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2. PEIR fails to analyze cultural impacts re: traditional uses of salmon or other fish.

The PEIR opts not to evaluate any cultural impacts of the various ILRP alternatives. PEIR, p. 5.3-9. Contaminants affecting Central Valley salmon and contributing to their decline have adverse impacts on Native American culture and religious practices. It is widely acknowledged by scientists and government agencies that agricultural runoff is one of the factors adversely affecting Chinook salmon. *See* PEIR, p. 5.8-22 ("Other factors affecting the fall-run/late fall–run Chinook salmon include . . . pollution (*e.g.*, municipal discharges and agricultural runoff), ... (Moyle et al. 2008:141–143)"). *Id.* at 5.8-39 ("NMFS (2008) concluded that EPA registration of chlorpyrifos, diazinon, and malathion would jeopardize the continued existence of, and destroy or adversely modify critical habitat for, the Central Valley spring-run Chinook salmon ESU, the Sacramento River winter-run Chinook salmon ESU, and the California Central Valley steelhead DPS"); National Academy of Sciences, "A Scientific Assessment of Alternatives for Reducing Water Management Effects on Threatened and Endangered Fishes in California's Bay–Delta," p. 42 (2010) ("It has long been recognized that contaminants are present in the delta, have had impacts on the fishes, and may be increasing (Linville et al., 2002; Davis et al., 2003; Edmunds et al., 1999).

Native American traditional uses and religious ceremonies involving salmon continue on the Sacramento River and, to a lesser degree, the San Joaquin River, and their tributaries. As the United States District Court for the Eastern District of California recently ruled, "salmon have sustained the Winnemem Wintu and have formed the foundation of the Tribe's cultural and spiritual ceremonies and beliefs." Order, p. 88. (May 18, 2010). Judge Wanger specifically recognized the "significant cultural and spiritual interests of the Winnemem Wintu" tied to the health of salmon. *Id.*, pp. 88-89. The District Court relied upon the declaration of Gary Hayward Slaughter Mulcahy, the Governmental Liaison and a Tribe member of the Winnemem Wintu Tribe. As Mr. Mulcahy testified to the Court,

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> For centuries, the Winnemem Wintu have had a deep cultural and spiritual relationship with the salmon that utilize the Sacramento River and its tributaries. We sing to the salmon and the waters that sustain them. Our history, traditions, ceremonies, and culture are filled with respect, reverence, appreciation, and dependence on the salmon and these waters. Salmon were the staple of the Winnemem Wintu. Salmon are the food necessary to complete and fulfill many of the Winnemen Wintu's very special sacred ceremonies. Salmon are the sustainer of health and life of the Winnemem Wintu. We believe that when the first spirits were choosing what form they would take (i.e., Salmon, Eagle, Bear, Human, etc.), when Human chose to be human, the Grandfather spirit said that these Humans will need lots of help, and each of the other spirits gave something to Humans to help them through life. We believe that Salmon gave us speech and in return we promised to always speak for them. This

> is remembered and celebrated in ceremonies on the McCloud River, Sacramento River, Squaw Creek and at Mt. Shasta several times a year. We believe that if the salmon go, the Winnemem Wintu will also disappear.

104-49 cont'd

Declaration of Gary Hayward Slaughter Mulcahy, ¶ 3 (March 12, 2010). The Tsi-Akim Maidu Tribe conducts a "calling back the salmon" ceremony on the Yuba River. http://www.callingbackthesalmon.com/ceremony.php. The PEIR must gather in and discuss relevant information regarding Native American cultural and religious uses of salmon that may be affected by the Regional Board's proposal to authorize contaminants affecting salmon in the Central Valley.

3. The PEIR fails to address public health impacts of authorizing continued discharges of pesticides and other pollutants from irrigated lands effluent to groundwater.

As early as March 2003, CSPA and others urged the Regional Board to consider human health impacts of authorizing irrigated land discharges in its EIR. CSPA et al. Scoping Comments (March 12, 2003) (EIR must consider "human health throughout the Central Valley and California in terms of both acute and chronic impacts including, but not limited to: - children, including residents and school children - laborers, including farmworkers, farmers, pesticide appliers, etc. – residents – anglers - pregnant women - newborn infants"). Despite that request, the PEIR has opted to ignore potential human health impacts of the various ILRP alternatives approval of continuing irrigated land discharges.

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More than two million Californians have been exposed to harmful levels of nitrates in drinking water over the past 15 years and the population of those exposed keeps growing. The PEIR acknowledges the extent of nitrate contamination and includes, as Figure 5.9-17, a map that shows nitrate contamination to be concentrated in the Central Valley. Incredibly, however, the PEIR makes no attempt to analyze how nitrogen-based fertilizer application in the Central Valley results in the exposure of the public to contaminated groundwater, the health impacts of that exposure, or how implementation of any of the five alternatives would reduce exposure, other than to say, for Alternative 1:

> Nutrient management would improve both surface water quality and groundwater quality by improving the use of chemicals and using improved application techniques, and by limiting the use of nutrients as fertilizer that could potentially seep to groundwater and add nitrate to the groundwater table.

PEIR, p. 5.9-14.

The assertion that ongoing nutrient management efforts would somehow improve water quality is not borne out by recent data. In fact, the status quo, as proposed in Alternative 1, has resulted in an increase, statewide, in the number of wells that exceeded the health limit for nitrates, from nine in 1980 to 648 by 2007. http://articles.sfgate.com/2010-05-17/news/20901575_1_nitrate-contamination-water-supply-water-systems. In Tulare County, more than 40% of private domestic water wells exceed the drinking water standard for nitrate. http://www.swrcb.ca.gov/ gama/docs/ekdahl_gra2009.pdf. On the basis of more than 25 years of data, the number of wells that exceed the drinking water standard for nitrate is growing as a percentage of all nitrate detections. http://www.swrcb.ca.gov/gama/docs/ekdahl_gra2009.pdf Clearly the status quo is not working.

Health effects of exposure to nitrates most notably results in methemoglobinemia or "blue baby syndrome." Toxic effects of methemoglobinemia occur when bacteria in the infant stomach convert nitrate to more toxic nitrite, a process that interferes with the body's ability to carry oxygen to body tissues. Infants with these symptoms need immediate medical care since the condition can lead to coma and eventually death. Pregnant women are susceptible to methemoglobinemia and should be sure that the nitrate concentrations in their drinking water are at safe levels. Additionally, some scientific studies suggest a linkage between high nitrate levels in drinking water with birth defects and certain types of cancer. http://www.swrcb.ca.gov/water_issues/ programs/gama/docs/coc_nitrate.pdf.

The PEIR should be rewritten to include an assessment of the potential for the public to be exposed to nitrates in drinking water from agricultural practices in the Central Valley and measures implemented as a result of the ILRP. This is especially important to the extent the Regional Board anticipates the installation of numerous tailwater recovery systems. *See* Technical Memo, p. A-2. The assessment of each alternative should include an estimate of nitrogen loading to fields; nitrogen fate and transport in soil, surface water, and groundwater; nitrogen monitoring; and a summary nitrogen impacts to water supplies. Linking monitoring to measurement of each of the alternatives is critical. An annual assessment of the performance of the alternative that is selected should be required and use of the 10,000-well California Department of Public Health database should be required as a tool for evaluation.

104-50 cont'd

Another potential health impact unaddressed by the PEIR is the potential threats from fecal contamination of wells and surface waters. As the Existing Conditions Report tells us:

> The presence of pathogen indicators, such as fecal coliform and *E. coli*, are ubiquitous in water samples collected throughout the Central Valley and are frequently measured at levels higher than the EPA recommended criterion for *E. coli*. Not all strains of *E. coli* are pathogenic, but the presence of *E. coli* or fecal coliform is an indicator of fecal contamination.

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> Several coalitions funded a study to determine the sources of *E. coli* contamination.

Existing Conditions Report, p. 3-11. See also U.S. EPA, "Conceptual Model For Pathogens and Pathogen Indicators in The Central Valley and Sacramento-San Joaquin Delta - Final Report, " p. ES-1 (Aug. 24, 2007) (highest concentrations of E. coli data "were observed for waters affected by urban environments and intensive agriculture in the San Joaquin Valley") (http://www.swrcb.ca.gov/rwqcb5/water_issues/drinking_water_policy/concept_path_indicators/cover_toc_es.pdf). As the California Department of Public Health's health notices explain:

> Fecal coliforms and E. coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems.

104-51 cont'd

DPH, Tier 1 Fecal Coliform or E. coli Notice Template (http://www.cdph.ca.gov/certlic/drinkingwater/Documents/Notices/Tier%201%20Fecal%20Coliform%20or%20E%20coli%20Notice.doc). Despite its ubiquitous presence and clear connection to irrigated land discharges, the only mention of pathogens in the PEIR is a passing reference in the Fisheries section. PEIR, p. 5.8-49 ("Pathogens are monitored for potential exceedance of trigger limits in relation to human health. Pathogens of concern to fish may affect fish populations in the program area, but data are insufficient to draw any conclusions about existing effects"). Like nitrates, no effort is made in the PEIR to discuss the obvious human health and recreational impacts that are adversely affected by an ILRP that authorizes coliform discharges from farms.

Lastly, the PEIR fails to consider any human health impacts PEIR associated with discharges of other pollutants, including certain metals, that will be authorized through the ILRP. The Existing Conditions Report acknowledges that irrigated land discharges authorized by the ILRP will mobilize various metals that can pose serious human health risks, including lead and arsenic. Existing Conditions Report, p. 3-55 ("elevated levels of naturally occurring metals that are mobilized and suspended in agricultural return flows are common in these watersheds—such as copper, arsenic, cadmium, boron, nickel, lead, and selenium"). The PEIR also should explore the human health impacts of ILRP-authorized discharges of metals.

104-52

J. PEIR's Analysis of Many Key Potential Impacts and the Alternatives' Proposed Mitigations Are Not Supported by Substantial Evidence.

104-53

The alternatives, at their core, are projects by which the Regional Board proposes to authorize discharges of polluted effluent from irrigated lands to surface and

groundwater throughout the Central Valley. Each alternative includes various program elements which are the mitigations proposed to purportedly reduce the effect of the Regional Board authorizing the discharge of hundreds of millions of gallons of polluted effluent. The PEIR's discussion of impacts boils down to a discussion of the alternatives' proposed mitigation measures. In addition to those proposed mitigations, the actual dischargers would have to implement site-specific mitigation measures, *i.e.* BPTC, in order to address the impacts of discharging to the State's waters.

The PEIR fails to substantiate or properly analyze the alternatives' programmatic-level mitigation measures, including for example the effectiveness of any FWQMPs and reporting requirements, monitoring requirements, and third party actions. Nor does the PEIR adequately discuss the effectiveness in reducing pollution of any of the BMPs that are listed and which might achieve BPTC. The PEIR leaves out any discussion of numerous management measures that likely will be applied on irrigated lands. Lastly, the PEIR fails to analyze cumulative impacts of the alternatives when considered with numerous other projects in the Central Valley relating to water diversions, dam operations, proposed development, pending pesticide registration proceedings, dredging projects and others that are and will affect water quality, fisheries, and other impacts.

104-53 cont'd

Mitigation measures must be designed to minimize, reduce or avoid an identified environmental impact or to rectify or compensate for that impact. CEQA Guidelines § 15370. Mitigations may be proposed as part of the project but must still be fully discussed and analyzed. "The discussion of mitigation measures shall distinguish between the measures which are proposed by project proponents to be included in the project and other measures proposed by the lead, responsible or trustee agency or other persons which are not included but the lead agency determines could reasonably be expected to reduce adverse impacts if required as conditions of approving the project." CEQA Guidelines § 151126.4(a)(1)(A)

Where several mitigation measures are available to mitigate an impact, each should be discussed and the basis for selecting a particular measure should be identified. *Id.*, § 15126.4(a)(1)(B). A lead agency may not make the required CEQA findings unless the administrative record clearly shows that all uncertainties regarding the mitigation of significant environmental impacts have been resolved. A public agency may not rely on mitigation measures of uncertain efficacy or feasibility. *Kings County Farm Bureau*, 221 Cal.App.3d at 727 (finding groundwater purchase agreement inadequate mitigation measure because no record evidence existed that replacement water was available). "Feasible" means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social and technological factors. CEQA Guidelines § 15364.

CEQA requires the lead agency to adopt feasible mitigation measures that will substantially lessen or avoid the Project's potentially significant environmental impacts and describe those mitigation measures in the CEQA document. Pub. Res. Code §§ 21002, 21081(a), 21100(b)(3); CEQA Guidelines § 15126.4. Mitigation measures must be fully enforceable through permit conditions, agreements or other legally binding

instruments. *Id.* at § 15126.4(a)(2). If a mitigation measure would cause one or more significant effects in addition to those that would be caused by the project as proposed, the effects of the mitigation measure shall be discussed but in less detail than the significant effects of the project as proposed. CEQA Guidelines § 151126.4(a)(1)(D).

104-53 cont'd

1. The analysis of impacts to water quality is flawed because there is no evidentiary support for the assumption that mitigation measures proposed by each alternative would be equally effective.

The most obvious impact of the Regional Board authorizing discharges of waste from irrigated lands to surface or groundwater is impaired water quality. The PEIR, however, takes an entirely cavalier approach to evaluating this obvious impact. No effort is made in the PEIR to discuss the efficacy and uncertainty of the various monitoring and management plans proposed by each alternative. The PEIR makes no effort to quantify or compare the actual pollution reductions that would be likely to occur under each alternative. Nor does the PEIR discuss whether the monitoring proposed or omitted by each alternative would be effective in informing the Regional Board and public about whether irrigated lands pollution in specific areas is increasing or decreasing. Nor does the PEIR compare how long it would take to figure out pollution trends based on the level of monitoring proposed or omitted in each alternative.

104-54

As mentioned above, a fundamental flaw in the PEIR is its failure to estimate the relative effectiveness of the five alternatives. It generally assumes that they will all lead to sufficient pollution reductions. This flaw is magnified in the discussion of impacts to water quality. In addressing water quality impacts, the PEIR assumes that surface water quality improvements under Alternative 1 would be the same as all of the other alternatives, including Alternative 5. As for groundwater, the PEIR makes a similar assumption – that Alternatives 2 through 5 will be equally effective at reducing pollution to groundwater (the PEIR does acknowledge that not addressing groundwater at all would be less effective).

Thus, for Alternative 1, the PEIR states that "[i]t is expected that existing water quality conditions, such as the surface water quality impairments detailed in the environmental setting section above and in the ECR, would improve over time as the program would continue to implement surface water management practices and management plans." PEIR, p. 5.9-14. The same is said for Alternatives 2 and 3, even though the former reduces water quality monitoring and the latter eliminates water quality monitoring. *Id*, pp. 5.9-16 ("Under Alternative 2, existing water quality impairments are expected to improve over time as third parties develop and implement surface water and groundwater quality management plans"), 5.9-17 ("Alternative 3, existing surface water quality and groundwater quality impairments are expected to improve over time as the FWQMPs are developed and implemented"). The same unexplained expectation is stated for Alternatives 4 and 5, simply incorporating the assertion made for Alternative 2. Id., p. 5.9-18 (Alternative 4) ("Potential impacts to water quality and hydrology under Alternative 4 would be similar to those described for

Alternative 2"); p. 5.9-18 ("Potential impacts to water quality and hydrology under Alternative 5 would be similar to those described for Alternative 2").

These expectations are unsupported by any evidence in the record. The Regional Board cannot point to anything in its current record that "clearly shows that all uncertainties" of the mitigations set forth in each alternative will eliminate the well-documented significant environmental impacts of allowing irrigated lands to discharge waste to surface and ground water.

The PEIR's simplistic and conclusory assertions fail to assist the Regional Board or the public in discerning the real life differences in pollution discharge rates that the different mitigations incorporated into each of the proposed alternatives will have. For example, in regard to FWQMPs, it is simply not realistic to assume that the two alternatives that do not require FWQMPs – Alternatives 1 and 2 – will be as effective at identifying and implementing measures as the alternatives that do require dischargers to prepare FWQMPs and, at least for two of them, require them to be submitted to the Regional Board. Likewise, for the alternatives that require FWQMPs, there would have to be some difference in effectiveness and pollution reductions between the two alternatives (3 and 4) that would have the Regional Board review and approve FWQMPs and Alternative 5's provision that FWQMPs not be reviewed or approved. Conversely, if the proposal to have the Regional Board approve every FWQMP before they go into effect slows down their implementation, then there would undoubtedly be an impact during the term the Board did not act on any FWQMPs. Until the PEIR can remove the uncertainty of how the Regional Board can assure BPTC is implemented without requiring FWQMPs, the Regional Board may not rely on alternatives that do not propose FWQMPs.

104-54 cont'd

In terms of monitoring, no evidence could support the PEIR's assumption that Alternative 3's omission of any water quality monitoring for surface or groundwater discharges could somehow be as effective as any of the alternatives that do provide some water quality monitoring. And as between Alternative 5's farm-specific monitoring requirement and Alternatives 1, 2 and in effect 4's proposal to rely on regional monitoring, no evidence could support the PEIR's assertion that the regional monitoring measures will tell the Board or anyone whether a particular dischargers' management measures in fact reduce any pollution discharges and would address specific dischargers' pollution problems as promptly as a measure that required them to monitor their discharges. Until the PEIR sufficiently discusses and eliminates the obvious uncertainty of a regional monitoring mitigation measure to evaluate the effectiveness of an on-site management measure miles upstream, the Regional Board cannot rely on alternatives relying on such regional monitoring.

As noted above, the PEIR's assumption that the monitoring required by each of the proposed alternatives is equally effective, is inconsistent with the PEIR's acknowledgment in its discussion of fisheries that more farm-specific monitoring results in more pollution reductions and fewer impacts. PEIR, p. 5.8-52 ("given the probability

of increased monitoring of individual farms, and especially those at higher risk of generating significant impacts—in addition to wellhead protection, nutrient management plans, tracking of nutrient and pesticide application, and monitoring of individual wells—the positive benefit of Impact FISH1 (improved water quality) would probably be greater under Alternative 4 than under Alternative 2 or Alternative 3"); *Id.*, p. 5.8-53 (Alternative 5) ("Given the emphasis on monitoring of individual farms, wellhead protection, nutrient management plans, tracking of nutrient and pesticide application, monitoring of individual wells, and potential installation of monitoring wells, the positive benefit of Impact FISH1 (improved water quality) probably would be greater under Alternative 5 than under any other alternative"). Although as discussed below, these analyses also must be better analyzed, the general observation is obvious and the PEIR's failure to discuss these differences in the water quality section renders it inadequate. 104-54 cont'd

Nor is there any attempt in the water quality discussion to quantify the effectiveness of management measures that will likely be employed by individual farms. The PEIR lists a handful of likely measures. This list is incomplete, omitting numerous measures that one can find by reviewing some of the management plans that have been developed. Of particular note is the complete omission in the PEIR of any discussion of integrated pest management options to reduce the use or rate of pesticide applications. Until the Regional Board can sufficiently discuss the available management measures and whether any of them, alone or in combination will effectively eliminate the significant impacts of the Board authorizing waste discharges from irrigated lands, then the Board cannot rely on them.

2. The analysis of impacts to fisheries is flawed because there is no evidentiary support for the assumption that all alternatives would be equally effective at protecting fisheries

The PEIR's handling of impacts to fisheries suffers from flaws similar to those described in the discussion of water quality above. The PEIR's discussion of fisheries impacts, again without any evidence or common sense, simply assumes that the same level of management measures and surface water pollution control effectiveness will result with implementation of any of the alternatives, with or without FWQMPs and without regard to how far away some water quality monitoring may (or may not) be occurring. PEIR, p. 5.8-50 ("Under this alternative, management practices would be implemented to reduce the levels of identified constituents of concern below the baseline conditions. Monitoring and management plan requirements of Alternative 1 are expected to result in further implementation of management practices by growers") As for groundwater, the same is true with the exception of Alternative 1. 104-55

The PEIR's assertion that Alternative 1 will improve surface water quality is entirely unsupported by any evidence. Alternative 1, now in its seventh year of implementation, has failed to result in the Regional Board documenting the installation of a single management measure anywhere in the Central Valley. Nor is there any evidence of a trend that the rampant violations of water quality standards throughout the 104-56

Central Valley resulting from irrigated lands discharges are on the mend. Nevertheless, the PEIR asserts that "[i]mprovements to surface water quality from implementation of management practices [under Alternatives 1] in impaired water bodies receiving inputs from lands in the program area are likely to benefit fish (e.g., by reducing contaminant loads and decreasing sedimentation and total suspended solids)." PEIR, p. 5.8-50. The PEIR makes the same assertion for Alternative 2. *Id.*, p. 5.8-52. As discussed above, the coalitions' current plans are to have informal meetings with some farms to discuss BMPs. *See supra*, Section F.1. The coalitions have no legal authority to require implementation of any BMPs by any of their members. What, if any, BMPs may result from the proposed meetings is anybody's guess. And, without FWQMPs, whether or not the Regional Board would even be aware of a specific farmer's installation of measures is not clear. The PEIR's cavalier assertion that Alternatives 1 and 2, despite omitting any FWQMPs or farm-specific monitoring could somehow lead to the certain implementation of pollution reduction measures, does not resolve the uncertainties that coalitions and regional monitoring will resolve irrigated land's water pollution impacts.

Although the PEIR does acknowledge some relevant benefit from the mitigations included in Alternatives 4 and 5 farm-specific monitoring proposals, coupled with the farm-specific plan requirements, the discussion is still insufficient to remove uncertainties about the efficacy of Alternative 4's proposal. *See* PEIR, pp. 5.8-52; 5.8-53. Specifically, because a discharger may opt out of farm-specific monitoring in exchange for participation in regional monitoring, it is uncertain whether any discharger will conduct farm-specific water quality monitoring. As a result, and as discussed above, there is no certainty that the Regional Board will be able to determine that any measures installed on that farm will amount to BPTC or assure compliance with water quality standards. In addition, the PEIR's discussion of the relative benefit to water and additional pollution reductions one should expect from requiring FWQMPs coupled with farm-specific monitoring is not specific enough for the Regional Board to compare those benefits to the other alternatives.

104-56 cont'd

Even assuming all of the alternatives may have some benefit on water quality, the PEIR also makes no effort to determine the time frames within which any such improvements would be realized under the various alternatives. Given the frames of reference in each alternative, it appears clear that some, for example, Alternative 5, would result in measures being installed faster and hence pollution reductions being achieved more quickly, as compared to any other alternative.

The PEIR cannot succeed in achieving the goals of CEQA if it shies away from frankly addressing the mitigations proposed in each alternative and comparing their ability or inability to reduce pollution that will be discharged to surface and groundwater from irrigated lands.

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3. The PEIR fails to discuss numerous cumulative impacts to water quality and fisheries habitat currently plaguing the Delta and other areas of the Central Valley.

The PEIR attempts to pass on evaluating the cumulative impacts of the ILRP. PEIR, p. 6-1 ("Because of the unidentified location of potential impacts, the Lead Agency has not identified any projects or programs adequately similar in nature, location, and type to result in a meaningful comparative analysis"). The notion that either the geographic area or obvious water quality and fisheries impacts of allowing discharges of irrigated lands waste is unknown is patently incorrect, as the preceding sections of the PEIR make clear despite their obvious flaws. The PEIR recognizes a number of specific categories of actions in the Central Valley that are contributing to impacts to fisheries and water quality, in addition to discharges from agricultural lands. Of particular note is the operation of the massive state and federal water projects, which are having obvious cumulative impacts to fish in the Central Valley by killing massive numbers of fish at their respective pumping facilities. *See* http://www.swr.noaa.gov/ocap/Executive_summary_to_NMFS'_CVP-SWP_operations_BO_RPA.pdf; 5.8-17 ("water projects have adversely modified [longfin smelt's] habitat, distribution, food supply, and probably abundance"); *See* NMFS Biological Opinion Regarding Proposed Long-Term Operations of the Central Valley Project And State Water Project (June 4, 2009) (http://www.swr.noaa.gov/ocap/NMFS_Biological_and_Conference_Opinion_on_the_Long-Term_Operations_of_the_CVP_and_SWP.pdf). Both EPA's registration of various pesticides that the National Marine Fisheries Service has determined will jeopardize the continued existence of listed salmon must be considered, especially considering NMFS's proposed mitigation requirements prohibiting pesticide application on irrigated lands within 1000 feet of water. PEIR, p. 5.8-39 ("NMFS (2008) concluded that EPA registration of chlorpyrifos, diazinon, and malathion would jeopardize the continued existence of, and destroy or adversely modify critical habitat for, the Central Valley spring-run Chinook salmon ESU, the Sacramento River winter-run Chinook salmon ESU, and the California Central Valley steelhead DPS"); NMFS Biological Opinion on the Effects of the U.S. Environmental Protection Agency's Proposed Registration of Pesticide Products (Nov. 18, 2008) (http://www.nmfs.noaa.gov/pr/pdfs/pesticide_biop.pdf). 104-57

The proposed Peripheral Canal being pursued by various agencies also is a reasonably foreseeable project that will enormously exacerbate water quality and fisheries impacts within the Delta. *See* Bay Delta Conservation Plan, Status Update 3 (June 2010). Likewise, the Regional Board is in the best position to evaluate the cumulative impacts of the hundreds of discharge permits it has issued to dischargers throughout the Central Valley. *See* Central Valley Regional Board Web Site, Adopted Orders (http://www.swrcb.ca.gov/centralvalley/board_decisions/adopted_orders/index.shtml). The PEIR also should evaluate, for example, cumulative bacterial issues resulting from rampant sewage overflows from municipalities throughout the Valley in combination with the bacteria coming from farms. http://www.waterboards.ca.gov/water_issues/programs/sso/sso_map/sso_pub.shtml (accessed September 27, 2010). 104-58

These and other cumulative impacts must be addressed in the PEIR. Recognizing that several projects may together have a considerable impact, CEQA requires an agency to consider the "cumulative impacts" of a project along with other projects in the area. Pub. Resources Code §21083(b); CEQA Guidelines §15355(b). It is vital that an agency assess "'the environmental damage [that] often occurs incrementally from a variety of small sources . . .'" *Bakersfield Citizens*, 124 Cal.App.4th at 1214. This requirement flows from CEQA section 21083, which requires a finding that a project may have a significant effect on the environment if "the possible effects of a project are individually limited but cumulatively considerable. . . . 'Cumulatively considerable' means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects." "Cumulative impacts" are defined as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." CEQA Guidelines §15355(a). "[I]ndividual effects may be changes resulting from a single project or a number of separate projects." CEQA Guidelines § 15355(a).

"The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time." *Communities for a Better Environment v. Cal. Resources Agency ("CBE v. CRA")* (2002) 103 Cal.App.4th 98, 117. A legally adequate cumulative impacts analysis views a particular project over time and in conjunction with other related past, present, and reasonably foreseeable probable future projects whose impacts might compound or interrelate with those of the project at hand.

104-58 cont'd

> As the court recently stated in *CBE v. CRA*, 103 Cal. App. 4th at 114:
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> Cumulative impact analysis is necessary because the full environmental impact of a proposed project cannot be gauged in a vacuum. One of the most important environmental lessons that has been learned is that environmental damage often occurs incrementally from a variety of small sources. These sources appear insignificant when considered individually, but assume threatening dimensions when considered collectively with other sources with which they interact.

In *Kings County Farm Bureau v. City of Hanford*, 221 Cal.App.3d at 718, the court concluded that an EIR inadequately considered an air pollution (ozone) cumulative impact. The court said: "The [ ] EIR concludes the project's contributions to ozone levels in the area would be immeasurable and, therefore, insignificant because the [cogeneration] plant would emit relatively minor amounts of [ozone] precursors compared to the total volume of [ozone] precursors emitted in Kings County. The EIR's analysis uses the magnitude of the current ozone problem in the air basin in order to trivialize the project's impact." The court concluded: "The relevant question to be addressed in the EIR is not the relative amount of precursors emitted by the project

when compared with preexisting emissions, but whether any additional amount of precursor emissions should be considered significant in light of the serious nature of the ozone problems in this air basin."[1] The *Kings County* case was recently reaffirmed in *CBE v. CRA*, 103 Cal.App.4th at 116, where the court rejected cases with a narrower construction of "cumulative impacts."

Similarly, in *Friends of Eel River v. Sonoma County Water Agency*, (2003) 108 Cal. App. 4th 859, the court held that the EIR for a project that would divert water from the Eel River had to consider the cumulative impacts of the project together with other past, present and reasonably foreseeable future projects that also divert water from the same river system. The court held that the EIR even had to disclose and analyze projects that were merely proposed, but not yet approved. The court stated, CEQA requires "the Agency to consider 'past, present, and probable future projects producing related or cumulative impacts . . . .' (Guidelines, § 15130, subd. (b)(1)(A).) The Agency must interpret this requirement in such a way as to 'afford the fullest possible protection of the environment.'" *Id.*, at 867, 869. The court held that the failure of the EIR to analyze the impacts of the project together with other proposed projects rendered the document invalid. "The absence of this analysis makes the EIR an inadequate informational document." *Id.*, at 872.

104-58 cont'd

The court in *Citizens to Preserve the Ojai v. Bd. of Supervisors* (1985) 176 Cal.App.3d 421, held that an EIR prepared to consider the expansion and modification of an oil refinery was inadequate because it failed to consider the cumulative air quality impacts of other oil refining and extraction activities combined with the project. The court held that the EIR's use of an Air District Air Emissions Inventory did not constitute an adequate cumulative impacts analysis. The court ordered the agency to prepare a new EIR analyzing the combined impacts of the proposed refinery expansion together with the other oil extraction projects.

As the PEIR notes, water quality standards already are not being met in locations throughout the Delta. As the National Academy of Sciences report and a plethora of other reports and agency decisions make clear, fisheries and water quality already are adversely affected by the massive water diversions of the State and Federal water projects and flow reductions caused by dams throughout the Valley. As NMFS makes clear, pesticide use currently approved by EPA registrations throughout the Valley is

[1] *Los Angeles Unified v. City of Los Angeles*, 58 Cal.App.4th at 1024-1026 found an EIR inadequate for concluding that a project's additional increase in noise level of another 2.8 to 3.3 dBA was insignificant given that the existing noise level of 72 dBA already exceeded the regulatory recommended maximum of 70 dBA. The court concluded that this "ratio theory" trivialized the project's noise impact by focusing on individual inputs rather than their collective significance. The relevant issue was not the relative amount of traffic noise resulting from the project when compared to existing traffic noise, but whether any additional amount of traffic noise should be considered significant given the nature of the existing traffic noise problem.

threatening salmon with extinction throughout the Central Valley. In short, the need for a cumulative impact analysis of water quality, fisheries, and other related impacts like human health, cultural, recreational, air quality, and aesthetic cannot be seriously questioned. It is plain that massive cumulative impacts from water diversions, pesticide use approvals and, with the ILRP, massive pollution from irrigated lands are occurring throughout the Central Valley and particularly in the Delta.

104-58 cont'd

4. The PEIR's discussion of possible agricultural impacts is inadequate because it relies on a flawed economic analysis.

CSPA retained the economic consulting firm ECONorthwest to evaluate and comment on the economic analysis accompanying the PEIR. *See infra*, Section IV. The PEIR's consideration of agricultural impacts relies almost exclusively on the economic analysis. PEIR, p. 5.10-1 ("The catalyst for these impacts is the cost of achieving and maintaining compliance with the alternatives as discussed in *Technical Memorandum Concerning the Economic Analysis of the Irrigated Lands Regulatory Program* (ICF International 2010) (Draft ILRP Economics Report), incorporated herein by reference"). Because the economic analysis is not reliable, as is discussed in detail below and in the accompanying ECONorthwest Review, the PEIR's discussion of asserted impacts to agricultural production is unsupported by substantial evidence.

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IV. THE ECONOMIC ANALYSIS RELIED UPON BY THE PEIR AND STAFF REPORT IS SUBSTANTIALLY DEFICIENT AND BIASED TOWARD THE LEAST EFFECTIVE AND COALITION-PREFERRED ALTERNATIVES.

Both the PEIR, especially in its discussion of potential agricultural impacts, and the Staff Report rely extensively on ICF International's Technical Memo. A review of that analysis by ECONorthwest, a firm exclusively dedicated to expert economic consulting, reveals fundamental errors and biases. Because of the following errors, any reliance on the Technical Memo by the Regional Board and its staff would be an abuse of discretion. The Regional Board cannot substantiate a finding under Resolution No. 68-16 or the federal antidegradation policy that under a newly adopted ILRP, "the highest water quality consistent with maximum benefit to the people of the State will be maintained." Resolution No. 68-16 (emphasis added). Similarly, to the extent the Board intends to rely on any conditional waivers to implement the next version of the ILRP, a finding by the Regional Board pursuant to Water Code § 13269 that such waiver is in the public interest also would not be supported by substantial evidence.

104-60

The ECONorthwest Review discloses the following fundamental errors in the preparation of the Technical Memo.

1. **The Analytical Objectives and Approach**: ECONorthwest demonstrates that the Technical Memo ignores generally accepted guidelines for this type of analysis, including for example guidelines prepared by the California Department

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of Water Resources, an agency with, of course, considerable experience interfacing with California's agricultural community. Because of this failure, ECONorthwest concludes that the Technical Memo "provides decision-makers and stakeholders with biased and unreliable descriptions of the economic outcomes likely to materialize if the Board were to implement any of the alternatives in the EIR." ECONorthwest Review, pp. 1, 2-5. 104-61 cont'd

2. **Baseline**: ECONorthwest's review establishes that ICF International's analysis "does not compare the alternatives against an appropriate baseline that describes potential future conditions absent implementation of each alternative" further biasing its conclusions. Hence, it provides an incomplete, biased representation of the alternatives' economic consequences. ECONorthwest Review, pp. 1, 5-7. 104-62

3. **Management Practices**: ECONorthwest's review discloses that ICF International only considered a truncated range of the more expensive management practices in determining projected costs of the various alternatives and excluding the less expensive and more efficient practices. ECONorthwest Review, pp. 1, 7-9. As a result, "the EIR and *Technical Memo* provide an incomplete and biased representation of the choices that realistically are available to the [Regional] Board." *Id.*, p. 1. 104-63

4. **Costs and Benefits**: ECONorthwest's review shows that the Technical Memo incorrectly calculates the costs of adopting practices that improve water quality and completely overlooks major categories of economic costs and benefits, once again skewing its conclusions to support the less rigorous and coalition-preferred alternatives. *See* ECONorthwest Review, pp. 1, 9-11. 104-64

5. **Risk and Uncertainty**: ECONorthwest also criticizes the Technical Memo for failing to provide information and analysis of the risks and uncertainty facing irrigators and others from each proposed alternative. The omission of this standard component of any complete economic analysis of a program such as the IRLP is a fatal flaw in the Technical Memo. *See* ECONorthwest Review, pp. 1, 11. 104-65

6. **Regional Impacts**: Lastly, ECONorthwest's review demonstrates that the Technical Memo's discussion of regional impacts "emphasize[s] negative outcomes and ignore[s] the analytical assumptions that overstate costs and the resulting negative outcomes." ECONorthwest Review, p. 1. Even with this built-in bias, the Technical Memo still must acknowledge the improvement to the Central Valley's economy by implementation of Alternatives 3 through 5. An accurate economic analysis likely would further support the economic benefit of the alternatives that incorporate farm specific measures. 104-66

Because of these fundamental flaws, the Technical Memo, as well as the portions of the PEIR and Staff Report that rely upon it, must be redone and recirculated in order to provide the Regional Board with substantial evidence upon which it may rely.

V. THE STAFF REPORT FAILS TO ACKNOWLEDGE THE LEGAL AND POLLUTION CONTROL SHORTCOMINGS OF THE CURRENT ILRP

The Staff Report disingenuously seeks to justify a predetermined and environmentally non-protective course of action by misrepresenting the present program and carefully crafting a needlessly expensive and overly bureaucratic strawman to reject alternatives that would better protect water quality. Water quality problems and the adverse impacts resulting from the continuing discharge of agricultural pollutants are largely ignored while the Staff Report focuses on potential impacts to farmers from having to comply with water quality standards. 104-67

A. Rather Than Keep Its Eye On The Regional Board's Primary Mission To Protect Water Quality, Staff's Analysis And Proposed Alternative Make Believe The Serious Flaws In The Current Program Are Actually Benefits.

The "elements" from each of the alternatives selected by Regional Board staff to be included in the long-term irrigated lands program (or recommended alternative) are flawed and represent the continuation of a program that has failed to protect water quality.

There can be no doubt that, after seven years, the ILRP has not demonstrated any success at protecting or even reducing the rampant pollution of Central Valley waters by irrigated land dischargers. According to the *Revised Draft of the 2007 Review of Monitoring Data for the Irrigated Lands Conditional Waiver Program*, 12 July 2007, between 2003 and 2007, agricultural coalitions and the U.C. Davis Irrigated Lands Monitoring Project collected data from 313 sites throughout the Central Valley. Coalitions or individual water agencies monitored 148 sites and U.C. Davis monitored the remaining 165 sites. While the adequacy of monitoring (*i.e.*, frequency and comprehensiveness of monitoring) varied dramatically from site to site, the report presents a dramatic panorama of the epidemic of pollution caused by the discharge of agricultural wastes. Toxicity to aquatic life was present at 63% of the sites monitored for toxicity (50% were toxic to more than one species). Pesticide water quality standards were exceeded at 54% of sites monitored for pesticides (many for multiple pesticides). One or more metals violated criteria at 66% of the sites monitored for metals. Human health standards for bacteria were violated at 87% of sites monitored for coliform. More than 80% of the locations reported exceedances of general parameters (dissolved oxygen, pH, salt, TSS). It would be difficult for anyone reading the Surface Water Summary (p. 23-44) of the Staff Report to appreciate the extent of pollution caused by irrigated agriculture. An Examination of the Draft 2007 Review of Monitoring Data, Irrigated Lands Condition Waiver Program, CSPA, p. 1-2. The PEIR 104-68

Staff Report discussion of surface water quality also fails to describe and discuss the monitoring results from other programs (i.e., NPDES, SWAMP, etc.).

After seven years of the irrigated lands program, the Central Valley Regional Water Quality Control Board still does not know who is actually discharging pollutants, the points of discharge, the constituents discharged, receiving water impacts, whether management measures have been implemented or if those measures are BPTC that are effective in reducing pollutant discharges. The Board cannot enforce against recalcitrant dischargers because it cannot know who they are and dischargers have little incentive to comply because they know that monitoring far downstream cannot produce the evidence to hold them accountable.

The irrigated lands waiver adopted by the Central Coast Regional Board in 2004 is illustrative. The Central Coast Board conditional waiver is substantially more rigorous than the waiver adopted by Region 5. The Central Coast Board had hopes that, because there were fewer irrigated lands dischargers in the region, they would be able to see significant water quality improvements within the first term of the waiver. The Central Coast waiver requires farmers to enroll with the Board, prepare individual farm management plans, attend water quality education courses and participate in a third-party watershed monitoring program. Yet, it has proved incapable of protecting water quality, even in that smaller region, because it fell short of requiring farm-specific monitoring. If that more robust program in a smaller region could not protect water quality, the less stringent program currently in place and proposed to be continued by staff for the much larger Central Valley will certainly fall even further short of protecting water quality.

104-68 cont'd

Unlike the Central Valley staff's report, the Central Coast staff frankly addressed their existing program's shortcomings . As the Central Coast *Preliminary Draft Staff Recommendations For An Agricultural Order* (February 2010) puts it, "[t]he current Conditional Waiver . . . lacks clarity and does not focus on accountability and verification of directly resolving the known water quality problems" and "[c]urrently, the Water board and the public have no direct evidence that water quality is improving due to the 2004 Conditional Waiver." Central Coast Staff Report, p. 6. It goes on to note, "[t]he current watershed monitoring program only indicates long-term (multi-year), receiving water changes without measuring: 1) if individual agricultural dischargers are in compliance with Conditional Waiver conditions or water quality standards, or 2) if short-term progress towards water quality improvements on farms or in agricultural discharges is occurring" and "[c]urrently, information that provides evidence of on-farm improvements and reductions in pollutant loading from farms is not required, and therefore probably does not exist for most farms. The public, including those who are directly impacted farm discharge, and the Water Board, do not have the necessary evidence of compliance or improvements. This is unacceptable given the magnitude and scale of the documented water quality impacts and the number of people directly affected. At a minimum, we continue to observe that agricultural discharges continue to severely impact water quality." *Id.*, 7.

Acknowledging the failure of its present program (i.e., "Most of the same areas that showed serious contamination from agricultural pollutants five years ago are still seriously contaminated," (*id.* Page 11), Central Coast Board staff has recommended a revised program where dischargers must; 1) enroll to be covered by the order, 2) develop and implement a farm plan that includes management practices, 3) eliminate non-storm water discharges, or use source control or treatment such that non-storm water discharges meet water quality standards, 3) demonstrate through water quality monitoring that individual discharges meet certain basic water quality targets (that are or indicate water quality standards that protect beneficial uses), 4) demonstrate through water quality monitoring that receiving water is trending toward water quality standards that protect beneficial uses or is being maintained at existing levels for high quality water and 5) farm operation must support a functional riparian system and associated beneficial uses. *Id.*, p. 20. Individual monitoring is in addition to the watershed monitoring program. *Id.*, p. 23.

Inexplicably, Central Valley Board staff persists in the illusion that inserting an unaccountable bureaucracy between the Board and actual dischargers and relying upon a monitoring program that ignores numerous waterways and collects ambient data far removed from the point of actual discharges will somehow protect water quality. Right from the opening paragraphs, the Staff Report predetermines its analysis by conjuring up five "[e]lements of the long-term ILRP alternatives found to best achieve evaluation measures are summarized below." Staff Report, p. 2. Four out of five of these elements are baseless. Staff boldly asserts that unaccountable coalitions' "local knowledge" and claimed efficiencies somehow trump the Regional Board taking a lead role in implementing an ILRP; that regional monitoring is more effective at implementing measures than farm-specific monitoring; that providing incentives is better than requiring; and that in order to coordinate with other failed regional programs, the ILRP must also avoid focusing on individual dischargers and only address problems from a distance. As is discussed above in CSPA's comments on the PEIR, these are not attributes of an effective or legal program. Staff's generalizations dramatically conflict with the Central Coast Regional Board staff's more objective and frank assessment. Contrary to Central Valley staff's blind optimism that doing less equals more, the evidence in the record demonstrates that the staff's recommendation will not be able to document any improvements in water quality, the effectiveness of applied management measures or compliance with water quality standards by individual dischargers.

104-68 cont'd

1. Staff cannot continue to pretend that relying on discharger coalitions conducting regional monitoring and management plans with no plan to require BMPs by dates certain will implement BPTC on individual farms and achieve standards in a timely manner.

104-69

The first element that staff claims best achieve its "evaluation measures" is the reliance on "[t]hird-party lead or coalitions groups, as opposed to Central Valley Board lead, to take advantage of local knowledge and administrative/cost efficiencies in dealing with a few groups versus thousands of individual operations."

There is no evidence coalition groups have successfully used their purported "local knowledge" to secure and verify implementation of management measures at the farm level and quantitatively reduce the mass loading of agricultural contaminates. *See supra*, Section G.1. Nor is there any evidence of cost efficiencies that would materialize if coalitions actually instituted a comprehensive program that successfully complied with regulatory requirements and held farmers accountable for implementing management measures and reducing pollutant loading.

Other Central Valley Board regulatory programs with inadequate resources have been far more successful in protecting water quality than the irrigated lands program. For example, the Board has less than a dozen staff to manage a stormwater program that oversees more than 7,500 industrial and construction operations and more than 93 Phase I and Phase II municipal permits. *State of the Central Valley Region*, slide 32, presentation by Executive Officer Pamela Creedon at the Central Valley Water Board meeting of August 2007. The stormwater program requires industrial and construction program applicants to submit a Notice of Intent, develop a comprehensive Stormwater Pollution Prevention Plan (SWPPP), implement BMPs, monitor individual discharges, revise BMPs, iteratively install new BMPs as needed and submit annual reports. Municipal permits are complicated, resource draining and consume the majority of staff time. However, CSPA has reviewed the files of literally hundreds of industrial and construction program permittees and found that the severely understaffed program (the program has less than 12% of needed staff, *Id.*) has been able to routinely review annual reports, conduct many routine site evaluations, send corrective and enforcement notices to numerous facilities. The relative successes of the stormwater program stand in stark contrast to the black hole of the irrigated lands program that remains unable to document any implementation of management measures or reduction of pollutant mass loading. For staff to claim still unproven coalitions as a key element to success is contrary to the available evidence.

104-69 cont'd

2. Staff cannot protect water quality by making believe that regional monitoring results in clear expectations for dischargers or by putting reducing paperwork ahead of protecting water quality.

The next key element to success identified by the Staff Report is to rely upon "[r]egional surface and groundwater quality management plans, as opposed to individual water quality management plans, to minimize paperwork/administrative burdens while clearly defining the expectations and approach for addressing water quality problems." Staff Report, p. 2. Again, staff cannot cite to any evidence that this statement is reliable. Avoiding paperwork is simply a euphemism for not collecting information. At some point, staff has to acknowledge that the Board cannot claim to regulate 30,000 farms without at some point gathering information from them about their pollution discharges. The notion that the requisite information becomes less bureaucratic and involves less paperwork by inserting fictitious entities – with their own layers of management and paperwork – between the Regional Board and the dischargers is nonsensical. And staff has no explanation as to how plans devised on a

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regional basis can clearly define expectations of all relevant dischargers in that area. Especially where, as the PEIR acknowledges, "[t]he appropriate management practice is typically selected on a site-specific or property-specific basis." PEIR, p. 3-9. Even the Staff Report admits that "[w]ith regard to selection of measures and practices, the Central Valley Water Board and USEPA recognize that there is often site-specific, crop-specific, and regional variability that affects the selection of appropriate management measures, as well as design constraints and pollution-control effectiveness of various practices." Staff Report, p. 66-67. Only by addressing site-specific measures that are at least BPTC and assure compliance with standards can expectations and water quality measures be clearly defined. To rely exclusively on regional management plans rather than FWQMPs, the Board will only continue to maintain the existing fog that obscures individual farm's actions or, more likely, inactions. *See supra*, Section F-2.

3. Staff cannot protect water quality by making believe that repeating the regional scale of other monitoring efforts that have not curtailed irrigated lands' pollution dischargers will miraculously characterize effluent quality and BPTC implementation at individual farms.

Staff continues to regulate in a dream state by claiming a third element to achieve success is that "[r]egional surface and groundwater quality monitoring, as opposed to individual or no water quality monitoring, to take advantage of cost efficiencies in coordinating with other monitoring efforts while providing sufficient information to characterize water quality." Once again, staff's claim that regional monitoring miles downstream from a farm's discharge location would characterize that discharger's water quality is absurd. It is not clear what monitoring efforts staff is referring to, but there is no evidence that any regional monitoring effort to date has reduced any irrigated lands pollution in the Central Valley. For example, the Rice Pesticide Program has not succeeded in reducing pesticide discharges from rice fields by relying on regional monitoring. Rice farmers monitor specific fields before releasing their irrigation waters. As discussed above, like the absence of FWQMPs, allowing farm dischargers to rely solely on regional monitoring to determine water quality impacts occurring near their discharge locations or to evaluate whether their management measures are BPTC defies common sense. *See supra*, Sections F.1 - .2, G.2. No current monitoring program is monitoring only farm discharges. Nor has any existing program, including even the current ILRP regional monitoring, reduced the massive pollution from irrigated farms. Any "cost efficiencies" claimed by staff are simply another way of saying they do not want the most relevant information necessary to implement BPTC and achieve water quality standards.

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B. The "Goals and Objectives" selected by a stakeholder group dominated by agriculture protect the regulated community more than they protect water quality, in contrast to virtually every other regulatory program.

As discussed in Section III.C above, CSPA is concerned with the language of the objectives selected by the coalition-dominated stakeholder process. CSPA's concerns are heightened by the further spin placed on the objectives by staff's interpretations of those objectives applied in the staff report. Invariably, staff's interpretation of each objective favors the status quo and avoiding any site specific regulation of farms and trumping resolution 68-16.

Staff restates the PEIR's goals and objectives. Staff Report, pp. 98-99. The objectives, other than the objectives of restoring and/or maintaining beneficial uses, ensuring that all state waters with the Central Valley meet applicable water quality objectives and ensuring that irrigated agricultural discharges do not impair Central Valley communities' and residents' access to safe and reliable drinking water are flawed. In fact, the other four objects work against the successful attainment of restoring beneficial uses and meeting standards. Yet, invariably, the non-water quality or public safety objectives are the hooks which staff uses to propose an ineffectual ILRP recommendation. 104-71

For example, the goal of maintaining the economic viability of agriculture in California's Central Valley is highly subjective because it contains no yardsticks by which to measure impacts to irrigated agriculture and is buttressed by a seriously deficient economic analysis. Retirement of some farmland may be an overall economic benefit where overproduction has depressed commodity prices. Retirement of lands because of an inability to continue externalizing adverse costs of production benefits farmers who internalize those costs and comply with regulatory requirements. Economic viability of agriculture cannot be considered in a vacuum where the costs of agricultural pollution are simply transferred to other economic sectors, *i.e.*, recreation, commercial fishing, public health, municipalities, etc. It is unreasonable to establish a program goal of maintaining the economic viability of agriculture at the expense of other sectors of society who comply with requirements to protect water quality.

Also for example, the objective of maintaining "appropriate" beneficial uses ignores mandates to protect all identified beneficial uses. Encouraging "implementation of management practices that improve water quality in keeping with the first objective without jeopardizing the economic viability for all sizes of irrigated agriculture" ignores the fact that discharging pollutants is a privilege allowable only so long as measures are implemented to reduce or eliminate conditions of pollution. Likewise, providing "incentives for agricultural operations to minimize waste discharge to state waters" ignores that this is a mandated requirement. The objective to coordinate with other programs, such as the Grasslands Bypass Project, TMDLs, CV-Salts and WDRs for dairies is simply a non sequitur as none of those programs have been effective in cleaning up polluted waterways. For example, the Central Valley Board recently

extended the compliance schedule for the Grasslands Bypass Project to more than 20 years. To "promote coordination with other regulatory and non-regulatory programs associated with agricultural operations" is simply an attempt to replicate other regional programs that have failed to protect water quality. The Central Valley Board has apparently forgotten the failures of the Management Agency Agreement with the Department of Pesticide Regulation (DPR), where after the five-year agreement had expired, DPR claimed it didn't have the authority to implement the measures it had agreed to.

The last four objectives simply provide Regional Board staff the rationale to avoid rigorously implementing what staff believes to be a politically unpalatable program that would meet the first objective of maintaining beneficial uses and meeting water quality standards. Consequently, staff dismisses individual edge-of-field monitoring because it would be expensive, *i.e.*, subject farmers to the same requirements applicable to every other segment of society that discharges pollutants to waters of the state. However, without individual discharger monitoring, the Board will never know the impacts of individual discharges or whether implemented management measures are effective.

104-71 cont'd

Direct Regional Board administration is rejected because it would require the Regional Board to candidly acknowledge the politically unpalatable need to assess additional fees to provide sufficient staff to regulate 30,000 plus farms spread over eight million acres. In 2002-05, Regional Board staff estimated that 40 to 70 staff would be needed to effectively implement the program. This seems to be a reasonable estimate based upon the stormwater program.

C. Staff's Recommended Alternative Continues The Existing Flaws Of The Existing Program.

1. The "recommended alternative" cannot identify sources of pollution, localized water quality impacts, the implementation of Best Management Practices (BMPs) or the effectiveness of BMPs.

The reality is that the regional monitoring approach embraced by staff has been woefully inadequate, as revealed by even a cursory review of coalition monitoring reports. What staff characterizes as cost efficiencies is simply insufficient monitoring that is incapable of characterizing all receiving waters, let alone identify specific sources or quantify the effectiveness of management measures. Coalition monitoring only represents a small percentage of irrigated acres. For example, review of recent monitoring reports submitted to the Regional Board by coalitions representing irrigated lands that discharge into the Sacramento-San Joaquin Delta estuary or waters tributary to the estuary shows that:

104-72

The San Joaquin County and Delta Water Quality Coalition comprises approximately 609,134 acres of irrigated land. SJCDWQC Annual Monitoring Report

2010, p. 6. Between October 2008 and March 2009, the Coalition monitored 10 sites and six sites from April 2009 through December 2009. In addition, three sites were monitored for Management Plan monitoring. *Id.*, p. 1. The report observes, "...water quality is still not protective of beneficial uses across most of the Coalition." *Id.*, p. 4. Rough calculations reveal that irrigation season monitoring represented approximately one site for every 60,000 plus acres.

The East San Joaquin Water Quality Coalition comprises approximately 919,730 acres of irrigated land. ESJWQC Annual Monitoring Report 2010, p. 5. Between October 2008 and December 2009, the Coalition monitored 20 sites and eleven additional sites were monitored for Management Plan monitoring. *Id.*, p. 1. Fourteen sites were monitored during the 2009 irrigation season and 12 sites were monitored during the 2009 wet season. *Id.*, p. 23-24. The report observes, "...water quality is still not protective of beneficial uses across most of the Coalition." *Id.*, p. 4. Rough calculations reveal that irrigation season monitoring represented approximately one site for every 54,000 plus acres.

The Westside San Joaquin River Watershed Coalition comprises approximately 460,500 acres. Westside Coalition Semi-Annual Report, 15 June 2010, p. 3. The Coalition monitors 17 discharge sites during the irrigation and wet seasons. *Id.*, Table 3, p. 5. This represents approximately one site for every 27,000 acres.

The Sacramento Valley Water Quality Coalition comprises approximately 27,000 square miles and contains over a million acres of farms. SVWQC Annual Monitoring Report 2009, March 2010, p. 3. Apparently, the Coalition monitored 32 sites, of which 18 were sampled during the irrigation season. *Id.*, Table 5, Planned Annual Sampling Frequency, p. 19. This would represent irrigation season monitoring of one site for approximately every 55,000 acres.

Monitoring a downstream point draining thousands of acres accomplishes little other than long-term trend analysis. And trend analysis requires a program that consistently monitors the same set of constituents over many years. Most coalition sites are not monitored every year for the same parameters and, consequently, existing coalition monitoring programs are unreliable even for trend analysis. In any case, trend analysis of downstream monitoring points can never establish whether an individual upstream discharger is in compliance with water quality standards or implementing BPTC.

Staff has apparently forgotten that the 2003 waiver originally required coalitions to yearly monitor all major drainages, 20% of intermediate drainages on a yearly rotating basis and minor drainages where downstream problems are identified. Those requirements have been substantially relaxed and currently large areas of the Central Valley are not monitored and have never been monitored, despite identification of serious downstream water quality problems.

104-72 cont'd

Monitoring of actual discharge points is important because upstream waterways are disproportionally important as their increased energy inputs, higher invertebrate production, spawning, nursery and rearing habitat and lower discharge make these smaller aquatic systems vital to the overall health of the aquatic system. Larval fish and their food supplies found in these areas also are particularly vulnerable to adverse impacts of pesticides and other pollutants. Monitoring at the edge-of-field is crucial for evaluating the presence of BPTC and determining if recommended management practices are being implemented properly or if benefits from adopted practices are actually being realized.

104-72 cont'd

2. The "recommended alternative" cannot ensure that dischargers will demonstrate that they have implemented Best Practical Treatment and Control (BPTC) or prevent degradation of water quality.

The Staff Report states, "... the Regional Water Board still must require the discharger to demonstrate that the proposed manner of compliance constitutes BPTC (SWRCB Order No. WQ 2000-7)." Staff Report, p. 62. And that, "...implementation of the program must work to achieve site-specific antidegradation requirements through implementation of BPTC and representative monitoring to confirm the effectiveness of the BPTC measures in preventing or minimizing degradation. Any regulatory program adopted will rely on implementation of practices and treatment technologies that constitute BPTC, based to the extent possible on existing data, and require monitoring of water quality to ensure that the selected practices in fact constitute BPTC where degradation of high quality waters is or may be occurring." *Id.*, p. 66
However, staff's recommended alternative abandons any effort to implement staff's own admonition. *See supra*, Section C.2.

104-73

3. The "recommended alternative" cannot ensure that the Regional Board can enforce program requirements.

As discussed above, any enforcement efforts by the Regional Board will be hampered by staff's recommendation. *See supra*, Section F.2. Staff's concept that enforcement will be vigorous by not having information available in the form of FWQMPs and individual monitoring data to assist in prioritizing inspections and enforcement cannot be rationalized. Without this information, staff's enforcement efforts will be as nominal as we have seen for the last seven years. Instead of enforcing water quality requirements, staff will be lead down a well-papered path of regional coalition monitoring – none of which will identify a single potential violator.

4. The "recommended alternative" is clearly inconsistent with the state's Non-Point Source Control Policy.

For the same reasons discussed above, staff's recommendation fails to comply with the NPS Policy. *See supra*, pp. Section F.2. Like the PEIR's first four alternatives,

staff's recommendations falls well short of all five key elements required by the NPS Policy. *Id.*

104-73 cont'd

5. The "recommended alternative" cannot be in the public interest.

Staff continues to treat irrigated agriculture as a privileged sector by allowing farmers to externalize adverse production impacts by transferring the costs of pollution from the polluter to the general public. The recommended alternative does not serve the interests of California's 35 million residents. It arguably does not even serve the interests of the discharger's it seeks to immunize from monitoring, reporting and permitting requirements applicable to everyone else.

Central Valley fisheries are experiencing catastrophic collapse. The team of federal and state scientists investigating the decline of fisheries has identified toxic pollutants as one of the three major suspected causes of the collapse of the Delta's pelagic fishery. This collapse has cost the recreational and commercial fishing communities tens upon tens of millions of dollars.

The degraded aquatic ecosystem in the Delta threatens the reliability of the delivery system that supplies water to 23 million Californians. Polluted waters have forced municipalities to spend hundreds of millions of dollars on increased wastewater and drinking water treatment. Degraded waters threaten public health and have diminished the aesthetic and recreational enjoyment of millions of individuals.

104-74

Central Valley agriculture is a relatively small part of the California community. According to the July 2010 (revised) employment data by the California Employment Development Department, total employment in the 34 Central Valley counties under the ILRP and analyzed in the PEIR's economic analysis is 3,509,620, of which farm labor comprises 237,000 or 6.758%. EDD, Employment by Industry Data at: http://www.labormarketinfo.edd.ca.gov/?pageid=166. Statewide, the agriculture production and processing industry directly accounts for approximately 4.3% of the state output, 3.8% of the jobs, 2.5% of labor income and 2.9% of value added in the state. The Measure of California Agriculture, 2006, Agricultural Issues Center, University of California, Chapter 5, Table 5.5, p. 10.

The PEIR's severely deficient economic analysis with its unrealistic assessment of the cost impacts of potential management measures, acknowledges that Alternative 5, despite being burdened with absurd administrative and monitoring requirements, would be of negligible cost to the overall economy. In fact the economic analysis predicts that, under Alternative 5: 1) jobs in the Central Valley would increase, 2) personal income and industrial output would increase in the Tulare Lake Basin, 3) personal income would only decrease by 0.013% in the Sacramento River Basin and by 0.019% in the San Joaquin River Basin and 4) industrial output would only decrease by 0.045% in the Sacramento River Basin and by 0.043% in the San Joaquin River Basin. And the economic analysis inexplicably failed to analyze the cost benefits of reduced pollution. Had the advantages of better water quality been evaluated, implementation of

Alternative 5 would be shown to result in significant economic benefit across the spectrum for the entire Central Valley.

The recommended alternative will not reduce agricultural pollution any time in the near future. Nothing in the recommended alternative precludes agricultural dischargers from continuing the historic trend to discharging wastes into the foreseeable future. At its core, the recommended alternative will perpetuate substantial discharges of wastes from thousands of farms to impaired waters throughout the Central Valley, causing irreversible and substantial harm to degraded and stressed ecosystems, threatening public health and imposing increased costs to millions of Californians.

104-74 cont'd

It cannot be in the public interest to exempt one small segment of the California economy from regulatory requirements applicable to everyone else. It clearly cannot be in the public interest, as the recommended alternative does, to exempt farmers from having to monitor their discharges in order to establish compliance with water quality standards and BPTC requirements.

6. **CSPA agrees ILRP must restrict groundwater pollution but unfortunately staff's proposed reliance upon regional efforts is unlikely to be more successful than existing programs that have chaperoned groundwater degradation.**

Groundwater pollution is a serious problem and relying upon regional efforts is unlikely to address site-specific sources of groundwater pollution. The staff alternative of requiring farmers to participate in a regional groundwater program once every five years ignores the obvious protective step of requiring individual farms to monitor their own wells to evaluate groundwater pollution. The staff recommendation also contains no specific measures to identify and prevent contamination of groundwater from management measures implemented to prevent surface water pollution.

104-75

The California Department of Water Resources (DWR) has concluded that water from California's groundwater basins "has been the most important single resource contributing to the present development of the state's economy." Between 25% and 40% of California's water supply comes from groundwater. That figure can rise to as much as two-thirds during critically dry years. Fifty percent of California's population depends upon groundwater for all or part of their drinking water. Data from the waterboards, USGS, Department of Health, DPR and others, demonstrate that groundwater has been severely degraded. DWR has stated that three-fourths of the impaired groundwater in California was contaminated by salts, pesticides, and nitrates, primarily from agricultural practices. Thousands of public drinking water wells have been closed because of pollution. Many of California's more than 71,000 agricultural irrigation wells are degraded or polluted. USGS data collected over a ten-year period in Fresno County showed that some 70% of the wells sampled exceeded the secondary MCL and agricultural goal for total dissolved solids. Kings County was even worse, with 87% exceeding criteria. Even the State Board's own data indicates that more than one third of the areal extent of groundwater assessed in California is so polluted that it

cannot fully support at least one of its intended uses, and at least 40 percent is either impaired by pollution or threatened with impairment.

For example, a study conducted by the United States Geological Survey documented extensive contamination of groundwater by pesticides applied to rice fields. Dawson, B., USGS, "Shallow Ground-Water Quality Beneath Rice Areas in the Sacramento Valley, California 1997" (2001). Pursuant to an existing Basin Plan prohibition, rice growers are required to hold their irrigation waters for up to 30 days in order to facilitate the breakdown of toxic pesticides. Rice fields are typically flooded from April to September with some significant portion also flooded during winter months to help break down leftover straw. Detections of pesticides and nitrites in groundwater beneath rice fields were attributed to pesticide and fertilizer applications to the fields. The study explains that holding irrigation waters on the fields in order to protect surface water may be allowing more recharge containing the pesticides molinate and thiobencarb to reach shallow groundwater. Another study in the record documents routing of pesticide-contaminated surface runoff from orchards into drainage wells that drain the contaminated runoff into groundwater. Troiano, J, et al., Cal. Dept. of Pesticide Regulation, "Movement of Simazine in Runoff water from Citrus Orchard Row Middles as Affected by Mechanical Incorporation" (1998) ("evidence linked contamination [of groundwater] to movement of [pesticide] residues in orchard runoff water that was directed into drainage wells"). *See also* Ingalls, Charles A., U.C. Davis, pp. 5-10, "Movement of Chemicals to Groundwater," of "Protecting Groundwater Quality in Citrus Production" (1994)).

104-75 cont'd

The USGS study and other studies show that one potential negative environmental impact of a management measure that stores polluted water as a means of protecting surface water quality is an acceleration of the pollutants discharged into groundwater through recharge or existing pathways such as wells. Nevertheless, staff's proposed alternative relying upon regional monitoring efforts is unlikely to identify impacts from implementation of management measures and specific monitoring requirements must be included to prevent redirected impacts of management measures employed to protect surface waters.

VI. CONCLUSION.

After seven years of the irrigated lands program, the Central Valley Regional Water Quality Control Board still does not know who is actually discharging pollutants, the points of discharge, the constituents discharged, receiving water impacts, whether management measures (or BMPs) have been implemented or if those BMPs have been effective in reducing pollutant discharges. The Board cannot enforce against recalcitrant dischargers because it cannot know who they are and dischargers have little incentive to comply because they know that monitoring far downstream cannot produce the evidence to hold them accountable. The PEIR continues the theme of not providing the Regional Board the necessary information to make a decision that will protect water quality and human health. Staff proposes an alternative that perpetuates the existing program's flaws, including basic compliance with the NPS Policy and Resolution No. 68-

16. On the other hand, CSPA's alternative sets forth a reasonable program that would comply with statutory requirements, protect water quality and, where it is consistent with those two goals, reduce the potential burden on the farming community. CSPA respectfully requests that the Regional Board instruct staff to redraft their recommended program, send the PEIR back to be supplemented with necessary elements and include detailed analysis of an improved staff recommendation, CSPA's recommendation, and other required elements. We appreciate staff's and the Regional Board's consideration of these comments.

Sincerely,

Michael R. Lozeau
Lozeau Drury LLP

Bill Jennings
California Sportfishing Protection Alliance

Encls.

An Economic Review of the Draft Irrigated Lands Regulatory Program Environmental Impact Report

September 27, 2010

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ECONorthwest specializes in the economic and financial analysis of public policy. ECONorthwest has analyzed the economics of resource-management, land-use development, and growth-management issues for municipalities, state and federal agencies, and private clients for more than 30 years.

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I. INTRODUCTION

The Central Valley Water Board (Board) authorized the preparation of an Environmental Impact Report for the Irrigated Lands Regulatory Program (ILRP). The ILRP regulates water discharges from irrigated agricultural lands. ILRP goals include preventing agricultural discharges from impairing receiving waters. At the Board's direction, consultants prepared the *Draft Irrigated Lands Regulatory Program Environmental Impact Report (Draft EIR)*. Appendix A to the *Draft EIR* is the *Draft Technical Memorandum Concerning the Economic Analysis of the Irrigated Lands Regulatory Program* (*Technical Memo*).

Michael Lozeau of Lozeau Drury LLP, contracted with ECONorthwest (ECONW) to review and provide preliminary comments on the *Technical Memo*. Specifically, he asked that we review the economic analysis described in the *Technical Memo*, including the analytical approach, simplifying assumptions, data, analyses and conclusions, to determine if it provides reliable information on which the Board can base decisions regarding the alternatives described in the *Draft EIR*. In this report we describe our preliminary findings to date. If we are asked to review additional information, or address additional topics, we may revise our critique and findings.

II. OVERVIEW OF RESULTS

The following discussion substantiates our conclusion that the *Technical Memo* developed in support of the *Draft EIR* has serious errors of omission and commission that violate the generally accepted standards of practice that apply to this type of economic analysis. Because of these errors, the report does not provide a reliable basis for understanding the full potential economic consequences of each the five alternatives the *Draft EIR* considers. It also does not fully depict the differences in potential economic consequences among the five alternatives. The various errors are interrelated but, to facilitate our discussion of them, we separate them into these six categories:

A. **The Analytical Objectives and Approach**: The study's analytical objectives and approach do not follow generally accepted guidelines. The analysts ignored standards and procedures developed by the California Department of Water Resources specifically for this type of economic analysis. The resulting analysis is flawed and incomplete, and, hence, it provides decision-makers and stakeholders with biased and unreliable descriptions of the economic outcomes likely to materialize if the Board were to implement any of the alternatives in the *Draft EIR*.

B. **Baseline**: The economic analysis described in the *Technical Memo* does not compare the alternatives against an appropriate baseline that describes potential future conditions absent implementation of each alternative. Hence, it provides an incomplete, biased representation of the alternatives' economic consequences.

C. **Management Practices**: The management practices considered in the *Draft EIR* and *Technical Memo* do not reflect the full range of options available to irrigators. They particularly exclude low-cost, high-benefit options. Hence, the *Draft EIR* and *Technical Memo* provide an incomplete and biased representation of the choices that realistically are available to irrigators or the Control Board.

D. **Costs and Benefits**: The analysis described in the *Technical Memo* incorrectly calculates the costs of adopting practices that improve water quality. The analysis also overlooks major categories of economic costs and benefits that would be affected by the alternatives. Hence, it provides an incomplete, biased representation of the alternatives' economic costs.

E. **Risk and Uncertainty**: The *Technical Memo* provides no information on how each of the five alternatives would affect the risks and uncertainty facing irrigators and others. Economic analyses of the scale and scope described in the *Technical Memo* typically include analyses of risk and uncertainty as a matter of course. The analysts' failure to comply with this generally accepted standard of practice gives decision-makers and stakeholders incomplete descriptions of the economic significance of the alternatives' outcomes.

F. **Regional Impacts**: The *Technical Memo* provides a biased and incomplete description of the regional impacts of the alternatives. The conclusions in this section emphasize negative outcomes and ignore the analytical assumptions that overstate costs and the resulting negative outcomes.

We describe each category in the following sections.

III. Analytical Objectives and Approach

The study's analytical objectives and approach do not follow generally accepted guidelines. In particular, the analysts ignored standards and procedures developed by the California Department of Water Resources specifically for this type of economic study. The resulting analysis is flawed and incomplete, and provides decision-makers and stakeholders with biased and unreliable descriptions of the economic outcomes likely to materialize if the Board were to implement any of the five alternatives in the *Draft EIR*.

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The *Technical Memo* gives this description of its analytical objectives and approach:

"The analysis of economic (and fiscal) effects for the long-term Irrigated Lands Regulatory Program (ILRP) focuses on addressing the following three analytical questions.

- "How much currently is being spent annually by growers, landowners, and administering entities in the Central Valley on compliance with the ILRP pollution control implementation program?

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- "What are the expected additional costs, both to growers and administering entities, of compliance with the long-term ILRP alternatives?
- "How is imposition of these additional costs expected to affect the economic viability of farming in the Central Valley? (*Technical Memo* p. 1-1)

By focusing on just these three questions, the study's authors restricted their analysis to a subset of the economic issues the Board must consider to satisfy its obligations. Hence, the *Technical Memo* cannot provide an adequate basis for the Board's consideration of these issues. The Board's responsibilities extend well beyond the narrow set of costs described in the *Technical Memo*. For example, the Board's website describes its mission as, "To preserve, enhance, and restore the quality of California's water resources, and ensure their proper allocation and *efficient use* for the benefit of present and future generations."[1] [emphasis added] The Board can assess the extent to which the *Draft EIR's* alternatives promote efficient water use only if it weighs all of their relevant economic costs and benefits, not just those that are the focus of the *Technical Memo*.

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The Board's website also lists the strategic goals for California's nine water boards, including the Central Valley Board. These goals include:

- "Goal 1 - The Boards' organizations are effective, innovative and responsive."
- "Goal 2 – Surface waters are safe for drinking, fishing, swimming, and support healthy ecosystems and other beneficial uses."
- "Goal 3 – Groundwater is safe for drinking and other beneficial uses."
- "Goal 6 – Water quality is comprehensively measured to evaluate protection and restoration efforts."[2]

From an economic perspective, the analysis described in the *Technical Memo* is neither effective nor innovative given the study's limited and incomplete focus relative to the generally accepted guidelines for these types of economic analyses. We describe these guidelines below. For example, the study ignores the economic benefits of the *Draft EIR's* alternatives on drinking water, fishing, swimming, ecosystems and other beneficial uses. A comprehensive assessment of the changes in water quality brought about by the *Draft EIR* alternatives would include these and other relevant costs and benefits.

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[1] California Water Boards web site http://www.swrcb.ca.gov/centralvalley/about_us/water_boards_structure/index.shtml, accessed September 22, 2010.

[2] California Water Boards web site http://www.swrcb.ca.gov/centralvalley/about_us/water_boards_structure/index.shtml, accessed September 22, 2010.

Specific to the study at issue, the *Existing Conditions Report (Existing Conditions)* referenced throughout the *Technical Memo*, describes the regulatory setting for the economic analysis and notes the purpose of water quality regulations in California:

> "Water quality regulation and permitting processes are designed to limit the discharge of pollutants to the environment in an effort to achieve the highest surface water and groundwater quality, protect fish and wildlife and their habitats, and protect other beneficial uses (e.g., domestic and agricultural water supply and recreational resources)." (*Existing Conditions* p. 2-1)

The study's analytical approach focuses on a narrow subset of the full range of potential economic outcomes of the *Draft EIR's* alternatives, and, hence, provides limited and biased information regarding the proposed regulations' overall economic costs and benefits. Board members and others interested in furthering the Board's goals will find little useful information in the economic analysis described in the *Technical Memo*. This study does not serve these groups well.

Those interested in an unbiased and comprehensive assessment of the economic outcomes of adopting the *Draft EIR* alternatives will find the study's deficiencies especially troubling, given the fact that the study area includes a large part of California. It also includes the majority of the state's irrigated land. The study leaves uncounted many of the economic costs and benefits that would occur throughout much of the state with the adoption of the *Draft EIR* alternatives. The *Existing Conditions* describes the geographic extent of the Board's responsibilities.

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> "The jurisdiction of the California Regional Water Quality Control Board, Central Valley Region ... extends from the Oregon border to the northern tip of Los Angeles County and includes all or part of 38 of the State's 58 counties. ... The three basins [major watersheds included in the study area] cover about 40% of the total area of the State and approximately 75% of the irrigated acreage [citation omitted]." (*Existing Conditions*, page ES-1)

An economic study of this magnitude should conform to generally accepted analytical guidelines. Many such guidelines apply here.[3] The California Department of Water Resources' *Economic Analysis Guidebook* (*Guidebook*), is particularly relevant, given the study area and topic. The *Guidebook* notes,

> "... the Department of Water Resources (DWR) has a policy that all economic analyses conducted for its internal use on programs and projects be fundamentally consistent with the federal *Economics and Environmental*

[3] Examples include: California Department of Water Resources. 2006. *Economic Analysis Guidebook*, January; U.S. Army Corps of Engineers. 1983. *Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies*. March – and 2009 Draft Update; U.S. Environmental Protection Agency. 200. *Guidelines for Preparing Economic Analyses*. EPA 240-R-00-003. September.

Principles and Guidelines for Water and Related Land Resources Implementation Studies (P&G) ....

"It is also DWR policy to adopt, maintain, and periodically update its own Economics Analysis Guidebook, which is consistent with the P&G but can also incorporate innovative methods and tools when appropriate."

"*The Economic Analysis Guidebook* (Guidebook) was developed to assist DWR economists in performing economic analyses ..." (*Guidebook*, p. vii)

Comparing the approach described in the *Technical Memo* with the *Guidebook's* recommended approach shows the extent of the study's analytical deficiencies. For example, the *Guidebook* describes generally accepted methods of conducting economic analyses of public policies that affect water. The *Guidebook* describes three methods of economic analysis (*Guidebook* p. 12):

- A cost-effectiveness study identifies the least cost method of achieving the stated goals. The analysis in the *Technical Memo* is not a cost-effectiveness analysis because, as the *Memo* states, the analysis did not include information on the effectiveness of the management practices in the *Draft EIR* alternatives.
- A benefit-cost (B-C) analysis compares the social benefits of a proposed action with the social costs. The economic analysis at issue is not a B-C analysis because it considered only a subset of relevant costs and benefits. This narrow focus yields a biased and incomplete description of the direct or initial economic outcomes of adopting the *Draft EIR* alternatives.
- A socioeconomic impact (SI) analysis describes a broader set of impacts than a B-C study because it considers regional or indirect impacts in addition to direct benefits and costs. Given that an SI analysis is more comprehensive than a B-C analysis, the economic analysis in the *Technical Memo* falls far short of the generally accepted standards for SI analyses.

The approach described in the *Technical Memo* does not satisfy the *Guidebook's* standards. The *Technical Memo's* description of analytical methods also lacks foundation or citation to relevant economic literature that supports the approach.

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IV. Baseline Conditions

The *Technical Memo* does not compare the alternatives against an appropriate baseline that describes potential future conditions absent implementation of each alternative. Hence, it provides an incomplete, biased representation of the alternatives' economic consequences.

Generally accepted standards applicable in this context include establishing a baseline against which analysts compare the economic outcomes of policy alternatives. Analysts calculate the amount of economic change attributed to a policy by comparing economic conditions that would result with the policy against baseline economic conditions. A properly defined baseline takes into

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account economic changes that will occur for reasons other than the policy alternative. Analyses that lack a baseline, or use an improperly defined baseline, yield biased results because costs or benefits that would have otherwise occurred are mistakenly attributed to the policy alternative. The *Guidebook* describes the importance of establishing a baseline using a *with* and *without* analytical approach.

> "The objective of economic analysis is to determine if a project represents the best use of resources over the analysis period ...:
>
> > The test of economic feasibility is passed if the total benefits that result from the project exceed those which would accrue without the project by an amount in excess of the project costs. It is important that the comparison be *with* and *without* rather than *before* and *after* because many of the after effects may even occur without the project and can thus not properly be used in project justification. ..." (*Guidebook* p. 5)

104-79 cont'd

The *Technical Memo* lacks a clear and concise description of baseline conditions. The available information indicates that analysts did not control for factors other than the *Draft EIR's* alternatives that can affect irrigators' costs of managing water quality. For example, the analysis incorrectly attributes costs of management practices previously implemented to the future costs of adopting the *Draft EIR's* alternatives. This overstates the costs of adoption.

> "Although Alternative 1 represents the continued implementation of current Central Valley Water Board policies, limited information was available to determine the extent of management practice implementation to date. Further, the existing conditions information used as a baseline for analysis dates from the early 2000s. As a result, changes from Alternative 1 relative to existing conditions do not capture implementation that has already occurred at the time of this report, and thus likely overstate the impacts of further implementation of Alternative 1." (*Technical Memo* p. 1-2)

104-80

The analysis also incorrectly attributes adoption costs to the *Draft EIR's* alternatives in cases where growers adopt management practices for reasons other than the alternatives. The authors recognize the importance of accounting for costs attributable to other factors:

> "Existing conditions corresponds to the level of water quality management practices that are in the baseline. It is acknowledged that most practices are not implemented to improve water quality but rather to provide for another agronomic or economic need. ... Therefore adjustments were made to best capture costs attributable only to improvements in water quality. ...." (*Technical Memo* p. 2-2)

Here they describe the adjustment:

> "Potential cost savings or other benefits from the irrigation system changes also were considered. These included estimates of savings in grower's costs for water, fertilizer, and labor and revenue increases resulting from improved crop yield and quality. These benefits were subtracted from the implementation cost of the irrigation system or management changes, so the analysis considered only the net cost to growers of implementing a change." (*Technical Memo* p. 3-1)

This "adjustment," however, ignores the fact that the management practices at issue were adopted for reasons *other than* the *Draft EIR* alternatives. Such changes belong in the baseline conditions and not the *Draft EIR* alternatives. The authors provide no citations to economic literature or other relevant sources that support such an adjustment. The resulting adjusted costs overstate the true costs of the alternatives.

Our critique of the *Technical Memo's* treatment of the alternatives' costs (see below) notes that the analysts selected some of the most expensive management alternatives available. Assuming for the sake of argument that we agree with the described adjustment—which we do not—using more realistic adoption costs would yield lower or negative "net" costs of adopting the practices in the *Draft EIR* alternatives.

104-80 cont'd

Had the analysts used a *with* vs. *without* analytical approach they could have isolated the extent to which irrigators adopt management practices that have water-quality impacts, but were adopted for other reasons. For example, they may change irrigation practices from flood to drip or sprinkler systems not to improve water quality but to reduce their fertilizer and pesticide costs. The analysts acknowledge the likelihood that irrigators make such changes for purposes other than to accomplish the Board's water-quality goals. But they then do not account for these changes in a manner that yields an accurate, unbiased representation of the costs of the alternatives being considered by the Board.

A similar conclusion applies to the *Technical Memo's* treatment of various laws that affect irrigators' behavior. Chapter 2 of the *Existing Conditions* report, for example, notes that the Federal Endangered Species Act (ESA) could affect future irrigation practices. The *Technical Memo*, however, makes no provision for the potential impacts of the ESA or other laws and regulations on irrigation methods and costs. Instead, it attributes all future irrigation changes and costs to the *Draft EIR* alternatives. A *with* vs. *without* analytical approach would acknowledge that regulations other than the *Draft EIR* alternatives can influence irrigators' practices and costs in the future.

V. MANAGEMENT PRACTICES

The management practices considered in the *Draft EIR* and *Technical Memo* do not reflect the full range of options available to irrigators. Instead, they consider seven practices that emphasize high-cost options and exclude low-cost, high-

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benefit options. Hence, the *Draft EIR* and *Technical Memo* provide an incomplete and biased representation of the choices that realistically are available to irrigators and the Control Board.

The *Technical Memo* identifies the management practices in the analysis but provides no justification for how the analysts selected these practices.

> "Although a wide variety of management practices could be used to reduce impacts on water quality, this suite [the seven practices selected and listed in Table 2-1] of management practices is deemed sufficient from a programmatic point of view to encompass all flow path and management needs that must be addressed to reduce impacts on water quality." (*Technical Memo* p. 2-2)

The *Technical Memo* provides no assessment of how these practices were "deemed sufficient" for the analysis. More fundamentally, the authors provide no discussion of selection criteria they applied to reach their conclusion. Without this information, the Board, other decision-makers and stakeholders cannot assess the appropriateness of the selected practices. This is especially important given that, as we describe in our critique of adoption costs, the selected practices are some of the most expensive available.

As described in the *Existing Conditions* report, over 100 practices exist with proven potential to improve water quality.

104-81 cont'd

> "This section provides a summary of the management and hardware actions that have been proven to provide a water quality benefit. … The single most comprehensive reference for individual management practices is the NRCS [citation omitted]. This website lists over 100 proven practices, that provide information for physical actions that apply to several of the management measure categories. Although the NRCS guides were developed for general use, they contain sufficient guidance for local implementation." (*Existing Conditions* p. 5-5)

Without information on the "deemed sufficient" selection criteria, the choice of management practices appears arbitrary, and lacks analytical rigor.

The *Technical Memo* also provides no information on the effectiveness of the management practices in the analysis.

> "Management practices were assumed to be 100 percent effective." (*Technical Memo* p. 2-1)

Assuming complete effectiveness strays outside the bounds of rational expectations. The analysts make this assumption without support or citation to relevant studies. The assumption thus appears arbitrary and devoid of analytical veracity.

Given these considerations, the standard analytical approach applicable to the *Draft EIR* and *Technical Memo* would entail describing the full range of options before the Board and their respective consequences. The *Draft EIR* and *Technical Memo* exhibit neither of these characteristics. Consequently, they do not (and cannot) provide a reliable basis for the Board to make decisions that will satisfy its obligations to "preserve, enhance, and restore the quality of California's water resources, and ensure their proper allocation and efficient use for the benefit of present and future generations".[4]

104-81 cont'd

VI. Costs

The *Technical Memo* incorrectly calculates the costs associated with irrigators adopting practices that reduce their impacts on water quality. The analysis also overlooks major categories of economic costs and benefits that the *Draft EIR* alternatives would affect. Hence, it provides an incomplete, biased representation of the alternatives' overall economic costs.

The *Technical Memo* describes that the management practices in the *Draft EIR* alternatives are "relatively expensive." The report provides no information about the criteria the authors used to reach this judgment, no evaluation of the extent to which the projects included in the *Draft EIR* are more expensive than those excluded from it, and no justification for why those who constructed the alternatives selected the more expensive projects. The inclusion of more expensive projects and exclusion of less expensive ones has an important impact on the economic analysis and biases its conclusions, insofar as the large majority of the acres in the study produce field, forage, grain, and other crops whose value is lower than crops in other categories. By selecting more expensive projects, the analysis also increases the number of acres that growers take out of production as operating costs increase.

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> "Some key analytical assumptions and data limitation contributed to the relatively large estimated change in acreage.
>
> "More importantly, management practices assumed to be implemented for the analysis are relatively expensive, especially for lower-revenue crops … As a result, crops such as irrigated pasture, hay, and some small grains would have difficulty supporting such costs. The analysis indicated large reductions in their acreages in the regions where those costs were incurred. "
>
> "Irrigated pasture, hay, and other field corps … accounted for more than 95 percent of the acreage reductions shown in Table 3-7. To the extent growers of these crops could identify less-expensive ways to comply, such as avoiding

[4] California Water Boards web site http://www.swrcb.ca.gov/centralvalley/about_us/water_boards_structure/index.shtml, accessed September 22, 2010.

the use of certain pesticides, the acreage and revenue impacts would be substantially reduced." (*Technical Memo* p. 3-8, 3-9)

"... acreage revenue and net income changes were *relatively sensitive to the implementation cost assumptions*. The same general conclusion applies to the results for all alternatives. If growers can identify and implement more cost-effective methods to comply with ILRP requirements, impacts on production and income can be reduced substantially, especially for lower-value field and forage crops." [emphasis added] (*Technical Memo* p. 3-19)

104-82 cont'd

With this conclusion, the authors, themselves, acknowledge the underlying flaws and biases in the *Technical Memo*. These characteristics render it and its findings unsuitable as a basis for decision-making by the Board, or any other entity.

The analysts who conducted the economic work described in the *Technical Memo* apparently ignored existing models that describe economic outcomes of changes in water quality. The *Guidebook* describes two such models specific to water-quality assessments in California:

"The maintenance of good water quality is an important project objective [and the focus of the study at issue in our critique]. The State Water Resources Control Board (SWRCB) and the Metropolitan Water District of Southern California (MWD) in cooperation with the US Bureau of Reclamation (Bureau) and other agencies have developed economic models to assess the impacts of changes in water quality." (*Guidebook* p. 37)

- SWRCB Lost Beneficial Use Value Calculator estimates the lost benefits attributed to diminished water quality.
- MWD Salinity Economics Impacts Model estimates regional economic impacts of changes in salinity of water sold by the Metropolitan Water District of Southern California. (*Guidebook* p. 37)

104-83

The analysis in the *Technical Memo* also overlooks major categories of costs and benefits that the *Draft EIR* alternatives will affect. Given the Board's mission and goals (which we cite above) regarding efficient use of water and protecting beneficial water uses, this omission constitutes a fatal deficiency in the study.

Improving water quality may increase irrigators' costs relative to baseline conditions—though, as we note above, the analysis in the *Technical Memo* grossly overstates these costs—but it will also generate economic benefits for other water users by lowering the costs they incur from water polluted by farm runoff. The current analysis ignores these benefits. For example, improving water quality can reduce filtration costs for downstream users. Recreational-water users, including sport and commercial fishing interests, can also benefit from improved water quality. Board members and other interested parties will find no information in the *Technical Memo* on these economic benefits of the *Draft EIR* alternatives.

Readers can look no further than the Central Valley Region's own Water Quality Control Plan (Plan) for information on the significance of beneficial water uses. Chapter II of the Plan describes these uses.

> "Beneficial uses are critical to water quality management in California. State law defines beneficial uses of California's waters that may be protected against quality degradation to include (and not be limited to) '…domestic; municipal; agricultural and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources of preserves' [citation omitted]. Protection and enhancement of existing and potential beneficial uses are primary goals of water quality planning."[3]

104-83 cont'd

The *Technical Memo* provides a biased and incomplete assessment of the economic outcomes of adopting any of the *Draft EIR* alternatives. This is especially true regarding the economic benefits of the alternatives. Consideration of these benefits is essential, given the "primary goal" of water quality planning, as described by the Central Valley Region. Because of these flaws, Board members cannot not rely on the analysis and conclusions in the *Technical Memo* for a balanced, comprehensive, or informed assessment of the relevant economic outcomes of the *Draft EIR* alternatives.

VII. Risk and Uncertainty

The *Technical Memo* provides no information on how each of the five alternatives would affect the risks and uncertainty facing irrigators and others. Economic analyses of the scale and scope described in the *Technical Memo* typically include analyses of risk and uncertainty as a matter of course. The analysts' failure to comply with this generally accepted standard of practice gives decision-makers and stakeholders incomplete descriptions of the economic significance of the alternatives' outcomes.

The *Guidebook* describes the importance of accounting for risk and uncertainty in economic analyses of policies that affect water management.

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> "Although it is impossible to account for all sorts of uncertainty and risk in a planning study, there are techniques that can be used to acknowledge their existence and to assign some quantitative importance to them in the analysis. These techniques include …." (*Guidebook*, p. A-17)

The economic analysis described in the *Technical Memo* violates generally accepted standard by not assessing how the *Draft EIR* alternatives affect the risks and uncertainty that irrigators and other water users face.

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[3] California Regional Water Quality Control Board Central Valley Region. 2009. The Water Quality Control Plan (Basin Plan) for the California Regional Water Quality Control Board Central Valley Region Fourth Edition. Page II-1.00.

VIII. REGIONAL IMPACTS

The *Technical Memo* provides a biased and incomplete description of the regional impacts of the alternatives. The conclusions in this section emphasize negative outcomes and ignore the analytical assumptions that overstate costs and the resulting negative outcomes.

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In spite of the fact that the analysis described in the *Technical Memo* overestimates the costs of adopting the alternatives in the ILRP, Alternatives 3, 4, and 5 yield *net positive* impacts on employment and personal income. According to the *Technical Memo*, total personal income and total regional employment would *increase* with the adoption of Alternatives 3, 4, or 5. (*Technical Memo* p. 4-35)

The Conclusions subsection of the Regional Impacts portion of the *Technical Memo* describes reasons why the analysis likely underestimated the net adverse effects of the alternatives, which overstates the positive impacts on employment and personal income. A more balanced summary of this portion of the analysis would also comment on the reasons why the analysis likely overstates – perhaps significantly – the estimated costs of the alternatives.

104-86

The analysts present their IMPLAN assessment of regional impacts without disclosing the limitations of these types of multiplier models, or the implications of these limitation for their conclusions. For example, IMPLAN and other input-output models assume a static economy, or an economy that cannot respond to economic forces and trends, e.g., increasing market pressure to improve irrigation efficiency by switching from flood to sprinkler irrigation. In this example, the IMPLAN limitation compound the deficiencies associated with the study's baseline, which we describe above.

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September 27, 2010

Mr. Michael Lozeau
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Subject: Comments on the Draft Program Environmental Impact Report for the Long-term Irrigated Lands Regulatory Program

Dear Mr. Lozeau:

I have reviewed the "Draft Program Environmental Impact Report (PEIR) for the Long-term Irrigated Lands Regulatory Program (ILRP) within the Central Valley Region" ("PEIR") (July 28, 2010). I have also reviewed the "Irrigated Lands Regulatory Program Long-Term Program Development Staff Report (July 2010) and the "Draft Technical Memorandum Concerning the Economic Analysis of the Irrigated Lands Regulatory Program" (July 2010). I have prepared comments on the PEIR that address proposed surface water and groundwater monitoring and management practices.

1. The Alternatives are not Adequately Evaluated

The PEIR does not evaluate the relative effectiveness of the five alternatives in the control of contaminated discharges from agricultural operations in the Central Valley. Furthermore, the PEIR provides no quantitative analysis of the amount of contaminant loading to surface water and groundwater that would result from implementation of the alternatives. These are fundamental flaws of the PEIR that leave the reader with no basis to judge the merits and shortcomings of the alternatives. Because contaminant loads are not quantified, the cumulative impact to water quality cannot be predicted, as discussed in Comment (2) below. Finally, the PEIR fails to provide a basis to determine best practicable control or technology (BPTC) as required by Resolution No. 68-16 (Oct. 28, 1968). 104-88

Our brief qualitative analysis of the alternatives is as follows.

1

Alternative 1, because it is the status quo would fail to reduce contaminant loads and improve water quality and, because it relies on regional or watershed scale monitoring, would not allow for a determination of BPTC. To determine BPTC, monitoring and data comparison is necessary upgradient and downgradient of points of control, i.e., where measures are implemented in the field. Because of the reliance on current management practices and because only regional monitoring is to be used, Alternative 1would not result in measureable improvement to water quality and in fact foster further degradation of water quality. 104-89

Alternative 2, which includes some groundwater management practices, would not demonstrably reduce contaminant loads and improve water quality. The groundwater management practices include only token wellhead protection measures involve only the placement of dirt in berms adjacent to the wellhead to prevent movement of surface water to the wellhead. These minor improvements are already required under Title 3, California Code of Regulations Division 6 (effective May 27, 2004) for areas where pesticides are mixed, rinsed and stored. (http://www.cdpr.ca.gov/docs/emon/grndwtr/gwregsinfo0702.pdf) Implementation of these measures more broadly, i.e., at all farms, is not likely to result in significant water quality gains because the berms would only marginally protect against pesticide and nitrate transport in stormwater in the areas where wellheads are located and would not address subsurface transport of pesticides and nitrates. 104-90

No farm-scale monitoring requirements are included under Alternative 2 and therefore, a determination of BPTC is not possible. Because only token wellhead protection measures are to be undertaken, Alternative 2, like Alternative 1, would not result in measureable water quality improvements and may be just as likely to result in water quality degradation.

Alternative 3 requires farm plans that use a tiered approach to address water quality concerns. This alternative is an improvement and may result in some gains in water quality; however, because no surface water or groundwater monitoring is required, the implementation of this alternative would not result in measureable improvement to water quality and the lack of monitoring does not allow for BPTC determinations. 104-91

Alternative 4 provides for nutrient management and regional or individual monitoring under a tiered hierarchy. Whereas use of tiering is acceptable in determining the intensity of monitoring, the option to participate in regional scale monitoring would not allow for the determination of BMP effectiveness nor BPTC. Costs under Alternative 4 could also be reduced by incorporating groundwater quality information from public water supply systems into a database to compliment the data obtained from Tier 2 and Tier 3 farms that would be required to participate in regional groundwater monitoring. As with Alternative 3, Alternative 4 may provide some gains in water quality; however, those gains would not be measurable because only regional monitoring is required. 104-92

Alternative 5 requires surface water and groundwater monitoring at individual farms and would likely be most protective of water quality. Because discharger-scale monitoring 104-93

2

would be required, BMP effectiveness could be evaluated and a determination of BPTC could be made. As monitoring data from BMPs are evaluated, BPTC can be determined and deployed in the field.

The monitoring under this alternative, however, is duplicitous and overly burdensome. Instead, use of a tiering scheme (i.e., to reduce monitoring at low risk farms in low risk environments) would reduce costs as would better coordination between farms in fulfilling monitoring requirements. For example, if groundwater wells were to be installed, groundwater monitoring at neighboring farms could be coordinated with one farm's downgradient well serving as the adjacent farm's upgradient location. Alternative 5, while inefficient, would result in the greatest potential for water quality gains because of the monitoring that would be required at farms.

104-93 cont'd

To properly evaluate the five alternatives, a quantitative estimate of the contaminant loads to surface water and groundwater needs to be integrated into Chapter 3 of the PEIR, Program Description. Additionally, consideration of each alternative's capability to meet BPTC needs to be incorporated into Chapter 3, including specification of monitoring at a scale that allows for the determination of BPTC.

104-94

2. Cumulative Impacts on Downstream Ecologic Receptors are not Assessed

The PEIR fails to consider cumulative impacts of the alternatives on ecologic receptors downstream of the agricultural discharges in the Central Valley, namely the Delta and the San Francisco Bay and Estuary. Wildlife in the Delta and the Bay at risk include, for example, special-status fish species such as the Delta Smelt and anadromous fish such as Chinook Salmon and Steelhead Trout. Clearly, contaminant loading of pesticides and nutrients to upstream waters impacts habitat for these fish and their prey yet no consideration of these or any individual species is given in Section 6, Cumulative and Growth-Inducing Impacts. The PEIR states only in Chapter 6:

> Because many of the existing effects discussed in the section "Existing Effects of Impaired Water Quality on Fish" are cumulative, it is difficult to determine the relative contribution of irrigated lands and other sources. For example, low DO in the Stockton Deepwater Ship Channel is a result of contamination from upstream nonpoint sources (possibly including agricultural runoff) and discharges from the Stockton sewage treatment plant (Lehman et al. 2004; Central Valley Water Board 2005). Application of pesticides to non-agricultural lands such as urban parks and the resultant contaminant runoff also cumulatively contribute to impacts of inputs from irrigated lands.

104-95

This level of analysis is insufficient and provides no basis for comparison of the cumulative impacts that would result from the five alternatives. Section 6 should be re-written to estimate and incorporate contaminant loads from agricultural practices on irrigated lands to both surface water and groundwater under each alternative. The contaminant loads should be compared to other contaminant loads (other agricultural operations (e.g., dairies) and industrial discharge (e.g., treated sewage discharges) that are

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contributed to downstream water bodies, including the Delta and the San Francisco Bay, to predict cumulative impacts from Central Valley irrigated agricultural operations.

Cumulative effects are essential to consider, given the impact of poor water quality on downstream ecologic receptors. For example, pelagic organisms such as the delta smelt are in decline in the upper San Francisco Estuary. The decline is not only because of direct smelt mortality from entrainment at pump intakes but also because of exposure of smelt and smelt prey to toxics and nitrogen. (http://www.sciencedaily.com/releases/2010/05/100517161144.htm and http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/pelagic_organism/docs/pod_ieppodmt_2007synthesis_011508.pdf) Studies have also shown that contaminants, including pesticides, have been linked to the decline of striped bass in the Upper Sacramento River http://www.sciencedaily.com/releases/2008/12/081209100940.htm. Cumulative impacts are also important to consider in the decline of anadromous fish, where contaminants are one factor contributing to significant population reductions (see, for example PEIR p. 5.8-20)

104-95 cont'd

Cumulative impacts are also important to consider in impacts on recreation. For example, the growth of water hyacinth (Eichhornia crassipes) in the Sacramento-San Joaquin River Delta as a result of increased nutrient loads (nitrogen and phosphorus). (http://www.dfbw.ca.gov/PDF/Egeria/WHSciProbsExcerpts.pdf) The rapid growth of water hyacinth has resulted in impacts to boating and recreational use by impeding waterway navigation and swimming.

Despite these and other well-known and significant impacts, the PEIR fails to discuss cumulative impacts to water quality, fisheries, and recreation from implementation of the five alternatives. The failure to consider cumulative impacts stems from the fact that contaminant and nutrient loads were not quantified in the PEIR, by alternative, as noted in Comment 1. The PEIR needs to conduct a thorough assessment of cumulative impacts that will include consideration of contaminant contributions from irrigated agricultural lands to surface water and groundwater under each alternative.

3. Surface Water Monitoring Required under Alternatives 4 and 5 is Vague

The PEIR lacks fundamental detail regarding those alternatives where farm-scale surface water monitoring may be conducted (i.e., Alternatives 4 and 5). The PEIR describes Tier 2 and Tier 3 monitoring for Alternative 4 as follows (p. 3-19):

> Tier 2: Individual tailwater, stormwater, tile drainage monitoring for constituents of concern 1 year of every 5 years
>
> Tier 3: Individual tailwater, stormwater, tile drainage monitoring for constituents of concern

104-96

The PEIR describes surface water monitoring under Alternative 5 as follows:

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Under Alternative 5, each operation would be required to conduct the following monitoring and tracking for each field and submit the results to the Central Valley Water Board annually.

- Discharge monitoring for constituents of concern
- Tailwater discharges monthly.
- Storm water discharges during the first event of the wet season (between October 1 and May 31) and once during the peak storm season (typically February).
- Discharges of subsurface (tile) drainage systems annually. (PEIR, p. 3-28)

104-96 cont'd

The PEIR is vague on how surface water monitoring practices and resultant data would be reviewed stating only that the Regional Board would review and approve monitoring plans of third parties and legal entities and would review monitoring reports (PEIR, p. 3-21). The PEIR does not specify criteria that would define acceptable practices for monitoring including use of appropriate QA/QC, use of state-certified laboratories, methodology for selection of constituents of concern, and required locations for stormwater sampling (i.e., upgradient/downgradient, pre- and post BMP). We understand the PEIR is a programmatic EIR; however, some level of detail is needed in a revised PEIR to evaluate the effectiveness of the farm-scale surface water monitoring that is proposed in Alternatives 4 and 5.

4. Public Health Impacts from Exposure to Contaminated Groundwater is not Considered

More than two million Californians have been exposed to harmful levels of nitrates in drinking water over the past 15 years and the population of those exposed keeps growing. The PEIR acknowledges the extent of nitrate contamination and includes, as Figure 5.9-17, a map that shows nitrate contamination to be concentrated in the Central Valley. Incredibly, however, the PEIR makes no attempt analyze how nitrogen-based fertilizer application in the Central Valley results in significant exposure of the public to contaminated groundwater, the health impacts of that exposure, or how implementation of any of the five alternatives would reduce or increase exposure, other than to say, for Alternative 1:

104-97

> Nutrient management would improve both surface water quality and groundwater quality by improving the use of chemicals and using improved application techniques, and by limiting the use of nutrients as fertilizer that could potentially seep to groundwater and add nitrate to the groundwater table. (PEIR, p. 5.9-14)

The assertion that ongoing nutrient management efforts would somehow improve water quality is not borne out by recent data. In fact, the status quo, as proposed in Alternative 1, has resulted in an increase, statewide, in the number of wells that exceeded the health limit for nitrates, from nine in 1980 to 648 by 2007. (http://articles.sfgate.com/2010-05-17/news/20901575_1_nitrate-contamination-water-supply-water-systems) Of 13,153 wells sampled statewide, 1,077 active and standby drinking water wells have

concentrations of nitrate above the drinking water standard of 45 mg/L. (http://www.swrcb.ca.gov/water_issues/programs/gama/docs/coc_nitrate.pdf) In Tulare County, more than 40% of private domestic water wells exceed the drinking water standard for nitrate and statewide, the majority of nitrate exceedences appear to be in the Central Valley. (http://www.swrcb.ca.gov/gama/docs/ekdahl_gra2009.pdf) On the basis of more than 25 years of data, the number of wells that exceed the drinking water standard for nitrate is growing as a percentage of all nitrate detections. (http://www.swrcb.ca.gov/gama/docs/ekdahl_gra2009.pdf) Clearly the status quo is not working and implementation of Alternatives 1 and 2 would likely lead for further increases in nitrate drinking water violations in the Central Valley.

Health effects of exposure to nitrates most notably results in methemoglobinemia or "blue baby syndrome." Toxic effects of methemoglobinemia occur when bacteria in the infant stomach convert nitrate to more toxic nitrite, a process that interferes with the body's ability to carry oxygen to body tissues. Infants with these symptoms need immediate medical care since the condition can lead to coma and eventually death. Pregnant women are susceptible to methemoglobinemia and should be sure that the nitrate concentrations in their drinking water are at safe levels. Additionally, some scientific studies suggest a linkage between high nitrate levels in drinking water with birth defects and certain types of cancer. (http://www.swrcb.ca.gov/water_issues/programs/gama/docs/coc_nitrate.pdf)

104-97 cont'd

The PEIR should be rewritten to include an assessment of the potential for the public to be exposed to nitrates in drinking water from agricultural practices in the Central Valley. The assessment of each alternative should include an estimate of nitrogen loading to fields; nitrogen fate and transport in soil, surface water, and groundwater; nitrogen monitoring; and a summary nitrogen impacts to water supplies. Linking monitoring to measurement of each of the alternatives is critical. An annual assessment of the performance of the alternative that is selected should be required and use of the 13,000-well California Department of Public Health database should be required as a tool for evaluation of nitrate trends.

Sincerely,

Matt Hagemann, P.G.

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27 September 2010

Bill Jennings, Executive Director
California Sportfishing Protection Alliance
3536 Rainier Avenue
Stockton, CA 95204

Subject: Monitoring Requirements for Compliance with the Irrigated Lands Regulatory Program.

You've asked me my opinion in the form of several questions about water quality monitoring. These questions are within the context of the irrigated lands regulatory program that deals with farmland and the water runoff from these lands into receiving waters in the State of California.

I am a professional geologist specializing in water chemistry, water quality, groundwater, and engineering geology. I hold professional licenses and certifications issued by the State of California for these practices, and operate a private consulting business providing these services. I have more than twenty-five years experience evaluating natural and contaminant water chemistry problems and issues. Eleven of those years were working for the California State Regional Water Quality Control Board on water quality issues related to the impacts and remedies of water pollution from industrial and cultural activities. My experience includes the development, preparation, and review of hundreds of water quality monitoring programs involving surface water as well as groundwater systems. A true and correct copy of my curriculum vita is attached.

You asked if it is possible to protect the beneficial uses of waters of the State without monitoring those waters. The answer is a simple no. Protection of beneficial uses of waters of the State is function of the ability to monitor those waters to determine their quality. This done to verify their conformity to water quality standards and goals as defined in the Basin Plan. 104-98

You asked if it was possible to evaluate the effectiveness of a water treatment system or of a management practice at a farm without monitoring the discharge. My answer is no. Evaluating the effectiveness of a technology or a practice requires that the change in water quality attributable to the specific practice or technology be verified. To do that a reference sample from the point of discharge and then a comparison sample taken from the same location after the technology or practice is implemented must be collected and analyzed. In actual practice, multiple samples over range of operating conditions must be collected to verify positive changes. 104-99

You also asked if it was possible to evaluate the effectiveness of a water treatment system or of a management practice at a farm from a distant downstream monitoring location. The basic answer is no. In such a case, before the samples are collected, the discharge is mixed and diluted in the receiving water with other sources of pollution from other farms. Any changes in water quality that may occur at the discharge are masked within this soup of waters and pollution and the performance of the technology or practice are essentially unknowable. 104-100

You asked if the downstream water quality of a complex watershed composed of multiple sub-watersheds, is a valid measure of the water quality in any or all of the individual sub-watersheds. My answer is no. While gross average conditions may be observed downstream, the conditions of individual upstream sub-watersheds will remain unknown. Between the downstream monitoring station and the various upstream watersheds, mixing and dilution occurs and the conditions at any upstream point are obscure to the downstream location. 104-101

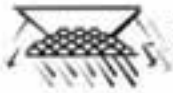
I've attached a 26 May 2003 letter from me to the Chairman of Central Valley Regional Water Quality Control Board on the subject of the Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands within the Central Valley Region. This letter also addresses many of the issues associated with water quality monitoring of irrigated lands.

Sincerely

SOND.C

Steve Bond PG, CEG, CHG
Principal, Steven Bond and Associates

Attachments



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26 May 2003

Mr. Robert Schneider
Chairman, Central Valley Regional Water Quality Control Board
3443 Routier Road, Suite A
Sacramento, CA 95827-3003

Subject: Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands within the Central Valley Region, 24 April 2003

Chairman Schneider and Members of the Board.

I have reviewed the proposed Monitoring and Reporting Programs (MRP) for the Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands within the Central Valley Region which was prepared for the 24 April 2003 Regional Board hearing. I prepared this letter on 23 May 2003 but was unable to transmit because I lacked various information available only on the Regional Water Quality Control Board Web Site, which was unavailable at that time. I was informed today that the deadline for comments was extended due to technical problems with that web site. I am submitting this letter on behalf of the DeltaKeeper and Water Keepers of Northern California.

I find that the proposed MRP and associated Quality Assurance Project Plan are impressive documents with many positive elements to offer for the protection of water quality. However, in certain respects the proposed MRP is too general and provides loop holes that may result in less than adequate monitoring data.

I am a professional geologist specializing in water chemistry, water quality, groundwater, and engineering geology. I hold professional licenses and certifications issued by the State of California for these practices, and operate a private consulting business providing these services. I have eighteen years experience evaluating natural and contaminant water chemistry problems and issues. Eleven of those years were working for the California State Regional Water Quality Control Board on water quality issues related to the impacts and remedies of water pollution from industrial and cultural activities. My experience includes the development, preparation, and review of hundreds of water quality monitoring programs involving surface water as

well as groundwater systems. A true and correct copy of my curriculum vita is attached.

The decades of growth and development of the Central Valley and its agricultural industry has coincided with the decline of the quality of the Central Valley waterways. Although this decline is a matter of record, discharges and runoff from irrigated agriculture and other agricultural operations have contributed to this decline in ways that are often difficult to quantify. They are not easily quantified because because critical monitoring programs were not in place to require the collection of essential data. 104-102

Water Quality Monitoring Fundamentals

Monitoring is the central supporting element of water quality protection and conservation. All actions to protect and safeguard our water resources rely on what the monitoring informs us about the conditions of the water bodies. Monitoring programs are like the physical senses; they are the faculties which we perceive the conditions of the water bodies. Without monitoring, we are blind to all but the grossest conditions in our rivers, streams, and lakes. Further, a poor or inadequate monitoring program provides us with questionable information and ambiguous clues to guide us in making intelligent decisions regarding water quality control.

A valid monitoring program usually begins as a well-reasoned plan. It will include an assessment of water flow onto and off of an area of possible or potential pollution, and contaminants. It will include an assessment of all the potential sources of pollution and contamination and identify the elements and constituents associated with the sources. The elements can include individual constituents as well as possible adverse effects of combinations of individual constituents and or conditions. These effects will be measured as toxicity. The well-reasoned plan will address the representativeness of sample collection by the method and timing of sample collection and measurement. 104-103

A well-reasoned water-quality monitoring plan is based on a thorough understanding of flow paths and physical and chemical quality of the water moving through a watershed. This will include an understanding of the variability of the flow and quality of the water over time, and at different locations within the watershed. This understanding of the watershed becomes the standard by which subsequent monitoring data can be measured or judged. Definition of existing conditions within a

watershed will require, at a minimum, the monitoring of a full annual cycle of climatic changes. However, multiple years of data are needed to address variations in the annual cycles.

A good understanding of a watershed (existing-conditions) is highly desirable; it is usually essential. Lacking good understanding of the existing-conditions, the only option left is to measure the quantity and quality of water before (background) it enters the critical area of the watershed (project area), and then conduct identical monitoring of water as it passes from the project area. In this latter case, the background water quality becomes the standard, or benchmark which the down-river water quality can be measured and judged.

Monitoring Point Locations

Valid monitoring data can only be collected from logical points of monitoring placed within the flow path of the discharges from the potential sources of pollution (the agricultural lands) into the receiving waters; the waters of the State.

Monitoring Parameters

A reasonable water-quality monitoring program will track physical and chemical constituents of interest (constituents of concern) specific to the discharge from a source and, will define the mass of contaminants discharging from the source. The constituents of concern will include each constituent reasonably expected to come from the agricultural operation. Constituents of concern will also have the potential to impair the beneficial uses of the receiving waters, or they will be indicators or surrogates of such pollutants.

104-103 cont'd

Sample Collection Timing

Sample collection must coincide with the most likely period of time that discharge of pollutants would occur. In many cases pesticide and fertilizer application occurs only at certain times of the year and these times vary depending on the crop. Consequently a valid plan will address these variables.

Monitoring Cost Estimates

A wide range of alternative technologies exist to assist the responsible parties in efficient and cost conscious data collection. When attempting to assign a dollar cost to monitoring project, it is not reasonable to assume the that the most labor intensive sampling and analytical techniques should be used.

Monitoring Station versus Watershed Area

The proposed MRP is excessively lenient where it indicates that 20 square kilometers (5000 acres) of watershed will be a maximum area allotted per monitoring point. This language will tend to encourage dischargers to design monitoring plans around this figure and in doing so will undermine the quality of monitoring data.

For example, a monitoring plan with a large watershed and few monitoring points will inevitably have a number of small tributary water bodies located between a single monitoring point and a potential source of pollution. These small tributaries will alter the character and quality of the water and the sampled water will not be representative of the water quality impairment immediately down stream of a particular discharge. Such a program will deliver misleading and incomplete information with respect to receiving-water water quality conditions. This will result in contradictory or ambiguous conclusions with respect to the performance of any mitigation measures, or lack thereof, at the project area.

104-103 cont'd

Emphasis should be placed on the requirement that each discharge point be monitored and that each sample collected be representative of the discharge water quality. The size of an area represented by a monitoring station should be a function of the number of discharges from a specific agricultural operation.

Summary

An adequate monitoring program is a valid program. It will assess the impacts to the state's waters from agricultural operations and it will require monitoring stations at the point(s) of discharge. A valid monitoring program will monitor for all constituents of concern as well as toxicity. It will assess the total mass of pollutants discharging from individual agricultural operations and it will also include a comprehensive ambient (background) monitoring program.

Sincerely

Steve Bond
Principal, Steven Bond and Associates, Inc.

Attachment

3.3.9.1 Responses to Letter IL104

104-1

Since initiation of the current ILRP in 2003, the Central Valley Water Board and third-party groups have (1) enrolled over 25,000 growers in the program; (2) collected over 250,000 water quality data points in over 400 Central Valley waterways that receive irrigated agricultural waste discharges; and (3) required the development of regional water quality management plans to address exceedances of water quality objectives for 546 water body-constituent combinations (see Draft PEIR, Appendix A, Table 3, page 26, and Figure 10, page 27).

Concern over whether there have been any reported improving trends in water quality associated with the ILRP.

Third-party regional water quality management plans are currently being developed and many are in various stages of implementation throughout the Central Valley. Once approved by the Central Valley Water Board, third-parties and irrigated agricultural operations are required to implement the plans. Improvement in water quality should follow implementation of management plans. It will also take time to collect enough data points to verify whether any visible trends are real, or an artifact of variability or other uncertainties. The Board is also concerned and must evaluate, as plans are implemented and new data collected, whether water quality is improving under the ILRP. It is too early to associate changes in water quality (trends) with the current ILRP, given that management plans have not been fully implemented. However, a number of plans have been approved as "complete," either because source identification efforts have eliminated irrigated agriculture as a source or sufficient time/ sampling events have taken place with no further exceedances.

Central Valley Water Board may not have any idea whether farms have implemented management measures.

While it is difficult to determine when management practices have been implemented, it is clear that practices are being put in place. For example, Table 2-2 of the Draft ILRP Economics Report indicates that nutrient management is in place on over 60 percent of citrus and subtropical, deciduous fruits and nuts, and truck, nursery, and berry crops. Staff concurs that the current ILRP has not provided adequate tracking information on management practices. Alternatives 2–6 require management practices tracking to ensure that this data gap is filled in the Long-term ILRP.

Because of reliance on regional monitoring, the Board may not know whether implemented management measures are effective or whether they would be considered BPTC.

The concern of whether regional monitoring is appropriate to confirm whether management practices are in place and effective must be considered. As described on page 141 of the Draft PEIR, Appendix A, regional monitoring can be used to determine whether there is a water quality concern and whether implemented practices are effectively addressing the concern (at the regional or watershed level). This is because regional monitoring results should reflect the overall implementation of practices in place within the watershed to protect water quality (as long as monitoring locations are representative of irrigated agricultural waste discharges). If watershed monitoring is unreflective of management plan implementation, then the practices are ineffective. Therefore, review of watershed-based regional monitoring along with tracking management practices implementation will provide the Board with information regarding the implementation

and overall effectiveness of management practices and allow for evaluating whether the practices within the watershed reflect BPTC, where appropriate. Staff has proposed to include more specifics in the Long-term ILRP regarding when site-specific or field studies must be conducted. Also see Comment Letter 104, Response 18.

Farm-specific monitoring and information have not been collected.

Farm specific monitoring has not been collected under the current program. As described in the Draft PEIR, Appendix A, regional monitoring and management can be used to meet program goals and objectives and other state policy requirements (see Draft PEIR, Appendix A, pages 162–172). Development of the Long-term ILRP will consider requirements for additional individual regulation, including collecting farm-specific information, if regional efforts are not leading to improvements in water quality.

Third-party groups do not have enforcement authority to require members to implement water quality management plans.

In general, third-party groups may not have the authority to require that members implement water quality management plans. Consequently, where a third-party is unable or unwilling to require members (irrigated agricultural operations) to implement management plans, the Central Valley Water Board's only recourse would be to enforce requirements individually as the lead entity. Third-party groups provide coordination and help to leverage local expertise (e.g., Agricultural Commissioners, other government entities) in addressing water quality problems, thereby allowing the Board to reach tens of thousands of operations with minimal available staffing. The Central Valley Water Board has considered these benefits along with the mentioned enforcement concerns. The result of this consideration being that continuing the third-party lead structure in the Long-term ILRP would be acceptable as long as the ILRP provides the mechanism for the Board to enforce requirements individually, or where third-parties are noncompliant, replace the third-party as lead entity. For example, in order to ensure that third-party water quality management plans are implemented by operators, Alternative 6 requires that individual water quality management plans be developed where "…objectives are not met, improvements in water quality do not occur within the approved time schedule for implementation, or where irrigated agricultural operations are not implementing requirements in SQMPs/GQMPs."

104-2

See Comment Letter 104, Letter 1.

Alternatives 3 and 5 require individual farm water quality plans and all of the alternatives, except Alternative 3, include some form of water quality monitoring. Accordingly, these recommendations have been considered in the Draft PEIR. Also see Comment Letter 104, Response 3.

The comment's recommendations will be considered in the development of the Long-term ILRP.

104-3

Major components of the alternative described in this comment can be summarized using the program components described in the Draft PEIR, Appendix A (pages 136–141) as follows:

Implementation mechanism: WDRs or conditional waiver of WDRs.

Lead entity: Central Valley Water Board as described under Alternatives 3 and 5 (see Appendix A of the Draft PEIR, Appendix A for a description of the alternatives).

Program organization: Tiered requirements similar to those described under Alternative 4.

Water quality management plans: Individual water quality management plans similar to those described under Alternative 5.

Monitoring: Individual monitoring, similar to Alternative 5. The comment proposes that the individual monitoring could be prioritized to address areas with recognized water quality problems (e.g., surface water management plans under the current program).

The suggested alternative also describes inspection requirements. Alternatives 3, 4, and 5, evaluated in the Draft PEIR include inspection requirements.

The suggested alternative is built from the components of the alternatives evaluated in the Draft PEIR and is best characterized as Alternative 5 with prioritized individual farm monitoring. The ability to construct a proposed alternative utilizing elements contained within the existing Draft PEIR's alternatives, demonstrates that the Draft PEIR provides the Board with a reasonable range of alternatives to the current ILRP.

The following response elements correspond to the numbering in the comment letter.

1: The alternative described in the comment does not involve third-party lead entities, which is the same as Long-term ILRP Alternatives 3 and 5.However, there are no state or federal requirements precluding the involvement of third-party organizations in NPS programs (see discussion of the State NPS policy, Draft PEIR, Appendix A, page 10.)

2: This comment implies that the State Water Board's NPS Policy requires all irrigated agricultural operations to develop individual farm water quality plans, while the quoted language clearly suggests discharger assessment as an important first step. This assessment is described as part of individual farm water quality plans (required under Alternatives 3, 4, 5) and regional water quality management plans (Alternatives 1, 2, and 6). Regional water quality management plans would require growers to report (and, accordingly, assess) the practices that they are implementing to protect water quality. Such a farm specific assessment will be considered during development of the Long-term ILRP.

3: A tiered approach would help to reduce costs and provide focus for regulatory requirements. Alternatives 2, 4, and 6 each provide means of focusing regulatory requirements on problem areas. The Central Valley Water Board will consider incorporation of a tiered approach based on threat to water quality and available data during the development of the Long-term ILRP.

4: The suggested alternative includes tracking: nutrient, pesticide, and management practices. Alternatives 2–6 include mechanisms for tracking implementation of management practices. Alternatives 4 and 5 also include nutrient tracking mechanisms. It is important to note that nutrient tracking alone would not provide the information necessary to evaluate potential water quality impacts. For example, climate, soil type, depth to groundwater, type of irrigation practice, crop type, and nutrients removed during harvest are all factors that must be considered in evaluating nutrient use and potential impacts to water quality. DPR currently tracks pesticide use and that information is available for evaluation by the Central Valley Water Board, third-party groups, and dischargers. Also, see response to item 2, above.

5: The individual surface water quality monitoring described by the comment is similar to the tailwater monitoring described under Alternative 5. However, the comment also suggests that individuals should monitor influent and effluent for areas with implemented management practices to determine the efficacy of said practices. This information is not generally collected for any other Central Valley Water Board regulatory program, unless specific standards have been developed (e.g., publically owned treatment works biochemical oxygen demand [BOD] removal standards, industrial pretreatment standards). The suggested internal waste stream monitoring would be expensive and would only provide data for surface water that exists on the farm, not groundwater that exists beneath the farm or water quality in surface waterways that may or may not receive surface water discharges from the farm. The Board's authority to require monitoring reports, Section 13267 of the California Water Code, requires that: *"The burden, including costs, of these reports [monitoring] shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports."* The requirement for each individual farm to monitor internal waste streams would be difficult to justify under Section 13267. This type of monitoring would be useful and justifiable on a selective basis to demonstrate whether a new practice would be effective, and could be performed as part of research projects or selective demonstrations. Receiving water monitoring at strategically placed locations and/or tailwater monitoring could be used to evaluate the impacts of NPS discharges associated with irrigated agriculture, consistent with NPS and Antidegradation requirements (see Draft PEIR, Appendix A, pages 107–116,[Alternatives 1–5], 165–168 [Alternative 6]). Development of the Long-term ILRP will consider the usage of field studies of management practice effectiveness if improvements in water quality do not occur. Such studies may not be necessary, if water quality is improving or objectives are met.

6: The individual groundwater monitoring described by the commenter is similar to the individual monitoring described for tier 3 operations under Alternative 4, but would cover essentially all Central Valley operations as in Alternative 5 (it is estimated that an insignificant number of operations would apply for Tier 1 due to the burdensome site-specific information necessary). The comment also recommends that each operation should be required to survey nearby public supply well monitoring results for the presence of pesticides or other pollutants. This recommended monitoring would provide growers with information regarding nearby groundwater quality, but it is unclear how the information would be relevant to an individual farm unless a determination of the source of the impact can be made (what direction is groundwater flow, how old is the water in the public supply well, how is the well constructed [depth of perforated interval], or whether the pesticides detected have been used in the farming operations). As described above, California Water Code Section 13267 requires that the costs for reports must bear a reasonable relationship to the need for and benefits to be obtained from the report. In this case, it is difficult to see how the public supply well information would be used by individual growers and what benefits would be derived from the burden associated with gathering the information.

The Central Valley Water Board has the authority to require regional monitoring, but does not have the authority to establish fees to fund the Board to conduct such a program. The legislature would need to authorize such a program and the State Water Board would establish any fee schedule.

The Central Valley Water Board will consider including an option for the Executive Officer to request such site-specific monitoring in the Long-term ILRP. However, information related to nutrient budgeting will provide more timely data on changes to waste discharges to groundwater versus an extensive annual monitoring program. Groundwater aquifers can take many years to respond to changes in overlying land management.

7: This suggestion is similar to the framework described under Alternative 5, where operations would be required to develop an individual farm water quality plan, and submit the plan to the Board upon request.

8: Alternatives 3, 4, and 5 contain prioritized inspection requirements similar to those described by this comment.

9: The merits of establishing a regional monitoring program based on fees collected from all dischargers are outside the scope of the Long-term ILRP. The purpose of regional monitoring and the role of individual monitoring are discussed in the alternatives. Also see Comment Letter 123, Response 32.

10: Funding requests for the Central Valley Water Board will originate with the California EPA. The Governor will determine whether to include any such request in his proposed budget that he submits to the legislature. The Central Valley Water Board does not make decisions on where program funding originates or the level of funding available for the irrigated lands regulatory program.

104-4

See Master Response 10. In addition, CEQA does not require identification of the proposed project. However, each alternative received greater level of analysis due the lack of a proposed alternative.

104-5

The comment describes that the PEIR assumes that similar types of practices would be implemented under Alternatives 1 and 5. It is partially correct that Alternatives 1 and 5 would lead to implementation of similar types of practices to protect surface water quality, working to meet Basin Plan water quality objectives. However, in contrast to Alternative 1, Alternative 5 requires the protection of groundwater quality and specific farm-based nutrient planning requirements. Because Alternative 5 would require that irrigated agricultural operations reduce waste discharge to groundwater, the Draft PEIR assumes that additional groundwater quality management practices would be implemented (e.g., nutrient management) –when compared with Alternative 1. As shown in Table 17 of the Draft PEIR, Appendix A, the estimated costs of management practices under Alternative 5 are nearly twice the estimated costs estimated for Alternative 1. Also see Master Response 8.

The Draft PEIR estimates the types and associated environmental impacts of practices that may be implemented by irrigated agricultural operations in response to ILRP alternatives. The Central Valley Water Board's authorities do not extend to requiring specific types of management practices (California Water Code Section 13360). Therefore, none of the ILRP alternatives describe practices that must be implemented. Instead of requiring specific practices, each alternative requires that Basin Plan water quality objectives be met in waters receiving irrigated agricultural wastes. In developing the programmatic analysis, the Board has assumed that operations would implement management practices in areas throughout the region to address water quality concerns.

See Comment Letter 104, Response 18.

The concern over the effectiveness of the current program is addressed in Comment Letter 104, Response 1.

104-6

Comment noted, no response solicited or required.

104-7

See Master Response 10. In addition, CEQA does not require identification of the proposed project however each alternative received greater level of analysis due the lack of a proposed alternative.

104-8

See Comment Letter 104, Response 71.

See Master Response 10 and Comment Letter 104, Response 3.

104-9

In drafting the Draft PEIR, staff did not intend to imply that it lacked a duty to maintain applicable beneficial uses if the beneficial uses are deemed "inappropriate." In response to the comment, the language has been revised to read, "Restore and/or maintain applicable beneficial uses established in Central Valley Water Board water quality control plans by ensuring that all state waters meet applicable water quality objectives." See Chapter 4, Revisions to the Draft Program Environmental Impact Report, page 4-25 in this Final PEIR.

104-10

Resolution 68-16 does not require BPTC for all waste discharges; only those that could degrade a "high quality water."

The second objective to "*Encourage implementation of management practices that improve water quality in keeping with the first objective*…" (Draft PEIR, page 1-2) is intended to encourage operators to implement practices that would minimize their waste discharge. This objective must be considered along with the other goals and objectives. The concern that this objective diminishes the Central Valley Water Board's mandate to establish requirements that implement or be consistent with water quality control plans is not supported considering the following goal and objective:

> ***Goal 2:*** *"Minimize waste discharge from irrigated agricultural lands that could degrade the quality of State waters."*
>
> ***Objective 1:*** *"Restore and/ or maintain appropriate beneficial uses established in Central Valley Water Board Water Quality Control Plans by ensuring that all state waters within the Central Valley meet applicable water quality objectives."*

Objective 2 does not supplant or supersede Objective 1. Although not required by Resolution 68-16, the Board could determine that "BPTC" is the standard that should be met to minimize waste discharge to all waters regardless of quality.

104-11

The objective to "*Provide incentives for agricultural operations to minimize waste discharge to state waters from their operations*," is intended to encourage operators to minimize waste discharges. This objective must be considered along with the other goals and objectives. The concern that essential

water quality protection and monitoring would be traded as incentives to minimize waste discharge is not supported considering Goal 2 and Objective 1 require that waste discharge that could affect the quality of state waters be minimized and that beneficial uses be protected (Draft PEIR, Chapter 1, Summary, page 1-2). Also see Comment Letter 104, Response 10.

104-12

The comment that regional efforts have been ineffective cannot be responded to due to lack of specificity.

The program goals and objectives were developed and adopted, through consensus, by the Stakeholder Advisory Workgroup. Objective 5 requires that the ILRP promote coordination with other programs associated with irrigated agriculture (see Draft PEIR, Appendix A, page 103).

Irrigated agriculture operations are nonpoint sources. Many of the water quality concerns facing irrigated agriculture have multiple sources that may only be effectively controlled through a combined effort. Examples include nitrate sources from irrigated agriculture, dairies, septic systems, and municipalities; pesticides from cities, golf courses, and irrigated agriculture. Coordination with other programs in a watershed-based model will facilitate coordination with other waste control programs.

104-13

See Comment Letter 111, Response 56.

104-14

See Master Response 8.

104-15

See Comment Letter 104, Response 1 and Master Response 8.

104-16

See Master Response 5.

104-17

The Central Valley Water Board disagrees that farm-specific implementation and monitoring is the only way to meet the requirements of Resolution 68-16. The Draft PEIR, Appendix A programmatic evaluation adequately analyzes the ILRP alternatives with respect to the Antidegradation Policy. Orders developed under the ILRP program will include findings with regard to the consistency with the Antidegradation Policy. It must also be noted that not all operations would be required to implement BPTC; only those with waste discharges that could cause degradation of a "high quality water" are subject to the Antidegradation Policy.

104-18

Each of the alternatives has been evaluated for consistency with applicable state policy and requirements, including the NPS and Antidegradation policies. In the evaluation, only Alternatives 4, 5, and 6 were found to be fully consistent with the NPS and Antidegradation policies.

See Comment Letter 104, Response 17.

The comment also outlines concerns over whether regional monitoring can be used to provide feedback on whether changes in farm management are resulting in changes in water quality. The benefits and drawbacks of regional monitoring compared with farm-based monitoring have been considered in the Draft PEIR, Appendix A (page 95). Water quality objectives apply to the receiving waters. Therefore, regional, watershed-based monitoring of receiving waters is a reasonable approach to determine whether receiving water quality objectives are being met, including antidegradation requirements. This information can be linked to management changes within the watershed. Therefore, watershed-based monitoring can be used to provide program feedback as required by the NPS Policy, and provide information to evaluate implemented practices, on a macro- or watershed-scale.

104-19

See Comment Letter 104, Responses 17 and 18.

The Draft PEIR and Draft ILRP Economics Report discuss the types of management practices that may be implemented for all of the alternatives. Alternatives 4 and 5 require the development of individual farm water quality plans, while Alternative 6 requires the development of regional water quality plans. Regional water quality management plans would be used to assess irrigated agricultural operations, provide grower education, and develop a description of the types of practices that need to be implemented. In Alternative 6, these plans would be linked to watershed, or regional, water quality data and practices tracking, effectively targeting problem constituents in a watershed area and providing information on watershed-based efficacy of practices implemented.

The Central Valley Water Board agrees that representative field monitoring can provide valuable information on the effectiveness of management practices. However, monitoring of every field is not a requirement of the NPS Policy.

104-20

See Master Response 13.

To the extent that the comment indicates that the time schedules set during ILRP implementation should be no longer than reasonably necessary to achieve water quality objectives, Central Valley Water Board concurs.

104-21

See Comment Letter 104, Responses 3 and 18.

104-22

Potential consequences for failure to achieve ILRP objectives are presented in the Draft PEIR, Appendix A (page 113) and include iterative additional monitoring/ practices, enforcement action, and submittal of report of waste discharge. As described in the report, "*…staff will ensure consistency with Key Element 5 by including…potential consequences in the adopted long-term ILRP alternative*."

In addition to the consequences described on page 113, Alternative 6 requires individual water quality management plans where third-party developed regional plans are ineffective.

The Central Valley Water Board agrees with the comment that dissolving a non-compliant third-party would also place difficulties upon the Board. Especially where no general order is in place for individuals not enrolled in a coalition. However, this action is necessary where a third-party group is not fulfilling ILRP requirements. Accordingly, any recommended ILRP will include the development of WDRs or a waiver to be implemented in areas where either no third-party exists or it has been dissolved, or for those individual discharges not in compliance under the third-party framework.

104-23

See Master Response 10.

104-24

See Comment Letter 104, Response 1.

104-25

The project analyzed in the Draft PEIR is not agricultural operations in the Central Valley; rather, existing agricultural operations are part of the baseline of the analysis. The ILRP alternatives include a number of management and eventual regulatory actions that are designed to identify and reduce the adverse effects of runoff or percolation of water from irrigated agriculture. The anticipated effects of all alternatives are beneficial to water quality, including groundwater, in that none of the 6 alternatives will worsen water quality. There are indirect effects of implementing modified farming practices as a result of the program that are potentially adverse; these have been discussed in the Draft PEIR.

Also see Master Response 6 and Comment Letter 104, Response 18.

104-26

The support for Alternative 3 will be considered in the development of the Long-term ILRP. See Comment Letter 104, Responses 3 and 28.

104-27

The recommendation that FWQMPs be developed within 6–12 months instead of 2 years will be considered in the development of the Long-term ILRP. The shorter time frame is likely impractical if the requirement is applied to all 35,000 irrigated agricultural operations. However, a shorter timeframe may be appropriate if the requirement for individual FWQMPs has more limited applicability. In addition, because management practices would often have effects on both surface and groundwater discharges, any farm plan would likely address both issues—there would not be separate plans with different submittal deadlines.

104-28

Alternatives 4 and 5 include the requirement that individual FWQMPs be developed, without a condition that the Central Valley Water Board would review and approve the plans—as suggested by the comment. The recommendation has been evaluated in the Draft PEIR as part of Alternatives 4 and 5.

California Water Code Section 13223 describes delegation authorities between the Central Valley Water Board and Executive Officer. There is no legal requirement that the Board review or approve individual FWQMPs. Because the review of individual FWQMPs is not legally required it follows that the Board has discretion to set conditions under which the Board would not review the FWQMP. The suggested approach to utilize a third-party certifier could be implemented by setting a condition under which the Board would not review the FWQMP.

104-29

The Central Valley Water Board recognizes the support for site inspections on a certain percentage of operations each year, individual water quality plans, and tailwater monitoring.

See Comment Letter 50, Response 14.

104-30

See Comment Letter 104, Response 18.

The concerns expressed regarding the limitations of visual monitoring will be considered in the development of the ILRP. However, the NPS Policy recognizes photo monitoring as a useful means of monitoring.

104-31

The support for a tiered program as a way to focus limited resources on the more significant pollutant issues, development of individual farm plans, and individual monitoring will be considered in the development of the Long-term ILRP.

See Comment Letter 104, Responses 3 and 93.

104-32

See Comment Letter 104, Response 18.

104-33

The support for monitoring onsite wells for nitrates and pathogens will be considered in the development of the Long-term ILRP. The use of existing site wells to monitor groundwater impacts due to irrigated agricultural activates requires specific information on the well construction. See Comment Letter 9, Response 10.

Wells contained within the California Department of Public Health public drinking water supply list are generally large diameter wells that have long screened intervals and have been constructed to avoid known areas of groundwater contamination (drilled deeper to be below impacted depth or not screened opposite impacted interval). It is common practice during drilling of a public supply well to sample groundwater from various depths in the open borehole to investigate water quality. Based on this sampling, a decision is made to go deeper (below impact) to construct the well around the contaminated interval (seal off contaminated interval and only draw water from un-impacted intervals).

The well depth and length of screened interval are critical to any evaluation of groundwater data, particularly nitrate. Shallow (installed in first encountered groundwater) monitoring wells

constructed with short screen lengths provide the most accurate means for determining water quality impacts. As a general rule, the deeper a sample is collected within the water column the older the age of the water. While nitrate impacts are first detected in shallow wells, intensive pumping can result in a vertically downward contaminant migration. This downward migration of nitrate may result in increasing concentrations in the deeper domestic and public-supply wells over time.

104-34

Alternatives 4 and 6 allow for 1 year every 5 years monitoring in low priority situations. Alternative 5 considers annual monitoring. Generally, low priority operations or areas are those where there are no identified water quality problems associated with waste discharge from irrigated agriculture and the operations are not located in an area where surface/ groundwater is vulnerable due to types of operations or geophysical conditions (soil types, rainfall, etc.). The lack of identified water quality problems suggests that a much lower frequency for water quality monitoring is justified and would be consistent with California Water Code Section 13267 requirements.

The support for the individual monitoring described for Tier 3 operations under Alternative 4 will be considered in the development of the Long-term ILRP.

104-35

As discussed throughout the Draft PEIR, Appendix A, there are important advantages to be gained through the use of coalitions rather than direct regulatory oversight of tens of thousands of growers. However, the Central Valley Water Board acknowledges that enforcement options on third-party groups are limited. Any shortcomings on the part of the coalition or their member growers in addressing water quality problems can lead to delays in reducing or eliminating identified water quality impacts. Therefore, additional clarifying language will be considered for inclusion in the Long-term ILRP to describe when the Central Valley Water Board will step in to directly regulate growers in areas where sufficient progress has not been made.

104-36

See Comment Letter 104, Response 37 and Comment Letter 104, Response 93. The support for Alternative 5 will be considered in the development of the Long-term ILRP.

104-37

Not all operations would be required to implement BPTC, only those with waste discharges that could degrade a “high quality water.”

Alternative 5 includes monthly tailwater monitoring of “constituents of concern.” The comment’s suggestion that Alternative 5’s monitoring frequency (e.g., monthly tailwater sampling) is too comprehensive will be considered in the development of the Long-term ILRP. Also, as described in the comment, a reduced individual monitoring frequency has been considered as part of Alternative 4.

Page 2-19 of the Draft ILRP Economics Report provides a cost estimate for monitoring basic parameters (e.g., pH, EC, nitrates, E. coli) and up to 20 constituents of concern (organics, boron, selenium). These costs were used to estimate the potential costs of individual monitoring. The comment describes that the parameters, or constituents of concern, estimated in the Draft ILRP

Economics Report for Alternative 5 monitoring go well beyond what is necessary for protecting water quality objectives. A recommended list of constituents for individual monitoring was provided in Comment Letter, Comment 3. The list includes: flow, toxicity, total nitrogen, nitrate-nitrite, total ammonia, total phosphorous, soluble ortho-phosphate, temperature, turbidity, pH, EC, coliform, applied pesticides, metals. Table 3 of the Draft PEIR, Appendix A lists the constituents for which management plans are required in the current program. There are 7 metals and 13 pesticides in this list. These 20 constituents are essentially the "high threat" constituents of concern for the ILRP. Depending on the number of pesticides used at an individual operation, the estimate of 20 constituents of concern shown in the Draft ILPR Economics Report is reasonably consistent with the comment's description of necessary parameters (basic parameters + pesticides used + metals), notwithstanding the additional monitoring for toxicity described by the comment. Generally, the costs for toxicity monitoring are much higher than chemical parameters. Therefore, the monitoring parameters proposed by the comment would likely be more costly than the estimate provided in the Draft ILRP Economics Report.

104-38

Alternative 5 would require installation of groundwater monitoring wells. However, the alternative does not specify that every operation would be required to install monitoring wells. The alternative specifies that monitoring wells would be required "…*if requested by the Executive Officer. Locations chosen for groundwater monitoring will be prioritized based on Central Valley Water Board staff-developed vulnerability factors*." (Draft PEIR, page 3-28) Regardless, the support for utilizing existing wells for monitoring will continue to be considered in the development of the Long-term ILRP. For example, Alternative 6's regional groundwater monitoring would encourage utilization of existing wells and networks for groundwater quality monitoring.

See Comment Letter 104, Response 33. Public supply wells with their long screened intervals and perforated intervals positioned far below first encountered groundwater are generally not effective as a means of monitoring impacts due to irrigated agricultural activities. This is particularly true when using public water supply wells for evaluating management practice changes made to address a water quality concern. As a general rule, the deeper the water below the water table, the older the water. Impacts occur on the shallowest groundwater first and over time, these impacts move deeper into the aquifer.

104-39

See Comment Letter 104, Response 27.

104-40

Alternative 3 includes a requirement for individual FWQMPs to be submitted to the Central Valley Water Board. The comment's recommendation has been evaluated in the Draft PEIR as part of Alternative 3.

To the extent FWQMPs are a part of the Board adopted program, this request that they be submitted electronically to the Board for internet posting will be considered in the development of the Long-term ILRP. As the comment describes, there are several benefits to having such ready access to FWQMPs.

104-41

See Comment Letter 52, Response 2 for a discussion of the potential complexities involved with individualized ILRP requirements (e.g., Alternative 5). Alternative 5 is based on the Central Valley Water Board's Dairy Program (similar requirements and framework). Staffing needs, expressed as staff:facility ratios are expected to be similar. Accordingly, the projected staffing needs for Alternative 5 have been calculated using current Dairy Program staffing ratios (see pages 119 and 120 of the Draft PEIR, Appendix A). The Stormwater Program has been considered in the development of the ILRP (see page 86 of the Draft PEIR, Appendix A). It is important to note, however, that there are differences in complexity between the Stormwater Program and Alternative 5 that prompt the need for higher staffing ratios. See Comment Letter 104, Response 69 for additional discussion of these complexities.

104-42

See Master Response 2.

104-43

The Long-term ILRP alternatives and scope for the environmental analysis were developed cooperatively after consideration of extensive and thorough public involvement. In compliance with CEQA Guidelines Section 15123(b)(2), the Draft PEIR discusses known areas of controversy in Chapter 2, Section 2.6.4, page 2-8.

104-44

CEQA requires a lead agency to disclose to the public adverse impacts to the environment that may result from their discretionary actions. As explained in *In re Bay-Delta*, an EIR is not required to set forth alternatives and mitigation measures that go beyond reducing project impacts and seek to solve preexisting environmental problems. *In re Bay-Delta Programmatic Environmental Impact Report Coordinated Proceedings*, 184 P.3d 709 (Cal. 2008).

The ongoing impacts of agricultural operations in the Central Valley are part of the environmental baseline of the ILRP program analyzed in the Draft PEIR. The comment mistakenly argues that a failure of the Long-term ILRP to "significantly reduce pollution discharges from irrigated lands" would represent an impact of the alternatives. Such an outcome, while unlikely, would result in continued discharges from irrigated lands, and maintenance of the baseline physical condition. Reduction of the pollution discharges the comment mentions is the primary goal of the ILRP. However, a failure to do so would not be considered an adverse impact of the program under CEQA.

The Draft PEIR addresses potential impacts of the program alternatives to recreation, aesthetics, public health and cultural resources.

The potential for recreation impacts is discussed in Chapter 5, Section 5.11 (page 5.11-2); the analysis indicates that implementation of a Long-term ILRP would not adversely affect existing recreation facilities or limit recreation opportunities.

Aesthetic effects are also addressed in Section 5.11 (page 5.11-1); the discussion states that any changes in agricultural operations generated by implementing the program would occur on active agricultural lands and would not adversely affect scenic resources.

The principle public health effects resulting from irrigated agriculture are related to transport, use, and subsequent water contamination from pesticide and herbicide use. Implementation of any of the Long-term ILRP alternatives would be expected to reduce human health risks associated with these activities (see page 5.11-1).

In addition, the Draft PEIR addresses potential impacts to cultural resources in Chapter 5, Section 5.3.

104-45

The Draft PEIR analyzed water quality impacts for all six alternatives, and determined all alternatives were likely to improve overall water quality throughout the jurisdiction of the ILRP. Therefore, the Central Valley Water Board determined there will be no significant water quality-related impacts to recreation or aesthetic resources.

104-46

See Comment Letter 104, Responses 44 and 45.

104-47

The Central Valley Water Board appreciates the California Sportfishing Alliance's (CSPA's) concern regarding the quality of water as it relates to bacteria levels. One of the primary objectives of the ILRP is to improve water quality in the state, especially within the Central Valley region, including implementation of irrigation management practices that would facilitate reduction of bacteria levels in receiving waters.

104-48

Water quality is the top priority of the Long-term ILRP.

104-49

The analysis focuses on potential changes from baseline conditions, as it should. Baseline (existing effects) is given in considerable detail. See Master Response 1 regarding the use of baseline in the Draft PEIR. As the commenter notes, contaminants are acknowledged as an issue in the DEIR. The changes that could arise from the program alternatives are given. The changes would be expected to be beneficial as surface water quality would be improved. Therefore, effects on traditional uses of salmon or other fish should also be positive compared to existing conditions.

104-50

Water quality improvement is of the utmost concern to the Water Board and is the primary motivation for the development of the ILRP. This comment will be considered by the Central Valley Water Board in development of the Long-term ILRP.

See Comment Letter 87, Response 1.

104-51

Water quality improvement is of the utmost concern to the Water Board and is the primary motivation for the development of the ILRP. This comment will be considered by the Central Valley Water Board in development of the Long-term ILRP.

See Master Response 1.

104-52

Water quality improvement is of the utmost concern to the Water Board and is the primary motivation for the development of the ILRP. This comment will be considered by the Central Valley Water Board in development of the Long-term ILRP.

See Master Response 1.

104-53

See Master Responses 6 and 8.

104-54

See Master Responses 7 and 8.

CEQA directs government agencies to disclose to the public adverse effects of their discretionary actions. As such, the Draft PEIR does not discuss in depth the relative degree of likely beneficial impacts of the ILRP alternatives. Although some EIRs do discuss the relative merits of alternatives, the focus required by CEQA is on potential negative or adverse effects.

Also see Master Response 5 and Comment Letter 50, Response 14; Comment Letter 123, Response 17; and Comment Letter 104, Response 18.

104-55

See Master Response 8. Additionally, it is noted that all program alternatives would have beneficial effects on water quality and all operational changes likely to be stimulated by the program alternatives would have effects on fisheries that can be reduced to less than significant by mitigation measures proposed in the Draft PEIR.

104-56

See Master Responses 6 and 13.

104-57

See Master Responses 8 and 9 and Comment Letter 104, Response 49.

The CEQA analysis must determine what adverse effects the program alternatives would create over and above those present within the baseline condition. Thus while, as the comment correctly notes, the water quality and fisheries impacts of allowing discharges of irrigated lands waste is known, this condition is part of the baseline. The alternatives would improve, not worsen this condition, thus no adverse impact is identified. Thus, implementation of one of the proposed program alternatives

would not contribute to cumulative surface water quality or fisheries effects. (Draft PEIR, Chapter 5, Sections 5.8 and 5.9).

104-58

See Master Response 9 and Comment Letter 104, Response 44.

The program alternatives that are analyzed include a number of management and eventual regulatory actions designed to identify and reduce the adverse effects of runoff or percolation of contaminated water from irrigated agriculture. The anticipated effects of implementing one of the program alternatives are generally considered beneficial to surface and groundwater quality as compared to the baseline. Consequently, the effects of adopting one of the proposed program alternatives would not result in significant adverse direct or indirect effects nor contribute to a cumulative adverse effect on water quality.

104-59

See Master Response 17.

104-60

See Master Response 17.

104-61

See Master Response 17.

104-62

See Master Response 17.

104-63

See Master Response 17.

104-64

See Master Response 17.

104-65

See Master Response 17.

104-66

See Master Response 17.

104-67

All the alternatives, including Alternative 1 (current program), have been evaluated for consistency with program goals and objectives, state policy, environmental and economic impacts. Thus, the Central Valley Water Board has appropriately disclosed the benefits and potential shortcomings of each alternative.

104-68

See Comment Letter 104, Response 1.

104-69

See Comment Letter 104, Response 1 and Comment Letter 52, Response 2.

Staff agrees with the comment regarding the success of the storm water program and notes that Long-term ILRP Alternatives 3 and 5 both contain the Central Valley Water Board lead structure and individual water quality planning/ monitoring structure given in the storm water program.

There are similarities between the storm water program and ILRP and some distinct differences. For instance, the Long-term ILRP would include groundwater management and monitoring and ILRP monitoring includes a complex list of pesticides, toxicity, and other constituents while the storm water program does not include groundwater management and generally uses indicator parameters in monitoring (e.g., pH, chemical oxygen demand [COD], oil and grease).These differences lead to a significant increase in the complexity of the ILRP when compared with the storm water program, ultimately requiring more resources for program implementation (e.g., costs, staffing, expertise).

Each of the ILRP alternatives has been evaluated for consistency with program goals and objectives, State policy, costs, and environmental impacts. Alternative 6 includes the third-party lead entity structure. This conclusion has been arrived at based on the consideration of all evaluation measures (see Draft PEIR, Appendix A, Sections IX and X).

104-70

See Comment Letter 104, Response 18.

The comment's characterization of the Rice Pesticide Program is not accurate. Water quality monitoring is conducted on a regional scale at locations downstream from tens to hundreds of thousands of acres of rice fields (e.g., Colusa Basin Drain, Butte Slough, Sacramento Slough). Outreach efforts by the rice industry and county agricultural commissioners are conducted annually and inspections by the commissioners are conducted to ensure compliance with pesticide permit conditions. However, neither individual field monitoring nor development of individual farm plans are required. Pesticide loads have been reduced by over 90% and only infrequent exceedances of performance goals have occurred.

Another program, the Grasslands Bypass Project, which is regulated under WDRs, primarily relies on regional monitoring and planning (no individual farm plans or farm monitoring are required). That effort has resulted in an over 60% reduction in selenium loading to the San Joaquin River and compliance with all selenium objectives, except in limited reaches that have little to no dilution flow.

By comparison, these other regional efforts have been ongoing for 15–20 years, and the regional plans developed under the current ILRP have been in place for a little over 2 years. Accordingly, drawing broad conclusions (either positive or negative) on the efficacy of the ILRP plans in addressing water quality problems is premature.

104-71

The Long-term ILRP goals and objectives were developed and adopted through consensus by the Stakeholder Advisory Workgroup. Considered together, the goals and objectives provide a balanced approach to evaluating ILRP alternatives See Comment Letter 104, Response 11.

The Draft PEIR, Appendix A evaluates whether each of the alternatives is consistent with the program goals and objectives, California Water Code, NPS Policy, and Antidegradation requirements. This evaluation considered protection of beneficial uses, state policy, costs, and environmental impacts.

In general, the California Water Code requires that, in developing waivers/WDRs, the Board implement Basin Plan requirements, consider past/present/probable future beneficial uses to be protected, the water quality objectives reasonably required for that purpose, other waste discharges, the need to prevent nuisance, environmental characteristics and available water quality, water quality conditions that could reasonably be achieved through the coordinated control of all factors that affect water quality in the area, economic considerations, the need to develop housing in the region, and the need to develop and use recycled water [Sections 13263, 13269, and 13241]. In addition, the California Water Code requires that costs be considered in the development of any new water quality control program for agriculture [Section 13141]. The goals and objectives are consistent with the requirements of the California Water Code—to consider other factors in the development of regulatory requirements, while ensuring those requirements will result in protection of water quality.

There is also concern that the use of the term “appropriate” in Objective 1, “…maintaining appropriate beneficial uses…” would not be adequately protective of beneficial uses. See Comment Letter 104, Response 9.

See Comment Letter 104, Response 11.

See Comment Letter 104, Response 12. The Grasslands Bypass Project has helped reduce selenium discharged from the Grassland Drainage Area by 61% (from 9,600 to 3,700 lbs). The load of salts has been reduced by 39% (from 187,300 to 113,600 tons). Prior to the project, the monthly mean concentration of selenium in Salt Slough was 16 parts per billion. Since October 1996, the concentration has been less than the water quality objective of 2 parts per billion (see Draft PEIR, Appendix A, page 81). This reduction in loading shows that the Grasslands Bypass Project has been effective.

Alternative 5 includes an edge-of-field monitoring program such as that described in this comment. The costs of this program were considered, along with the benefits of individual farm monitoring versus regional monitoring (Draft PEIR, Appendix A, page 95).

Universal farm-based monitoring was not recommended considering the extensive costs and complexities involved. and that the monitoring will not answer whether agricultural discharges are affecting receiving waters (e.g., effects of multiple bio-accumulating sources on a single waterway. See Comment Letter 52, Responses 2 and 4.

The ILRP is a nonpoint source program and cannot be easily compared with point source waste discharge program requirements where a single effluent location can be determined and controlled. Feedback monitoring needs to indicate how changes in management are impacting the overall

health of receiving waters. Therefore, regional watershed-based monitoring has been recommended.

104-72

See Comment Letter 104, Responses 1 and 18.

104-73

See Comment Letter 104, Response 1. Not all irrigated agricultural operations are required to implement BPTC, only those that could cause degradation of a "high quality water," (Draft PEIR, Appendix A, page 66).

See Comment Letter 104, Responses 17 and 18.

104-74

The Central Valley Water Board acknowledges the concerns expressed by these comments, and will consider them in the development of the Long-term ILRP.

104-75

The support for including groundwater protection requirements, individual farm plans, and individual monitoring will be considered in the development of the Long-term ILRP.

See Comment Letter 104, Response 3; Comment Letter 104, Response 33; and Comment Letter 104, Response 93.

104-76

See Master Response 17.

104-77

See Master Response 17.

104-78

See Master Response 17.

104-79

See Master Response 17.

104-80

The ECR provides the baseline condition for the study. See Master Responses 1 and 17.

104-81

See Master Response 17.

104-82

See Master Response 17.

104-83

See Master Response 17.

The purpose of the Draft Economic Report was to assess the costs of regulations on growers under the ILRP alternatives, not to evaluate or estimate the costs associated with water quality improvements (Draft ILRP Economic Report, page 1-1).

104-84

See Master Response 17.

104-85

See Master Response 17.

104-86

See Master Response 17.

104-87

See Master Response 17.

104-88

See Master Responses 7 and 9. Also see Comment Letter 104, Responses 44, 58, and 95.

104-89

Watershed-based monitoring can be used to provide information to evaluate whether implemented practices, on a macro or watershed scale, are achieving BPTC (see Draft PEIR, Appendix A, pages 107–116 and 165–168). Not all operations would be required to implement BPTC, only those with waste discharges that could cause degradation of a "high quality water."

Under Alternative 1, operations would be required to implement management practices to solve surface water quality problems. The alternative does not describe that current practices are adequate, in fact, in the Draft PEIR and Draft ILRP Economics Report, management practices under Alternative 1 were estimated to be partially implemented (see Section 2.2.1.2 of the Draft ILRP Economics Report). The implementation of management practices under Alternative 1 would benefit surface water quality, just as implementation of similar practices would benefit water quality under other alternatives.

104-90

The Draft PEIR is programmatic in nature and did not include a list or detailed consideration of all possible agricultural practice changes that may be taken in response to the Long-term ILRP. Other management practices, including those adopted by DPR, may be used to improve groundwater

protection at irrigated agricultural fields. The changes in management practices that would be undertaken if Alternative 2 is selected would result in beneficial effects on surface and groundwater quality. Also see Master Responses 7 and 19.

104-91

The assessment of Alternative 3 provided in this comment is generally consistent with the Central Valley Water Board's analysis found in the Draft PEIR, Appendix A, Section IX. However, all operations would not be required to implement BPTC, only those with waste discharges that could cause degradation of a "high quality water."

104-92

See Comment Letter 104, Response 18. The support for nutrient management and the tiering system under Alternative 4 will be considered in the development of the Long-term ILRP.

104-93

See Comment Letter 104, Responses 18, 37, 38, and 89.

The suggestion to utilize a threat-based tiered scheme for individual monitoring requirements (similar to the scheme included in Alternative 4) will be considered in the development of the Long-term ILRP.

The comment's support for Alternative 5 will be considered in development of the long-time ILRP. It is appropriate to note that Alternative 5 costs are estimated to be much higher (about 176%) than those under the current program and an order of magnitude greater than the other Long-term ILRP alternatives. A large part of the costs for Alternative 5 would be related to the individualized monitoring requirements. While considering the potential benefits of increased monitoring, the possibility that increased costs could cause operations to divert resources from management practice implementation to individual monitoring must also be considered.

104-94

See Master Responses 7 and 8.

In the Draft PEIR, Appendix A, and Draft ILRP Economics Report, the Central Valley Water Board has programmatically evaluated whether each of the alternatives is consistent with the program goals and objectives, California Water Code, NPS Policy, and antidegradation requirements (comment's discussion of BPTC), and considered the environmental impacts and costs of the alternatives. In these reports, the Board has considered the elements required by state policy and law.

104-95

See Master Responses 7 and 9. Also see Comment Letter 104, Responses 44 and 58. Further, it is noted that the improved water quality conditions would be expected to have a positive effect on downstream ecological receptors; these effects would not contribute to a cumulative adverse effect on downstream resources.

104-96

Development and evaluation of the proposed ILRP alternatives is currently being undertaken at a programmatic level. The specifics regarding development of monitoring and reporting program plans, reporting requirements, sample collection, constituents of concern, sampling frequency, monitoring points, quality assurance and control requirements, laboratory methods and detection limits are all components of a monitoring and reporting program order which will be developed in conjunction with the chosen regulatory mechanism selected for implementation of the Long-term ILRP (general WDRs, conditional prohibitions of discharge, or conditional waivers).

Also see Master Response 7; Comment Letter 5, Response 1; and Comment Letter 50, Response 8.

104-97

See Comment Letter 104, Response 50.

104-98

Other feedback mechanisms (e.g., visual monitoring of waste discharge, inspection), the type of discharge (are wastes visible—sheen, color, solids), in combination with the beneficial use to be protected, all must be considered prior to drawing the conclusion of whether monitoring state waters is necessary to protect beneficial uses. For example, where a waste discharge can be recycled, thereby ceasing the discharge to a state water, only visual monitoring of the technology that is recycling the waste may be necessary. Alternatives 4, 5, and 6 require some form of surface and groundwater quality monitoring. Also, Alternatives 1 and 2 require surface water quality monitoring.

104-99

See Comment Letter 104, Responses 3.

104-100

See Comment Letter 104, Responses 3 and 18.

104-101

See Comment Letter 104, Responses 1, 3, 18 and 98.

104-102

The Central Valley Water Board agrees that the limited availability of historical data make it difficult to assess trends and causes of any decline in water quality. The monitoring goals established in Alternative 6 are meant to guide any monitoring efforts to ensure collection of the data necessary to assess water quality and evaluate the effectiveness of the ILRP.

104-103

See Comment Letter 104, Responses 3 and 18.

The Central Valley Water Board agrees that a well planned and executed sampling program is essential in producing high quality data that can be relied upon to assess water quality and the

attainment of ILRP goals. The frequency of sampling, choice of monitoring locations, specific watershed characteristics, the parameters monitored, the quality assurance/ quality control measures, as well as a fundamental understanding of agricultural crops, management practices, and costs are all necessary for a successful monitoring program. The comment's suggestions will be considered in the development of the Long-term ILRP.

3.3.10 Letter 105—California Sportfishing Protection Alliance and California Water Impact Network, Michael Lozeau, R. Lozeau Drury LLP and Bill Jennings, CSPA

This letter is approximately 500 pages of supplemental and informational reports with no specific comments.

3.3.10.1 Responses to Letter IL105

105-1

No response needed.