest aquatic life benchmark).

The 20 agricultural pesticides with the highest risk ratio were: Naled, Oxyfluorfen , Flumioxazin, Pyraclostrobin, Mancozeb, 1,3-dichloropropene, Dimethoate, Imidacloprid, Paraquat Dichloride,

Metam-Sodium, Thiophanate-Methyl, Cyprodinil, Trifloxystrobin, Methomyl, Pendimethalin, 2,4-Dichlorophenoxyacetic acid, Diquat Dibromide, Oryzalin, PCNB, and Triflumizole. The use data for all 20 pesticides was mapped to determine where pesticide use was concentrated. The majority of the pesticides were applied in Napa County, while some pesticide use was concentrated on the southern edge of Santa Clara County (e.g. Naled) or on the coast of San Mateo County (e.g. Metam-Sodium). Relatively high agricultural pesticide use indicates that agricultural pesticide concentrations are likely highest in the Napa River and subsequently San Pablo Bay.

Applicable RMP Objectives and Management Questions

This study will address the following RMP Objectives and Management Questions:

MQ.1 Are chemical concentrations in the Estuary at levels of potential concern and are associated impacts likely?

- A: Which chemicals have the potential to impact humans and aquatic life and should be monitored?

MQ.2 What are the concentrations and masses of contaminants in the Estuary and its segments?

- A: Do pollutant spatial patterns and long-term trends indicate particular regions of concern?

MQ.3 What are the sources, pathways, loadings, and processes leading to contaminant-related impacts in the Estuary?

- A: Which sources, pathways, and processes contribute most to impacts?

Approach

CUPs are Tier I chemicals; therefore, the CEC Strategy recommends a screening level monitoring study. We propose monitoring the following eight CUPs at three locations within the Napa River in this special study:

1. Oxyfluorfen
2. Pyraclostrobin
3. Mancozeb
4. 1,3-dichloropropene
5. Imidacloprid
6. Paraquat Dichloride
7. Pendimethalin
8. Diquat Dibromide

The above pesticides were chosen because they were either within the top 10 list with environmental fates that suggest they could enter the Napa River, or on another monitoring group's prioritization list, or the analysis of the pesticide was free. The three monitoring group list's that were compared to the RMP's were the Central Valley Water Board's high relative risk

list (Lu and Davis 2009), the DPR's monitoring priority list (Budd et al. 2013; Luo et al. 2013), and the Urban Pesticides Pollution Prevention Project watch list.
The monitoring plan is to time sampling in the Napa River with pesticide application. The first part of the study will focus on determining the timing of the various pesticide applications. Typically, pre-emergence pesticides are applied in the spring while post-emergence pesticides are applied in the late summer. Therefore, there will be two day-long sampling cruises in 2015 to sample sediment and water at the three locations after both sets of pesticide applications. RMP staff will work with Kelly Moran to determine the exact dates of the pesticide's application.

The sediment and water samples will be sent to North Coast Laboratories Ltd., a laboratory with expertise in pesticide analyses. The RMP will also likely send samples to the East Bay Municipality District's laboratory to determine if their results are comparable to that of North Coast Laboratories. If so, the RMP will use EBMUD for future CUP monitoring studies. Lastly, Dr. Lee Ferguson of Duke University has offered to run several of the samples pro bono using a broadscan method that may identify additional pesticides of interest.

This special study is a screening level effort to determine if agricultural CUPs that are applied in Napa and Sonoma County have the potential to enter the Bay. The concentrations of the eight CUPs will be compared concentrations from other monitoring studies and to the pesticide's lowest aquatic life benchmark.

Reporting

Results of the proposed screening level study will be reported to the Emerging Contaminants Workgroup during its Spring 2016 meeting. Comparisons will be made to screening efforts in other locations, as well as to the CUP's lowest aquatic life benchmarks.

Proposed Budget

Task	**Estimated Cost**
Desktop analysis, project management, reporting	$15,400
Sampling Cruise collection of CUPs in water and sediment in the Napa River (Spring and Summer 2015)	$7,000
Laboratory analysis of 2014 Napa River sediment and water for CUPs	$23,000
QA/QC, data management	$9,600
Total	**$55,000**

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Attachment 7

Department of Pesticide Regulation
2014 Annual Pesticide Use Report Indexed by Chemical
Napa County

Chemical Commodity		Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
ABAMECTIN					
Grape, Wine		13.56	80	913.66	A
Landscape Maintenance		< 0.01			
Structural Pest Control		0.01			
Chemical Total		13.57	80		
ABAMECTIN, OTHER RELATED					
Structural Pest Control		< 0.01			
Chemical Total		< 0.01			
ACEPHATE					
Landscape Maintenance		2.38			
Structural Pest Control		56.85			
Chemical Total		59.23			
ACETAMIPRID					
Grape, Wine		191.01	142	2,142.06	A
N-Grnhs Plants In Containers		0.16	2	1.57	A
N-Outdr Flower		< 0.01	1	2,000.00	S
N-Outdr Plants In Containers		< 0.01	1	0.50	A
Structural Pest Control		4.46			
Chemical Total		195.64	146		
ACETIC ACID					
Structural Pest Control		0.48			
Chemical Total		0.48			
ACIBENZOLAR-S-METHYL					
Landscape Maintenance		2.19			
Chemical Total		2.19			
ACID BLUE 9, DIAMMONIUM SALT					
Grape, Wine		2.33	1	0.80	A
Landscape Maintenance		3.49			
Rights Of Way		13.04			
Water Area		40.12		7,176.00	K
		8.14	1	6.00	A
		4.65		871,200.00	C
Total Pounds On This Commodity	52.91				
Chemical Total		71.76	2		
ALPHA-ALKYLARYL-OMEGA-HYDROXYPOLY(OXYETHYLENE)					
Grape, Wine		38.82	13	123.73	A
Chemical Total		38.82	13		
ALKYL (50%C14, 40%C12, 10%C16) DIMETHYLBENZYL AMMONIUM CHLORIDE					
Structural Pest Control		0.01			
Chemical Total		0.01			
ALPHA-ALKYL (C9-C11)-OMEGA-HYDROXYPOLY(OXYETHYLENE)					
Grape		1.62	1	4.29	A

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Chemical Commodity	Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
Grape, Wine	1,989.43	2,246	21,377.45	A
Landscape Maintenance	1.69			
Olive	0.44	3	4.01	A
Rights Of Way	0.17			
Uncultivated Ag	23.01	31	35.50	A
Chemical Total	2,016.36	2,281		
ALPHA-ALKYL (C9-C16)-OMEGA-HYDROXYPOLY(OXYETHYLENE)				
Grape, Wine	2.01	4	12.64	A
Chemical Total	2.01	4		
ALPHA-ALKYL (C10-C14)-OMEGA-HYDROXYPOLY(OXYETHYLENE)				
Grape, Wine	19.24	7	140.19	A
Chemical Total	19.24	7		
ALPHA-ALKYL (C12-C16)-OMEGA-HYDROXYPOLY(OXYETHYLENE)				
Grape, Wine	2.39	7	140.19	A
Chemical Total	2.39	7		
ALPHA-PINENE BETA-PINENE COPOLYMER				
Grape, Wine	572.21	348	3,743.80	A
Landscape Maintenance	0.08			
Nectarine	0.04	1	0.24	A
Peach	0.04	1	0.24	A
Pear	0.04	1	0.24	A
Plum	0.04	1	0.24	A
Uncultivated Ag	1.11		2.20	A
Chemical Total	573.56	352		
ALPHA-ALKYLPHENYL-OMEGA-HYDROXYPOLY(OXYETHYLENE)				
Grape, Wine	0.77	3	8.00	A
Chemical Total	0.77	3		
ALKYL (C8,C10) POLYGLUCOSIDE				
Grape, Wine	833.45	150	4,507.95	A
Landscape Maintenance	371.77			
Rights Of Way	0.21			
Uncultivated Ag	0.85		2.20	A
Chemical Total	1,206.29	150		
D-ALLETHRIN				
Public Health	< 0.01			
Chemical Total	< 0.01			
D-ALLETHRIN, OTHER RELATED				
Public Health	< 0.01			
Chemical Total	< 0.01			
D-TRANS ALLETHRIN				
Public Health	< 0.01			
Structural Pest Control	0.15			

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Chemical Commodity	Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
Chemical Total	0.15			
ALLYLOXYPOLYETHYLENE GLYCOL ACETATE				
Grape, Wine	370.80	255	7,787.00	A
Chemical Total	370.80	255		
ALUMINUM PHOSPHIDE				
Grape, Wine	0.36	5	25.25	A
Landscape Maintenance	0.04			
Chemical Total	0.40	5		
AMINOPYRALID, TRIISOPROPANOLAMINE SALT				
Landscape Maintenance	2.75			
Rights Of Way	8.56			
Chemical Total	11.30			
4-AMINOPYRIDINE				
Structural Pest Control	< 0.01			
Chemical Total	< 0.01			
AMMONIUM NITRATE				
Grape	0.21	1	4.29	A
Grape, Wine	594.50	2,097	19,464.64	A
Landscape Maintenance	0.22			
Olive	0.06	3	4.01	A
Rights Of Way	0.12			
Uncultivated Ag	3.38	31	37.70	A
Chemical Total	598.48	2,132		
AMMONIUM PROPIONATE				
Grape, Wine	24.67	18	345.69	A
Chemical Total	24.67	18		
AMMONIUM SULFATE				
Grape	5.16	1	4.29	A
Grape, Wine	6,566.93	2,157	20,575.48	A
Landscape Maintenance	5.40			
Olive	1.40	3	4.01	A
Rights Of Way	3.23			
Uncultivated Ag	74.28	31	37.70	A
Chemical Total	6,656.41	2,192		
AZADIRACHTIN				
Landscape Maintenance	0.17			
N-Grnhs Plants In Containers	0.05	8	2.21	A
N-Outdr Plants In Containers	< 0.01	2	0.50	A
Nectarine	< 0.01	1	0.14	A
Peach	0.01	3	0.53	A
Plum	< 0.01	2	0.08	A
Structural Pest Control	1.36			
Chemical Total	1.60	16		

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Chemical Commodity	Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
AZOXYSTROBIN				
Grape, Wine	1,019.61	403	5,067.91	A
Landscape Maintenance	27.48			
N-Grnhs Flower	1.09		2.00	A
N-Grnhs Plants In Containers	2.69	5	0.95	A
Chemical Total	1,050.87	408		
BACILLUS PUMILUS, STRAIN QST 2808				
Grape, Wine	1,229.52	1,223	11,640.29	A
Chemical Total	1,229.52	1,223		
BACILLUS SPHAERICUS, SEROTYPE H-5A5B, STRAIN 2362				
Public Health	1.51			
Chemical Total	1.51			
BACILLUS THURINGIENSIS (BERLINER)				
Grape, Wine	0.16	5	19.50	A
Chemical Total	0.16	5		
BACILLUS THURINGIENSIS (BERLINER), SUBSP. ISRAELENSIS, SEROTYPE H-14				
Public Health	4.55			
Chemical Total	4.55			
BACILLUS THURINGIENSIS, SUBSP. ISRAELENSIS, STRAIN AM 65-52				
Public Health	61.28			
Chemical Total	61.28			
BACILLUS THURINGIENSIS (BERLINER), SUBSP. KURSTAKI, SEROTYPE 3A,3B				
N-Grnhs Plants In Containers	0.06	3	0.73	A
N-Outdr Plants In Containers	0.08	7	2.06	A
Chemical Total	0.14	10		
BACILLUS THURINGIENSIS, SUBSP. KURSTAKI, STRAIN ABTS-351, FERMENTATION SOLIDS AND SOLUBLES				
Grape, Wine	922.18	137	1,269.02	A
Landscape Maintenance	29.50			
Nectarine	0.21	4	0.08	A
Olive	0.17	1	0.32	A
Peach	0.28	2	0.20	A
Rights Of Way	5.94			
Chemical Total	958.27	144		
BACILLUS THURINGIENSIS, SUBSP. KURSTAKI, STRAIN HD-1				
Grape, Wine	0.12	1	1.20	A
Chemical Total	0.12	1		
BACILLUS THURINGIENSIS (BERLINER), SUBSP. KURSTAKI, STRAIN SA-11				
Landscape Maintenance	3.61			

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Chemical Commodity	Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
Chemical Total	3.61			
BEAUVERIA BASSIANA STRAIN GHA				
N-Grnhs Plants In Containers	0.31	6	1.76	A
N-Outdr Plants In Containers	0.09	2	0.50	A
Chemical Total	0.41	8		
BENZOIC ACID				
Grape, Wine	7.32	188	1,839.94	A
Olive	< 0.01	2	2.27	A
Rights Of Way	2.12			
Uncultivated Ag	0.04	8	12.50	A
Chemical Total	9.49	198		
BIFENAZATE				
Grape, Wine	306.19	62	755.88	A
Tomato	0.05	1	0.10	A
Chemical Total	306.24	63		
BIFENTHRIN				
Landscape Maintenance	0.46			
Public Health	1.14			
Regulatory Pest Control	0.64			
Rights Of Way	0.01			
Structural Pest Control	112.02			
Chemical Total	114.28			
N,N-BIS-(2-OMEGA-HYDROXYPOLY(OXYETHYLENE)ETHYL)ALKYLAMINE, ALKYL DERIVED FROM TALLOW FATTY ACIDS				
Grape, Wine	24.18	348	3,743.80	A
Landscape Maintenance	< 0.01			
Nectarine	< 0.01	1	0.24	A
Peach	< 0.01	1	0.24	A
Pear	< 0.01	1	0.24	A
Plum	< 0.01	1	0.24	A
Uncultivated Ag	0.05		2.20	A
Chemical Total	24.24	352		
BORAX				
Rights Of Way	15.30			
Structural Pest Control	6.80			
Chemical Total	22.10			
BORIC ACID				
Structural Pest Control	183.64			
Chemical Total	183.64			
BOSCALID				
Grape, Wine	5,941.85	1,923	25,866.65	A
Landscape Maintenance	0.28			
N-Grnhs Plants In Containers	< 0.01	1	0.06	A
Chemical Total	5,942.14	1,924		

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Chemical Commodity		Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
BRODIFACOUM					
Structural Pest Control		< 0.01			
Chemical Total		< 0.01			
BROMACIL					
Rights Of Way		7.20			
Chemical Total		7.20			
BROMADIOLONE					
Landscape Maintenance		0.01			
Public Health		< 0.01			
Regulatory Pest Control		< 0.01			
Structural Pest Control		0.17			
Chemical Total		0.18			
BROMETHALIN					
Landscape Maintenance		0.01			
Structural Pest Control		< 0.01			
Chemical Total		0.01			
BUPROFEZIN					
Grape, Wine		2,033.66	240	3,988.26	A
Chemical Total		2,033.66	240		
BUTYL ALCOHOL					
Grape, Wine		914.69	2,863	36,960.58	A
Landscape Maintenance		1.96			
Rights Of Way		0.14			
Uncultivated Ag		2.33	7	11.50	A
Water Area		9.12		54.00	A
		0.37		1.00	U
Total Pounds On This Commodity	9.49				
Chemical Total		928.62	2,870		
CALCIUM ACID METHANEARSONATE					
Landscape Maintenance		0.39			
Chemical Total		0.39			
CALCIUM CHLORIDE					
Grape, Wine		21.63	26	569.94	A
Rights Of Way		0.04			
Chemical Total		21.68	26		
CALCIUM HYPOCHLORITE					
Grape, Wine		4.56	1	10.00	A
Chemical Total		4.56	1		
CAPSICUM OLEORESIN					
Grape, Wine		2.28	7	65.90	A
Chemical Total		2.28	7		

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Chemical Commodity	Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
CARBARYL				
Landscape Maintenance	3.20			
Chemical Total	3.20			
CARBO METHOXY ETHER CELLULOSE, SODIUM SALT				
Grape, Wine	25.69	422	6,011.47	A
Chemical Total	25.69	422		
CARBON				
Landscape Maintenance	0.09			
Chemical Total	0.09			
CARFENTRAZONE-ETHYL				
Grape, Wine	32.43	125	2,218.19	A
Landscape Maintenance	1.02			
N-Grnhs Flower	0.23		4.80	A
Oat	0.18	1	6.00	A
Chemical Total	33.85	126		
CASTOR OIL ETHOXYLATE				
Grape, Wine	29.69	3	144.84	A
Chemical Total	29.69	3		
CHENOPODIUM AMBROSIODES NEAR AMBROSIODES				
Grape, Wine	3.49	1	2.00	A
Chemical Total	3.49	1		
CHLORANTRANILIPROLE				
Grape, Wine	270.00	147	2,574.27	A
Landscape Maintenance	0.01			
Olive	1.23	7	13.48	A
Structural Pest Control	2.64			
Chemical Total	273.88	154		
CHLORFENAPYR				
Structural Pest Control	15.93			
Chemical Total	15.93			
CHLORFLURENOL, METHYL ESTER				
Landscape Maintenance	0.19			
Chemical Total	0.19			
CHLORMEQUAT CHLORIDE				
N-Grnhs Plants In Containers	0.23	6	1.15	A
Chemical Total	0.23	6		
CHLOROPHACINONE				
Landscape Maintenance	< 0.01			
Structural Pest Control	< 0.01			
Chemical Total	< 0.01			

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CHLOROTHALONIL					
Golf Course Turf		90.21		8.10	A
		11.98		20,000.00	S
Total Pounds On This Commodity	102.20				
Landscape Maintenance		1,363.59			
N-Grnhs Flower		86.55		8.00	A
N-Outdr Flower		0.56	1	0.50	A
Structural Pest Control		2.06			
Chemical Total		1,554.96	1		
CHLORPYRIFOS					
Grape, Wine		56.16	4	29.89	A
Landscape Maintenance		0.80			
Chemical Total		56.97	4		
CHLORSULFURON					
Landscape Maintenance		0.97			
Regulatory Pest Control		2.48			
Rights Of Way		0.63			
Chemical Total		4.08			
CHOLECALCIFEROL					
Structural Pest Control		0.50			
Chemical Total		0.50			
CHROMOBACTERIUM SUBTSUGAE STRAIN PRAA4-1					
Grape, Wine		312.66	22	411.81	A
Landscape Maintenance		0.09			
Nectarine		0.08	1	0.25	A
Peach		0.08	1	0.25	A
Chemical Total		312.90	24		
CITRIC ACID					
Grape, Wine		77.56	55	1,081.49	A
Rights Of Way		0.12			
Chemical Total		77.68	55		
CLARIFIED HYDROPHOBIC EXTRACT OF NEEM OIL					
Landscape Maintenance		1.63			
N-Outdr Plants In Containers		< 0.01	1	0.06	A
Chemical Total		1.63	1		
CLETHODIM					
Grape, Wine		18.18	6	138.50	A
Regulatory Pest Control		2.94			
Uncultivated Non-Ag		3.94		15.00	A
Chemical Total		25.05	6		
CLOPYRALID, MONOETHANOLAMINE SALT					
Landscape Maintenance		2.85			
Pastureland		4.00	1	600.00	A

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Regulatory Pest Control		2.45			
Rights Of Way		6.65			
Chemical Total		15.95	1		
CLOPYRALID,TRIETHYLAMINE SALT					
Landscape Maintenance		3.09			
Chemical Total		3.09			
CLOTHIANIDIN					
Grape, Wine		56.20	53	462.51	A
Landscape Maintenance		0.09			
Structural Pest Control		< 0.01			
Chemical Total		56.29	53		
COCONUT DIETHANOLAMIDE					
Grape, Wine		3.91	89	745.99	A
Uncultivated Ag		< 0.01	1	2.50	A
Chemical Total		3.91	90		
COPPER AMMONIUM CARBONATE					
Landscape Maintenance		0.10			
Chemical Total		0.10			
COPPER AMMONIUM COMPLEX					
Landscape Maintenance		1.42			
Chemical Total		1.42			
COPPER DIAMMONIUM DIACETATE COMPLEX					
Landscape Maintenance		13.71			
Chemical Total		13.71			
COPPER ETHANOLAMINE COMPLEXES, MIXED					
Landscape Maintenance		105.59			
Regulatory Pest Control		524.96			
Rights Of Way		0.70			
Water Area		225.56	7	192.00	A
		41.44		239,580.00	C
Total Pounds On This Commodity	267.00				
Chemical Total		898.25	7		
COPPER ETHYLENEDIAMINE COMPLEX					
Landscape Maintenance		6.71			
Regulatory Pest Control		180.00			
Water Area		17.48		130,680.00	C
Chemical Total		204.19			
COPPER HYDROXIDE					
Grape, Wine		2,847.74	578	8,969.07	A
Landscape Maintenance		34.65			
Peach		0.43	2	0.40	A
Rights Of Way		0.09			
Structural Pest Control		0.84			

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Chemical Total	2,883.75	580		
COPPER OXIDE (OUS)				
Almond	0.08	1	0.50	A
Apple	0.08	1	0.10	A
Cherry	0.08	1	0.10	A
Grape, Wine	5,989.50	615	6,332.30	A
Landscape Maintenance	3.17			
N-Outdr Plants In Containers	1.68	1	0.75	A
Nectarine	1.82	5	0.68	A
Olive	20.04	5	19.40	A
Peach	11.55	8	1.18	A
Pear	0.16	2	0.34	A
Plum	2.84	5	0.50	A
Structural Pest Control	0.03			
Chemical Total	6,031.04	644		
COPPER OXYCHLORIDE				
Grape, Wine	2,349.67	492	7,567.16	A
Landscape Maintenance	0.53			
Peach	0.48	2	0.40	A
Chemical Total	2,350.67	494		
COPPER 8-QUINOLINOLEATE				
Rights Of Way	0.10			
Chemical Total	0.10			
COPPER SULFATE (PENTAHYDRATE)				
Ditch Bank	99.50		3.00	A
Grape, Wine	3.17	1	0.80	A
N-Grnhs Plants In Containers	0.10	1	0.38	A
N-Outdr Plants In Containers	1.98	1	0.50	A
Rights Of Way	176.20			
Uncultivated Ag	49.50	1	1.00	A
Water Area	449.46		3,957.00	K
Chemical Total	779.91	4		
COPPER TRIETHANOLAMINE COMPLEX				
Landscape Maintenance	7.57			
Chemical Total	7.57			
CORN PRODUCT, HYDROLYZED				
Grape, Wine	0.26	1	0.50	A
Chemical Total	0.26	1		
COYOTE URINE				
Structural Pest Control	0.48			
Chemical Total	0.48			
CYAZOFAMID				
Landscape Maintenance	0.29			
Chemical Total	0.29			

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CYFLUFENAMID				
Grape, Wine	2.33	18	105.36	A
Chemical Total	2.33	18		
CYFLUTHRIN				
Grape, Wine	5.89	8	125.43	A
Public Health	3.70			
Regulatory Pest Control	0.31			
Structural Pest Control	94.46			
Chemical Total	104.36	8		
BETA-CYFLUTHRIN				
Landscape Maintenance	0.03			
Structural Pest Control	69.28			
Chemical Total	69.31			
CYPERMETHRIN				
Structural Pest Control	14.66			
Chemical Total	14.66			
CYPRODINIL				
Grape, Wine	4,694.00	1,205	17,353.92	A
Chemical Total	4,694.00	1,205		
2,4-D				
Landscape Maintenance	< 0.01			
Chemical Total	< 0.01			
2,4-D, DIMETHYLAMINE SALT				
Landscape Maintenance	0.24			
Uncultivated Ag	22.58	1	5.50	A
Chemical Total	22.81	1		
2,4-D, 2-ETHYLHEXYL ESTER				
Landscape Maintenance	113.44			
N-Grnhs Flower	3.69		3.80	A
Chemical Total	117.13			
2,4-D, ISOOCTYL ESTER				
Landscape Maintenance	0.04			
Chemical Total	0.04			
DELTAMETHRIN				
Landscape Maintenance	0.16			
Regulatory Pest Control	< 0.01			
Structural Pest Control	18.88			
Chemical Total	19.05			
DIATOMACEOUS EARTH				
Structural Pest Control	5.28			

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Chemical Total	5.28			
DICAMBA				
Landscape Maintenance	9.07			
N-Grnhs Flower	0.24		3.80	A
Chemical Total	9.30			
DICAMBA, DIMETHYLAMINE SALT				
Landscape Maintenance	0.04			
Chemical Total	0.04			
1,3-DICHLOROPROPENE				
Grape	7,471.04	1	22.40	A
Soil Fumigation/Preplant	2,513.80	1	7.53	A
Chemical Total	9,984.83	2		
DIETHYLENE GLYCOL				
Grape, Wine	8.50	9	163.64	A
Landscape Maintenance	0.70			
Rights Of Way	0.60			
Chemical Total	9.80	9		
DIFENOCONAZOLE				
Grape, Wine	897.74	920	12,528.03	A
Landscape Maintenance	0.27			
Chemical Total	898.01	920		
DIFETHIALONE				
Structural Pest Control	0.06			
Chemical Total	0.06			
DIFLUBENZURON				
Structural Pest Control	< 0.01			
Chemical Total	< 0.01			
DIGLYCOLAMINE SALT OF 3,6-DICHLORO-O-ANISIC ACID				
Landscape Maintenance	5.91			
Chemical Total	5.91			
DIKEGULAC SODIUM				
Landscape Maintenance	0.13			
Chemical Total	0.13			
DIMETHOATE				
Grape, Wine	8.39	4	5.50	A
Chemical Total	8.39	4		
DIMETHYL ALKYL TERTIARY AMINES				
Grape, Wine	7.98	188	1,839.94	A
Olive	< 0.01	2	2.27	A
Rights Of Way	2.30			

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Uncultivated Ag		0.04	8	12.50	A
Chemical Total		10.34	198		
3,7-DIMETHYL-6-OCTEN-1-OL					
Grape, Wine		0.32	4	19.73	A
Chemical Total		0.32	4		
DIMETHYLPOLYSILOXANE					
Grape, Wine		2,178.37	4,235	54,447.17	A
Landscape Maintenance		1.61			
Olive		0.69	3	15.90	A
Rights Of Way		0.02			
Uncultivated Ag		0.03	7	13.70	A
Water Area		0.10		54.00	A
		< 0.01		1.00	U
Total Pounds On This Commodity	0.11				
Chemical Total		2,180.83	4,245		
DIMETHYL SILICONE FLUID EMULSION					
Grape, Wine		26.78	523	5,865.85	A
Chemical Total		26.78	523		
DINOTEFURAN					
Grape, Wine		59.35	84	1,063.81	A
Landscape Maintenance		1.89			
Structural Pest Control		0.13			
Chemical Total		61.37	84		
DIPHACINONE					
Grape, Wine		< 0.01	1	1.00	A
Landscape Maintenance		0.02			
Regulatory Pest Control		< 0.01			
Rights Of Way		< 0.01			
Structural Pest Control		0.01			
Uncultivated Ag		< 0.01	8	8.00	A
Chemical Total		0.03	9		
DIQUAT DIBROMIDE					
Grape, Wine		8.48	4	12.73	A
Landscape Maintenance		225.14			
Rights Of Way		5.23			
Uncultivated Ag		43.63	5	5.00	A
Water Area		173.59		50.00	A
		27.97		130,680.00	C
Total Pounds On This Commodity	201.56				
Chemical Total		484.03	9		
DISODIUM OCTABORATE TETRAHYDRATE					
Grape, Wine		12.38	5	102.48	A
Structural Pest Control		312.12			
Chemical Total		324.50	5		

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DITHIOPYR				
Landscape Maintenance	23.62			
Rights Of Way	71.23			
Chemical Total	94.85			
DIURON				
Grape, Wine	2.00	1	6.00	A
Landscape Maintenance	2.45			
Rights Of Way	143.20			
Chemical Total	147.65	1		
(E,Z)-7,9-DODECADIEN-1-YL ACETATE				
Grape, Wine	23.65	93	1,623.44	A
Chemical Total	23.65	93		
DODECYLBENZENE SULFONIC ACID				
Grape, Wine	16.92	89	745.99	A
Uncultivated Ag	0.04	1	2.50	A
Chemical Total	16.96	90		
ALPHA-(PARA-DODECYLPHENYL)-OMEGA-HYDROXYPOLY(OXYETHYLENE)				
Landscape Maintenance	0.31			
Chemical Total	0.31			
EDTA, TETRASODIUM SALT				
Grape, Wine	1.04	89	745.99	A
Uncultivated Ag	< 0.01	1	2.50	A
Chemical Total	1.04	90		
ENDOTHALL, DIPOTASSIUM SALT				
Landscape Maintenance	21.15			
Chemical Total	21.15			
ENDOTHALL, MONO [N,N-DIMETHYL ALKYLAMINE] SALT				
Landscape Maintenance	2.27			
Chemical Total	2.27			
ESFENVALERATE				
Landscape Maintenance	0.51			
Structural Pest Control	2.16			
Chemical Total	2.67			
ETHEPHON				
Landscape Maintenance	152.25			
Structural Pest Control	1.32			
Chemical Total	153.57			
ETOFENPROX				
Structural Pest Control	0.02			
Chemical Total	0.02			

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ETOXAZOLE					
Grape, Wine		30.32	34	259.64	A
Chemical Total		30.32	34		
FARNESOL					
Grape, Wine		0.13	4	19.73	A
Chemical Total		0.13	4		
FATTY ACIDS, MIXED					
Grape, Wine		19.88	26	610.68	A
Landscape Maintenance		1.27			
Public Health		5.83			
Rights Of Way		1.07			
Chemical Total		28.05	26		
FENARIMOL					
Grape, Wine		1.96	12	62.14	A
Chemical Total		1.96	12		
FENHEXAMID					
Grape, Wine		2,075.38	236	4,220.13	A
N-Grnhs Plants In Containers		1.06	5	1.83	A
N-Outdr Plants In Containers		0.16	1	0.34	A
Chemical Total		2,076.59	242		
FENPROPATHRIN					
Grape, Wine		3.28	8	84.32	A
Olive		2.74	1	12.50	A
		0.47	1	900.00	U
Total Pounds On This Commodity	3.21				
Chemical Total		6.49	10		
FENPYROXIMATE					
Grape, Wine		2.11	6	18.94	A
Chemical Total		2.11	6		
FIPRONIL					
Regulatory Pest Control		0.06			
Structural Pest Control		100.34			
Chemical Total		100.40			
FLAZASULFURON					
Grape, Wine		9.66	44	240.21	A
Chemical Total		9.66	44		
FLUAZIFOP-P-BUTYL					
Landscape Maintenance		0.50			
N-Grnhs Flower		0.09		3,000.00	S
Chemical Total		0.59			
FLUAZINAM					

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Landscape Maintenance	4.95			
Chemical Total	4.95			
FLUDIOXONIL				
Grape, Wine	161.03	35	387.24	A
Landscape Maintenance	22.45			
N-Grnhs Plants In Containers	0.34	7	2.83	A
N-Outdr Plants In Containers	0.04	1	0.37	A
Chemical Total	183.87	43		
FLUMIOXAZIN				
Grape	1.64	1	4.29	A
Grape, Wine	1,244.72	886	8,490.00	A
Landscape Maintenance	1.28			
Olive	0.23	1	1.74	A
Rights Of Way	5.44			
Uncultivated Ag	19.34	19	19.00	A
Chemical Total	1,272.64	907		
FLUOPYRAM				
Grape, Wine	1,033.78	876	10,559.26	A
Chemical Total	1,033.78	876		
FLURECOL-METHYL				
Landscape Maintenance	0.05			
Chemical Total	0.05			
FLURIDONE				
Water Area	2.54		239,580.00	C
Chemical Total	2.54			
FLUTOLANIL				
Landscape Maintenance	12.91			
Chemical Total	12.91			
TAU-FLUVALINATE				
Landscape Maintenance	< 0.01			
Chemical Total	< 0.01			
FLUXAPYROXAD				
Golf Course Turf	0.69		3.10	A
Landscape Maintenance	1.38			
Chemical Total	2.07			
FORCHLORFENURON				
Grape, Wine	< 0.01	1	1.50	A
Chemical Total	< 0.01	1		
FOSETYL-AL				
Landscape Maintenance	27.80			
Chemical Total	27.80			

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FOX URINE					
Structural Pest Control		0.20			
Chemical Total		0.20			
GARLIC					
Grape, Wine		18.53	90	497.02	A
Chemical Total		18.53	90		
GERANIOL					
Grape, Wine		0.32	4	19.73	A
Chemical Total		0.32	4		
GIBBERELLINS					
Grape, Wine		0.03	2	3.00	A
Chemical Total		0.03	2		
GLUFOSINATE-AMMONIUM					
Grape, Wine		418.49	143	2,450.71	A
Uncultivated Ag		5.64	1	1.00	A
Chemical Total		424.13	144		
GLYCEROL					
Grape, Wine		3.18	4	25.67	A
Chemical Total		3.18	4		
GLYPHOSATE, DIMETHYLAMINE SALT					
Rights Of Way		699.50			
Chemical Total		699.50			
GLYPHOSATE, ISOPROPYLAMINE SALT					
Grape, Wine		8,141.70	507	7,027.53	A
Landscape Maintenance		1,144.63			
N-Grnhs Flower		0.56		3,000.00	S
N-Outdr Flower		22.85	2	11.30	A
N-Outdr Plants In Containers		4.52	5	22.00	A
Olive		1.80	1	1.74	A
Public Health		81.00			
Regulatory Pest Control		81.11			
Rights Of Way		1,072.46			
Strawberry		1.38	2	2.55	A
Structural Pest Control		0.25			
Uncultivated Ag		226.57	26	26.00	A
Water Area		49.27		2.00	U
		12.44		6.00	A
Total Pounds On This Commodity	61.71				
Chemical Total		10,840.54	543		
GLYPHOSATE, MONOAMMONIUM SALT					
Landscape Maintenance		41.39			
Chemical Total		41.39			

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GLYPHOSATE, POTASSIUM SALT				
Grape	11.86	1	4.29	A
Grape, Wine	35,366.02	2,912	24,038.81	A
Landscape Maintenance	8,943.45			
Olive	3.14	2	2.27	A
Pastureland	371.72	2	196.00	A
Rights Of Way	467.32			
Uncultivated Ag	45.78	10	18.20	A
Chemical Total	45,209.30	2,927		
GLYPHOSATE-TRIMESIUM				
Landscape Maintenance	27.79			
Chemical Total	27.79			
HALOSULFURON-METHYL				
Landscape Maintenance	< 0.01			
Chemical Total	< 0.01			
HEPTYL BUTYRATE				
Structural Pest Control	0.34			
Chemical Total	0.34			
HEXAFLUMURON				
Structural Pest Control	< 0.01			
Chemical Total	< 0.01			
HYDRAMETHYLNON				
Landscape Maintenance	0.08			
Regulatory Pest Control	0.15			
Structural Pest Control	1.42			
Chemical Total	1.65			
HYDROGEN PEROXIDE				
Grape, Wine	2,774.31	90	1,330.49	A
Landscape Maintenance	2.73			
Chemical Total	2,777.03	90		
HYDROPRENE				
Structural Pest Control	5.01			
Chemical Total	5.01			
HYDROTREATED PARAFFINIC SOLVENT				
Grape, Wine	1.54	2	7.42	A
Chemical Total	1.54	2		
2-(3-HYDROXYPROPYL)-HEPTA-METHYL TRISILOXANE, ETHOXYLATED, ACETATE				
Grape, Wine	8,796.25	3,283	54,044.32	A
Rights Of Way	0.16			
Chemical Total	8,796.42	3,283		

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Chemical Commodity	Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
IMAZAPYR, ISOPROPYLAMINE SALT				
Regulatory Pest Control	40.09			
Rights Of Way	3.76			
Chemical Total	43.84			
IMIDACLOPRID				
Grape, Wine	1,504.51	387	5,654.61	A
Landscape Maintenance	37.14			
N-Grnhs Flower	0.23		1.00	A
N-Grnhs Plants In Containers	0.20	8	3.79	A
N-Outdr Plants In Containers	0.02	1	0.37	A
Regulatory Pest Control	1.20			
Rights Of Way	13.44			
Structural Pest Control	88.67			
Chemical Total	1,645.41	396		
INDAZIFLAM				
Grape, Wine	114.14	231	3,132.37	A
Landscape Maintenance	0.98			
Rights Of Way	8.84			
Chemical Total	123.96	231		
INDOXACARB				
Landscape Maintenance	4.25			
N-Grnhs Flower	0.19		1.00	A
Regulatory Pest Control	< 0.01			
Structural Pest Control	42.72			
Chemical Total	47.16			
IPRODIONE				
Golf Course Turf	9.99		2.70	A
Landscape Maintenance	194.99			
N-Grnhs Plants In Containers	1.42	2	0.15	A
Chemical Total	206.41	2		
IRON HEDTA				
Landscape Maintenance	0.63			
Chemical Total	0.63			
IRON PHOSPHATE				
Landscape Maintenance	35.48			
Regulatory Pest Control	0.01			
Structural Pest Control	0.03			
Chemical Total	35.52			
ISOPROPYL ALCOHOL				
Grape, Wine	35.25	176	2,949.40	A
Landscape Maintenance	0.82			
Rights Of Way	1.35			
Uncultivated Ag	0.01	1	2.50	A
Chemical Total	37.43	177		

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ISOXABEN				
Grape, Wine	159.59	25	381.51	A
Landscape Maintenance	30.76			
Rights Of Way	23.11			
Chemical Total	213.47	25		
KAOLIN				
Grape, Wine	2,471.79	70	145.11	A
Chemical Total	2,471.79	70		
KEROSENE				
Grape, Wine	11.47	112	1,283.30	A
Olive	0.01	2	2.27	A
Rights Of Way	4.06			
Uncultivated Ag	0.08	8	12.50	A
Chemical Total	15.61	122		
KRESOXIM-METHYL				
Grape, Wine	450.51	297	3,538.71	A
Chemical Total	450.51	297		
LAMBDA-CYHALOTHRIN				
Regulatory Pest Control	< 0.01			
Structural Pest Control	107.73			
Chemical Total	107.73			
LAVANDULYL SENECIOATE				
Grape, Wine	29.71	53	1,138.18	A
Chemical Total	29.71	53		
LECITHIN				
Grape, Wine	358.00	267	1,851.48	A
Landscape Maintenance	0.55			
Public Health	136.05			
Chemical Total	494.60	267		
LIME-SULFUR				
Almond	4.62	1	0.50	A
Apple	0.38	1	0.10	A
Cherry	0.31	1	0.10	A
Grape, Wine	8,669.30	36	442.87	A
Landscape Maintenance	0.87			
Nectarine	0.54	1	0.25	A
Peach	0.54	1	0.25	A
Pear	0.38	1	0.10	A
Plum	0.54	1	0.10	A
Chemical Total	8,677.47	43		
LIMONENE				
Grape, Wine	1,139.27	12	438.00	A
Structural Pest Control	22.25			
Chemical Total	1,161.52	12		

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LINALOOL				
Structural Pest Control	0.07			
Chemical Total	0.07			
MALATHION				
Grape, Wine	219.70	8	75.15	A
Chemical Total	219.70	8		
MANCOZEB				
Grape, Wine	812.22	23	543.28	A
Landscape Maintenance	440.11			
Structural Pest Control	9.84			
Chemical Total	1,262.17	23		
MCPA, ISOOCTYL ESTER				
Landscape Maintenance	0.51			
Chemical Total	0.51			
MCPP, POTASSIUM SALT				
Landscape Maintenance	25.15			
Chemical Total	25.15			
MCPP-P, DIMETHYLAMINE SALT				
Landscape Maintenance	0.07			
Chemical Total	0.07			
MECOPROP-P				
Landscape Maintenance	4.45			
N-Grnhs Flower	0.93		3.80	A
Chemical Total	5.39			
MEFENOXAM				
Landscape Maintenance	4.26			
Chemical Total	4.26			
MEFENOXAM, OTHER RELATED				
Landscape Maintenance	0.12			
Chemical Total	0.12			
MEFLUIDIDE, DIETHANOLAMINE SALT				
Landscape Maintenance	0.17			
Chemical Total	0.17			
MESOTRIONE				
Landscape Maintenance	1.25			
Chemical Total	1.25			
METAFLUMIZONE				
Grape, Wine	0.16	18	168.74	A

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Chemical Total	0.16	18		
METALAXYL				
N-Grnhs Plants In Containers	0.25	4	0.48	A
N-Outdr Plants In Containers	0.02	1	0.50	A
Chemical Total	0.27	5		
METALDEHYDE				
Landscape Maintenance	0.70			
Regulatory Pest Control	< 0.01			
Structural Pest Control	0.02			
Chemical Total	0.72			
METAM-SODIUM				
Rights Of Way	11.26			
Chemical Total	11.26			
METCONAZOLE				
Landscape Maintenance	5.50			
Chemical Total	5.50			
METHOMYL				
Structural Pest Control	< 0.01			
Chemical Total	< 0.01			
METHOPRENE				
Public Health	146.04			
Regulatory Pest Control	0.01			
Structural Pest Control	0.02			
Chemical Total	146.08			
S-METHOPRENE				
Landscape Maintenance	< 0.01			
Public Health	10.11			
Regulatory Pest Control	< 0.01			
Structural Pest Control	0.10			
Chemical Total	10.21			
METHOXYFENOZIDE				
Grape, Wine	771.43	242	3,512.83	A
Chemical Total	771.43	242		
METHYL ANTHRANILATE				
Structural Pest Control	13.92			
Chemical Total	13.92			
METHYLATED FATTY ACIDS FROM CANOLA OIL				
Landscape Maintenance	0.19			
Chemical Total	0.19			
METHYLATED SOYBEAN OIL				

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Grape, Wine	424.85	438	3,256.30	A
Landscape Maintenance	0.27			
Olive	0.25	2	2.27	A
Rights Of Way	78.30			
Uncultivated Ag	1.47	8	12.50	A
Chemical Total	505.14	448		
2-METHYL-1-BUTANOL				
Structural Pest Control	0.20			
Chemical Total	0.20			
METHYL-2,7-DICHLORO-9-HYDROXYFLUORENE-9-CARBOXYLATE				
Landscape Maintenance	0.03			
Chemical Total	0.03			
METHYL SILICONE RESINS				
Grape, Wine	0.05	1	22.00	A
Chemical Total	0.05	1		
METRAFENONE				
Grape, Wine	1,730.45	388	6,311.01	A
Chemical Total	1,730.45	388		
MINERAL OIL				
Grape, Wine	98,167.95	2,082	26,344.76	A
Landscape Maintenance	96.98			
N-Outdr Plants In Containers	6.28	2	1.00	A
Nectarine	3.72	10	0.73	A
Olive	45.36	4	12.85	A
Peach	11.11	6	0.82	A
Pear	0.51	2	0.48	A
Plum	0.51	2	0.48	A
Rights Of Way	4.62			
Structural Pest Control	1.56			
Uncultivated Ag	0.39		2.20	A
Chemical Total	98,338.98	2,108		
MODIFIED PHTHALIC GLYCEROL ALKYD RESIN				
Grape, Wine	56.83	31	390.39	A
Chemical Total	56.83	31		
MSMA				
Landscape Maintenance	42.44			
Chemical Total	42.44			
MUSCALURE				
Regulatory Pest Control	0.01			
Structural Pest Control	0.17			
Chemical Total	0.18			
MYCLOBUTANIL				
Grape, Wine	1,309.98	943	13,991.11	A

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Chemical Commodity	Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
Landscape Maintenance	0.27			
Chemical Total	1,310.24	943		
MYROTHECIUM VERRUCARIA, DRIED FERMENTATION SOLIDS & SOLUBLES, STRAIN AARC-0255				
Grape, Wine	4,523.72	52	458.54	A
Chemical Total	4,523.72	52		
NAA				
Landscape Maintenance	0.20			
Chemical Total	0.20			
NAA, AMMONIUM SALT				
Landscape Maintenance	0.14			
Chemical Total	0.14			
NEROLIDOL				
Grape, Wine	0.32	4	19.73	A
Chemical Total	0.32	4		
NONANOIC ACID				
Grape, Wine	76.17	9	33.02	A
Landscape Maintenance	0.10			
Chemical Total	76.27	9		
NONANOIC ACID, OTHER RELATED				
Grape, Wine	4.01	9	33.02	A
Landscape Maintenance	< 0.01			
Chemical Total	4.01	9		
4-NONYLPHENOL, FORMALDEHYDE RESIN, PROPOXYLATED				
Grape, Wine	1,325.65	1,675	19,605.52	A
Chemical Total	1,325.65	1,675		
ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY(OXYETHYLENE)				
Grape, Wine	9,527.37	4,676	55,258.12	A
Landscape Maintenance	37.21			
Public Health	36.50			
Rights Of Way	7.93			
Structural Pest Control	2.34			
Uncultivated Ag	20.94	7	11.50	A
Water Area	81.98		54.00	A
	3.33		1.00	U
Total Pounds On This Commodity 85.31				
Chemical Total	9,717.60	4,683		
ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY(OXYETHYLENE), BRANCHED				
Grape, Wine	906.99	567	10,983.04	A
Landscape Maintenance	0.11			
Chemical Total	907.10	567		

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ALPHA-(PARA-NONYLPHENYL)-OMEGA-HYDROXYPOLY(OXYETHYLENE), PHOSPHATE ESTER				
Grape, Wine	168.42	266	1,760.12	A
Landscape Maintenance	0.26			
Chemical Total	168.68	266		
NOVALURON				
N-Grnhs Plants In Containers	< 0.01	1	0.32	A
Chemical Total	< 0.01	1		
NOVIFLUMURON				
Structural Pest Control	< 0.01			
Chemical Total	< 0.01			
N-OCTYL BICYCLOHEPTENE DICARBOXIMIDE				
Landscape Maintenance	0.26			
Regulatory Pest Control	0.21			
Structural Pest Control	12.68			
Chemical Total	13.14			
OLEIC ACID				
Grape, Wine	35.89	75	1,929.06	A
Chemical Total	35.89	75		
OLEIC ACID, ETHYL ESTER				
Landscape Maintenance	67.30			
Chemical Total	67.30			
OLEIC ACID, METHYL ESTER				
Grape, Wine	4,434.38	496	12,082.77	A
Landscape Maintenance	30.32			
Rights Of Way	7.66			
Chemical Total	4,472.36	496		
ORYZALIN				
Grape, Wine	559.10	43	279.23	A
Landscape Maintenance	393.32			
N-Outdr Flower	2.03	1	0.50	A
Rights Of Way	214.00			
Chemical Total	1,168.46	44		
OXADIAZON				
Landscape Maintenance	4.28			
Rights Of Way	4.00			
Chemical Total	8.28			
OXYFLUORFEN				
Grape, Wine	2,127.57	280	4,408.37	A
Rights Of Way	0.22			
Chemical Total	2,127.79	280		

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OXYTETRACYCLINE HYDROCHLORIDE				
Landscape Maintenance	0.15			
Chemical Total	0.15			
PACLOBUTRAZOL				
Landscape Maintenance	0.27			
N-Grnhs Flower	1.00		4.00	A
Chemical Total	1.28			
PAECILOMYCES FUMOSOROSEUS APOPKA STRAIN 97				
Grape, Wine	0.40	1	1.00	A
Chemical Total	0.40	1		
PAECILOMYCES LILACINUS STRAIN 251				
Grape, Wine	8.10	5	39.09	A
Chemical Total	8.10	5		
PCNB				
Landscape Maintenance	90.00			
Chemical Total	90.00			
PENDIMETHALIN				
Grape, Wine	4,334.30	141	1,978.73	A
Landscape Maintenance	105.36			
Olive	2.27	1	1.74	A
Uncultivated Ag	168.79	18	18.00	A
Chemical Total	4,610.72	160		
PENOXSULAM				
Landscape Maintenance	3.52			
Chemical Total	3.52			
PERMETHRIN				
Landscape Maintenance	7.50			
N-Outdr Plants In Containers	0.03	1	0.50	A
Public Health	0.69			
Regulatory Pest Control	9.90			
Structural Pest Control	178.08			
Chemical Total	196.20	1		
PERMETHRIN, OTHER RELATED				
Structural Pest Control	< 0.01			
Chemical Total	< 0.01			
PETROLEUM DISTILLATES				
Regulatory Pest Control	6.48			
Chemical Total	6.48			
PETROLEUM DISTILLATES, REFINED				
Grape, Wine	30,926.21	608	7,663.60	A

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Chemical Commodity	Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
Landscape Maintenance	35.61			
N-Outdr Plants In Containers	8.63	3	1.25	A
Peach	1.41	2	0.40	A
Public Health	1,878.10			
Chemical Total	32,849.96	613		
PETROLEUM HYDROCARBONS				
Grape, Wine	4.84	4	24.30	A
Chemical Total	4.84	4		
PETROLEUM OIL, UNCLASSIFIED				
Fumigation, Other	0.74			
Grape, Wine	904.42	23	244.48	A
Landscape Maintenance	72.97			
Chemical Total	978.13	23		
PHENOTHRIN				
Landscape Maintenance	< 0.01			
Public Health	< 0.01			
Structural Pest Control	0.38			
Chemical Total	0.38			
PHENOTHRIN, OTHER RELATED				
Public Health	< 0.01			
Chemical Total	< 0.01			
PHENYLETHYL PROPIONATE				
Structural Pest Control	1.04			
Chemical Total	1.04			
PHOSPHORIC ACID				
Grape, Wine	33.14	97	855.66	A
Uncultivated Ag	< 0.01	1	2.50	A
Chemical Total	33.14	98		
PIPERONYL BUTOXIDE				
Landscape Maintenance	3.30			
Public Health	69.55			
Regulatory Pest Control	3.00			
Structural Pest Control	226.21			
Chemical Total	302.07			
PIPERONYL BUTOXIDE, OTHER RELATED				
Landscape Maintenance	0.82			
Public Health	9.78			
Regulatory Pest Control	0.75			
Structural Pest Control	55.32			
Chemical Total	66.68			
POLYACRYLAMIDE, POLYETHYLENE GLYCOL MIXTURE				
Rights Of Way	0.53			

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Chemical Commodity	Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
Chemical Total	0.53			
POLYACRYLAMIDE POLYMER				
Grape, Wine	0.32	4	25.67	A
Rights Of Way	3.06			
Chemical Total	3.38	4		
POLYALKENE OXIDE MODIFIED HEPTAMETHYL TRISILOXANE				
Grape, Wine	69.21	362	3,109.31	A
Landscape Maintenance	7.40			
Rights Of Way	78.26			
Structural Pest Control	0.03			
Chemical Total	154.91	362		
POLYBUTENES				
Vertebrate Control	2.40			
Chemical Total	2.40			
POLYETHER MODIFIED POLYSILOXANE				
Grape, Wine	899.39	548	3,515.15	A
Chemical Total	899.39	548		
POLYETHYLENE GLYCOL				
Grape, Wine	84.23	10	402.20	A
Chemical Total	84.23	10		
POLYETHYLENE GLYCOL DIACETATE				
Grape, Wine	33.71	255	7,787.00	A
Chemical Total	33.71	255		
POLYETHYLENE GLYCOL MONO(3-(TETRAMETHYL-1-(TRIMETHYLSILOXY) DISILOXANYL)PROPYL)ETHER				
Grape, Wine	1,066.41	306	4,826.68	A
Chemical Total	1,066.41	306		
POLY-I-PARA-MENTHENE				
Grape, Wine	76.30	42	385.62	A
Landscape Maintenance	0.35			
Chemical Total	76.65	42		
POLYMERIZED ACRYLIC ACID				
Grape, Wine	0.36	2	1.93	A
Chemical Total	0.36	2		
POLYMERIZED PINENE				
Landscape Maintenance	5.59			
Chemical Total	5.59			
POLYOXIN D, ZINC SALT				
Grape, Wine	60.53	153	1,428.13	A
Landscape Maintenance	0.81			

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Chemical Total	61.34	153		
POLY(OXYETHYLENE) (DIMETHYLIMINO) ETHYLENE (DIMETHYLIMINO) ETHYLENE DICHLORIDE				
Water (Industrial)	3.51		4,812.00	C
Chemical Total	3.51			
POLYOXYETHYLENE DIOLEATE				
Landscape Maintenance	11.78			
Chemical Total	11.78			
POLYOXYETHYLENE SORBITAN MONOOLEATE				
Landscape Maintenance	3.37			
Chemical Total	3.37			
POLYOXYETHYLENE SOYBEAN OIL FATTY ACID ESTER				
Grape, Wine	222.65	3	144.84	A
Chemical Total	222.65	3		
POLYPROPYLENE GLYCOL				
Grape, Wine	0.07	1	22.00	A
Chemical Total	0.07	1		
POTASH SOAP				
Landscape Maintenance	0.44			
N-Grnhs Plants In Containers	11.26	7	1.92	A
N-Outdr Plants In Containers	3.89	3	0.71	A
Chemical Total	15.59	10		
POTASSIUM BICARBONATE				
Grape, Wine	17,816.86	703	6,741.71	A
N-Outdr Plants In Containers	1.64	3	1.25	A
Chemical Total	17,818.50	706		
POTASSIUM PHOSPHITE				
Landscape Maintenance	881.15			
Regulatory Pest Control	1.38			
Chemical Total	882.53			
POTASSIUM SILICATE				
Grape, Wine	11.04	2	14.09	A
Chemical Total	11.04	2		
PRALLETHRIN				
Structural Pest Control	0.10			
Chemical Total	0.10			
PRODIAMINE				
Landscape Maintenance	78.00			
N-Grnhs Flower	2.79		3.80	A

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Chemical Total	80.78			
PROPICONAZOLE				
Golf Course Turf	3.25		2.70	A
Landscape Maintenance	45.22			
N-Grnhs Flower	2.60		1.00	A
Chemical Total	51.07			
PROPIONIC ACID				
Grape, Wine	54.23	15	424.41	A
Public Health	136.05			
Chemical Total	190.28	15		
PROPOXUR				
Regulatory Pest Control	< 0.01			
Structural Pest Control	0.98			
Chemical Total	0.99			
PROPYLENE GLYCOL				
Grape, Wine	275.83	541	6,115.26	A
Landscape Maintenance	2.46			
Structural Pest Control	0.01			
Chemical Total	278.29	541		
PYRACLOSTROBIN				
Golf Course Turf	1.38		3.10	A
Grape, Wine	3,018.08	1,923	25,866.65	A
Landscape Maintenance	8.61			
N-Grnhs Plants In Containers	< 0.01	1	0.06	A
Chemical Total	3,028.08	1,924		
PYRAFLUFEN-ETHYL				
Grape, Wine	1.34	46	744.12	A
Landscape Maintenance	0.15			
Chemical Total	1.49	46		
PYRETHRINS				
Grape, Wine	50.13	96	1,516.26	A
Landscape Maintenance	0.47			
N-Grnhs Plants In Containers	0.15	12	3.01	A
N-Outdr Plants In Containers	0.11	5	1.52	A
Public Health	15.43			
Regulatory Pest Control	0.79			
Structural Pest Control	64.20			
Chemical Total	131.29	113		
PYRIDALYL				
N-Grnhs Plants In Containers	0.04	1	0.32	A
Chemical Total	0.04	1		
PYRIMETHANIL				
Grape, Wine	649.57	172	1,961.30	A

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Chemical Commodity	Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
Chemical Total	649.57	172		
PYRIPROXYFEN				
Landscape Maintenance	0.06			
Regulatory Pest Control	< 0.01			
Structural Pest Control	75.96			
Chemical Total	76.02			
QST 713 STRAIN OF DRIED BACILLUS SUBTILIS				
Grape, Wine	2,623.67	925	9,835.58	A
N-Grnhs Plants In Containers	0.36	5	1.19	A
Chemical Total	2,624.03	930		
QUILLAJA				
Grape, Wine	77.97	441	6,320.26	A
Chemical Total	77.97	441		
QUINCLORAC				
Landscape Maintenance	0.05			
Chemical Total	0.05			
QUINCLORAC, DIMETHYLAMINE SALT				
Landscape Maintenance	24.11			
N-Grnhs Flower	1.59		3.80	A
Chemical Total	25.70			
QUINOXYFEN				
Grape, Wine	2,271.90	1,514	23,325.75	A
Chemical Total	2,271.90	1,514		
REYNOUTRIA SACHALINENSIS				
Almond	1.87	1	0.50	A
Apple	0.04	1	0.10	A
Cherry	0.04	1	0.10	A
Grape, Wine	1,330.53	592	7,107.31	A
Nectarine	0.08	1	0.25	A
Peach	0.08	1	0.25	A
Pear	0.04	1	0.10	A
Plum	0.08	1	0.10	A
Chemical Total	1,332.76	599		
RIMSULFURON				
Grape, Wine	42.71	94	1,304.18	A
Landscape Maintenance	0.03			
Rights Of Way	0.06			
Chemical Total	42.81	94		
SETHOXYDIM				
Grape, Wine	42.57	14	236.98	A
Chemical Total	42.57	14		

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SILICA AEROGEL					
Public Health		7.45			
Structural Pest Control		3.54			
Chemical Total		10.99			
SILICONE					
Grape, Wine		7.63	119	1,491.10	A
Chemical Total		7.63	119		
SILICONE DEFOAMER					
Grape, Wine		0.44	89	745.99	A
Uncultivated Ag		< 0.01	1	2.50	A
Chemical Total		0.44	90		
SIMAZINE					
Grape, Wine		2,708.43	98	1,927.85	A
Chemical Total		2,708.43	98		
SODIUM BISULFATE					
Grape, Wine		62.87	2	172.00	A
Chemical Total		62.87	2		
SODIUM CARBONATE PEROXYHYDRATE					
Landscape Maintenance		170.00			
Water Area		21,635.39		6,467,496.00	C
		85.00		3.00	A
Total Pounds On This Commodity	21,720.39				
Chemical Total		21,890.39			
SODIUM DECYL SULFATE					
Structural Pest Control		0.53			
Chemical Total		0.53			
SODIUM DIOCTYLSULFOSUCCINATE					
Grape, Wine		50.25	75	1,929.06	A
Chemical Total		50.25	75		
SODIUM HYDROXIDE					
Grape, Wine		1.74	4	25.67	A
Chemical Total		1.74	4		
SODIUM HYPOCHLORITE					
Grape, Wine		57.43	15	386.87	A
Chemical Total		57.43	15		
SODIUM LAUROAMPHO ACETATE					
Structural Pest Control		0.40			
Chemical Total		0.40			
SODIUM LAURYL SULFATE					
Structural Pest Control		0.27			

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Napa County

Chemical Commodity	Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
Chemical Total	0.27			
SODIUM NITRATE				
Landscape Maintenance	0.46			
Chemical Total	0.46			
SODIUM POLYACRYLATE				
Grape, Wine	0.60	16	343.76	A
Chemical Total	0.60	16		
SODIUM XYLENE SULFONATE				
Grape, Wine	5.21	89	745.99	A
Uncultivated Ag	0.01	1	2.50	A
Chemical Total	5.22	90		
SPINETORAM				
Grape, Wine	2.00	4	42.00	A
Chemical Total	2.00	4		
SPINOSAD				
Grape, Wine	6.34	29	57.40	A
	< 0.01	10	270.00	U
Total Pounds On This Commodity	6.35			
Landscape Maintenance	0.11			
N-Grnhs Plants In Containers	0.07	2	0.57	A
N-Outdr Plants In Containers	0.09	2	1.06	A
Nectarine	0.10	2	0.12	A
Olive	0.73	651	1,298.36	A
	0.14	112	21,218.00	U
Total Pounds On This Commodity	0.87			
Chemical Total	7.59	808		
SPIRODICLOFEN				
Grape, Wine	7.38	10	17.61	A
Chemical Total	7.38	10		
SPIROTETRAMAT				
Grape, Wine	151.38	543	8,916.03	A
N-Grnhs Plants In Containers	0.08	2	1.93	A
Chemical Total	151.46	545		
STREPTOMYCES LYDICUS WYEC 108				
Grape, Wine	< 0.01	7	56.35	A
Chemical Total	< 0.01	7		
STRYCHNINE				
Grape, Wine	0.75	1	150.34	A
Landscape Maintenance	0.01			
Chemical Total	0.76	1		
STYRENE BUTADIENE COPOLYMER				

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Chemical Commodity		Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
Grape, Wine		163.27	200	2,581.53	A
Chemical Total		163.27	200		
SULFENTRAZONE					
Landscape Maintenance		0.22			
Chemical Total		0.22			
SULFLURAMID					
Structural Pest Control		< 0.01			
Chemical Total		< 0.01			
SULFOMETURON-METHYL					
Landscape Maintenance		0.50			
Regulatory Pest Control		3.73			
Rights Of Way		10.78			
Chemical Total		15.00			
SULFUR					
Grape, Wine		964,108.70	10,555	154,365.32	A
Landscape Maintenance		0.35			
N-Grnhs Plants In Containers		0.95	1	0.34	A
N-Outdr Plants In Containers		1.30	1	0.46	A
Chemical Total		964,111.30	10,557		
SULFUR DIOXIDE					
Commodity Fumigation		536.43			
Fumigation, Other		24,498.93			
Grape, Wine		15.55		1,182.00	U
		5.94		500.00	T
Total Pounds On This Commodity	21.49				
Landscape Maintenance		25.00			
Regulatory Pest Control		0.99			
Chemical Total		25,082.84			
SULFURYL FLUORIDE					
Structural Pest Control		1,409.01			
Chemical Total		1,409.01			
TALL OIL					
Grape, Wine		29.99	4	146.09	A
Landscape Maintenance		0.22			
Rights Of Way		0.35			
Chemical Total		30.56	4		
TALL OIL FATTY ACIDS					
Grape, Wine		16.61	353	3,889.95	A
Landscape Maintenance		0.08			
Nectarine		< 0.01	1	0.24	A
Peach		< 0.01	1	0.24	A
Pear		< 0.01	1	0.24	A
Plum		< 0.01	1	0.24	A
Rights Of Way		0.41			

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Chemical Commodity		Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
Uncultivated Ag		0.02		2.20	A
Chemical Total		17.11	357		
TARTRAZINE					
Grape, Wine		0.19	1	0.80	A
Landscape Maintenance		0.29			
Rights Of Way		1.08			
Water Area		3.31		7,176.00	K
		0.67	1	6.00	A
		0.38		871,200.00	C
Total Pounds On This Commodity	4.37				
Chemical Total		5.92	2		
TEBUCONAZOLE					
Golf Course Turf		2.08		2.70	A
Grape, Wine		1,059.24	842	10,940.07	A
Landscape Maintenance		< 0.01			
Rights Of Way		0.06			
Chemical Total		1,061.39	842		
TEMEPHOS					
Public Health		0.28			
Chemical Total		0.28			
TERRAZOLE					
N-Grnhs Plants In Containers		1.40	3	0.32	A
Chemical Total		1.40	3		
TETRACONAZOLE					
Grape, Wine		972.30	1,970	24,930.55	A
Chemical Total		972.30	1,970		
Z,E-9,12-TETRADECADIEN-1-YL ACETATE					
Structural Pest Control		0.17			
Chemical Total		0.17			
TETRAMETHRIN					
Structural Pest Control		0.02			
Chemical Total		0.02			
ALPHA-[PARA-(1,1,3,3-TETRAMETHYLBUTYL)PHENYL]-OMEGA-HYDROXYPOLY(OXYETHYLENE)					
Grape, Wine		19.84	89	745.99	A
Uncultivated Ag		0.04	1	2.50	A
Chemical Total		19.88	90		
TETRAPOTASSIUM PYROPHOSPHATE					
Grape, Wine		2.60	89	745.99	A
Uncultivated Ag		< 0.01	1	2.50	A
Chemical Total		2.61	90		

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Chemical Commodity	Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
THIAMETHOXAM				
Grape, Wine	90.24	33	1,146.55	A
Landscape Maintenance	3.14			
Structural Pest Control	5.03			
Chemical Total	98.41	33		
THIOPHANATE-METHYL				
Grape, Wine	788.30	271	3,429.79	A
Landscape Maintenance	115.50			
N-Grnhs Plants In Containers	1.50	1	0.18	A
Structural Pest Control	0.84			
Chemical Total	906.14	272		
THYME				
Structural Pest Control	1.72			
Chemical Total	1.72			
TRIADIMEFON				
Landscape Maintenance	3.36			
N-Outdr Flower	0.09	1	0.50	A
Chemical Total	3.45	1		
TRICLOPYR, BUTOXYETHYL ESTER				
Landscape Maintenance	86.03			
N-Grnhs Flower	0.02		100.00	S
Regulatory Pest Control	1.46			
Rights Of Way	12.68			
Chemical Total	100.20			
TRICLOPYR, TRIETHYLAMINE SALT				
Landscape Maintenance	10.27			
Rights Of Way	29.77			
Chemical Total	40.04			
TRIETHANOLAMINE				
Grape, Wine	6.64	89	745.99	A
Uncultivated Ag	0.01	1	2.50	A
Chemical Total	6.65	90		
TRIFLOXYSTROBIN				
Grape, Wine	1,672.29	1,561	21,983.88	A
Landscape Maintenance	6.93			
Chemical Total	1,679.22	1,561		
TRIFLUMIZOLE				
Grape, Wine	1,639.94	651	7,480.40	A
Chemical Total	1,639.94	651		
TRIFLURALIN				
Landscape Maintenance	3.34			
Chemical Total	3.34			

Department of Pesticide Regulation
2014 Annual Pesticide Use Report Indexed by Chemical
Napa County

Chemical Commodity	Pounds Applied	Agricultural Applications	Amount Treated	Unit Type
ALPHA-2,6,8-TRIMETHYL-4-NONYLOXY-OMEGA-HYDROXYPOLY (OXYETHYLENE)				
Grape, Wine	190.35	299	3,524.79	A
Chemical Total	190.35	299		
TRINEXAPAC-ETHYL				
Golf Course Turf	0.25		2.70	A
Landscape Maintenance	17.25			
Chemical Total	17.50			
TRITICONAZOLE				
Landscape Maintenance	18.85			
N-Outdr Flower	< 0.01	1	2,000.00	S
Chemical Total	18.86	1		
ALPHA-UNDECYL-OMEGA-HYDROXYPOLY(OXYETHYLENE)				
Grape, Wine	29.49	17	260.19	A
Landscape Maintenance	1.85			
Rights Of Way	1.57			
Chemical Total	32.91	17		
WARFARIN				
Structural Pest Control	< 0.01			
Chemical Total	< 0.01			
YUCCA SCHIDIGERA				
Grape, Wine	55.59	90	497.02	A
Chemical Total	55.59	90		
ZINC PHOSPHIDE				
Grape, Wine	0.60	1	30.00	A
Landscape Maintenance	0.16			
Chemical Total	0.76	1		
Napa County Total	1,372,524.84	54,447		

Attachment 8

Linda S. Adams
Secretary for
Environmental Protection

State Water Resources Control Board

Arnold Schwarzenegger
Governor

Division of Water Quality
1001 I Street • Sacramento, California 95814 • (916) 341-5455
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NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
GENERAL PERMIT FOR
STORM WATER DISCHARGES
ASSOCIATED WITH CONSTRUCTION AND LAND DISTURBANCE
ACTIVITIES

ORDER NO. 2009-0009-DWQ
NPDES NO**. CAS000002**

This Order was adopted by the State Water Resources Control Board on:	**September 2, 2009**
This Order shall become effective on:	**July 1, 2010**
This Order shall expire on:	**September 2, 2014**

IT IS HEREBY ORDERED, that this Order supersedes Order No. 99-08-DWQ [as amended by Order No. 2010-0014-DWQ] except for enforcement purposes. The Discharger shall comply with the requirements in this Order to meet the provisions contained in Division 7 of the California Water Code (commencing with section 13000) and regulations adopted thereunder, and the provisions of the federal Clean Water Act and regulations and guidelines adopted thereunder.

I, Jeanine Townsend, Clerk to the Board, do hereby certify that this Order with all attachments is a full, true, and correct copy of an Order adopted by the State Water Resources Control Board, on September 2, 2009.

AYE: Vice Chair Frances Spivy-Weber
Board Member Arthur G. Baggett, Jr.
Board Member Tam M. Doduc

NAY: Chairman Charles R. Hoppin

ABSENT: None

ABSTAIN: None

Jeanine Townsend
Clerk to the Board

Linda S. Adams
Secretary for
Environmental Protection

State Water Resources Control Board

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Arnold Schwarzenegger
Governor

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION AND LAND DISTURBANCE ACTIVITIES

ORDER NO. 2010-0014-DWQ
NPDES NO. CAS000002

Order No. 2009-0009-DWQ was adopted by the State Water Resources Control Board on:	**September 2, 2009**
Order No. 2009-0009-DWQ became effective on:	**July 1, 2010**
Order No. 2009-0009-DWQ shall expire on:	**September 2, 2014**
This Order, which amends Order No. 2009-0009-DWQ, was adopted by the State Water Resources Control Board on:	**November 16, 2010**
This Order shall become effective on:	**February 14, 2011**

IT IS HEREBY ORDERED that this Order amends Order No. 2009-0009-DWQ. Additions to Order No. 2009-0009-DWQ are reflected in blue-underline text and deletions are reflected in red-strikeout text.

IT IS FURTHER ORDERED that staff are directed to prepare and post a conformed copy of Order No. 2009-0009-DWQ incorporating the revisions made by this Order.

I, Jeanine Townsend, Clerk to the Board, do hereby certify that this Order with all attachments is a full, true, and correct copy of an Order adopted by the State Water Resources Control Board, on **November 16, 2010.**

AYE: Chairman Charles R. Hoppin
Vice Chair Frances Spivy-Weber
Board Member Arthur G. Baggett, Jr.
Board Member Tam M. Doduc

NAY: None

ABSENT: None

ABSTAIN: None

Jeanine Townsend
Clerk to the Board

CALIFORNIA
Water Boards

Edmund G. Brown Jr.
Governor

Matthew Rodriquez
Secretary for
Environmental Protection

State Water Resources Control Board

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
GENERAL PERMIT FOR
STORM WATER DISCHARGES
ASSOCIATED WITH CONSTRUCTION AND LAND DISTURBANCE ACTIVITIES

ORDER NO. 2012-0006-DWQ
NPDES NO**. CAS000002**

Order No. 2009-0009-DWQ was adopted by the State Water Resources Control Board on:	**September 2, 2009**
Order No. 2009-0009-DWQ became effective on:	**July 1, 2010**
Order No. 2010-0014-DWQ became effective on:	**February 14, 2011**
Order No. 2009-0009-DWQ as amended by 2010-0014-DWQ shall expire on:	**September 2, 2014**
This Order, which amends Order No. 2009-0009-DWQ as amended by 2010-0014-DWQ, was adopted by the State Water Resources Control Board on:	**July 17, 2012**
This Order No. 2012-0006-DWQ shall become effective on:	**July 17, 2012**

IT IS HEREBY ORDERED that this Order amends Order No. 2009-0009-DWQ. Additions to Order No. 2009-0009-DWQ are reflected in blue-underline text and deletions are reflected in red-strikeout text.

IT IS FURTHER ORDERED that staff are directed to prepare and post a conformed copy of Order No. 2009-000-DWQ incorporating the revisions made by this Order.

I, Jeanine Townsend, Clerk to the Board, do hereby certify that this Order with all attachments is a full, true, and correct copy of an Order adopted by the State Water Resources Control Board, on July 17, 2012.

AYE:	Chairman Charles R. Hoppin Vice Chair Frances Spivy-Weber Board Member Tam M. Doduc Board Member Steven Moore Board Member Felicia Marcus
NAY:	None
ABSENT:	None
ABSTAIN:	None

Jeanine Townsend
Clerk to the Board

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LIST OF ATTACHMENTS

LIST OF APPENDICES

STATE WATER RESOURCES CONTROL BOARD
ORDER NO. 2009-0009-DWQ
[AS AMENDED BY ORDER NO. 2010-0014-DWQ]
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
GENERAL PERMIT NO. CAS000002

WASTE DISCHARGE REQUIREMENTS
FOR
DISCHARGES OF STORM WATER RUNOFF ASSOCIATED WITH CONSTRUCTION AND LAND DISTURBANCE ACTIVITIES

I. FINDINGS

A. General Findings

The State Water Resources Control Board (State Water Board) finds that:

1. The federal Clean Water Act (CWA) prohibits certain discharges of storm water containing pollutants except in compliance with a National Pollutant Discharge Elimination System (NPDES) permit (Title 33 United States Code (U.S.C.) §§ 1311 and 1342(p); also referred to as Clean Water Act (CWA) §§ 301 and 402(p)). The U.S. Environmental Protection Agency (U.S. EPA) promulgates federal regulations to implement the CWA's mandate to control pollutants in storm water runoff discharges. (Title 40 Code of Federal Regulations (C.F.R.) Parts 122, 123, and 124). The federal statutes and regulations require discharges to surface waters comprised of storm water associated with construction activity, including demolition, clearing, grading, and excavation, and other land disturbance activities (except operations that result in disturbance of less than one acre of total land area and which are not part of a larger common plan of development or sale), to obtain coverage under an NPDES permit. The NPDES permit must require implementation of Best Available Technology Economically Achievable (BAT) and Best Conventional Pollutant Control Technology (BCT) to reduce or eliminate pollutants in storm water runoff. The NPDES permit must also include additional requirements necessary to implement applicable water quality standards.

2. This General Permit authorizes discharges of storm water associated with construction activity so long as the dischargers comply with all requirements, provisions, limitations and prohibitions in the permit. In addition, this General Permit regulates the discharges of storm water associated with construction activities from all Linear

Underground/Overhead Projects resulting in the disturbance of greater than or equal to one acre (Attachment A).

3. This General Permit regulates discharges of pollutants in storm water associated with construction activity (storm water discharges) to waters of the United States from construction sites that disturb one or more acres of land surface, or that are part of a common plan of development or sale that disturbs more than one acre of land surface.

4. This General Permit does not preempt or supersede the authority of local storm water management agencies to prohibit, restrict, or control storm water discharges to municipal separate storm sewer systems or other watercourses within their jurisdictions.

5. This action to adopt a general NPDES permit is exempt from the provisions of Chapter 3 of the California Environmental Quality Act (CEQA) (Public Resources Code Section 21100, et seq.), pursuant to Section 13389 of the California Water Code.

6. Pursuant to 40 C.F.R. § 131.12 and State Water Board Resolution No. 68-16,[1] which incorporates the requirements of § 131.12 where applicable, the State Water Board finds that discharges in compliance with this General Permit will not result in the lowering of water quality standards, and are therefore consistent with those provisions. Compliance with this General Permit will result in improvements in water quality.

7. This General Permit serves as an NPDES permit in compliance with CWA § 402 and will take effect on July 1, 2010 by the State Water Board provided the Regional Administrator of the U.S. EPA has no objection. If the U.S. EPA Regional Administrator objects to its issuance, the General Permit will not become effective until such objection is withdrawn.

8. Following adoption and upon the effective date of this General Permit, the Regional Water Quality Control Boards (Regional Water Boards) shall enforce the provisions herein.

9. Regional Water Boards establish water quality standards in Basin Plans. The State Water Board establishes water quality standards in various statewide plans, including the California Ocean Plan. U.S. EPA establishes water quality standards in the National Toxic Rule (NTR) and the California Toxic Rule (CTR).

[1] Resolution No. 68-16 generally requires that existing water quality be maintained unless degradation is justified based on specific findings.

10. This General Permit does not authorize discharges of fill or dredged material regulated by the U.S. Army Corps of Engineers under CWA § 404 and does not constitute a waiver of water quality certification under CWA § 401.

11. The primary storm water pollutant at construction sites is excess sediment. Excess sediment can cloud the water, which reduces the amount of sunlight reaching aquatic plants, clog fish gills, smother aquatic habitat and spawning areas, and impede navigation in our waterways. Sediment also transports other pollutants such as nutrients, metals, and oils and greases.

12. Construction activities can impact a construction site's runoff sediment supply and transport characteristics. These modifications, which can occur both during and after the construction phase, are a significant cause of degradation of the beneficial uses established for water bodies in California. Dischargers can avoid these effects through better construction site design and activity practices.

13. This General Permit recognizes four distinct phases of construction activities. The phases are Grading and Land Development Phase, Streets and Utilities Phase, Vertical Construction Phase, and Final Landscaping and Site Stabilization Phase. Each phase has activities that can result in different water quality effects from different water quality pollutants. This General Permit also recognizes inactive construction as a category of construction site type.

14. Compliance with any specific limits or requirements contained in this General Permit does not constitute compliance with any other applicable requirements.

15. Following public notice in accordance with State and Federal laws and regulations, the State Water Board heard and considered all comments and testimony in a public hearing on 06/03/2009. The State Water Board has prepared written responses to all significant comments.

16. Construction activities obtaining coverage under the General Permit may have multiple discharges subject to requirements that are specific to general, linear, and/or active treatment system discharge types.

17. The State Water Board may reopen the permit if the U.S. EPA adopts a final effluent limitation guideline for construction activities.

B. Activities Covered Under the General Permit

18. Any construction or demolition activity, including, but not limited to, clearing, grading, grubbing, or excavation, or any other activity that results in a land disturbance of equal to or greater than one acre.

19. Construction activity that results in land surface disturbances of less than one acre if the construction activity is part of a larger common plan of development or the sale of one or more acres of disturbed land surface.

20. Construction activity related to residential, commercial, or industrial development on lands currently used for agriculture including, but not limited to, the construction of buildings related to agriculture that are considered industrial pursuant to U.S. EPA regulations, such as dairy barns or food processing facilities.

21. Construction activity associated with Linear Underground/Overhead Utility Projects (LUPs) including, but not limited to, those activities necessary for the installation of underground and overhead linear facilities (e.g., conduits, substructures, pipelines, towers, poles, cables, wires, connectors, switching, regulating and transforming equipment and associated ancillary facilities) and include, but are not limited to, underground utility mark-out, potholing, concrete and asphalt cutting and removal, trenching, excavation, boring and drilling, access road and pole/tower pad and cable/wire pull station, substation construction, substructure installation, construction of tower footings and/or foundations, pole and tower installations, pipeline installations, welding, concrete and/or pavement repair or replacement, and stockpile/borrow locations.

22. Discharges of sediment from construction activities associated with oil and gas exploration, production, processing, or treatment operations or transmission facilities.[2]

23. Storm water discharges from dredge spoil placement that occur outside of U.S. Army Corps of Engineers jurisdiction (upland sites) and that disturb one or more acres of land surface from construction activity are covered by this General Permit. Construction sites that intend to disturb one or more acres of land within the jurisdictional boundaries of

[2] Pursuant to the Ninth Circuit Court of Appeals' decision in *NRDC v. EPA* (9th Cir. 2008) 526 F.3d 591, and subsequent denial of the U.S. EPA's petition for reconsideration in November 2008, oil and gas construction activities discharging storm water contaminated only with sediment are no longer exempt from the NPDES program.

a CWA § 404 permit should contact the appropriate Regional Water Board to determine whether this permit applies to the site.

C. Activities Not Covered Under the General Permit

24. Routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of the facility.

25. Disturbances to land surfaces solely related to agricultural operations such as disking, harrowing, terracing and leveling, and soil preparation.

26. Discharges of storm water from areas on tribal lands; construction on tribal lands is regulated by a federal permit.

27. Construction activity and land disturbance involving discharges of storm water within the Lake Tahoe Hydrologic Unit. The Lahontan Regional Water Board has adopted its own permit to regulate storm water discharges from construction activity in the Lake Tahoe Hydrologic Unit (Regional Water Board 6SLT). Owners of construction sites in this watershed must apply for the Lahontan Regional Water Board permit rather than the statewide Construction General Permit.

28. Construction activity that disturbs less than one acre of land surface, and that is not part of a larger common plan of development or the sale of one or more acres of disturbed land surface.

29. Construction activity covered by an individual NPDES Permit for storm water discharges.

30. Discharges from small (1 to 5 acre) construction activities with an approved Rainfall Erosivity Waiver authorized by U.S. EPA Phase II regulations certifying to the State Board that small construction activity will occur only when the Rainfall Erosivity Factor is less than 5 (“R” in the Revised Universal Soil Loss Equation).

31. Landfill construction activity that is subject to the Industrial General Permit.

32. Construction activity that discharges to Combined Sewer Systems.

33. Conveyances that discharge storm water runoff combined with municipal sewage.

34. Discharges of storm water identified in CWA § 402(*l*)(2), 33 U.S.C. § 1342(*l*)(2).

35. Discharges occurring in basins that are not tributary or hydrologically connected to waters of the United States (for more information contact your Regional Water Board).

D. Obtaining and Modifying General Permit Coverage

36. This General Permit requires all dischargers to electronically file all Permit Registration Documents (PRDs), Notices of Termination (NOT), changes of information, annual reporting, and other compliance documents required by this General Permit through the State Water Board's Storm water Multi-Application and Report Tracking System (SMARTS) website.

37. Any information provided to the Regional Water Board shall comply with the Homeland Security Act and any other federal law that concerns security in the United States; any information that does not comply should not be submitted.

38. This General Permit grants an exception from the Risk Determination requirements for existing sites covered under Water Quality Orders No. 99-08-DWQ, and No. 2003-0007-DWQ. For certain sites, adding additional requirements may not be cost effective. Construction sites covered under Water Quality Order No. 99-08-DWQ shall obtain permit coverage at the Risk Level 1. LUPs covered under Water Quality Order No. 2003-0007-DWQ shall obtain permit coverage as a Type 1 LUP. The Regional Water Boards have the authority to require Risk Determination to be performed on sites currently covered under Water Quality Orders No. 99-08-DWQ and No. 2003-0007-DWQ where they deem it necessary. The State Water Board finds that there are two circumstances when it may be appropriate for the Regional Water Boards to require a discharger that had filed an NOI under State Water Board Order No. 99-08-DWQ to recalculate the site's risk level. These circumstances are: (1) when the discharger has a demonstrated history of noncompliance with State Water Board Order No. 99-08-DWQ or; (2) when the discharger's site poses a significant risk of causing or contributing to an exceedance of a water quality standard without the implementation of the additional Risk Level 2 or 3 requirements.

E. Prohibitions

39. All discharges are prohibited except for the storm water and non-storm water discharges specifically authorized by this General Permit or another NPDES permit. Non-storm water discharges include a wide variety of sources, including improper dumping, spills, or leakage from storage tanks or transfer areas. Non-storm water discharges may

contribute significant pollutant loads to receiving waters. Measures to control spills, leakage, and dumping, and to prevent illicit connections during construction must be addressed through structural as well as non-structural Best Management Practices (BMPs)[3]. The State Water Board recognizes, however, that certain non-storm water discharges may be necessary for the completion of construction.

40. This General Permit prohibits all discharges which contain a hazardous substance in excess of reportable quantities established in 40 C.F.R. §§ 117.3 and 302.4, unless a separate NPDES Permit has been issued to regulate those discharges.

41. This General Permit incorporates discharge prohibitions contained in water quality control plans, as implemented by the State Water Board and the nine Regional Water Boards.

42. Pursuant to the Ocean Plan, discharges to Areas of Special Biological Significance (ASBS) are prohibited unless covered by an exception that the State Water Board has approved.

43. This General Permit prohibits the discharge of any debris[4] from construction sites. Plastic and other trash materials can cause negative impacts to receiving water beneficial uses. The State Water Board encourages the use of more environmentally safe, biodegradable materials on construction sites to minimize the potential risk to water quality.

F. Training

44. In order to improve compliance with and to maintain consistent enforcement of this General Permit, all dischargers are required to appoint two positions - the Qualified SWPPP Developer (QSD) and the Qualified SWPPP Practitioner (QSP) - who must obtain appropriate training. Together with the key stakeholders, the State and Regional Water Boards are leading the development of this curriculum through a collaborative organization called The Construction General Permit (CGP) Training Team.

45. The Professional Engineers Act (Bus. & Prof. Code section 6700, et seq.) requires that all engineering work must be performed by a California licensed engineer.

[3] BMPs are scheduling of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the discharge of pollutants to waters of the United States. BMPs also include treatment requirements, operating procedures, and practice to control site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

[4] Litter, rubble, discarded refuse, and remains of destroyed inorganic anthropogenic waste.

G. Determining and Reducing Risk

46. The risk of accelerated erosion and sedimentation from wind and water depends on a number of factors, including proximity to receiving water bodies, climate, topography, and soil type.

47. This General Permit requires dischargers to assess the risk level of a site based on both sediment transport and receiving water risk. This General Permit contains requirements for Risk Levels 1, 2 and 3, and LUP Risk Type 1, 2, and 3 (Attachment A). Risk levels are established by determining two factors: first, calculating the site's sediment risk; and second, receiving water risk during periods of soil exposure (i.e. grading and site stabilization). Both factors are used to determine the site-specific Risk Level(s). LUPs can be determined to be Type 1 based on the flowchart in Attachment A.1.

48. Although this General Permit does not mandate specific setback distances, dischargers are encouraged to set back their construction activities from streams and wetlands whenever feasible to reduce the risk of impacting water quality (e.g., natural stream stability and habitat function). Because there is a reduced risk to receiving waters when setbacks are used, this General Permit gives credit to setbacks in the risk determination and post-construction storm water performance standards. The risk calculation and runoff reduction mechanisms in this General Permit are expected to facilitate compliance with any Regional Water Board and local agency setback requirements, and to encourage voluntary setbacks wherever practicable.

49. Rain events can occur at any time of the year in California. Therefore, a Rain Event Action Plan (REAP) is necessary for Risk Level 2 and 3 traditional construction projects (LUPs exempt) to ensure that active construction sites have adequate erosion and sediment controls implemented prior to the onset of a storm event, even if construction is planned only during the dry season.

50. Soil particles smaller than 0.02 millimeters (mm) (i.e., finer than medium silt) do not settle easily using conventional measures for sediment control (i.e., sediment basins). Given their long settling time, dislodging these soils results in a significant risk that fine particles will be released into surface waters and cause unacceptable downstream impacts. If operated correctly, an Active Treatment System (ATS[5]) can prevent or reduce the release of fine particles from construction sites.

[5] An ATS is a treatment system that employs chemical coagulation, chemical flocculation, or electro coagulation in order to reduce turbidity caused by fine suspended sediment.

Use of an ATS can effectively reduce a site's risk of impacting receiving waters.

51. Dischargers located in a watershed area where a Total Maximum Daily Load (TMDL) has been adopted or approved by the Regional Water Board or U.S. EPA may be required by a separate Regional Water Board action to implement additional BMPs, conduct additional monitoring activities, and/or comply with an applicable waste load allocation and implementation schedule. Such dischargers may also be required to obtain an individual Regional Water Board permit specific to the area.

H. Effluent Standards

52. The State Water Board convened a blue ribbon panel of storm water experts that submitted a report entitled, “The Feasibility of Numeric Effluent Limits Applicable to Discharges of Storm Water Associated with Municipal, Industrial and Construction Activities,” dated June 19, 2006. The panel concluded that numeric limits or action levels are technically feasible to control construction storm water discharges, provided that certain conditions are considered. The panel also concluded that numeric effluent limitations (NELs) are feasible for discharges from construction sites that utilize an ATS. The State Water Board has incorporated the expert panel’s suggestions into this General Permit, which includes numeric action levels (NALs) for pH and turbidity, and special numeric limits for ATS discharges.

Determining Compliance with Numeric Limitations

53. This General Permit sets a pH NAL of 6.5 to 8.5, and a turbidity NAL of 250 NTU. The purpose of the NAL and its associated monitoring requirement is to provide operational information regarding the performance of the measures used at the site to minimize the discharge of pollutants and to protect beneficial uses and receiving waters from the adverse effects of construction-related storm water discharges. An exceedance of a NAL does not constitute a violation of this General Permit.

54. This General Permit requires dischargers with NAL exceedances to immediately implement additional BMPs and revise their Storm Water Pollution Prevention Plans (SWPPPs) accordingly to either prevent pollutants and authorized non-storm water discharges from contaminating storm water, or to substantially reduce the pollutants to levels consistently below the NALs. NAL exceedances are reported in the State Water Boards SMARTS system, and the discharger is

required to provide an NAL Exceedance Report when requested by a Regional Water Board.

I. Receiving Water Limitations

55. This General Permit requires all enrolled dischargers to determine the receiving waters potentially affected by their discharges and to comply with all applicable water quality standards, including any more stringent standards applicable to a water body.

J. Sampling, Monitoring, Reporting and Record Keeping

56. Visual monitoring of storm water and non-storm water discharges is required for all sites subject to this General Permit.

57. Records of all visual monitoring inspections are required to remain on-site during the construction period and for a minimum of three years.

58. For all Risk Level 3/LUP Type 3 and Risk Level 2/LUP Type 2 sites, this General Permit requires effluent monitoring for pH and turbidity. Sampling, analysis and monitoring requirements for effluent monitoring for pH and turbidity are contained in this General Permit.

59. Risk Level 3 and LUP Type 3 sites with effluent that exceeds the Receiving Water Monitoring Triggers contained in this General Permit and with direct discharges to receiving water are required to conduct receiving water monitoring. An exceedance of a Receiving Water Monitoring Trigger does not constitute a violation of this General Permit.

60. This General Permit establishes a 5 year, 24 hour (expressed in inches of rainfall) as an exemptions to the receiving water monitoring requirements for Risk Level 3 and LUP Type 3 dischargers.

61. If run-on is caused by a forest fire or any other natural disaster, then receiving water monitoring triggers do not apply.

62. For Risk Level 3 and LUP Type 3 sites larger than 30 acres and with direct discharges to receiving waters, this General Permit requires bioassessment sampling before and after site completion to determine if significant degradation to the receiving water's biota has occurred. Bioassessment sampling guidelines are contained in this General Permit.

63. A summary and evaluation of the sampling and analysis results will be submitted in the Annual Reports.

64. This General Permit contains sampling, analysis and monitoring requirements for non-visible pollutants at all sites subject to this General Permit.

65. Compliance with the General Permit relies upon dischargers to electronically self-report any discharge violations and to comply with any Regional Water Board enforcement actions.

66. This General Permit requires that all dischargers maintain a paper or electronic copy of all required records for three years from the date generated or date submitted, whichever is last. These records must be available at the construction site until construction is completed. For LUPs, these documents may be retained in a crew member's vehicle and made available upon request.

K. Active Treatment System (ATS) Requirements

67. Active treatment systems add chemicals to facilitate flocculation, coagulation and filtration of suspended sediment particles. The uncontrolled release of these chemicals to the environment can negatively affect the beneficial uses of receiving waters and/or degrade water quality (e.g., acute and chronic toxicity). Additionally, the batch storage and treatment of storm water through an ATS' can potentially cause physical impacts on receiving waters if storage volume is inadequate or due to sudden releases of the ATS batches and improperly designed outfalls.

68. If designed, operated and maintained properly an ATS can achieve very high removal rates of suspended sediment (measured as turbidity), albeit at sometimes significantly higher costs than traditional erosion/sediment control practices. As a result, this General Permit establishes NELs consistent with the expected level of typical ATS performance.

69. This General Permit requires discharges of storm water associated with construction activity that undergo active treatment to comply with special operational and effluent limitations to ensure that these discharges do not adversely affect the beneficial uses of the receiving waters or cause degradation of their water quality.

70. For ATS discharges, this General Permit establishes technology-based NELs for turbidity.

71. This General Permit establishes a 10 year, 24 hour (expressed in inches of rainfall) Compliance Storm Event exemption from the technology-based numeric effluent limitations for ATS discharges. Exceedances of the ATS turbidity NEL constitutes a violation of this General Permit.

L. Post-Construction Requirements

72. This General Permit includes performance standards for post-construction that are consistent with State Water Board Resolution No. 2005-0006, "Resolution Adopting the Concept of Sustainability as a Core Value for State Water Board Programs and Directing Its Incorporation," and 2008-0030, "Requiring Sustainable Water Resources Management." The requirement for all construction sites to match pre-project hydrology will help ensure that the physical and biological integrity of aquatic ecosystems are sustained. This "runoff reduction" approach is analogous in principle to Low Impact Development (LID) and will serve to protect related watersheds and waterbodies from both hydrologic-based and pollution impacts associated with the post-construction landscape.

73. LUP projects are not subject to post-construction requirements due to the nature of their construction to return project sites to pre-construction conditions.

M. Storm Water Pollution Prevention Plan Requirements

74. This General Permit requires the development of a site-specific SWPPP. The SWPPP must include the information needed to demonstrate compliance with all requirements of this General Permit, and must be kept on the construction site and be available for review. The discharger shall ensure that a QSD develops the SWPPP.

75. To ensure proper site oversight, this General Permit requires a Qualified SWPPP Practitioner to oversee implementation of the BMPs required to comply with this General Permit.

N. Regional Water Board Authorities

76. Regional Water Boards are responsible for implementation and enforcement of this General Permit. A general approach to permitting is not always suitable for every construction site and environmental circumstances. Therefore, this General Permit recognizes that Regional Water Boards must have some flexibility and authority to alter, approve, exempt, or rescind permit authority granted under this

General Permit in order to protect the beneficial uses of our receiving waters and prevent degradation of water quality.

IT IS HEREBY ORDERED that all dischargers subject to this General Permit shall comply with the following conditions and requirements (including all conditions and requirements as set forth in Attachments A, B, C, D, E and F)[6]:

II. CONDITIONS FOR PERMIT COVERAGE

A. Linear Underground/Overhead Projects (LUPs)

1. Linear Underground/Overhead Projects (LUPs) include, but are not limited to, any conveyance, pipe, or pipeline for the transportation of any gaseous, liquid (including water and wastewater for domestic municipal services), liquescent, or slurry substance; any cable line or wire for the transmission of electrical energy; any cable line or wire for communications (e.g. telephone, telegraph, radio or television messages); and associated ancillary facilities. Construction activities associated with LUPs include, but are not limited to, (a) those activities necessary for the installation of underground and overhead linear facilities (e.g., conduits, substructures, pipelines, towers, poles, cables, wires, connectors, switching, regulating and transforming equipment, and associated ancillary facilities); and include, but are not limited to, (b) underground utility mark-out, potholing, concrete and asphalt cutting and removal, trenching, excavation, boring and drilling, access road and pole/tower pad and cable/wire pull station, substation construction, substructure installation, construction of tower footings and/or foundations, pole and tower installations, pipeline installations, welding, concrete and/ or pavement repair or replacement, and stockpile/borrow locations.

2. The Legally Responsible Person is responsible for obtaining coverage under the General Permit where the construction of pipelines, utility lines, fiber-optic cables, or other linear underground/overhead projects will occur across several properties unless the LUP construction activities are covered under another construction storm water permit.

3. Only LUPs shall comply with the conditions and requirements in Attachment A, A.1 & A.2 of this Order. The balance of this Order is not applicable to LUPs except as indicated in Attachment A.

[6] These attachments are part of the General Permit itself and are not separate documents that are capable of being updated independently by the State Water Board.

B. Obtaining Permit Coverage Traditional Construction Sites

1. The Legally Responsible Person (LRP) (see Special Provisions, Electronic Signature and Certification Requirements, Section IV.I.1) must obtain coverage under this General Permit.

2. To obtain coverage, the LRP must electronically file Permit Registration Documents (PRDs) prior to the commencement of construction activity. Failure to obtain coverage under this General Permit for storm water discharges to waters of the United States is a violation of the CWA and the California Water Code.

3. PRDs shall consist of:

   a. Notice of Intent (NOI)
   b. Risk Assessment (Section VIII)
   c. Site Map
   d. Storm Water Pollution Prevention Plan (Section XIV)
   e. Annual Fee
   f. Signed Certification Statement

   Any information provided to the Regional Water Board shall comply with the Homeland Security Act and any other federal law that concerns security in the United States; any information that does not comply should not be submitted.

   Attachment B contains additional PRD information. Dischargers must electronically file the PRDs, and mail the appropriate annual fee to the State Water Board.

4. This permit is effective on July 1, 2010.

   a. **Dischargers Obtaining Coverage On or After July 1, 2010:** All dischargers requiring coverage on or after July 1, 2010, shall electronically file their PRDs prior to the commencement of construction activities, and mail the appropriate annual fee no later than seven days prior to the commencement of construction activities. Permit coverage shall not commence until the PRDs and the annual fee are received by the State Water Board, and a WDID number is assigned and sent by SMARTS.

   b. **Dischargers Covered Under 99-08-DWQ and 2003-0007-DWQ:** Existing dischargers subject to State Water Board Order No. 99-08-DWQ (existing dischargers) will continue coverage under 99-08-DWQ until July 1, 2010. After July 1, 2010, all NOIs subject to State Water Board Order No. 99-08-DWQ will be terminated.

Existing dischargers shall electronically file their PRDs no later than July 1, 2010. If an existing discharger's site acreage subject to the annual fee has changed, it shall mail a revised annual fee no less than seven days after receiving the revised annual fee notification, **or else lose permit coverage**. All existing dischargers shall be exempt from the risk determination requirements in Section VIII of this General Permit until two years after permit adoption. All existing dischargers are therefore subject to Risk Level 1 requirements regardless of their site's sediment and receiving water risks. However, a Regional Board retains the authority to require an existing discharger to comply with the Section VIII risk determination requirements.

5. The discharger is only considered covered by this General Permit upon receipt of a Waste Discharger Identification (WDID) number assigned and sent by the State Water Board Storm water Multi-Application and Report Tracking System (SMARTS). In order to demonstrate compliance with this General Permit, the discharger must obtain a WDID number and must present documentation of a valid WDID upon demand.

6. During the period this permit is subject to review by the U.S. EPA, the prior permit (State Water Board Order No. 99-08-DWQ) remains in effect. Existing dischargers under the prior permit will continue to have coverage under State Water Board Order No. 99-08-DWQ until this General Permit takes effect on July 1, 2010. Dischargers who complete their projects and electronically file an NOT prior to July 1, 2010, are not required to obtain coverage under this General Permit.

7. Small Construction Rainfall Erosivity Waiver

   EPA's Small Construction Erosivity Waiver applies to sites between one and five acres demonstrating that there are no adverse water quality impacts.

   Dischargers eligible for a Rainfall Erosivity Waiver based on low erosivity potential shall complete the electronic Notice of Intent (NOI) and Sediment Risk form through the State Water Board's SMARTS system, certifying that the construction activity will take place during a period when the value of the rainfall erosivity factor is less than five. Where the LRP changes or another LRP is added during construction, the new LRP must also submit a waiver certification through the SMARTS system.

   If a small construction site continues beyond the projected completion date given on the waiver certification, the LRP shall recalculate the

rainfall erosivity factor for the new project duration and submit this information through the SMARTS system. If the new R factor is below five (5), the discharger shall update through SMARTS all applicable information on the waiver certification and retain a copy of the revised waiver onsite. The LRP shall submit the new waiver certification 30 days prior to the projected completion date listed on the original waiver form to assure exemption from permitting requirements is uninterrupted. If the new R factor is five (5) or above, the LRP shall be required to apply for coverage under this Order.

8. In the case of a public emergency that requires immediate construction activities, a discharger shall submit a brief description of the emergency construction activity within five days of the onset of construction, and then shall submit all PRDs within thirty days.

C. Revising Permit Coverage for Change of Acreage or New Ownership

1. The discharger may reduce or increase the total acreage covered under this General Permit when a portion of the site is complete and/or conditions for termination of coverage have been met (See Section II.D Conditions for Termination of Coverage); when ownership of a portion of the site is sold to a different entity; or when new acreage, subject to this General Permit, is added to the site.

2. Within 30 days of a reduction or increase in total disturbed acreage, the discharger shall electronically file revisions to the PRDs that include:

   a. A revised NOI indicating the new project size;

   b. A revised site map showing the acreage of the site completed, acreage currently under construction, acreage sold/transferred or added, and acreage currently stabilized in accordance with the Conditions for Termination of Coverage in Section II.D below.

   c. SWPPP revisions, as appropriate; and

   d. Certification that any new landowners have been notified of applicable requirements to obtain General Permit coverage. The certification shall include the name, address, telephone number, and e-mail address of the new landowner.

   e. If the project acreage has increased, dischargers shall mail payment of revised annual fees within 14 days of receiving the revised annual fee notification.

3. The discharger shall continue coverage under the General Permit for any parcel that has not achieved "Final Stabilization" as defined in Section II.D.

4. When an LRP with active General Permit coverage transfers its LRP status to another person or entity that qualifies as an LRP, the existing LRP shall inform the new LRP of the General Permit's requirements. In order for the new LRP to continue the construction activity on its parcel of property, the new LRP, or the new LRP's approved signatory, must submit PRDs in accordance with this General Permit's requirements.

D. Conditions for Termination of Coverage

1. Within 90 days of when construction is complete or ownership has been transferred, the discharger shall electronically file a Notice of Termination (NOT), a final site map, and photos through the State Water Boards SMARTS system. Filing a NOT certifies that all General Permit requirements have been met. The Regional Water Board will consider a construction site complete only when all portions of the site have been transferred to a new owner, or all of the following conditions have been met:

   a. For purposes of "final stabilization," the site will not pose any additional sediment discharge risk than it did prior to the commencement of construction activity;

   b. There is no potential for construction-related storm water pollutants to be discharged into site runoff;

   c. Final stabilization has been reached;

   d. Construction materials and wastes have been disposed of properly;

   e. Compliance with the Post-Construction Standards in Section XIII of this General Permit has been demonstrated;

   f. Post-construction storm water management measures have been installed and a long-term maintenance plan[7] has been established; and

   g. All construction-related equipment, materials and any temporary BMPs no longer needed are removed from the site.

[7] For the purposes of this requirement a long-term maintenance plan will be designed for a minimum of five years, and will describe the procedures to ensure that the post-construction storm water management measures are adequately maintained.

2. The discharger shall certify that final stabilization conditions are satisfied in their NOT. Failure to certify shall result in continuation of permit coverage and annual billing.

3. The NOT must demonstrate through photos, RUSLE or RUSLE2, or results of testing and analysis that the site meets all of the conditions above (Section II.D.1) and the final stabilization condition (Section II.D.1.a) is attained by one of the following methods:

   a. "70% final cover method," no computational proof required

      OR:

   b. "RUSLE or RUSLE2 method," computational proof required

      OR:

   c. "Custom method", the discharger shall demonstrate in some other manner than a or b, above, that the site complies with the "final stabilization" requirement in Section II.D.1.a.

III. DISCHARGE PROHIBITIONS

A. Dischargers shall not violate any discharge prohibitions contained in applicable Basin Plans or statewide water quality control plans. Waste discharges to Areas of Special Biological Significance (ASBS) are prohibited by the California Ocean Plan, unless granted an exception issued by the State Water Board.

B. All discharges are prohibited except for the storm water and non-storm water discharges specifically authorized by this General Permit or another NPDES permit.

C. Authorized non-storm water discharges may include those from de-chlorinated potable water sources such as: fire hydrant flushing, irrigation of vegetative erosion control measures, pipe flushing and testing, water to control dust, uncontaminated ground water from dewatering, and other discharges not subject to a separate general NPDES permit adopted by a Regional Water Board. The discharge of non-storm water is authorized under the following conditions:

1. The discharge does not cause or contribute to a violation of any water quality standard;

2. The discharge does not violate any other provision of this General Permit;

3. The discharge is not prohibited by the applicable Basin Plan;

4. The discharger has included and implemented specific BMPs required by this General Permit to prevent or reduce the contact of the non-storm water discharge with construction materials or equipment.

5. The discharge does not contain toxic constituents in toxic amounts or (other) significant quantities of pollutants;

6. The discharge is monitored and meets the applicable NALs; and

7. The discharger reports the sampling information in the Annual Report.

If any of the above conditions are not satisfied, the discharge is not authorized by this General Permit. The discharger shall notify the Regional Water Board of any anticipated non-storm water discharges not already authorized by this General Permit or another NPDES permit, to determine whether a separate NPDES permit is necessary.

D. Debris resulting from construction activities are prohibited from being discharged from construction sites.

E. When soil contamination is found or suspected and a responsible party is not identified, or the responsible party fails to promptly take the appropriate action, the discharger shall have those soils sampled and tested to ensure proper handling and public safety measures are implemented. The discharger shall notify the appropriate local, State, and federal agency(ies) when contaminated soil is found at a construction site, and will notify the appropriate Regional Water Board.

IV. SPECIAL PROVISIONS

A. Duty to Comply

1. The discharger shall comply with all of the conditions of this General Permit. Any permit noncompliance constitutes a violation of the Clean Water Act (CWA) and the Porter-Cologne Water Quality Control Act and is grounds for enforcement action and/or removal from General Permit coverage.

2. The discharger shall comply with effluent standards or prohibitions established under Section 307(a) of the CWA for toxic pollutants within the time provided in the regulations that establish these standards or prohibitions, even if this General Permit has not yet been modified to incorporate the requirement.

B. General Permit Actions

1. This General Permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the discharger for a General Permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not annul any General Permit condition.

2. If any toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is promulgated under Section 307(a) of the CWA for a toxic pollutant which is present in the discharge and that standard or prohibition is more stringent than any limitation on the pollutant in this General Permit, this General Permit shall be modified or revoked and reissued to conform to the toxic effluent standard or prohibition and the dischargers so notified.

C. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a discharger in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this General Permit.

D. Duty to Mitigate

The discharger shall take all responsible steps to minimize or prevent any discharge in violation of this General Permit, which has a reasonable likelihood of adversely affecting human health or the environment.

E. Proper Operation and Maintenance

The discharger shall at all times properly operate and maintain any facilities and systems of treatment and control (and related appurtenances) which are installed or used by the discharger to achieve compliance with the conditions of this General Permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. Proper operation and maintenance may require the operation of backup or auxiliary facilities or similar systems installed by a discharger when necessary to achieve compliance with the conditions of this General Permit.

F. Property Rights

This General Permit does not convey any property rights of any sort or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor does it authorize any infringement of Federal, State, or local laws or regulations.

G. Duty to Maintain Records and Provide Information

1. The discharger shall maintain a paper or electronic copy of all required records, including a copy of this General Permit, for three years from the date generated or date submitted, whichever is last. These records shall be available at the construction site until construction is completed.

2. The discharger shall furnish the Regional Water Board, State Water Board, or U.S. EPA, within a reasonable time, any requested information to determine compliance with this General Permit. The discharger shall also furnish, upon request, copies of records that are required to be kept by this General Permit.

H. Inspection and Entry

The discharger shall allow the Regional Water Board, State Water Board, U.S. EPA, and/or, in the case of construction sites which discharge through a municipal separate storm sewer, an authorized representative of the municipal operator of the separate storm sewer system receiving the discharge, upon the presentation of credentials and other documents as may be required by law, to:

1. Enter upon the discharger's premises at reasonable times where a regulated construction activity is being conducted or where records must be kept under the conditions of this General Permit;

2. Access and copy at reasonable times any records that must be kept under the conditions of this General Permit;

3. Inspect at reasonable times the complete construction site, including any off-site staging areas or material storage areas, and the erosion/sediment controls; and

4. Sample or monitor at reasonable times for the purpose of ensuring General Permit compliance.

I. Electronic Signature and Certification Requirements

1. All Permit Registration Documents (PRDs) and Notices of Termination (NOTs) shall be electronically signed, certified, and submitted via SMARTS to the State Water Board. Either the Legally Responsible Person (LRP), as defined in Appendix 5 – Glossary, or a person legally authorized to sign and certify PRDs and NOTs on behalf of the LRP (the LRP's Approved Signatory, as defined in Appendix 5 - Glossary) must submit all information electronically via SMARTS.

2. Changes to Authorization. If an Approved Signatory's authorization is no longer accurate, a new authorization satisfying the requirements of paragraph (a) of this section must be submitted via SMARTS prior to or together with any reports, information or applications to be signed by an Approved Signatory.

3. All Annual Reports, or other information required by the General Permit (other than PRDs and NOTs) or requested by the Regional Water Board, State Water Board, U.S. EPA, or local storm water management agency shall be certified and submitted by the LRP or the LRP's Approved Signatory.

J. Certification

Any person signing documents under Section IV.I above, shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, to the best of my knowledge and belief, the information submitted is, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

K. Anticipated Noncompliance

The discharger shall give advance notice to the Regional Water Board and local storm water management agency of any planned changes in the construction activity, which may result in noncompliance with General Permit requirements.

L. Bypass

Bypass[8] is prohibited. The Regional Water Board may take enforcement action against the discharger for bypass unless:

1. Bypass was unavoidable to prevent loss of life, personal injury or severe property damage;[9]

2. There were no feasible alternatives to bypass, such as the use of auxiliary treatment facilities, retention of untreated waste, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that could occur during normal periods of equipment downtime or preventative maintenance;

3. The discharger submitted a notice at least ten days in advance of the need for a bypass to the Regional Water Board; or

4. The discharger may allow a bypass to occur that does not cause effluent limitations to be exceeded, but only if it is for essential maintenance to assure efficient operation. In such a case, the above bypass conditions are not applicable. The discharger shall submit notice of an unanticipated bypass as required.

M. Upset

1. A discharger that wishes to establish the affirmative defense of an upset[10] in an action brought for noncompliance shall demonstrate,

[8] The intentional diversion of waste streams from any portion of a treatment facility

[9] Severe property damage means substantial physical damage to property, damage to the treatment facilities that causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

[10] An exceptional incident in which there is unintentional and temporary noncompliance the technology based numeric effluent limitations because of factors beyond the reasonable control of the discharger. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventative maintenance, or careless or improper operation.

through properly signed, contemporaneous operating logs, or other relevant evidence that:

a. An upset occurred and that the discharger can identify the cause(s) of the upset

b. The treatment facility was being properly operated by the time of the upset

c. The discharger submitted notice of the upset as required; and

d. The discharger complied with any remedial measures required

2. No determination made before an action of noncompliance occurs, such as during administrative review of claims that noncompliance was caused by an upset, is final administrative action subject to judicial review.

3. In any enforcement proceeding, the discharger seeking to establish the occurrence of an upset has the burden of proof

N. Penalties for Falsification of Reports

Section 309(c)(4) of the CWA provides that any person who knowingly makes any false material statement, representation, or certification in any record or other document submitted or required to be maintained under this General Permit, including reports of compliance or noncompliance shall upon conviction, be punished by a fine of not more than $10,000 or by imprisonment for not more than two years or by both.

O. Oil and Hazardous Substance Liability

Nothing in this General Permit shall be construed to preclude the institution of any legal action or relieve the discharger from any responsibilities, liabilities, or penalties to which the discharger is or may be subject to under Section 311 of the CWA.

P. Severability

The provisions of this General Permit are severable; and, if any provision of this General Permit or the application of any provision of this General Permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this General Permit shall not be affected thereby.

Q. Reopener Clause

This General Permit may be modified, revoked and reissued, or terminated for cause due to promulgation of amended regulations, receipt of U.S. EPA guidance concerning regulated activities, judicial decision, or in accordance with 40 Code of Federal Regulations (CFR) 122.62, 122.63, 122.64, and 124.5.

R. Penalties for Violations of Permit Conditions

1. Section 309 of the CWA provides significant penalties for any person who violates a permit condition implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the CWA or any permit condition or limitation implementing any such section in a permit issued under Section 402. Any person who violates any permit condition of this General Permit is subject to a civil penalty not to exceed $37,500[11] per calendar day of such violation, as well as any other appropriate sanction provided by Section 309 of the CWA.

2. The Porter-Cologne Water Quality Control Act also provides for civil and criminal penalties, which in some cases are greater than those under the CWA.

S. Transfers

This General Permit is not transferable.

T. Continuation of Expired Permit

This General Permit continues in force and effect until a new General Permit is issued or the SWRCB rescinds this General Permit. Only those dischargers authorized to discharge under the expiring General Permit are covered by the continued General Permit.

[11] May be further adjusted in accordance with the Federal Civil Penalties Inflation Adjustment Act.

V. EFFLUENT STANDARDS & RECEIVING WATER MONITORING

A. Narrative Effluent Limitations

1. Storm water discharges and authorized non-storm water discharges regulated by this General Permit shall not contain a hazardous substance equal to or in excess of reportable quantities established in 40 C.F.R. §§ 117.3 and 302.4, unless a separate NPDES Permit has been issued to regulate those discharges.

2. Dischargers shall minimize or prevent pollutants in storm water discharges and authorized non-storm water discharges through the use of controls, structures, and management practices that achieve BAT for toxic and non-conventional pollutants and BCT for conventional pollutants.

Table 1- Numeric Action Levels, Test Methods, Detection Limits, and Reporting Units

Parameter	Test Method	Discharge Type	Min. Detection Limit	Units	Numeric Action Level
pH	Field test with calibrated portable instrument	Risk Level 2	0.2	pH units	lower NAL = 6.5 upper NAL = 8.5
		Risk Level 3			lower NAL = 6.5 upper NAL = 8.5
Turbidity	EPA 0180.1 and/or field test with calibrated portable instrument	Risk Level 2	1	NTU	250 NTU
		Risk Level 3			250 NTU

B. Numeric Action Levels (NALs)

1. For Risk Level 2 and 3 dischargers, the lower storm event average NAL for pH is 6.5 pH units and the upper storm event average NAL for

pH is 8.5 pH units. The discharger shall take actions as described below if the discharge is outside of this range of pH values.

2. For Risk Level 2 and 3 dischargers, the NAL storm event daily average for turbidity is 250 NTU. The discharger shall take actions as described below if the discharge is outside of this range of turbidity values.

3. Whenever the results from a storm event daily average indicate that the discharge is below the lower NAL for pH, exceeds the upper NAL for pH, or exceeds the turbidity NAL (as listed in Table 1), the discharger shall conduct a construction site and run-on evaluation to determine whether pollutant source(s) associated with the site's construction activity may have caused or contributed to the NAL exceedance and shall immediately implement corrective actions if they are needed.

4. The site evaluation shall be documented in the SWPPP and specifically address whether the source(s) of the pollutants causing the exceedance of the NAL:

   a. Are related to the construction activities and whether additional BMPs are required to (1) meet BAT/BCT requirements; (2) reduce or prevent pollutants in storm water discharges from causing exceedances of receiving water objectives; and (3) determine what corrective action(s) were taken or will be taken and with a description of the schedule for completion.

      AND/OR:

   b. Are related to the run-on associated with the construction site location and whether additional BMPs measures are required to (1) meet BAT/BCT requirements; (2) reduce or prevent pollutants in storm water discharges from causing exceedances of receiving water objectives; and (3) what corrective action(s) were taken or will be taken with a description of the schedule for completion.

C. Receiving Water Monitoring Triggers

1. The receiving water monitoring triggers for Risk Level 3 dischargers with direct discharges to surface waters are triggered when the daily average effluent pH values during any site phase when there is a high risk of pH discharge[12] fall outside of the range of 6.0 and 9.0 pH units, or when the daily average effluent turbidity exceeds 500 NTU.

2. Risk Level 3 dischargers with with direct discharges to surface waters shall conduct receiving water monitoring whenever their effluent monitoring results exceed the receiving water monitoring triggers. If the pH trigger is exceeded, the receiving water shall be monitored for pH for the duration of coverage under this General Permit. If the turbidity trigger is exceeded, the receiving water shall be monitored for turbidity and SSC for the duration of coverage under this general permit.

3. Risk Level 3 dischargers with direct discharges to surfaces waters shall initiate receiving water monitoring when the triggers are exceeded unless the storm event causing the exceedance is determined after the fact to equal to or greater than the 5-year 24-hour storm (expressed in inches of rainfall) as determined by using these maps:

   http://www.wrcc.dri.edu/pcpnfreq/nca5y24.gif
   http://www.wrcc.dri.edu/pcpnfreq/sca5y24.gif

   Verification of the 5-year 24-hour storm event shall be done by reporting on-site rain gauge readings as well as nearby governmental rain gauge readings.

4. If run-on is caused by a forest fire or any other natural disaster, then receiving water monitoring triggers do not apply.

[12] A period of high risk of pH discharge is defined as a project's complete utilities phase, complete vertical build phase, and any portion of any phase where significant amounts of materials are placed directly on the land at the site in a manner that could result in significant alterations of the background pH of the discharges.

VI. RECEIVING WATER LIMITATIONS

A. The discharger shall ensure that storm water discharges and authorized non-storm water discharges to any surface or ground water will not adversely affect human health or the environment.

B. The discharger shall ensure that storm water discharges and authorized non-storm water discharges will not contain pollutants in quantities that threaten to cause pollution or a public nuisance.

C. The discharger shall ensure that storm water discharges and authorized non-storm water discharges will not contain pollutants that cause or contribute to an exceedance of any applicable water quality objectives or water quality standards (collectively, WQS) contained in a Statewide Water Quality Control Plan, the California Toxics Rule, the National Toxics Rule, or the applicable Regional Water Board's Water Quality Control Plan (Basin Plan).

D. Dischargers located within the watershed of a CWA § 303(d) impaired water body, for which a TMDL has been approved by the U.S. EPA, shall comply with the approved TMDL if it identifies "construction activity" or land disturbance as a source of the pollution.

VII. TRAINING QUALIFICATIONS AND CERTIFICATION REQUIREMENTS

A. General

The discharger shall ensure that all persons responsible for implementing requirements of this General Permit shall be appropriately trained in accordance with this Section. Training should be both formal and informal, occur on an ongoing basis, and should include training offered by recognized governmental agencies or professional organizations. Those responsible for preparing and amending SWPPPs shall comply with the requirements in this Section VII.

The discharger shall provide documentation of all training for persons responsible for implementing the requirements of this General Permit in the Annual Reports.

B. SWPPP Certification Requirements

1. **Qualified SWPPP Developer:** The discharger shall ensure that SWPPPs are written, amended and certified by a Qualified SWPPP Developer (QSD). A QSD shall have one of the following registrations or certifications, and appropriate experience, as required for:

   a. A California registered professional civil engineer;

   b. A California registered professional geologist or engineering geologist;

   c. A California registered landscape architect;

   d. A professional hydrologist registered through the American Institute of Hydrology;

   e. A Certified Professional in Erosion and Sediment Control (CPESC) ™ registered through Enviro Cert International, Inc.;

   f. A Certified Professional in Storm Water Quality (CPSWQ) ™ registered through Enviro Cert International, Inc.; or

   g. A professional in erosion and sediment control registered through the National Institute for Certification in Engineering Technologies (NICET).

Effective two years after the adoption date of this General Permit, a QSD shall have attended a State Water Board-sponsored or approved QSD training course.

2. The discharger shall list the name and telephone number of the currently designated Qualified SWPPP Developer(s) in the SWPPP.

3. **Qualified SWPPP Practitioner:** The discharger shall ensure that all BMPs required by this General Permit are implemented by a Qualified SWPPP Practitioner (QSP). A QSP is a person responsible for non-storm water and storm water visual observations, sampling and analysis. Effective two years from the date of adoption of this General Permit, a QSP shall be either a QSD or have one of the following certifications:

   a. A certified erosion, sediment and storm water inspector registered through Enviro Cert International, Inc.; or

   b. A certified inspector of sediment and erosion control registered through Certified Inspector of Sediment and Erosion Control, Inc.

   Effective two years after the adoption date of this General Permit, a QSP shall have attended a State Water Board-sponsored or approved QSP training course.

4. The LRP shall list in the SWPPP, the name of any Approved Signatory, and provide a copy of the written agreement or other mechanism that provides this authority from the LRP in the SWPPP.

5. The discharger shall include, in the SWPPP, a list of names of all contractors, subcontractors, and individuals who will be directed by the Qualified SWPPP Practitioner. This list shall include telephone numbers and work addresses. Specific areas of responsibility of each subcontractor and emergency contact numbers shall also be included.

6. The discharger shall ensure that the SWPPP and each amendment will be signed by the Qualified SWPPP Developer. The discharger shall include a listing of the date of initial preparation and the date of each amendment in the SWPPP.

VIII. RISK DETERMINATION

The discharger shall calculate the site's sediment risk and receiving water risk during periods of soil exposure (i.e. grading and site stabilization) and use the calculated risks to determine a Risk Level(s) using the methodology in

Appendix 1. For any site that spans two or more planning watersheds,[13] the discharger shall calculate a separate Risk Level for each planning watershed. The discharger shall notify the State Water Board of the site's Risk Level determination(s) and shall include this determination as a part of submitting the PRDs. If a discharger ends up with more than one Risk Level determination, the Regional Water Board may choose to break the project into separate levels of implementation.

IX. RISK LEVEL 1 REQUIREMENTS

Risk Level 1 Dischargers shall comply with the requirements included in Attachment C of this General Permit.

X. RISK LEVEL 2 REQUIREMENTS

Risk Level 2 Dischargers shall comply with the requirements included in Attachment D of this General Permit.

XI. RISK LEVEL 3 REQUIREMENTS

Risk Level 3 Dischargers shall comply with the requirements included in Attachment E of this General Permit.

XII. ACTIVE TREATMENT SYSTEMS (ATS)

Dischargers choosing to implement an ATS on their site shall comply with all of the requirements in Attachment F of this General Permit.

[13] Planning watershed: defined by the Calwater Watershed documents as a watershed that ranges in size from approximately 3,000 to 10,000 acres http://cain.ice.ucdavis.edu/calwater/calwfaq.html, http://gis.ca.gov/catalog/BrowseRecord.epl?id=22175 .

XIII. POST-CONSTRUCTION STANDARDS

A. All dischargers shall comply with the following runoff reduction requirements unless they are located within an area subject to post-construction standards of an active Phase I or II municipal separate storm sewer system (MS4) permit that has an approved Storm Water Management Plan.

1. This provision shall take effect three years from the adoption date of this permit, or later at the discretion of the Executive Officer of the Regional Board.

2. The discharger shall demonstrate compliance with the requirements of this section by submitting with their NOI a map and worksheets in accordance with the instructions in Appendix 2. The discharger shall use non-structural controls unless the discharger demonstrates that non-structural controls are infeasible or that structural controls will produce greater reduction in water quality impacts.

3. The discharger shall, through the use of non-structural and structural measures as described in Appendix 2, replicate the pre-project water balance (for this permit, defined as the volume of rainfall that ends up as runoff) for the smallest storms up to the 85th percentile storm event (or the smallest storm event that generates runoff, whichever is larger). Dischargers shall inform Regional Water Board staff at least 30 days prior to the use of any structural control measure used to comply with this requirement. Volume that cannot be addressed using non-structural practices shall be captured in structural practices and approved by the Regional Water Board. When seeking Regional Board approval for the use of structural practices, dischargers shall document the infeasibility of using non-structural practices on the project site, or document that there will be fewer water quality impacts through the use of structural practices.

4. For sites whose disturbed area exceeds two acres, the discharger shall preserve the pre-construction drainage density (miles of stream length per square mile of drainage area) for all drainage areas within the area serving a first order stream[14] or larger stream and ensure that post-project time of runoff concentration is equal or greater than pre-project time of concentration.

[14] A first order stream is defined as a stream with no tributaries.

B. All dischargers shall implement BMPs to reduce pollutants in storm water discharges that are reasonably foreseeable after all construction phases have been completed at the site (Post-construction BMPs).

XIV. SWPPP REQUIREMENTS

A. The discharger shall ensure that the Storm Water Pollution Prevention Plans (SWPPPs) for all traditional project sites are developed and amended or revised by a QSD. The SWPPP shall be designed to address the following objectives:

1. All pollutants and their sources, including sources of sediment associated with construction, construction site erosion and all other activities associated with construction activity are controlled;

2. Where not otherwise required to be under a Regional Water Board permit, all non-storm water discharges are identified and either eliminated, controlled, or treated;

3. Site BMPs are effective and result in the reduction or elimination of pollutants in storm water discharges and authorized non-storm water discharges from construction activity to the BAT/BCT standard;

4. Calculations and design details as well as BMP controls for site run-on are complete and correct, and

5. Stabilization BMPs installed to reduce or eliminate pollutants after construction are completed.

B. To demonstrate compliance with requirements of this General Permit, the QSD shall include information in the SWPPP that supports the conclusions, selections, use, and maintenance of BMPs.

C. The discharger shall make the SWPPP available at the construction site during working hours while construction is occurring and shall be made available upon request by a State or Municipal inspector. When the original SWPPP is retained by a crewmember in a construction vehicle and is not currently at the construction site, current copies of the BMPs and map/drawing will be left with the field crew and the original SWPPP shall be made available via a request by radio/telephone.

XV. REGIONAL WATER BOARD AUTHORITIES

A. In the case where the Regional Water Board does not agree with the discharger's self-reported risk level (e.g., they determine themselves to be a Level 1 Risk when they are actually a Level 2 Risk site), Regional Water Boards may either direct the discharger to reevaluate the Risk Level(s) for their site or terminate coverage under this General Permit.

B. Regional Water Boards may terminate coverage under this General Permit for dischargers who fail to comply with its requirements or where they determine that an individual NPDES permit is appropriate.

C. Regional Water Boards may require dischargers to submit a Report of Waste Discharge / NPDES permit application for Regional Water Board consideration of individual requirements.

D. Regional Water Boards may require additional Monitoring and Reporting Program Requirements, including sampling and analysis of discharges to sediment-impaired water bodies.

E. Regional Water Boards may require dischargers to retain records for more than the three years required by this General Permit.

XVI. ANNUAL REPORTING REQUIREMENTS

A. All dischargers shall prepare and electronically submit an Annual Report no later than September 1 of each year.

B. The discharger shall certify each Annual Report in accordance with the Special Provisions.

C. The discharger shall retain an electronic or paper copy of each Annual Report for a minimum of three years after the date the annual report is filed.

D. The discharger shall include storm water monitoring information in the Annual Report consisting of:

1. a summary and evaluation of all sampling and analysis results, including copies of laboratory reports;

2. the analytical method(s), method reporting unit(s), and method detection limit(s) of each analytical parameter (analytical results that are less than the method detection limit shall be reported as "less than the method detection limit");

3. a summary of all corrective actions taken during the compliance year;

4. identification of any compliance activities or corrective actions that were not implemented;

5. a summary of all violations of the General Permit;

6. the names of individual(s) who performed the facility inspections, sampling, visual observation (inspections), and/or measurements;

7. the date, place, time of facility inspections, sampling, visual observation (inspections), and/or measurements, including precipitation (rain gauge); and

8. the visual observation and sample collection exception records and reports specified in Attachments C, D, and E.

E. The discharger shall provide training information in the Annual Report consisting of:

1. documentation of all training for individuals responsible for all activities associated with compliance with this General Permit;

2. documentation of all training for individuals responsible for BMP installation, inspection, maintenance, and repair; and

3. documentation of all training for individuals responsible for overseeing, revising, and amending the SWPPP.