SUPPLEMENT TO SECTION 6.3.5, UTILITY ALTERNATIVES

SUPPLEMENT TO SECTION 6.3.5, UTILITY ALTERNATIVES

The following text updates and supersedes the analysis contained in Section 6.3.5 (Utility Alternatives) of the Placer Vineyards Specific Plan Revised Draft EIR.

ALTERNATIVE OFF-SITE UTILITY INFRASTRUCTURE

Updated Revised Draft EIR Figure 6-14 shows the current proposed route of the pipeline. As indicated, portions of the first pipeline to deliver Middle Fork Project water have been constructed and remaining portions of this pipeline are incorporated in existing, planned and proposed projects, including Placer Ranch, Bickford Ranch and Regional University. Most of the pipeline facilities would be located in existing and proposed paved roadways. As noted in Section 4.3.5, in order to fully implement a long-term water supply from this source, it is proposed that a parallel pipeline be constructed. PCWA has indicated that the long-term water supply from the American River Pump Station source at Auburn would require constructing 16.8 miles of new 60-inch and 6.3 miles of new 48-inch treated water pipeline connecting to PCWA's existing water distribution system (Einar Maisch, PCWA Director of Strategic Affairs, March 2007). The American River Pump Station (which is still under construction) is expected to be functional by October 2007 and complete early in 2008, and will supply up to 35,500 acre-feet of water annually to Placer County (Maisch). If the 35,000 AFA CVP water entitlement that is currently proposed to be taken from the Sacramento River (not to be confused with the existing 35,500 AFA entitlement to divert Middle Fork Project water at Auburn) is shifted to the American River Pump Station, an enlargement of the pump station facility would be required, so that the total amount to be diverted for PCWA's purposes would be 70,500 AFA. This project is discussed under "Alternative Long Term Surface Water Supply", below.

The pipelines of interest would connect to the Ophir Water Treatment Plant, which is located on Ophir Road in the Newcastle/Ophir area. PCWA is currently in the design phase of the proposed Water Treatment Plant project, which would supply a portion of the already approved 35,500 AFA for diversion at the American River Pump Station. Initially, the facility would provide 30 million gallons of water a day. The plant could be expanded to handle as much as 120 million gallons of water daily. The plant's design is about 95 percent complete and a Final Environmental Impact Report has been certified for the project. The next phase is acquisition of the various environmental permits that are required. Groundbreaking is scheduled for 2009 (Brian Martin, PCWA Director of Technical Services, March 2007). The Water Treatment Plant is scheduled for operation in 2011.

PIPELINE ROUTE DESCRIPTION

The water pipelines would be (portions of the first line have already been) installed generally from the Water Treatment Plant along Ophir Road, through the Ophir area, adjacent to a mixture of single-family residential and commercial uses.

Beyond Ophir, Ophir Road becomes Taylor Road. The water pipelines would be installed in Taylor Road, connecting to the transmission main from the Foothill Water Treatment Plant at

Penryn. This stretch of Taylor Road is located in a rural, unincorporated area. The land uses along this stretch of Taylor Road consist of a mixture of single-family residential, agricultural land, and commercial development.

The proposed transmission system includes a water pipeline branching to the northwest before the Penryn connection, and runs through the Bickford Ranch planned development. Between Taylor Road and Bickford Ranch, the water pipelines would be installed in local roads through single-family residential areas. Bickford Ranch is located in Placer County and contains approximately 1,954 acres. The development is proposed to contain a mixed-use planned development with 1,890 residential units of varying densities and housing types, including an age-restricted component. The developer also proposes to construct an 18-hole golf course with driving range and clubhouses, and 9.7 acres of retail/office uses. The water pipelines would traverse Bickford Ranch in a generally east-west direction in proposed roadways.

After Bickford Ranch, the water pipelines would connect to the existing PCWA Zone 1 system just north of the Sunset Water Treatment Plant in Rocklin. Between Bickford Ranch and this point of connection, existing land uses consist primarily of single-family residential along with the Catta Verdera Country Club. The proposed water pipelines would then be constructed through the existing Whitney Ranch development within existing road right-of-ways. Whitney Ranch is in the City of Rocklin and contains approximately 1,300 acres comprised of residential, recreational and education facilities.

Beyond Whitney Ranch, the water pipelines are proposed to cross under State Route 65, and extend westerly through a mixture of industrial and open space, crossing Industrial Avenue, and connecting to the Placer Ranch planned development. The Placer Ranch project consists of approximately 2,213 acres of proposed industrial, commercial, office and professional, educational uses, and 6,700 residential units (including campus housing). The proposal includes a California State University campus sized to accommodate 15,000 - 25,000 full time students at buildout. The proposed project is located north and adjacent to the Roseville City boundary and the West Roseville Specific Plan area, approximately one mile west of the State Route 65/Sunset Boulevard interchange, bisected by Fiddyment Road in Placer County.

To the west of Placer Ranch, a proposed water pipeline would be constructed through agricultural land, continuing to the south and connecting to the Regional University planned development project. The approximate 1,136 acre Regional University project includes two primary components: a university campus planned to accommodate approximately 6,000 students with 800 professors and staff (include approximately 1,155 residential units for students and faculty, as well as retirement housing); and an adjoining mixed-use community, with a variety of residential, commercial, employment, open space, parks, and public uses. The community would include 3,232 residential units of varying densities, commercial, open space, and recreation areas. Lastly, the water pipeline is proposed to be constructed through agricultural land, eventually ending at the intersection of Baseline Road and Watt Avenue, abutting the proposed Placer Vineyards project.

Alternative Infrastructure to Deliver a Long-Term or Buildout Surface Water Supply Regulatory Environment

Information for the alternative long-term or buildout water supply infrastructure regulatory environment is excerpted from the *Foothill Phase II Water Treatment Plant and Pipeline Draft and Final EIR*, April 2005 (now Ophir Water Treatment Plant/Pipeline project). As is described above, the regulatory compliance phase is the next phase of activity for the Ophir Water Treatment Plant project and related water lines. This phase does not include construction of the second parallel pipeline necessary to deliver the alternative CVP replacement supply from the American River Pump Station to western Placer County. As described elsewhere, that project would only be pursued if the Sacramento River diversion became infeasible. A similar regulatory environment would, however, likely exist for the second parallel pipeline if and when it is pursued.

The following permits are deemed potentially necessary for components of the Ophir Water Treatment Plant and pipeline extensions:

- i) Placer County Planning Department issue a tree removal permit. Tree removal permit has been obtained.
- ii) Placer County Air Pollution Control District ensure compliance with rules concerning fugitive dust and control of fine particulate matter from construction activities; issue a permit to operate emergency generator. Cannot obtain permit until construction is underway and emergency generator is onsite.
- iii) Placer County Public Works encroachment permit for working within County roadways.
- iv) State Water Resources Control Board (SWRCB) issue a National Pollutant Discharge Elimination System (NPDES) permit for construction activities required under Section 402 of the Clean Water Act.
- v) Regional Water Quality Control Board issue a water quality certification under Section 401 of the Clean Water Act. Application submitted waiting for permit.
- vi) General Order for Dewatering and Other Low Threat Discharge to Surface Waters Permit

 This permit is only needed in the event that groundwater is encountered during Water
 Treatment Plant or pipeline construction that cannot be contained on site or pumped into
 tank trucks and hauled off to a disposal facility. PCWA or its representative will need to
 apply for a General Order for Dewatering and Other Low Threat Discharges to Surface
 Water Permit (NPDES # CA0083356) from the Central Valley RWQCB. Plan and
 Specifications anticipates confinement of groundwater on site. General Order only
 required when groundwater is not confined on site during construction. This permit is not
 needed in special circumstances which are unknown until project is underway.

- vii) California Department of Fish and Game Streambed Alteration Agreement application submitted. Waiting for permit.
- viii) California Department of Health Services issue a Domestic Water Supply Permit
- ix) California Department of Transportation encroachment permit for the pipelines in the vicinity of State Highway 193.
- Toxics Preconstruction Review Policies The Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588) provides for the regulation of over 200 air toxics and is the primary toxic air contaminant legislation in the state. Under the Act, sources emitting listed toxic air contaminants must estimate and report their toxic air emissions to the PCAPCD. The PCAPCD then prioritizes facilities on the basis of emissions. High-priority facilities are required to submit a health risk assessment and communicate the results to the affected public if their health risk potential exceeds a specified threshold. The primary purpose of AB2588 is to identify and inventory toxic air emissions and to communicate the potential for adverse health effects to the public.
- xi) US Army Corps of Engineers Nationwide Permit(s) under Section 404 of the Clean Water Act. Requires consultation with the following agencies:
 - (1) U.S. Fish and Wildlife Service (USFWS) – currently participating in Section 7 consultation to comply with the federal Endangered Species Act (ESA), which renders Section 10 inapplicable. Compliance with Section 7 of the federal ESA is required because suitable habitat for valley elderberry longhorn beetle was identified for the project area and field surveys indicated the presence of four elderberry shrubs meeting the definition of VELB habitat that would be affected by the Proposed Project. As document in the EIR, PCWA will compensate for loss of VELB or VELB habitat by complying with habitat creation and mitigation measures described in the United State Fish and Wildlife Conservation Guidelines for the Valley Elderberry Longhorn Beetle. The results of a recent California redlegged frog survey and site assessment indicate that this species is unlikely to occur in the project corridor on the water treatment plant site; consequently, it would not be adversely affected by the Proposed Project. A copy of the survey report and habitat site assessment was submitted to the United States Fish and Wildlife Service (Ms. Roberta Gerson) on October 18, 2005. After review of the report and site assessment, the United States Fish and Wildlife Service made the determination that it is unlikely that California red-legged frog will be affected by the proposed project.
 - (2) National Marine Fisheries Service (NMFS) No habitat for federally listed fish species will be affected by an element of the proposed project. Consequently, consultation with NMFS is not required.
 - (3) State Historic Preservation Officer (SHPO) currently consulting with SHPO.

Alternative Infrastructure to Deliver a Long-Term or Buildout Surface Water Supply, Analysis of Environmental Effects

The project consists of water pipelines to connect to the Alternative Long-Term Surface Water supply. This alternative consists of new water transmission mains and assumes a future expansion of the Ophir Water Treatment Plant (see Alternative Long-Term Water Supply discussed below).

Agricultural Resource Impacts. Loss of Prime Farmland, Unique Farmland, Farmland of Statewide Importance, and Farmland of Local Importance has the potential to occur. Where construction would occur within existing roadways, no impact would occur. Because construction would be limited to the utility line corridor, and the area of surface disturbance or loss of agricultural use of the surface soil due to construction would be temporary in nature, potential agricultural land impacts associated with utility line construction are considered less than significant (See Revised Draft EIR Impact 4.1-10).

Aesthetics/Light and Glare Impacts. Because water lines will be placed underground, visual impacts will be related to the period of construction and revegetation, with the potential exception of utility line access points and areas where some portion of the utility facilities may be visible above ground. Although impacts during construction are considered less than significant, impacts related to revegetation and permanent above ground structures are potentially significant. Mitigation measures included in the Revised Draft EIR (Mitigation Measures 4.2-6a and 4.2-6b) can reduce these impacts to a less than significant level.

Light and glare impacts related to construction would be temporary in nature, and nighttime construction activity would be restricted by mitigation measures included in the Section 4.9 (Noise) of the Revised Draft EIR. Potential impacts are considered less than significant.

Hydrology and Water Quality Impacts. Installation of the water supply line would not appreciably increase impervious surface area or increase runoff. Design and installation of pipelines in off-site infrastructure areas is anticipated to remove and replace existing conditions with similar or in-kind surfaces and materials. Specific areas at intersections, crossings, or an unforeseen encountered condition may require permanent impervious cover and result in slightly higher impervious surface areas; however, these areas would be minimal. These impacts are considered less than significant.

The proposed water supply line would bisect waterways and 100-year floodplains. Considering that off-site utilities will be buried and will be enclosed systems, there will be no impact to the hydrology of waterways or floodplains. Impacts from off-site utility line and roadway installation are, therefore less than significant.

Installation of utilities in off-site infrastructure areas could result in water quality degradation over the duration of construction. Grading operations result in a loss of vegetation, exposing the soils to erosion, particularly in steep areas. The exposed soils could be carried by storm runoff during the rainy season to downstream waters, resulting in sediment transport. These increased

sediment loads could substantially degrade water quality in downstream areas. In addition, the operation and maintenance of construction vehicles and equipment, the loading and unloading of construction materials, and construction waste could release contaminants that would be washed off by stormwater discharges. This increase in sediment loads and turbidity in local stream courses and drainage areas would be considered a significant short-term water quality impact. However, mitigation measures included in the Revised Draft EIR (Mitigation Measures 4.3.4-7a through 4.3.4-7c) reduce these impacts to a less than significant level.

Biological Resource Impacts. The construction of the alternative off-site utility water line could potentially impact habitats, wetlands, and special-status species not evaluated in the Revised Draft EIR (see Table 4.4-3 and Figures 4.4-5 and 4.4-6 in Volume 1, Section 4.4 of the Revised Draft EIR). The current configuration of the utility corridor places the western terminus of the corridor approximately west of the original design—passing through the Placer Ranch Specific Plan area and the eastern edge of the Regional University Specific Plan area. A CNDBB database search was conducted and no additional sensitive habitats or special-status species would be affected by this change in design. The eastern end of the current configuration of the alternative off-site utility corridor places it approximately 3 miles northeast of the previously designed corridor reported in the Revised Draft EIR. This change in location is also accompanied by an increase in elevation of approximately 350 feet. Although this spatial and elevational change is slight, it does increase the chance of encountering species not previously considered in the previous utility corridor design. Based on these conditions and a review of the Bickford Ranch Specific Plan EIR (through which the current design passes), four additional special-status plant species should be considered. Table 6.3.5-1 below lists these species.

Table 6.3.5-I Listed and Special-Status Species Potentially Occurring in the Alternative Off-site Utility Infrastructure Areas					
Species	Federal (USFWS)	State (CDFG)	CNPS*	Habitat	Potential for Occurrence
PLANTS					
Stebbins' morning- glory Calystegia stebbinsii	Е	Е	1B	Chaparral and oak woodlands	Low: Marginal habitat occurs along portions of the alternative utility corridor.
Brandegee's clarkia Clarkia biloba ssp. Brandegeeae			1B	Chaparral and oak woodlands	Low: Marginal habitat occurs along portions of the alternative utility corridor.
El Dorado bedstraw Galium californicum ssp. Sierrae	Е	R	1B	Chaparral and oak woodlands	Low: Marginal habitat occurs along portions of the alternative utility corridor.
Layne's ragwort Packera layneae	Т	R	1B	Chaparral and oak woodlands	Low: Marginal habitat occurs along portions of the alternative utility corridor.

E = Endangered T = Threatened R = Rare (considered rare by the State of California)

¹B = Plants rare, threatened, or endangered in California and elsewhere

^{*}CNPS is a non-profit organization that works closely with CDFG throughout the state. CNPS-developed information serves as an important source of data for consideration by CDFG and USFWS in recommendations for listing state or federal threatened and endangered plant species.

Source: CNDDB 2006

Depending on the design and location of the alternative off-site infrastructure corridor, there is the potential to impact other biological resources such as: wetlands (including vernal pools) and other jurisdictional aquatic features, riparian habitat, native oak trees and their associated nesting substrate for raptors and other migratory birds, and elderberry shrubs providing habitat for the Valley elderberry longhorn beetle. Under this alternative, off-site utility corridors potentially cross several drainages and listed fish species could occur in these features. Mitigation measures included in the Revised Draft EIR for off-site infrastructure (Mitigation Measures 4.4-15 through 4.4-30c) would reduce these impacts, although not to a less than significant level.

Geology and Soils Impacts. Impacts related to geology and soils that could result from trench/pipeline construction within the alternative off-site utility corridor are similar to those for proposed utility improvements within the Specific Plan area. Those impacts include earthwork/grading or topographic alteration and erosion control impacts. These impacts can be mitigated to a less than significant level by compliance with Mitigation Measures 4.5-4a through 4.5-4f included in the Revised Draft EIR.

Cultural Resource Impacts. To evaluate potential impacts to cultural resources along the proposed alternative route of the off-site water line, Ric Windmiller, Consulting Archaeologist, undertook a records search at the North Central Information Center, California Historical Resources Information System (March 2007). The records search consisted of examining the information center's 7.5 minute USGS quadrangles on which staff had plotted the location of previous cultural resource studies and separate USGS quadrangles on which staff had plotted the location of known cultural resources. The records search also included an examination of the information center's backlog files of studies, the results of which had not yet been charted on the center's USGS quadrangles. The research focused on those reaches of the proposed alternative water line route from Placer Vineyards north to Regional University, from Regional University to Placer Ranch, from Placer Ranch to Whitney Ranch and from Sunset Water Treatment Plant to Bickford Ranch.

<u>Placer Vineyards to Regional University Reach.</u> An estimated 90 percent of this reach of the proposed water line alternative was encompassed in previous cultural resource studies. As a result of these studies, no cultural resources were recorded along the proposed route. However, two sites were plotted on the information center's maps within 1,000 feet of the proposed water line route: Site P-31-2874 (a poured concrete house foundation *circa* 1950 and associated barn foundation) and Site P-31-2876 (an isolated antique vehicle frame with solid rubber tires). No Native American archaeological sites are reported along this reach of the water line alternative. It is unlikely that any buried Native American sites exist along this reach of the proposed water line alternative except along the banks and near the two forks of Curry Creek over which the water line route passes.

<u>Regional University to Placer Ranch Reach.</u> An estimated 100 percent of this reach of the proposed water line alternative was the subject of previous cultural resource studies, according to information center maps. As a result of these studies, one isolated Native American artifact was recovered within approximately 700 feet of the proposed water line route (Site P-31-1170). The record for this isolate suggests that the find may indicate the presence of a seasonal gathering or

processing site. The isolated find came from a low ridge with heavy grass cover. The 1967 Pleasant Grove 7.5 minute USGS quadrangle illustrates buildings at the northeast corner of Phillip Road adjacent to the proposed water line route. The buildings may be 50 years old or older. The proposed water line alternative crosses Pleasant Grove Creek and a tributary and traverses the same low ridge system on which the isolated Native American artifact was found. It is possible that buried Native American archaeological resources may be encountered along and near the creek banks. It is less likely that buried Native American archaeological resources would be encountered on the low ridges away from the creeks as any finds would probably be surface or near-surface finds in our opinion.

<u>Placer Ranch to Whitney Ranch Reach.</u> An estimated 100 percent of this reach was encompassed by previous cultural resource studies based on our inspection of information center maps. No cultural resources were identified on the information center's maps along or within 1,000 feet of this reach of the proposed water line alternative. It is unlikely that buried Native American archaeological resources would be encountered. It is our experience that Native American archaeological resources in areas such as this between Roseville and Lincoln tend to be surface finds, probably representing seasonal gathering areas.

Sunset Water Treatment Plant to Bickford Ranch Reach. An estimated 95 percent of this reach has been previously inspected for cultural resources based on our analysis of the information center's maps of cultural resource studies. The information center's site maps illustrate two recorded cultural resources on or adjacent to the proposed alternative water line route in this reach: P-31-965 (CA-PLA-842-H) a low rock fence remnant approximately 480 meters long, 20-60cm wide and 20-30cm high and; P-31-773 (CA-PLA-647-H) a rock fence remnant reportedly a part of the network of fences on historic Whitney Ranch constructed by Chinese labor between 1875 and 1880. Both fence remnants may be part of the same network of ranch fences. The condition of such fences is generally poor, as reported for other segments of fencing located on the historic Whitney Ranch.

Bickford Ranch to Ophir Water Treatment Plant Reach. The analysis of this reach focused solely on the information center's mapped location of previously recorded cultural resources and potential historical resources illustrated on the current USGS quadrangles. Of potential historical resources illustrated on current USGS maps, the proposed water line alternative crosses or is near the Caperton Canal, Antelope Canal, both east- and west-bound tracks of Southern Pacific Railroad's Donner Route, the Highway 40 Mine, the route of old Highway 40 and the highway tunnel at Newcastle, as well as historic buildings in the town of Newcastle. Recorded sites along or within 500 feet of this reach of the proposed water alternative include: P-31-1268 (CA-PLA-1002-H) a segment of the historic Penryn Canal, which was still in use by Placer County Water Agency (PCWA) according to the 1999 cultural resource record form; P-31-1240 (CA-PLA-982-H) the east-bound Donner Route tracks originally constructed circa 1909 by Southern Pacific; P-31-964 (CA-PLA-841-H) the west-bound Donner Route tracks originally operated by the Central Pacific and upgraded by Southern Pacific circa 1909; P-31-1292 (CA-PLA-1003-H) old Highway 40; P-31-2962, the Highway 40 tunnel at Newcastle constructed in 1931; P-31-2624 (CA-PLA-1857) a single family residence and outbuildings at least 50 years old with limited historic integrity according to the record forms dated 2005.

<u>Preliminary Conclusions</u>. The mapped location of previous cultural resource studies archived at the North Central Information Center illustrate that most of the proposed water line alternative from the Placer Vineyards Specific Plan to the Ophir Water Treatment Plant has been the subject of previous cultural resource studies. Based on the results of these previous studies, remarkably, few archaeological and historic sites lie within or near the proposed water line corridor. Only one previously recorded Native American site lies near the proposed alternate water line route within the reaches covered by the present analysis. However, the Native American site was identified on the basis of a single artifact. The water line alternative would have no effect on Native American archaeological resources mapped by the information center within the above specified reaches.

The significance of the historic sites located on or near the proposed water line route would need to be assessed individually. For example, linear historic sites such as canals, railroads, roads and fences do not necessarily display the same integrity along their entire length. Some portions of a road or other historic linear site may retain the ability to convey their historical importance, while other portions may not. Integrity or the ability to convey historical significance is an important factor in evaluating the eligibility of any specific segment of a linear site for California Register eligibility or assessing the resource's significance as a "unique archaeological resource" under CEQA. The effect of the water line alternative on the above historic sites is unknown; however, the Mitigation Measure 4.6-14 contained in the Revised Draft EIR, or similar measure, would ensure that such resources are properly evaluated and protected, where warranted, during pipeline construction.

Traffic/Transportation Impacts. The only traffic-related impacts are those associated with construction. Construction-related impacts would be temporary in nature and are addressed under the discussion of Public Services/Infrastructure.

Air Quality Impacts. Exhaust and fugitive dust emissions would be generated by construction activities in the alternative off-site utility corridor, such as excavation and grading, construction vehicle traffic, and wind blowing over exposed earth. The degree of activity is unknown at this time, so average daily construction emissions have not been estimated for off-site infrastructure areas. During maximum construction activity, the primary emissions would be dust from earthmoving activities and NOx from construction vehicle exhaust. The direct air quality impacts of construction in the alternative off-site utility corridor are considered significant and unavoidable. No operational air quality impacts have been identified related to installation and maintenance of utilities in off-site infrastructure areas.

Noise Impacts. The only noise impact associated with the alternative off-site utility corridor is construction-related noise, which may affect adjacent noise-sensitive uses. Construction activities would be temporary in nature and would most likely occur only during the daytime hours. Construction noise impacts could result in annoyance or sleep disruption for nearby residents if nighttime operations were to occur, or if equipment is not properly muffled or maintained. These impacts are considered potentially significant, but compliance with the Placer County Noise Element standards, the Placer County Noise Ordinance and applicable mitigation measures included in Revised Draft EIR Section 4.9 as modified herein (see modification to

Mitigation Measure 4.9-3 under "Alternative Long Term Surface Water Supply Analysis") would reduce impacts to a less than significant level.

Public Service Impacts. The proposed water line is a public utility and would be operated by PCWA. The effects of the water supply on the environment are evaluated herein, as well as below under "Alternative Long-Term or Buildout Surface Water Supply". Construction activity related to installation of pipelines in the alternative off-site utility corridor could present an obstacle to movement which affects emergency response times for police and fire protection, access to schools, and interference with solid waste collection. However, this impact is considered less than significant because it would be temporary and subject to standard County and State traffic control and access procedures.

Hazards/Hazardous Material Impacts. Impacts in the off-site utility corridor could include the potential to encounter underground storage tanks, contaminated soils, refuse and other abandoned materials, abandoned wells, septic systems, and structures containing asbestos, similar to the Specific Plan area. Any construction would be subject to State and local requirements regarding underground storage tank removal, well and septic tank abandonment, wastewater treatment facilities operation, etc. NPDES requirements will also apply to all construction, including submission of a Stormwater Pollution Prevention Plan (SWPP), as administered by the State Water Resources Control Board. In addition, any construction will be under the oversight of a public agency, and ultimate owner of the improvements (PCWA). In addition, compliance with Revised Draft EIR Mitigation Measures 4.12-21a through 4.12.21f would ensure reduction of any related impacts to a less than significant level.

ALTERNATIVE LONG-TERM SURFACE WATER SUPPLY

This alternative consists of a long-term surface water supply provided by PCWA from its CVP American River water through an expansion of PCWA's new American River Pump Station, or a Folsom Reservoir diversion, and would be an alternative to the 11,500 AFA described in the Project Description that would be furnished by PCWA from the Sacramento River. The American River Basin Cumulative Report (Cumulative Report) was prepared by the U.S. Bureau of Reclamation (Reclamation) in August 2001 as part of the PCWA Pump Station Project Draft It is intended to serve as an integral component of NEPA, CEQA, and ESA compliance documentation for Reclamation's CVP American River Division actions identified as reasonably foreseeable. The evaluation includes an assessment of the diversion-related and service area impacts of past and future water diversions, CVP facility operations affecting those diversions, and land-based resources of the American River watershed. The Cumulative Report is incorporated by reference in its entirety (PCWA and Reclamation, 2002), although a summary is provided (see Revised Draft EIR Section 4.3). The alternative water supply analysis relies on the analyses and conclusions of the Cumulative Report, recognizing its collaboratively-based acceptance and recent updates to include all known Reclamation American River Division actions, including the proposed Specific Plan. All "Template Output" and "Technical Appendix" references used below refer to the modeling results described in Revised Draft EIR Section 4.3. These appendices and templates are available for review at the address shown in Section 2-18 of the Revised Draft EIR.

Alternative Long-Term or Buildout Surface Water Supply Supplemental Analysis, American River Pump Station

The American River Pump Station Alternative includes the expansion of the pumping intake capacity of the water diversion facility that is currently under construction. Raw water diverted at the expanded American River Pump Station would be conveyed through the Auburn Tunnel (using existing available capacity) and pumped from the Auburn Tunnel through a new Auburn Tunnel Pump Station dedicated to pumping water into the Ophir Water Treatment Plant. The Ophir Water Treatment Plant would be expanded to process the additional 35,000 AFA for use in western Placer County. The following actions related to the water supply would be undertaken by PCWA. Quantities are reported in MGD rather than AFA; however, the flow factors used are equivalent to diversion and treatment of 35,000 AFA:

- Expanding the capacity of American River Pump Station on the northern bank of the American River near Auburn from 65 MGD up to 130 MGD;
- Constructing a new 65 MGD Pump Station to pump water from the existing Auburn Tunnel to the Ophir Water Treatment Plant;
- Constructing approximately 2,000 feet of 54-inch raw water pipeline from the Pump Station to the Ophir Water Treatment Plant;
- Expanding the treatment capacity of the Ophir Water Treatment Plant from 30 MGD to 95 MGD; and
- Constructing 16.8 miles of new 60-inch and 6.3 miles of new 48-inch treated water pipelines connecting to PCWA's existing water distribution system (this is the parallel pipeline discussed above under Alternative Infrastructure to Deliver a Long-Term or Buildout Surface Water Supply).

The Ophir Water Treatment Plant is located adjacent to the existing Auburn Wastewater Treatment Facility at the intersection on Ophir Road, north of Interstate 80 and east of the town of Newcastle (see Figure 6-15). An EIR was prepared for the Ophir Water Treatment Plant (previously called Foothill Phase II Water Treatment Plant and Pipeline Project). The Water Treatment Plant project is part of PCWA plans to augment existing water supplies with a new treated water supply and is one of several projects designed to secure a future water supply for the Lower Zone 1 Service Area of PCWA. The EIR evaluated the impacts related to the construction and operation of the following facilities:

- A new 54 inch in diameter raw water intake connecting to the planned 54 inch pipeline at the south end of the Auburn Tunnel Pump Station No. 2 transfer basin and extending to the proposed Water Treatment Plant;
- A new water treatment plant (30 mgd) to be constructed on a 35 acre site, which will include an operations building, pretreatment facilities for turbidity and organics reduction, filtration

facilities, a chemical building, associated chemical feed systems, on-site storage facilities, and solids handling facilities;

- A new treated water transmission pipeline (ranging from 42 to 60 inches in diameter) that will connect the new Water Treatment Plant to PCWA's existing transmission system near the intersection of Taylor Road and Rock Springs Road (referred to as Phase I). Phase II of the pipeline segment will convey treated water at a point near the intersection of Taylor and Callison Roads and continue west to a pipeline to be constructed by the City of Lincoln connecting the Sunset 10 mg water storage tanks and the new Lincoln Storage Tank farm; and
- A new 12 inch treated water transmission pipeline that will connect to an 18 inch pipeline 350 feet east of Lozanos Road and continue southwest to the existing Newcastle water transmission system situated in Taylor Road.

In addition, the Ophir WTP EIR evaluated the potential impacts of the project's need for additional temporary construction easements (for staging areas, etc.) and permanent maintenance easements or property acquisitions that will be required from private property owners for pressure reducing stations.

<u>Impact Summary.</u> The findings of the Ophir WTP EIR were that Construction-Related Activities (including site grading) that would generate short-term emissions of criteria pollutants, including suspended and inhalable particulate matter and equipment exhaust emissions, would adversely affect air quality. These impacts to air quality were determined to be significant and unavoidable. However, impacts to the remaining issues analyzed by the EIR were found either to be less than significant, or if potentially significant with the implementation of mitigation measures were reduced to a less than significant level.

<u>Mitigation Measures.</u> The Ophir WTP EIR proposed mitigation measures for the following subjects: Transportation and Circulation, Air Quality, Noise, Hazardous Materials and Public Health, Hydrology and Water Quality, Geology and Soils, Biological Resources, Cultural Resources, Visual Resources, and Public Services and Utilities. With the exception of Mitigation Measure 4.5.2 for Noise, these measures are similar to those for off-site infrastructure construction proposed in the Placer Vineyards Specific Plan Revised Draft and Final EIRs.

Ophir EIR Mitigation Measure 4.5.2 addresses the potential temporary increase in noise levels in noise-sensitive areas during construction-related blasting activities. For the proposed project, the implementation of this measure would reduce the potential impact to less than significant. Since blasting was not contemplated during buildout of the Placer Vineyard Specific Plan, no such mitigation measure was proposed; therefore, Revised Draft EIR Mitigation Measure 4.9-3 is hereby amended as follows (added language is shown underlined):

4.9-3<u>a</u> The hours of operation of noise-producing equipment shall comply with Placer County's "Standard Construction Noise Condition of Approval." Effective mufflers shall be fitted to gas- and diesel-powered equipment to reduce noise levels as much as possible.

- 4.9-3b As part of the project plans and specifications, the construction contractor shall prepare and implement a blasting plan. Primary components of the plan shall consist of the following applicable items:
 - *Identification of blast officer*.
 - <u>Limits on blasting activities</u>. <u>Blasting activities will be limited to Monday through</u> Friday.
 - <u>Scaled drawings of blast locations, and neighboring buildings, streets, or other locations that could be inhabited.</u>
 - Blasting notification procedures, lead times, and list of those notified Public notification to potential affected vibration receptors describing the expected extent and duration of the blasting.
 - <u>Description of means for transportation and on-site storage and security of explosives in accordance with local, State, and federal regulations.</u>
 - <u>Minimum acceptable weather conditions for blasting and safety provisions for potential stray current (if electric detonation).</u>
 - Traffic control standards and traffic safety measures (if applicable).
 - Requirement for provision and use of personal protective equipment.
 - <u>Minimum standoff distances and description of blast impact zones and procedures</u> for clearing and controlling access to blast danger.
 - <u>Procedures for handing, setting, wiring, and firing explosives.</u> Also, the plan should include procedures for handling misfires per Federal code.
 - Type and quantity of explosives and description of detonation device. Sequence and schedule of blasting rounds, including general method of excavation, lift heights, etc.
 - <u>Methods of matting or covering of blast area to prevent flyrock and excessive air blast pressure.</u>
 - Description of blast vibration and air blast monitoring program.
 - <u>Dust control measures in compliance with applicable air pollution control regulation (to interface with general construction dust control plan).</u>

- Emergency Action Plan to provide emergency telephone numbers and directions to medical facilities. Procedures for action in the event of injury.
- <u>Material Safety Data Sheets for each explosive or other hazardous materials to be</u> used.
- Evidence of licensing, experience, and qualification of blasters.
- Description of insurance for the blasting work.

The blasting plan shall also include the following applicable noise reducing measures:

- The blasting plan shall establish vibration limits in order to protect structures form blasting activities and identify specific monitoring points. At a minimum, a pre-blast survey will be conducted at any potentially affected structures and underground utilities within 500 feet of a blast area, as well as the nearest commercial or residential structure, prior to blasting.
- The blasting plan shall include visual inspection of the structures that could be affected, documentation of structures by photographs, video, and a level survey of the ground floor of structures or the crown of major and critical utility lines. This document shall be reviewed with the individual owners prior to any blasting operations. PCWA and affected property owners shall be notified at least 48 hours prior to the visual inspections.
- Vibration and settlement threshold criteria (for example peak particle velocity of 0.5 inches per second) shall be submitted by the blaster to the County for review and approval during the design process. If the settlement or vibration criteria are exceeded at any time or if damage is observed at any of the structures or utilities, then blasting will immediately cease and the County immediately notified. The stability of segmental retaining walls, existing slopes, creek canals, etc. will be monitored and any evidence of instability due to blasting will result in immediate termination of blasting. The blaster will modify the blasting procedures or use alternative means of excavating in order to reduce the vibrations to below the threshold values, prevent further settlement, slope instability, and prevent further damage.
- Air blast overpressure limits will be set and monitoring shall be conducted at the property line closest to the blast and at other above-ground structures identified in the blasting plan for vibration monitoring. Air blast overpressure limits shall be in accordance with applicable laws and shall be established to prevent damage to adjacent properties, new construction, and to prevent injuries to persons onsite and off-site.

- Prior to full-scale production blasting, the blaster shall conduct a series of test blasts at the sites where blasting is to occur. The tests will start with reduced charge weights and will increase incrementally to that of a full-scale production round. Monitoring shall be conducted as described in the blasting plan.
- Post-construction monitoring of structures shall be performed to identify (and repair if necessary) all damage, if any, from blasting vibrations. Any damage will be documented by photograph, video, etc. This documentation shall be reviewed with the individual property owners.
- Reports of the results of the blast monitoring shall be provided to the County, the local fire department, and owners of any buried utilities on or adjacent to the site within 24 hours following blasting. Reports documenting damage, excessive vibrations, etc. shall be provided to the County, PCWA and affected property owners.

According to the preliminary findings of the *Sacramento River Water Reliability Study Initial Alternatives Report* (SRWRS Initial Alternatives Report) implementation of an American River Pump Station diversion could result in the following environmental effects. It should also be noted that, in addition to the supplemental analysis below, the Revised Draft EIR includes discussion of offsite infrastructure impacts in each topical area and includes mitigation measures that are applicable to offsite infrastructure construction, which are also applicable to water supply infrastructure effects:

Biological Resources. According to the Report, impacts to terrestrial wildlife will be less than significant at the diversion location; however, the pipeline corridor may affect habitat between the Ophir Road Water Treatment Facility and the Sunset Water Treatment Facility. Additionally, Placer Legacy planning efforts have identified moderate to high-density vernal pool habitat in the corridor between the Sunset Water Treatment Plant and west of Highway 65 that needs special consideration. Shifts in the pipeline alignment (see Updated Revised Draft EIR Figure 6-14) may reduce potential impacts. Also see the discussion of the "Alternative Off-Site Utility Infrastructure" above.

Impacts to fisheries of the Lower American River would be greater in comparison to those of the Sacramento River and the Elverta Alternative. Implementation of this alternative has the potential to impact an entire 23-mile stretch of the American River that is known to be used by anadromous fish for migration, spawning and rearing (see "Effects of Implementing the Alternative Long-Term or Buildout Surface Water Supply, American River System, on Water-Related Resources" below).

Hydrology/Water Quality. Implementation of this alternative would result in similar impacts to those of the Elverta Diversion Alternative. Additional analysis would be required to determine potential downstream dilution and other surface water quality issues.

Recreation. The American River Pump Station is located within the Auburn State Recreation area. Recreational activities within this area include hiking, fishing, horseback riding, cycling,

swimming, rafting and kayaking. According to the Report, construction of the first phase of the American River Pump Station has begun and mitigation measures contained in the EIS/EIR for the project are being implemented. Under this alternative, the pump station intake footprint would not change and is not anticipated to have a significant impact on recreation; however, less than significant changes in water levels may result from future operations under the alternative. The SRWRS Initial Alternatives Report recommends that during future modeling of this alternative, these potential impacts be studied in greater detail.

Land Use. There are currently residential land uses near the new Water Treatment Facility; therefore, implementation of this alternative could result in conflicts with current land uses. New pipelines are proposed to traverse areas that are anticipated to experience potentially significant disruptions during construction; however, such disruptions are temporary in nature.

Alternative Long-Term or Buildout Surface Water Supply Supplemental Analysis, Folsom Reservoir

Appendix E of the Revised Draft EIR described that the existing diversion structure at Folsom Dam, does not have sufficient capacity to convey the total anticipated surface water supply needs for Placer Vineyards from Folsom Reservoir. A new urban water supply intake would have to be constructed. From the new aperture, raw water first would be pumped to the Folsom Pumping Plant operated by USBR. From there, it would be pumped along the North Fork Pipeline either to the Sydney N. Petersen Water Treatment Plant, owned by the San Juan Water District, or be conveyed to the City of Roseville's water treatment facility. Water would ultimately reach the Placer Vineyards Specific Plan through the Roseville system or through the Cooperative Transmission Pipeline.

According to the more recent SRWRS Initial Alternatives Report, the Folsom Dam diversion now includes constructing a tie-in to the existing Folsom Dam penstocks number 1 and 2 with a 60-inch diameter pipeline that will be located west of the existing pump station, a new raw water pump station, and a new raw water intake. In addition, this alternative proposes to expand the San Juan Water District's Sydney N. Peterson Water Treatment Plant. PCWA would obtain 65 MGD from the new penstock connection and the proposed Sydney N. Peterson Water Treatment Plant expansion through a 60-inch pipeline that would parallel the existing 84-inch pipe that feeds into the existing Water Treatment Plant (see Figure 6-16).

The Sydney N. Peterson Water Treatment Plant is located on Auburn-Folsom Road near Northwood Drive. The facility expansion will include approximately 10 acres of the existing Water Treatment Plant property. The expansion would increase Treatment Plant capacity to a total of 185 MGD. Additional modifications would be made to the existing facility along with a new floculaton/sedimentation basin, filter, filter backwash and solids-handling facility. Space has been reserved to support future water quality regulations.

Service of water to PCWA would be from the Water Treatment Plant through a 60-inch diameter pipeline traversing approximately 11 miles northwesterly along an existing Roseville pipeline. The pipeline would follow Auburn-Folsom Road, Barton Road, Roseville Parkway, Cirby Way, across Interstate 80 and the UPRR, to Cook Riolo Road. From Cook Riolo Road the pipeline would traverse approximately 1.6 miles to Baseline Road, where it would turn west. The final

connection to the project site and PCWA would be at the Baseline Road and Fiddyment Road tie-in.

According to the preliminary findings of the SRWRS Initial Alternatives Report, implementation of a Folsom Reservoir diversion could result in the following environmental effects. It should also be noted that, in addition to the supplemental analysis below, the Revised Draft EIR includes discussion of offsite infrastructure impacts in each topical area and includes mitigation measures that are applicable to offsite infrastructure construction, which are also applicable to water supply infrastructure effects:

Biological Resources. According to the SRWRS Initial Alternatives Report, there are no proposed alterations to the existing facilities and structures that would result in major impacts to plants or wildlife as a result of implementation of this alternative. New pipeline and facilities are proposed to entirely within disturbed areas, and are not anticipated to have an adverse impact on biological resources.

Impacts to fisheries of the Lower American River would be greater in comparison to those of the Elverta Alternative. Implementation of this alternative has the potential to impact an entire 23-mile stretch of the American River that is known to be used by anadromous fish for migration, spawning and rearing.

Hydrology/Water Quality. There are no water quality issues referenced within the SRWRS Initial Alternatives Report as a result of implementation of this alternative.

Recreation. Folsom Reservoir is located within the Folsom Dam Lake State Recreation Area. During drier than normal years, the reservoir water levels may be affected as a result of the project. The SRWRS Initial Alternatives Report recommends that additional studies be prepared once modeling is conducted during later phases of the project.

Land Use. New pipelines are proposed to traverse areas that are anticipated to experience potentially significant disruptions during construction; however, such disruptions are temporary in nature.

Alternative Long-Term or Buildout Surface Water Supply Regulatory Environment, American River System

The following information concerning the regulatory environment for the long-term or buildout surface water supply from the American River is excerpted from PCWA's *Sacramento River Water Reliability Study Engineering Report*, November 2006.

As part of the preliminary design phase of the work, consultation would be initiated with numerous permitting agencies to begin discussion of project-specific conditions and design criteria that would need to be included in the design of ultimate facilities to obtain permits from these agencies. These contacts would not result in permits, but rather would identify the conditions and requirements for permit applications to be submitted as part of the final design

when more detailed engineering design is available. This would include coordination with the following agencies:

- USACE (Section 404/10 Permit)
- DHS (Water Supply Permit)
- California Department of Transportation (Encroachment Permit)
- The Reclamation Board (Encroachment Permit)
- CVRWQCB (National Pollutant Discharge Elimination System (NPDES) Permit)
- Sacramento and Placer Counties (Encroachment Permits)
- Cities of Sacramento and Roseville (Encroachment Permits)

In addition to these consultations, several other permits and consultations could be completed or obtained during this phase of work, including the following:

- USCG (Aid to Navigation)
- FAA/Sacramento County Airport Service (Form 7460-1)
- UPRR (Encroachment Permit)
- Cal-OSHA (Gas Classifications)
- SAFCA (Flood Impact Consult)
- Reclamation District 1000 (Flood Impact Consult)
- CSD-1/Sacramento County Department of Water Resources (Sewer/Storm Drain Connection)
- Sacramento County (General Use and Building Permits)

As part of the final design, permit applications would be prepared for the agencies that were only consulted during the enhanced engineering analysis. This would include coordination with the following:

- USACE (Section 404/10 Permit)
- DHS (Water Supply Permit)
- California Department of Transportation (Encroachment Permit)
- The Reclamation Board (Encroachment Permit)
- CVRWOCB (NPDES Permit)
- Sacramento and Placer Counties (Encroachment Permits)
- Cities of Sacramento and Roseville (Encroachment Permits)

In addition to the permits above, several other permits and consultations would be ready to be completed or obtained during the final design, including the following:

- CDFG (Streambed Alteration Agreement)
- California State Lands Commission (Letter for Avoid Land Use Lease)
- CVRWQCB (Section 401 Water Quality Certification)
- SWRCB (Notice of Intent (NOI) for Stormwater and Low Threat Discharges)
- Sacramento Metropolitan Air Quality Control District (Generator Permit)

- PCACD (Generator Permit)
- Sacramento County (Tree Removal Permit)
- Placer County (Tree Removal Permit)

Effects of Implementing the Alternative Long-Term or Buildout Surface Water Supply, American River System, on Water-Related Resources

The following consists of two parts: (1) an analysis to determine the effect of the proposed Specific Plan surface water supply project in combination with all past, present, and reasonably foreseeable future projects (cumulative analysis) (this is the same as the *American River Basin Cumulative Report* analysis that was prepared by Reclamation in September 2002 as part of the PCWA *Pump Station Project Final EIS/EIR*); and (2) if a significant cumulative impact was found, an analysis to determine the incremental contribution of the long-term surface water supply to the cumulative impact. It should be noted that the Placer Vineyards Specific Plan water supply would be only a small portion of the incremental contribution.

Lower American River Recreation Impacts

For recreation flow ranges, the cumulative diversion condition would result in 18 fewer months in which lower American River flows at Nimbus Dam would be in the minimum to maximum flow range (1,750 CFS to 6,000 CFS), relative to 255 months within this range under the existing condition, and 24 fewer months within the optimum flow range (3,000 CFS to 6,000 CFS), relative to 165 months within this range under the existing condition (Template Output F-44). Such flow reductions would be considered a significant impact to lower American River recreation opportunities.

Incremental Contribution of the Proposed Diversion. The diversion, however, would not contribute significantly to any reductions in the frequency in which flows are within either the minimum to maximum or optimum recreational flow ranges (Template Output J-44). The diversion would contribute 6 months to the 243 months in which lower American River flows at Nimbus Dam would be within the minimum to maximum flow range, and would contribute 5 months to the 146 months in which flows at Nimbus Dam would be within the optimum flow range. Therefore, the diversion would not contribute to significant reductions in lower American River flows, and hence would have no cumulatively considerable contribution to the significant lower American River recreational impacts that would occur under the cumulative diversion condition.

Folsom Reservoir Boating. Under the cumulative diversion condition, Folsom Reservoir elevation levels during the March through September recreational use period would be above the elevation required for use of all boat ramps (420 feet MSL) in 42 fewer months, relative to 330 months available under the existing condition. Reservoir elevations would fall below 412 feet MSL, the elevation required for the use of marina wet slips, in 44 additional months, relative to 368 months available under the existing condition (Template Output F-47). Such reductions in reservoir elevation would be considered to significantly reduce Folsom Reservoir boating opportunities under the cumulative diversion condition, relative to the existing condition.

Incremental Contribution of the Diversion. The diversion would contribute 5 months to the 42 fewer months and 7 months to the 44 additional months of the reductions in usability of either boat ramps or marina wet slips in any month of the March through September period (Template Output J-47). Consequently, the diversion would result in a significant cumulatively considerable contribution to the significant Folsom Reservoir boating impacts that would occur under the cumulative diversion condition.

Folsom Reservoir Swimming. Under the cumulative diversion condition, Folsom Reservoir water levels would be within the usable swimming range (420 to 455 feet MSL) during the peak May through September swimming season in 28 fewer months, relative to 144 usable months under the existing condition. For the optimum use elevation range (435 to 455 feet MSL), there would be 16 fewer usable months under the cumulative diversion condition, relative to 73 usable months within the range under the existing condition (Template Output F-47). Such changes in reservoir water levels under the cumulative diversion condition would significantly limit swimming opportunities at Folsom Reservoir, relating to the existing condition, and would therefore be considered a significant impact.

Incremental Contribution of the Proposed Diversion. The diversion would contribute 2 months to the 28 fewer months for usable beaches and 1 month to the 16 fewer months for optimal elevation ranges for swimming at Folsom Reservoir in any month of the May through September period (Template Output J-47). Accordingly, the diversion would have a cumulatively considerable contribution to impacts to Folsom Reservoir swimming under the future cumulative diversion condition.

Water Supply Impacts

The cumulative modeling results indicated that there were no reductions in delivery allocations to CVP settlement and exchange contractors, relative to the existing condition, and thus, no impact to CVP settlement and exchange contractors (Technical Appendix E-573 and E-577). Implementation of the future actions evaluated in the Cumulative Report, however, would result in potentially significant or significant cumulative impacts to SWP Delta service area customers and CVP water service contractors. These impacts are summarized below.

Deliveries to SWP Customers. Under the cumulative diversion condition, delivery reductions to SWP customers would range from 5% to 45%, relative to the existing condition, in 42 of the 70 years modeled (Technical Appendix E-579). Such reductions under the cumulative diversion condition would occur with sufficient frequency and magnitude to significantly impact deliveries to SWP customers.

Incremental Contribution of the Proposed Diversion. The diversion, however, would not contribute in either frequency or magnitude to any anticipated future SWP customer delivery reductions (Technical Appendix I-579). Thus, the diversion would have no cumulatively considerable contribution to future significant impacts to deliveries to SWP customers that would occur under the cumulative diversion condition.

Deliveries to CVP Customers. Under the cumulative diversion condition, CVP water service contractors would experience significant reductions in deliveries, relative to the existing condition. CVP M&I contractors both north and south of the Delta would experience delivery reductions of 5% to 20%, relative to the existing condition, in 24 of the 70 years modeled. CVP agricultural contractors north of the Delta would experience reductions of 5% to 25%, relative to the existing condition, in 42 of the 70 years modeled, and agricultural contractors south of the Delta would experience reductions of 5% to 20% in 35 of the 70 years modeled (Technical Appendix E-571 to E-572 and E-575 to E-576). Reductions to CVP customers both north and south of the Delta would occur with sufficient frequency and magnitude to be considered cumulatively significant impacts.

Incremental Contribution of the Proposed Diversion. The diversion would contribute a 5% reduction in delivery to CVP agricultural contractors north of the Delta in 1 of the 70 years modeled. However, the diversion would not contribute in either frequency or magnitude to additional reductions in delivery to any CVP contractor, either north or south of the Delta (Technical Appendix I-571 to I-572 and I-575 to I-576). Therefore, the diversion would have no cumulatively considerable contribution to the significant impacts to deliveries to CVP customers that would occur under the cumulative diversion condition.

Water Quality Impacts

Increased Diversions and Changes in CVP Operations that Could Result in Reduced River Flows and **Reservoir Elevations.** Under the cumulative diversion condition, substantially reduced storage levels in Folsom, Shasta, and Trinity reservoirs, and substantially reduced flows in the lower American and Sacramento rivers, relative to existing conditions are expected. For Folsom Reservoir storage, the 70-year mean monthly flows would be generally lower (up to 12% less), for Shasta Reservoir storage, the 70-year mean monthly flows would also be lower (up to 7% less), and for Trinity Reservoir storage, the 70-year mean monthly flows would be lower as well (up to 5% less), relative to the existing condition. Under the cumulative diversion condition, the 70-year mean monthly flows for the lower American River at Nimbus Dam would be reduced by up to 17%, relative to the existing condition. Similarly, the 70-year mean monthly flows for upper Sacramento River would be reduced by up to 9% and the lower Sacramento River 70-year mean monthly flows would be reduced by up to 9%, relative to the existing condition (Template Output F-105 to F-111). The greatest reductions in storage and flows would be from September through November, when existing flows are already low. Such reductions in storage and flow rates would be expected to significantly increase the concentration of contaminants that are of concern. Increases in constituent concentrations that may occur under the cumulative diversion condition could be sufficiently large to cause State or federal water quality criteria or standards to be exceeded, while such standards are not exceeded under the existing condition. Therefore, impacts to water quality under the cumulative diversion condition would be potentially significant.

Incremental Contribution of the Proposed Diversion. The diversion would contribute up to 19% (or 3 months of the 16 months) of the cumulative reductions in Folsom Reservoir storage for any

given month (Template Output J-105). The diversion would contribute up to 13% (or 1 month of the 8 months) of the cumulative reductions at Trinity Reservoir and up to 2% (or 3 months of the 160 months) at Shasta Reservoir for any given month (Template Output J-106 and J-107). Therefore, the diversion would have a cumulatively considerable contribution to significant water quality impacts to CVP reservoirs that could occur under the cumulative diversion condition.

The diversion would contribute up to 41% (or 35 months of the 85 months) of the cumulative reductions in lower American River flows (Template Output J-108 and J-109). For the upper Sacramento River, the diversion would contribute up to 2% (or 2 months of the 82 months) of the cumulative reductions and up to 5% (or 33 months of the 708 months) of the cumulative reductions for the lower Sacramento River (Template Output J-110 to J-111). The diversion would not have a cumulatively considerable contribution to flow reductions in the upper or lower Sacramento River that could impact water quality impacts. The diversion would, however, have a cumulatively considerable contribution to significant cumulative water quality impacts to the lower American River.

Delta Water Quality. Similar to the Cumulative Report, reductions in long-term average Delta outflow of up to approximately 8% would occur under the cumulative diversion condition, relative to the existing condition (Template Output F-413). Monthly reductions of 5% or more (up to 42%), relative to the existing condition, would occur in 234 of the 840 months analyzed throughout the 70-year period of hydrologic record. Such reductions would occur with significant frequency and magnitude to result in potentially significant cumulative impacts to water quality.

Similar to the Cumulative Report, the long-term average position of X2 would move upstream less than one kilometer under the cumulative diversion condition, relative to the existing condition. However, there would be 146 occurrences, of the 840 months included in the analysis, in which the position of X2 would shift upstream by one km or more, relative to the existing condition (Technical Appendix E-13 to E-24). Such shifts would be of significant magnitude to result in potentially significant impacts to water quality parameters that are dependent upon the position of X2.

Incremental Contribution of the Proposed Diversion. The diversion would contribute 3 months to the 234 months of outflow reductions. The diversion would not contribute to shifts in the position of X2 of more than one km (Technical Appendix I-13 to I-24). Therefore, the diversion would have no cumulatively considerable contribution to the potentially significant cumulative reductions in Delta outflow or shifts in the position of X2 that would occur under the cumulative diversion condition.

Flood Control Impacts

Similar to the Cumulative Report, increased diversions from the CVP system that would occur under the cumulative diversion condition would result in no change or increased reservoir storage capacity (up to 1,307 CFS release from Keswick), and hence would provide positive benefits to flood control relative to the existing condition (Template Output F-97).

Incremental Contribution of the Proposed Diversion. Accordingly, there would be no significant impact to flood control under the cumulative diversion condition, relative to the existing condition. The diversion would contribute 64 CFS to the total cumulative increase in the release from Keswick (Template Output J-97). Therefore, the diversion would have a cumulatively considerable contribution to the cumulative positive benefits to flood control.

Hydropower Impacts

CVP Gross Hydropower Generation and Gross Dependable Capacity. Changes in the future operations of CVP facilities would result in an estimated annual reduction in gross annual CVP hydropower generation of 365 GWh, or 7%, relative to the existing condition (Template Output F-10). For nearly every month of the 840 months modeled under the 70-year period of hydrologic record, the cumulative diversion condition would result in reductions in gross CVP hydropower generation, relative to the existing condition, with maximum reductions of up to 316 GWh in individual months. While such increases would not be expected to result in significant direct environmental impacts, they would be expected to result in significant economic impacts that would be passed on to CVP customers.

There would be significant reductions in gross CVP dependable capacity under the cumulative diversion condition, relative to the existing condition. Gross CVP dependable capacity would be reduced in nearly every month of the 840 months included in the analysis, with average monthly reductions ranging from 1.3% to 10.5% of existing dependable capacity, and maximum reductions of up to 570 MW (October), relative to the existing condition (Technical Appendix E-493 to E-504).

Incremental Contribution of the Proposed Diversion. The diversion would contribute substantially to monthly reductions in hydropower generation, with the greatest monthly reduction of 63 GWh (Technical Appendix I-505 to I-517). The diversion would, in individual months, result in significant cost impacts to CVP customers. The diversion would, in individual months, result in a minor contribution to the economic impacts that would occur under the future cumulative diversion condition. This alternative would result in average decreases in dependable capacity of up to six MW in any given month, and benefits or no impact to monthly long-term average dependable capacity (Technical Appendix I-493 to I-504). Thus, while this is a minor contribution to significant increases in dependable capacity that would occur under the cumulative condition, the diversion would still result in direct cost impacts that would be passed on to CVP customers.

Folsom and EID Pumping Requirements. The energy requirement under the cumulative diversion condition would be more than doubled at the Folsom Pumping Plant and six times greater at the EID Pumping Plant (more than 11,000 MWh and 18,000 MWh annual increases, respectively), relative to the existing condition (Template Output F-12 to F-13). This significant cumulative

economic impact would be passed on to water users who rely on pumping at Folsom Reservoir, but would not result in direct environmental impacts.

Incremental Contribution of the Proposed Diversion. The diversion would not contribute significantly to the total increase in pumping requirements that would occur under the cumulative diversion condition. For the Folsom Pumping Plant, the greatest increase in long-term average pumping requirements contributed by this alternative would be 540 MWh, and the greatest contribution to monthly increases at the EID Pumping Plant would be 6 MWh (Template Output J-12 to J-13). While these are minor contributions, relative to the overall increase in pumping requirements under the cumulative diversion condition, the economic impacts would be passed on directly to water users.

Terrestrial Resources Impacts

Lower American River Riparian Vegetation and Special-Status Species Dependent upon Riparian and Open Water Habitats. Changes in lower American River flows under the cumulative diversion condition would result in more frequent reductions of flows above the indices for cottonwood growth and terrace inundation, relative to the existing condition. Under the existing condition, flows below Nimbus Dam would be above the index for maintenance of radial growth (i.e., greater than or equal to 1,765 CFS) in 61% to 86% of the 560 months simulated for the March through October period (Technical Appendix F-88). Under the cumulative diversion condition, flows would be above the index for maintenance of radial growth in 50% to 89% of the months simulated for the March through October period. Therefore, the absolute difference between the cumulative diversion condition and the existing condition would range from increases of 3% and reductions of 3% to 14%.

Flows below Nimbus Dam would be above the index for maintenance of some growth (i.e., greater than or equal to 2,000 CFS) in 57% to 86% of the months simulated for the March through October period under the existing condition (Technical Appendix F-88). Under the cumulative diversion condition, flows would be above the index for maintenance of some growth in 43% to 86% of the months simulated for the March through October period. Therefore, the absolute difference between the cumulative diversion condition and the existing condition would range from reductions of 3% to 14%.

Under the existing condition, flows below Nimbus Dam would be above the index for maintenance of maximum growth (i.e., greater than or equal to 3,000 CFS) in 4% to 69% of the months simulated for the March through October period (Technical Appendix F-88). Under the cumulative diversion condition, flows would be above the index for maintenance of maximum growth in 23% to 71% of the months simulated for the March through October period. Therefore, the absolute difference between the cumulative diversion condition and the existing condition would range from increases of 3% and reductions of 1% to 20%.

Reduced flows under the cumulative diversion condition would result in seven and nine additional occurrences of two or more consecutive months above the index for maintenance of radial growth at Nimbus Dam and the H Street Bridge, respectively (Technical Appendix F-496

and F-499). Reduced flows under the cumulative diversion condition would result in six and four additional occurrences of two or more consecutive months above the some growth index at Nimbus Dam and the H Street Bridge, respectively (Technical Appendix F-497 and F-500). Reduced flows under the cumulative diversion condition would result in five and two additional occurrences of two or more consecutive months above the maximum growth index at the Nimbus Dam and the H Street Bridge, respectively (Technical Appendix F-498 and F-501). However, none of the consecutive flow reductions would occur during the critical growing period of April through July. Overall, such flow reductions are not considered to be of sufficient magnitude and/or frequency to have long-term effects on the population and growth of cottonwoods/riparian vegetation, relative to the existing condition. Furthermore, given that flow reductions would not result in long-term adverse effects on cottonwoods or riparian vegetation, future impacts to special-status species that depend on lower American River riparian vegetation would also be less than significant, relative to the existing condition.

Lower American River Backwater Ponds and Special-Status Species Dependent on Backwater Pond/Marsh Habitats (Including Elderberry Shrubs and VELB). Modeling results indicate that recharge of lower American River backwater ponds would not be significantly altered under the cumulative diversion condition, relative to the existing condition. Under the existing condition, monthly mean flows below Nimbus Dam would be above 2,700 CFS, the minimum flow required for recharge of ponds closest to the river, in 4% to 73% of the 560 months simulated (Technical Appendix F-94). Flows under the cumulative diversion condition, would be above 2,700 CFS in 3% to 73% of the months simulated. Therefore, the absolute difference between the cumulative diversion condition and the existing condition would range from reductions of 1% to 19%.

Under the existing condition, monthly mean flows below Nimbus Dam would be above 4,000 CFS, the flow value required for recharge of off-river ponds, in 7% to 43% of the months simulated (Technical Appendix F-94). Flows under the cumulative diversion condition, would be above 4,000 CFS in 4% to 39% of the months simulated. Therefore, the absolute difference between the cumulative diversion condition and the existing condition would range from reductions of 1% to 21%.

Given that adequate recharge of both adjacent and off-river ponds would occur with sufficient frequency under the cumulative diversion condition, such reductions were considered less than significant, relative to the existing condition. Furthermore, special-status species dependent upon recharge of backwater pond/marsh habitats, including elderberry shrubs and VELB, would not be adversely affected by future reductions in flow that would occur under the cumulative diversion condition, and consequently, impacts to these special-status species would be less than significant.

Folsom, Trinity, and Shasta Reservoir Vegetation. Long-term average end-of-month water surface elevations for Folsom, Trinity, and Shasta reservoirs would be reduced, relative to the existing condition, with reductions ranging from 3 to 11 feet during growing season months of March through September (Template Output F-485, F-487 and F-489). Weedy vegetation, rather than vegetation that would provide quality wildlife habitat, establishes in the drawdown zone under

existing conditions due to constant changes in reservoir elevation that result from reservoir drawdown patterns. Consequently, reductions in reservoir elevations that would occur under the cumulative diversion condition would not affect areas of high and consistent habitat value that are available for species associated with the reservoir under the existing condition.

Upper Sacramento River Riparian Vegetation. Under the cumulative diversion condition, upper Sacramento River long-term average flows at Keswick Dam during the March through October growing season would be reduced, relative to the existing condition (Template Output F-141). Such decreases would range from approximately 82 to 836 CFS, relative to the existing condition. However, such decreases would be small, considering the monthly mean flow range under the existing condition of over 5,000 CFS to over 13,000 CFS. Thus, anticipated flow reductions that would occur under the cumulative diversion condition would not be of sufficient magnitude and/or frequency to significantly alter upper Sacramento River riparian vegetation and related species, relative to the existing condition.

Lower Sacramento River Riparian Vegetation. Under the cumulative diversion condition, reductions in long-term average flows on the lower Sacramento River at Freeport would range from approximately 385 CFS to 835 CFS during most months, with increases ranging from 41CFS to 451 CFS in early spring and mid-summer months, relative to the existing condition. However, the greatest reduction in long-term average flow under the cumulative diversion condition would be less than 6% of existing flows for any month of the growing season, relative to the existing condition (Template Output F-147). Furthermore, the frequency and magnitude of flow reductions that would occur under the cumulative diversion condition would be small, considering the existing monthly mean flow range of over 11,000 CFS to over 33,000 CFS during the growing season months. Therefore, adverse effects to riparian habitats of the lower Sacramento River would not be expected under the cumulative diversion condition, relative to the existing condition.

Delta Riparian Vegetation and Special-Status Species. Long-term average reductions in lower Sacramento River flow would not be expected to alter the riparian habitat of the Delta. Potential shifts in the long-term average position of X2 of up to 0.7 km would occur under the cumulative diversion condition, relative to the existing condition (Template Output F-429). Such shifts, however, would be considered minor and would not adversely affect Delta vegetation (which is adapted to changes in salinity) or special-status species dependent upon Delta habitats.

In summary, there would be no potentially significant impact to terrestrial resources and vegetation associated with the implementation of future actions under the cumulative diversion condition, relative to the existing condition. Therefore, as no significant impacts are anticipated to terrestrial resources under the cumulative diversion condition, the diversion would have no cumulatively considerable contribution to future impacts to riparian resources.

Fisheries and Aquatic Habitat Impacts

The cumulative diversion condition was evaluated for the potential to cause future impacts to fisheries and aquatic habitat associated with the lower American River, Sacramento River, and

Sacramento-San Joaquin Delta, as well as the fisheries resources of Folsom, Shasta and Trinity reservoirs. The results of this analysis indicated there would be no significant adverse cumulative effects to the following resources:

- Folsom Reservoir Coldwater Fisheries
- Nimbus Fish Hatchery Operations and Fish Production
- Lower American River American Shad
- Lower American River Striped Bass Fishery
- Lower American River Splittail (temperature-related)
- Shasta Reservoir Coldwater Fisheries
- Trinity Reservoir Coldwater Fisheries
- Trinity Reservoir Warmwater Fisheries
- Upper Sacramento River Fisheries (flow-related)
- Lower Sacramento River Fisheries (flow-related)

The potentially significant cumulative impacts identified in the cumulative diversion condition are summarized below. Each discussion is followed by an evaluation of the potential for the proposed diversion to result in a considerable contribution to the identified cumulative impact.

Folsom Reservoir Warmwater Fisheries. Under the cumulative diversion condition, long-term average end-of-month water surface elevations would be reduced in Folsom Reservoir by up to 9 feet MSL, relative to the existing condition, during the March through September period, when warmwater fish spawning and initial rearing occur. On a monthly basis, reservoir elevations would be reduced by 5 to 36 feet MSL in 199 months of the 490 months included throughout the March through September period (Technical Appendix E-198 to E-204.) Future changes in water surface elevation would result in reductions in the long-term average amount of available littoral habitat from 6% to 34% (119 to 306 acres), with reductions in individual months of up to 1,998 acres, relative to the existing condition (Technical Appendix E-294 to E-300). Such reductions in habitat availability could, in turn, lead to increased predation on young of the year warmwater fish, thereby reducing the long-term initial year-class strength of the population. Unless willows and other near-shore vegetation, in response to seasonal reductions in water levels, become established at lower reservoir elevations in the future, long-term year-class production of warmwater fisheries could be reduced. Consequently, seasonal reductions in littoral habitat availability represent a potentially significant cumulative impact to Folsom Reservoir warmwater fisheries. Potential nest-dewatering events in Folsom Reservoir could occur more frequently under the cumulative diversion condition, relative to the existing condition. Modeling results indicate that the greatest increase would occur during June, with 27 nest-dewatering events (out of 70 years), relative to 17 events under the existing condition. The frequency with which potential nest-dewatering events could occur in Folsom Reservoir would also increase in the remaining months of the March through July warmwater fish-spawning period, and consequently impacts to warmwater fish nesting success, may be cumulatively significant.

Incremental Contribution of the Proposed Diversion. The diversion would contribute substantially to reductions under the cumulative diversion condition. This diversion would contribute 90

months to the total cumulative reservoir elevation reductions, although these reductions would range from 1 foot to 3 feet MSL (Technical Appendix I-198 to I-204). In individual months, the diversion would result in both increases and decreases in the amount of littoral habitat, with reductions up to 222 acres (Technical Appendix I-294 to I-300). Such reductions in magnitude would constitute a cumulatively considerable contribution to significant reductions in littoral habitat availability that would occur under the cumulative diversion condition. The diversion would not contribute to increases in the frequency of potential nest-dewatering events in any month of the 490 months included in the analysis (Template Output J-486). Therefore, the diversion would have no cumulatively considerable contribution to the frequency of nest dewatering events that would occur under the cumulative diversion condition.

Flow-Related Impacts to Lower American River Fall-Run Chinook Salmon Spawning and Incubation (October through February). The long-term average flow below Nimbus Dam under the cumulative diversion condition would be up to approximately 15% less (329 CFS, October) than the flow under the existing condition during all months of the October through February fall-run Chinook salmon spawning and incubation period. Similarly, changes in long-term average flows at Watt Avenue would be up to 16% less (338 CFS, October) during the October through February period. Differences in flows in the lower flow ranges are of particular concern. In October, November and December, when the existing condition flow would be 2,500 CFS or less, the cumulative diversion condition would result in flow reductions of up to 750 CFS nearly 50% of the time (Technical Appendix E-313 to E-317).

Such reductions in flows would reduce the amount of available Chinook spawning habitat, which could result in increased redd superimposition during years when adult returns are high enough for spawning habitat to be limiting. These reductions in flow are of sufficient magnitude and occur with enough frequency to represent a potentially significant impact to long-term initial year-class strength of lower American River fall-run Chinook salmon.

Incremental Contribution of the Proposed Diversion. The diversion would not contribute significantly to future cumulative lower American River flow reductions at either Nimbus Dam or Watt Avenue. The maximum reduction in long-term average flow would be 46 CFS (November) at both locations, or 1.7% of the total cumulative reduction in flows (Template Output J-117 and J-123). Thus, the diversion would not provide a cumulatively considerable contribution to reductions in lower American River flows that would occur under the cumulative diversion condition.

Flow-Related Impacts to Lower American River Fall-Run Chinook Salmon and Steelhead Juvenile Rearing (March Through June). Relatively small differences in long-term average flows would occur between the cumulative diversion condition and the existing condition during the March through June juvenile fall-run Chinook salmon and steelhead rearing period, with the largest reduction at Watt Avenue of 6.9%, relative to the existing condition (272 CFS, May) (Template Output F-123). However, flows in individual months would be reduced, by up to 71%, relative to the existing condition, in 178 of the 280 months included in the analyses throughout the March through June rearing period. These differences in flow may adversely affect long-term

juvenile fall-run Chinook salmon or steelhead rearing habitat availability, and therefore represent a potentially significant cumulative impact.

Incremental Contribution of the Proposed Diversion. The diversion would contribute to substantial lower American River flow reductions that would occur during the March through June rearing period. The diversion alternative would contribute up to 55CFS (June), or 35%, to reductions in the long-term average flow at Watt Avenue (Template Output J-123). Furthermore, the diversion would contribute 69 months to the total cumulative reduction in flows (Technical Appendix I-330 to I-333). Consequently, the diversion would have a cumulatively considerable contribution to future potentially significant flow-related impacts to fall-run Chinook salmon and steelhead rearing on the lower American River.

Temperature-Related Impacts to Lower American River Fall-Run Chinook Salmon and Steelhead Juvenile Rearing (March through June). Under the cumulative diversion condition, there would be four additional occurrences during the March through June period in which water temperatures at Watt Avenue would be above 65°F, relative to the existing condition. However, long-term average water temperature at Watt Avenue would not change by more than 0.3°F during any month of the March through June period, compared to the existing condition. Under the cumulative diversion condition, water temperature increases of greater than 0.3°F, relative to the existing condition, would occur during the March through June period in 59 months of the 276 months modeled (Technical Appendix E-426 to E-429). Such frequent increases in water temperature represent a potentially significant cumulative impact to fall-run Chinook salmon and steelhead juvenile rearing.

Incremental Contribution of the Proposed Diversion. The diversion would not contribute to potentially significant impacts to fall-run Chinook salmon and steelhead juvenile rearing. This alternative diversion would not contribute to the 59 occurrences of temperature increases of 0.3°F or more that would occur under the cumulative diversion condition (Technical Appendix I-426 to I-429). Thus, the diversion would have no cumulatively considerable contribution to increases in lower American River water temperatures at Watt Avenue under the cumulative diversion condition, and consequently would have no cumulatively considerable contribution to potentially significant impacts to fall-run Chinook salmon and steelhead juvenile rearing.

Flow-Related Impacts to Lower American River Steelhead Rearing (July through September). Under the cumulative diversion condition, the long-term average flow below Nimbus Dam would decrease by approximately 9% to 17% (up to 418 CFS) throughout the July through September period, relative to the existing condition. At Watt Avenue, the long-term average flow would decrease by approximately ten to 18% (up to 430 CFS), relative to the existing condition (Template Output F-117 and F-123). Under the cumulative diversion condition, flows below Nimbus Dam would be reduced by 1% to 69% in 151 months of the 210 months included in the analysis. Such reductions would be up to 2,695 CFS in magnitude, relative to flows under the existing condition. Watt Avenue flows under the cumulative diversion condition would be reduced by 1% to 76% in 157 months of the 210 months included in the analysis, over the 70-year period of hydrologic record. Such flow reductions would be up to 2,695 CFS in magnitude relative to the existing condition (Technical Appendix E-322 to E-324 and E-334 to E-336). The

flow reductions that would occur under the cumulative diversion condition are of sufficient magnitude and occur with enough frequency to reduce juvenile steelhead summer rearing habitat, relative to the amount available under the existing condition. Consequently, reductions in flow associated with the cumulative diversion condition may adversely affect long-term rearing success of juvenile steelhead, and therefore represent a potentially significant cumulative impact.

Incremental Contribution of the Proposed Diversion. The diversion would not contribute to the substantial flow reductions that would occur under the cumulative diversion condition. For flows below Nimbus Dam, the diversion would contribute 14 months, or 9% of the total reductions under the cumulative diversion condition. Such reductions would range from 6 CFS to 556 CFS (Technical Appendix I-322 to I-324). However, these decreases would be small considering the monthly mean flows under the existing condition range from 383 CFS to 6,187 CFS. Similarly, the diversion would contribute 20 months of flow reductions at Watt Avenue, or 12% of the total reductions under the cumulative diversion condition, with reductions ranging from one CFS to 549 CFS (Technical Appendix I-334 to I-336). However, these decreases would be small considering the monthly mean flows under the existing condition range from 292 CFS to 6,075 CFS. Such flow reductions would not occur with sufficient magnitude or frequency to result in changes to long-term average flows at either Nimbus Dam or Watt Avenue. The diversion would have no cumulatively considerable contribution to potential significant impacts to steelhead rearing that would occur under the cumulative diversion condition.

Temperature-Related Impacts to Lower American River Steelhead Rearing (July through September). During the July through September steelhead rearing period, water temperatures under the cumulative diversion condition would be higher than those under the existing condition when temperatures would already be relatively warm. In 42 months of the 207 months included in the analysis, water temperatures at Watt Avenue would increase by more than 0.3°F, relative to the existing condition, with increases up to 5°F when temperatures under the existing condition are at 70°F or greater (Technical Appendix E-430 to E-432). Such water temperature increases represent a potentially significant cumulative impact to juvenile steelhead summer rearing.

Incremental Contribution of the Proposed Diversion. The diversion would not significantly contribute to the substantial changes in water temperature that would occur under the cumulative diversion condition. This diversion alternative would not result in increases in the frequency with which water temperatures at Watt Avenue would be above 65°F in any month of the July through September period (Template Output J-289). Furthermore, the diversion would not contribute to the long-term average water temperature increases that would occur under the cumulative diversion condition, and would only contribute nine months, or 5%, to the number of months in which temperatures under the cumulative diversion condition would increase by greater than 0.3°F, relative to the existing condition (Template Output J-286 and Technical Appendix I-430 to I-432). Thus, the diversion would have no cumulatively considerable contribution to increases in lower American River temperatures at Watt Avenue during July through September.

Lower American River Splittail. Under the cumulative diversion condition, the long-term average flow at Watt Avenue during February through May would decrease by approximately 2.5% to 7%, relative to the existing condition (Template Output F-123). These flow reductions correspond to reductions in usable habitat of up to 3.9 acres, or 100% of the habitat available in individual years under the existing condition. While in many years riparian vegetation would not be inundated throughout this period under either the cumulative or existing condition, reductions in inundated riparian habitat would occur virtually every month during the February through May period in those years when habitat would be inundated under the existing condition. However, relatively little splittail habitat is available under either the cumulative or existing condition. Given the uncertainty regarding the magnitude and extent of splittail spawning habitat in the lower American River, and the actual amount of potential spawning habitat available at specific flow rates throughout the river, the effects of flow reductions during the February through May period are also uncertain, and therefore represent a potentially significant cumulative impact to this federally threatened species.

Incremental Contribution of the Proposed Diversion. The diversion would not contribute measurably to potentially significant cumulative impacts to lower American River splittail. This diversion would not result in changes in the long-term average amount of habitat available (Technical Appendix I-558 to I-561). Specifically, the diversion would result in changes (one increase of 0.2 acres, one decrease of 0.5 acres) in the amount of habitat in 2 months of the 280 months included in the analysis throughout the February through May period. Thus, the diversion would not contribute to significant reductions in splittail habitat under the cumulative diversion condition, and therefore would have no cumulatively considerable contribution to future potential impacts to lower American River splittail.

Shasta Reservoir Warmwater Fisheries. Under the cumulative diversion condition, long-term average end-of-month water surface elevation at Shasta Reservoir would decline during the March through September period, when warmwater fish spawning and initial rearing may be expected. In 276 months of the 490 months included in the analysis, the water surface elevation of Shasta Reservoir during the spawning and rearing period would be reduced by 2 to 54 feet MSL, relative to the existing condition (Technical Appendix E-186 to E-192). Long-term average elevation levels would be reduced up to 11 feet MSL, relative to the existing condition. In addition, the long-term average amount of littoral habitat potentially available to warmwater fish for spawning and/or rearing under the cumulative diversion condition would decrease by 6% to 23% over the March through September period, relative to the existing condition (Template Output I-494). Overall, potential impacts to Shasta Reservoir warmwater fisheries due to reductions in reservoir elevation and decreases in littoral habitat under the cumulative diversion condition represent a potentially significant cumulative impact.

Incremental Contribution of the Proposed Diversion. The diversion would not contribute substantially to future impacts to Shasta Reservoir warmwater fisheries. This diversion would not contribute to reductions in long-term average reservoir elevation, and would only contribute to elevation decreases in 6 months of the 490 months included in the analysis (Template Output J-487 and Technical Appendix I-186 to I-192). Furthermore, the diversion would not result in

future increases in the frequency of potential nest-dewatering events, and would not result in any additional reductions in littoral habitat (Template Output I-488 and I-494). Thus, the diversion would have no cumulatively considerable contribution to significant reductions in reservoir elevation or available littoral habitat, or increases in potential nest-dewatering events under the cumulative diversion condition.

Upper Sacramento River Fisheries (temperature-related). The cumulative diversion condition would result in changes in the long-term average water temperatures (both increases and decreases) at Keswick Dam and Bend Bridge, relative to the existing condition. There would be several additional months in the simulation in which temperatures would exceed 56°F or 60°F at either Keswick Dam or Bend Bridge. For example, there would be 22 additional occurrences where the 56°F index would be exceeded, and eight more occurrences where the 60°F index would be exceeded at Keswick Dam, relative to the existing condition. At Bend Bridge, there would be 29 additional occurrences where the 56°F index would be exceeded, and seven more occurrences where the 60°F index would be exceeded, relative to the existing condition (Template Output F-303 and F-310). Thus, the cumulative diversion condition would result in a significant increase in the frequency of exceedance of temperature criteria identified in the NOAA Fisheries Biological Opinion for winter-run Chinook salmon.

Absolute long-term average early lifestage survival of fall-run Chinook salmon would decrease by more than 10% in 10 of the 70 years modeled under the cumulative diversion condition, relative to the existing condition. For winter-run Chinook salmon, absolute long-term average early lifestage survival would decrease by more than 10% in 4 of the 70 years modeled, relative to the existing condition. No decreases of more than 10% are expected for late-fall-run Chinook salmon, and actual increases in survival are expected for spring-run Chinook salmon, relative to the existing condition (Technical Appendix E-566 to E-570). However, based on the increase in the frequency of exceedance of the temperature criteria identified in the NOAA Fisheries Biological Opinion for winter-run Chinook salmon, and the decreases in absolute long-term early lifestage survival of fall-run Chinook salmon and winter-run Chinook salmon, temperature-related impacts to upper Sacramento River fisheries represent a significant cumulative impact.

Incremental Contribution of the Proposed Diversion. The diversion would not contribute to significant upper Sacramento River temperature-related fisheries impacts that would occur under the cumulative diversion condition. For water temperatures below Keswick Dam and Bend Bridge, the diversion would not contribute to increases in long-term average water temperatures under the cumulative diversion condition (Template Output J-300 and J-307). Similarly, there would be no contribution to the increase in the frequency of exceedance of the 56°F and 60°F temperature criteria at either Keswick Dam or Bend Bridge (Template J-303 and J-310). Furthermore, the diversion would not contribute to future decreases in survival for any salmon run on the Sacramento River (Template Output J-469). Thus, the diversion would have no cumulatively considerable contribution to the potentially significant temperature-related impacts to fisheries of the upper Sacramento River that would occur under the cumulative diversion condition.

Lower Sacramento River Fisheries (temperature-related). Under the cumulative diversion condition, the long-term average water temperature at Freeport on the lower Sacramento River would not change more than 0.3°F during any month of the year, relative to the existing condition. However, the number of years that temperatures at this location would exceed 56°F, 60°F, and 70°F would be greater (i.e., 2 more occurrences for the 56°F index, 11 more occurrences for the 60°F index, and 9 more occurrences for the 70°F index), relative to the existing condition, during the March through November period (Template Output F-321 and F-324). In addition, water temperature at Freeport would increase by 0.3°F or more, relative to the existing condition, in 117 months out of the 621 months included in the analysis (Technical Appendix E-481 to E-492). Based on these findings, potential water temperature-related impacts to fish species within the lower Sacramento River represent a potentially significant cumulative impact.

Incremental Contribution of the Proposed Diversion. The diversion would not contribute substantially to the frequent temperature increases that would occur under the cumulative diversion condition. This diversion alternative would not contribute to increases in long-term average water temperatures at Freeport on the lower Sacramento River, and would not contribute to increases in the frequency of temperature criteria exceedance that would occur under the cumulative diversion condition (Template Output J-321 and J-324). Furthermore, the diversion would not contribute to increases in water temperature of 0.3°F or more in any month of the 828 months included the analysis (Technical Appendix I-481 to I-492). Thus, the diversion would not contribute to future significant water temperature increases on the lower Sacramento River, and consequently, would have no cumulatively considerable contribution to impacts to lower Sacramento River fisheries under the cumulative diversion condition.

Delta Fish Populations. Under the cumulative diversion condition, there would be a potentially significant impact to Delta outflow, relative to the existing condition. In 44 of the 350 months modeled throughout the February through June period, Delta outflow would decrease by 10% or more, relative to the existing condition, with the greatest long-term reduction in long-term average Delta outflow at 4.5% (June) (Technical Appendix E-5 to E-9 and Template Output F-413).

Under the cumulative diversion condition, the long-term average position of X2 would move upstream less than one km, relative to the existing condition, in any given month of the year. However, during the February through June period considered important for providing appropriate spawning and rearing conditions and downstream transport flows for various fish species, the upstream shift in the position of X2 under the cumulative diversion condition would exceed one km 11% of the time (throughout the 350 months included in the analysis), relative to the existing condition (Technical Appendix E-17 to E-21).

The model simulations conducted for the cumulative diversion condition included conformance with X2 requirements set forth in the SWRCB *Interim Water Quality Control Plan*. Furthermore, Delta export-to-inflow ratios under the cumulative diversion condition would not exceed the maximum export ratio as set by the SWRCB *Interim Water Quality Control Plan*. Although the cumulative diversion condition would not cause X2 or Delta outflow standards to

be violated, there would be a decrease in long-term average outflow and an upstream shift in the position of X2, relative to the existing condition. Such changes to the Delta system would be considered to result in potentially significant cumulative impacts to Delta fisheries.

Incremental Contribution of the Proposed Diversion. The diversion would not result in a future significant contribution to Delta fisheries impacts under the cumulative diversion condition. The diversion would not contribute to increases of Delta outflow of 10% or more; in fact, the greatest single reduction, at 435 CFS (February 1925), would be considered small considering modeled flows of 57,424 CFS for that month and year (Technical Appendix I-5 to I-9). Furthermore, the diversion would contribute to future shifts in the long-term average position of X2 (Template Output J-429). Based on 350 months modeled throughout the February through June period, the diversion would result in shifts in the position of X2 of up to 0.2 km in 35 months (Technical Appendix I-17 through I-21). The diversion would have no cumulatively considerable contribution to future reductions in Delta outflow. It could, however, have a cumulatively considerable contribution to the cumulative shift in X2.

Cultural Resources Impacts

Under the cumulative condition, there would not be significant increases in maximum monthly reservoir elevation, relative to the existing condition, throughout the 70-year period of simulation for Folsom, Shasta, and Trinity reservoirs. However, with regard to maximum drawdown, a comparison of the minimum end-of-month elevations between the cumulative and existing conditions at Shasta Reservoir indicates that the minimum water surface elevation for each month would be from 7 to 46 feet MSL lower, relative to the existing condition (Template Output F-66). This would result in increased exposure of cultural resources and represents a potentially significant cumulative impact to cultural resources at Shasta Reservoir.

Incremental Contribution of the Proposed Diversion. The diversion would not contribute to the reductions in minimum reservoir elevation that would occur under the cumulative diversion condition in any month of the year (Template Output J-66). Therefore, the diversion would not contribute to increases in the exposure of cultural resources at Shasta Reservoir, and hence would have no cumulatively considerable contribution to future significant impacts to Shasta Reservoir cultural resources.