

EXHIBIT 10

mercury by frequency, magnitude, and geographic extent such that the affected environment would be expected to have measurably higher body burdens of mercury in aquatic organisms, thereby substantially increasing the health risks to wildlife (including fish) or humans consuming those organisms. Based on these findings, this impact is considered to be less than significant. No mitigation is required.

Impact WQ-14: Effects on Mercury Concentrations Resulting from Implementation of Environmental Commitments 3, 4, 6-12, 15, and 16

NEPA Effects: The potential types of effects on mercury resulting from implementation of the Environmental Commitments under Alternative 4A would be generally similar to those described under Alternative 4 (see Section 8.3.3.9). However, the magnitude of effects on mercury and methylmercury at locations upstream of the Delta, in the Delta, and the SWP/CVP Export Service Areas related to habitat restoration would be considerably lower than described for Alternative 4. This is because the amount of habitat restoration to be implemented under Alternative 4A would be very low compared to the total proposed restoration area that would be implemented under Alternative 4. The small amount of habitat restoration to be implemented under Alternative 4A may occur on lands in the Delta formerly used for irrigated agriculture. Habitat restoration proposed under Alternative 4A has the potential to increase water residence times and increase accumulation of organic sediments that are known to enhance methylmercury bioaccumulation in biota in the vicinity of the restored habitat areas. Design of restoration sites would be guided by Environmental Commitment 12, which requires development of site-specific mercury management plans as restoration actions are implemented. The effectiveness of minimization and mitigation actions implemented according to the mercury management plans is not known at this time, although the potential to reduce methylmercury concentrations exists based on current research. Although Environmental Commitment 12 would be implemented with the goal to reduce this potential effect, there remain uncertainties related to site-specific restoration conditions and the potential for increases in methylmercury concentrations in the Delta in the vicinity of the restored areas. Therefore, the effect of Environmental Commitments 3, 4, 6-12, 15, and 16 on mercury and methylmercury is considered to be adverse.

CEQA Conclusion: There would be no substantial, long-term increase in mercury or methylmercury concentrations or loads in the rivers and reservoirs upstream of the Delta or the waters exported to the SWP/CVP Export Service Areas due to implementation of Environmental Commitments 3, 4, 6-12, 15, and 16 relative to Existing Conditions. However, in the Delta, due to the small amount of tidal restoration areas proposed, relative to Existing Conditions, uptake of mercury from water and/or methylation of inorganic mercury may increase in localized areas as part of the creation of new, marshy, shallow, or organic-rich restoration areas. Although not quantifiable, on a local level, increases in methylmercury concentrations may be measurable. Methylmercury is CWA Section 303(d)-listed within the affected environment, and therefore any potential measurable increase in methylmercury concentrations would make existing mercury-related impairment measurably worse. Because mercury is bioaccumulative, increases in water-borne mercury or methylmercury that could occur in some areas could bioaccumulate to somewhat greater levels in aquatic organisms and would, in turn, pose health risks to fish, wildlife, or humans. Design of restoration sites would be guided by Environmental Commitment 12, which requires development of site-specific mercury management plans as restoration actions are implemented. The effectiveness of minimization and mitigation actions implemented according to the mercury management plans is not known at this time, although the potential to reduce methylmercury concentrations exists based on current

research. Although Environmental Commitment 12 would be implemented with the goal to reduce this potential effect, the uncertainties related to site specific restoration conditions and the potential for increases in methylmercury concentrations in the Delta result in this potential impact being considered significant because, as described above, any potential measurable increase in methylmercury concentrations would make existing mercury-related impairment measurably worse. No mitigation measures would be available until specific restoration actions are proposed. Therefore, this impact is considered significant and unavoidable.

Impact WQ-15: Effects on Nitrate Concentrations Resulting from Facilities Operations and Maintenance

Upstream of the Delta

As described for Alternative 4 (in Section 8.3.3.9), nitrate levels in the major rivers (Sacramento, Feather, American) are low, generally due to ample dilution available in the reservoirs and rivers relative to the magnitude of the point and non-point source discharges, and there is no correlation between historical water year average nitrate concentrations and water year average flow in the Sacramento River at Freeport. Consequently, any modified reservoir operations and subsequent changes in river flows under Alternative 4A, relative to Existing Conditions or the No Action Alternative (ELT), are expected to have negligible, if any, effects on average reservoir and river nitrate-N concentrations in the Sacramento River watershed upstream of the Delta.

In the San Joaquin River watershed, nitrate concentrations are higher than in the Sacramento River watershed, owing to use of nitrate based fertilizers throughout the lower watershed. The correlation between historical water year average nitrate concentrations and water year average flow in the San Joaquin River at Vernalis is a weak inverse relationship—that is, generally higher flows result in lower nitrate concentrations, while low flows result in higher nitrate concentrations (linear regression $r^2=0.49$; Figure 2 in Appendix 8J, *Nitrate*). Under Alternative 4A, long-term average flows at Vernalis would decrease an estimated 1% relative to Existing Conditions and would remain virtually the same relative to the No Action Alternative (ELT). Given the relatively small decreases in flows and the weak correlation between nitrate and flows in the San Joaquin River, it is expected that nitrate concentrations in the San Joaquin River would be minimally affected, if at all, by anticipated changes in flow rates under the No Action Alternative (ELT).

In the LLT, the Delta source water fractions may be different from those occurring in the ELT due to changes in upstream hydrology and Delta hydrodynamics from additional climate change and sea level rise. These effects would occur independent of the alternative and, thus, the alternative-specific effects on nitrate in the LLT are expected to be similar to those described above.

Any negligible changes in nitrate concentrations that may occur under Alternative 4A in the water bodies of the affected environment located upstream of the Delta would not be of frequency, magnitude and geographic extent that would adversely affect any beneficial uses or substantially degrade the quality of these water bodies, with regard to nitrate.

Delta

Mass balance calculations indicate that under Alternative 4A relative to Existing Conditions and the No Action Alternative (ELT), nitrate concentrations throughout the Delta are anticipated to remain low (<1.4 mg/L-N) relative to adopted objectives (Appendix 8J, *Nitrate*, Table 34). Although changes at specific Delta locations and for specific months may be substantial on a relative basis (Appendix