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***ARNOLD SCHWARZENEGGER**, Governor*
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December 21, 2009

Mr. Bill Wycko
Environmental Review Officer
San Francisco Planning Department
1660 Mission Street, Suite 500
San Francisco, CA 94103-2414

Dear Mr. Wycko:

Subject: Calaveras Dam Replacement Project, SCH #2005102102, Draft Environmental Impact Report, Alameda County

Department of Fish and Game (DFG) staff has reviewed the draft Environmental Impact Report (DEIR) for the Calaveras Dam Replacement Project (CDRP; Project), proposed by the San Francisco Public Utilities Commission (SFPUC). The SFPUC proposes to construct a new dam to replace the existing Calaveras Dam. The replacement dam would be located immediately downstream at the foot of the existing dam, and would improve seismic safety in response to the Division of Safety of Dams (DSOD) restrictions. The main elements of the proposed Project include construction of a new dam to replace the existing Calaveras Dam; removal of the existing spillway and replacement with a new spillway and stilling basin; removal of the existing intake tower, and construction of a new intake tower and shaft; extension of the outlet pipe connecting to a relocated, fixed cone valve; new low-flow discharge valves; instrumentation; stabilization of the right abutment landslide; and construction of a bypass tunnel through the Alameda Creek Diversion Dam (ACDD). The Project includes numerous staging, borrow, and disposal areas, access roads, and changes in the operations of Calaveras Reservoir.

DFG, a Trustee Agency under the California Environmental Quality Act (CEQA), is responsible for the conservation, protection, and management of the State's biological resources. Pursuant to Fish and Game Code Section 1801, it is the policy of the State to encourage preservation, conservation, and maintenance of wildlife resources, including perpetuation of all species of wildlife for their intrinsic and ecological values. In addition, pursuant to Fish and Game Code Section 1802, DFG has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species. The purpose of DFG's comments is to provide guidance to SFPUC to ensure that, if the Project under the Water System Improvement Program (WSIP) is implemented, biological resources are protected.

Potential environmental impacts from the proposed Project would result generally from three primary aspects of the Project: construction activity; restoration of the reservoir water level to pre-DSOD restriction levels, and future reservoir operations, in particular as they affect flows within Alameda Creek downstream of the Alameda Creek Diversion Dam, and Calaveras Creek below Calaveras Dam. We recognize the importance of the Project for contributing to a reliable source of clean water to the Bay Area, and support improving the seismic safety of the Calaveras Dam to protect humans as well as wildlife in the event of a catastrophic event. We also support the creation of jobs this Project will provide. However, we are concerned with many of the determinations and conclusions of the EIR and have the following comments to offer.

Trout in Alameda Creek

The area surrounding the Calaveras Dam is known to provide habitat for land-locked steelhead trout (*Oncorhynchus mykiss*). Steelhead is a species listed as "Threatened" under the Federal Endangered Species Act (FESA) and included as part of the California Central Coast Evolutionarily Significant Unit (CCC ESU) for steelhead. The land-locked trout population was not listed as threatened under FESA, but genetic and behavioral studies (Nielson 2003) have determined that the population of trout within Calaveras Reservoir watershed to be "land-locked steelhead." Currently, efforts are underway to improve fish access between the San Francisco Bay at a number of passage barriers including the BART weir, ACWD rubber dams and PG&E structure. We commend and thank the SFPUC for their contributions to these efforts, including the removal of the Niles and Sunol dams. The barriers to the Bay may become passable for land-locked steelhead in Alameda and Calaveras creeks within the next few years, even as soon as 2010, returning the anadromous run of steelhead back to these creeks.

Alternative 5, New Downstream Dam Without Provision For Potential Future Enlargement Alternative

The DEIR highlights substantial reductions in Project impacts from Alternative 5, which would benefit special-status and listed species. Impacts to fisheries and aquatic resources associated with sediment discharge and erosion would be reduced compared to the preferred alternative. Impacts to air quality, transportation and noise would be reduced. In addition, Alternative 5 would feasibly attain all Project objectives except future dam enlargement and appears to be the environmentally superior alternative. The DEIR declares building the dam with a larger core to accommodate future enlargement is a primary Project objective. Since it is considered a primary Project objective, a complete analysis on the impacts to biological resources should be included in the document from the impacts associated with projected enlargement. A discussion on the size of the future enlargement that is capable from the larger core design should be disclosed. A discussion on the level of water diversion from Alameda Creek, Calaveras Creek and the Arroyo Hondo that is needed to fill the larger design should also be included.

DFG is concerned that "future increases of the dam's surface water elevation could potentially extirpate the adfluvial population of steelhead trout as well as that of the Foothill yellow-legged frog. Raising the surface water elevation will likely also have serious impacts to the California red-legged frog, California tiger salamander, foothill yellow-legged frog,

western pond turtle, Alameda whipsnake, Callippe silverspot butterfly, and a number of other special-status plants and animals (DFG 2005, response to CDRP NOP)." We are also concerned raising the water level in the future will cause additional unforeseen impacts to the Alameda Creek watershed. From the information provided in the CDRP DEIR and because the SFPUC appears to have been able to meet water demands even with DSOD restrictions, we believe the watershed is already too impaired to consider such a proposal.

Environmental Settings and Impacts

Table 4.1.1 provides an overview of impacts from water supply impacts and mitigation measures in the WSIP PEIR. The table includes the Tuolumne River System, Peninsula Watersheds, and the Westside Groundwater Basin. While we may have comments on the adequacy of the mitigation measures for these topics, the following comments will be limited to the scope of the CDRP Project.

Previous DFG Recommendations

In our November 22, 2005 response to the Calaveras Dam Replacement Project Notice of Preparation (NOP) letter, DFG requested, as part of the environmental review process for the Project, that both interim and long-term operations of Calaveras Dam be addressed through the following:

1. A habitat-based stream assessment for Calaveras, Arroyo Hondo, and Alameda creeks, done at a seasonally appropriate time period that incorporates habitat and life history criteria of species which may be impacted by the Project. DFG made a specific recommendation that California red-legged frog (*Rana aurora draytonii*), a species Federally listed as "Threatened"; California tiger salamander (CTS) (*Ambystoma californiense*), a species Federally listed as "Threatened;" foothill yellow-legged frog (*Rana boylii*), a State and Federal Species of Special Concern; and western pond turtle (*Clemmys marmorata*) be included in the assessment.

2. A hydrologic study is conducted to determine the amount of water that is needed to support steelhead trout through critical reaches under various water year conditions within the reaches affected by the Project, specifically the reach of Alameda Creek from Alameda Creek Diversion Dam downstream to Alameda Creek's confluence with Arroyo de la Laguna.

3. A specific proposal to provide minimum bypass flows for both Calaveras Dam and the Alameda Creek Diversion Dam for maintenance of habitat for fish and other aquatic species, taking into account current and projected water operation scenarios of the SFPUC's regional water system. This proposal should also consider utilizing the SFPUC's related water storage facilities within the Alameda Creek watershed (i.e., San Antonio Reservoir) to meet the needed minimum bypass flows in the affected reach of Alameda Creek and in particular passage flows needed through Sunol Valley.

4. An assessment of the impacts of Calaveras Dam and the Alameda Creek Diversion Dam on channel forming flows with a specific proposal to provide periodic channel maintenance and flushing flows that are representative of the natural hydrograph that existed before the original construction of Calaveras Dam.

5. An analysis of current and projected operational scenarios for Calaveras Reservoir and their impacts to the existing population of land-locked steelhead trout that utilize Calaveras Reservoir and Arroyo Hondo throughout various stage of the steelhead trout's life cycle. This study should include a plan to preserve the existing population of steelhead trout during interim operations (preconstruction) and post construction operations of Calaveras Dam. The concerns to be addressed included the following:

   a) Maintain fish passage between the reservoir and Arroyo Hondo by keeping reservoir water elevations as high as possible during the period when adult trout migrate upstream from the reservoir through the end of the downstream (adult and juvenile trout) migration season.

   b) Maintain channel integrity (maintain active channel/minimize delta/maximize hydrological connectivity) of Arroyo Hondo.

   c) Maintain physical carrying capacity for trout in Calaveras Reservoir during the summer and fall period by keeping water elevations as high as possible.

   d) Maintain adequate water temperatures and dissolved oxygen for trout in the reservoir throughout the summer and fall periods. The concentration of dissolved oxygen in reservoirs is often the limiting factor for trout survival in San Francisco Bay Area reservoirs. DFG recommends targeting a specific dissolved oxygen concentration of 7 mg/L so as to minimize impacts to land-locked steelhead especially during times of lowered surface water elevation (current operations as per DSOD requirements).

   e) Provide flow releases to the stream channel below Calaveras Reservoir dam to encourage riparian vegetation growth, invertebrate productivity, adequate dissolved oxygen, low water temperatures, and provide some rearing habitat for juvenile steelhead trout and spawning adult steelhead trout. The SFPUC, under the aforementioned 1997 MOU with DFG, agreed to specific flow releases to provide habitat for resident rainbow trout and other native fish species downstream of Calaveras Reservoir based on the knowledge of fish migration barriers being present in the lower downstream reaches of Alameda Creek. At this time, however, there is active fish passage remediation at these barriers. The SFPUC will need to assess adequate flows for anadromous steelhead trout and will need to renegotiate with DFG such that adequate flows are released to comply with Fish and Game Code 5937.

   f) Eliminate or minimize the loss of adult and juvenile trout from Alameda Creek through the Alameda Creek Diversion Dam.

   g) Determine how operation and interim operation of Calaveras Reservoir could alter the operation of San Antonio Reservoir and result in adverse conditions for the adfluvial trout population in San Antonio Reservoir. DFG recommends that impacts to fisheries upstream and downstream of San Antonio Reservoir be avoided as much as possible. If avoidance is not possible, impacts should be minimized and mitigated.

6. A mitigation plan that assesses the potential impacts of the SFPUC's proposal to rebuild Calaveras Dam with a wider core that would accommodate enlargement of the dam in the

future. The NOP states that although the "SFPUC does not reasonably foresee the need for a larger dam beyond one that restores the reservoir's historic capacity; the dam would be designed to allow potential future reuse of dam components without requiring otherwise more extensive dam removal and rebuilding if an enlargement were ever undertaken in the future." DFG recommends that the Calaveras Reservoir dam not be built to accommodate future size increases based on DFG's concern that future increases of the dam's surface water elevation could potentially extirpate the adfluvial population of steelhead trout as well as that of the foothill yellow-legged frogs. Raising the surface water elevation will likely also have serious impacts to the California red-legged frog, CTS, foothill yellow-legged frog, western pond turtle, Alameda whipsnake, Callippe silverspot butterfly, and a number of other special-status plants and animals.

7. A specific plan to screen as per DFG screening criteria at the new intake tower/adit(s) at Calaveras Reservoir and at the intake of the diversion at the Alameda Creek Diversion Dam so as to be in compliance with Fish and Game Code Section 6100.

8. A specific plan to provide fish passage at the new Calaveras Reservoir dam and the Alameda Creek Diversion Dam so as to be in compliance with Fish and Game Code Sections 5901.

The CDRP DEIR does not address the items above sufficiently for both interim and long-term operations of Calaveras Dam. An adequate habitat based biological and hydrologic assessment that incorporates the life history and habitat needs of the species that may be affected by the Project is not provided in the CDRP DEIR. The analysis provided in the DEIR does not sufficiently address the level of watershed impairment from baseline and proposed Project conditions.

Although SFPUC signed a Memorandum of Understanding (MOU) with DFG in 1997, as of today's date, SFPUC has not released flows from Calaveras Dam in compliance with the 1997 MOU. While the CDRP repeatedly references the 1997 MOU as an improvement from baseline conditions, improvements from CEQA baseline conditions do not necessitate compliance with Fish and Game Code 5937. The 1997 MOU should not be referred to for a number of reasons. Since the 1997 MOU has not been implemented, the adequacy of the flow schedule for providing water to biological resources is unconfirmed. Since the 1997 MOU does not include steelhead, it does not completely address the potential impacts to biological resources. A recapture facility proposal is included in the 1997 MOU but is only briefly addressed as a potential cumulative impact in the CDRP DEIR. The compliance point in the 1997 MOU is a location below the confluence of Alameda and Calaveras creeks. Minimum bypass flow requirements of one creek cannot be substituted for another and should not be accepted as the least environmental damaging practicable alternative. Minimum bypass flows at each structure must be assessed independently to comply with Fish and Game Code 5937.

To meet minimum bypass flow requirements, DFG requires a site-specific study be completed prior to issuing a Lake and Streambed Alteration Agreement consistent with our comments outlined in our November 22, 2005 letter. In addition to the issues discussed

above, the study should identify a plan to monitor compliance, the effectiveness of the stipulated flows, and procedures for making subsequent modifications, if necessary.

Project Description

3.6.6 *Steelhead Flow Releases*

We have addressed steelhead in greater detail in our comments below, but in summary: (1) The proposed steelhead flow release schedule shown in Table 3.7, is not supported by sufficient hydrologic or biologic data to confirm the adequacy of the proposal; (2) The proposal addresses spawning and rearing habitat but does not address all life history needs of steelhead, including adult and juvenile migration; (3) It relies on a determination by the National Marine Fisheries Service (NMFS) that steelhead have returned to the watershed from the ocean before implementation, which may prevent the recovery of the species.

Fisheries and Aquatic Habitat

Impact 4.5.2: *Construction-related Permanent Loss of Fish Habitat in Calaveras Creek Downstream of the Existing Dam*

Since the specific section of Calaveras Creek within the replacement dam footprint "was not surveyed to determine fish species present, (pg 4.5-56 DEIR)," it is speculative to make the determination that trout are not present. Historically, trout and steelhead in this reach of Calaveras Creek were present (Leidy et al. 2005). Since "under existing conditions, no flow is released from Calaveras Dam to Calaveras Creek except during infrequent cone valve releases, which have generally occurred during brief periods in the winter and spring (pg 4.5-72 DEIR)," sufficient water is not allowed to pass the dam to keep fish in good condition. Provided sufficient water is released from Calaveras Reservoir, DFG would likely consider this reach of Calaveras Creek high quality aquatic habitat for fish and other wildlife.

Impact 4.5.3*: Effect of Project on Creating Barriers to Fish Movement/Migration Upstream in Calaveras and Alameda Creek*

At Calaveras Dam, fish will have 945 linear feet less aquatic habitat available; therefore, we consider this a significant impact to fish movement/migration. With regard to the ACDD, since DSOD-restrictions were put in place, reduced diversions at the ACDD have resulted in more flow being passed over the ACDD. This additional flow could be sufficient to provide land-locked steelhead access past the natural barrier commonly referred to as Little Yosemite.

Without including provisions for fish passage at the ACDD and Calaveras Dam, the proposed Project will continue to be out of compliance with Fish and Game Code 5901. Section 5901 states that, "Except as otherwise provided in this code, it is unlawful to construct or maintain in any stream in Districts 1, 1-1/2, 2, 2-1/2, 2-3/4, 3, 4, 4-1/2, 23, and 25, any device or contrivance which prevents, impedes, or tends to prevent or impede, the passing of fish up and down stream." Section 5901 covers Alameda and Santa Clara counties, District 3. Without including fish passage at these structures, the least environmentally damaging alternative is not included in the CEQA document.

According to the Feasibility of Fish Passage at Alameda Creek Diversion Dam Technical Report (June 2009), prepared for SFPUC, a fish ladder combined with installation of screens at the diversion tunnel is a technologically feasible option for providing passage for steelhead at ACDD. A trap and haul option is presented as feasible provided the natural feature known as Little Yosemite is demonstrated to be a fish passage barrier. We do not support a trap and haul option since it does not provide voluntary movement of fish and is subject to ongoing institutional commitment. Considering the information provided in the DEIR that a large amount of suitable steelhead habitat is available above Little Yosemite, we are interested in the concept of improving fish access past Little Yosemite through higher flows, a land modification, and/or structural modification so the potential for passage is increased.

Effects on Native Fish in Alameda Creek from the ACDD Downstream to the Confluence with Calaveras Creek

Channel-Forming Flows; Sediment Sluicing; Redd Scour and Erosion; Fish Entrainment at the Diversion Tunnel

We are pleased SFPUC has made a commitment to responsible natural resources management that maintains the integrity of the natural resources, restores habitat for native species, and enhances ecosystem function. However, the CDRP proposed operations is not consistent with SFPUC's Watershed Enterprise Environmental Stewardship Policy. In particular, the proposed operations of the water system is not in a manner that mimics the variation of the seasonal hydrology of corresponding watersheds in order to sustain the aquatic and riparian ecosystems upon which native fish and wildlife species depend. The proposed operations will not restore habitat, especially for listed native species, and will not enhance ecosystem function, especially to sensitive habitat types.

From the DEIR: Modeling of future operations indicates that diversions at the ACDD would primarily occur during the October through April rainy season, and the greatest diverted/reduced streamflow quantities would occur from December through March in normal and above-normal years and January of wet years (pg 4.5-61 DEIR). DFG recommends that the diversion season of both the ACDD and Calaveras Dam be limited to the period of December 15 to March 31 and that all natural flow outside of this diversion season shall be bypassed.

Impact 4.6.10: *Effects on Channel Formation and Sediment Transport Along Alameda Creek Downstream of the ACDD to the Calaveras Creek Confluence*

Impact 4.6.11: *Effects on Channel Formation and Sediment Transport Along Alameda Creek Downstream of the Calaveras Confluence*

The ACDD sluice gate is proposed to be operated as under existing conditions. Approximately 900 cubic yards of bed material is released during the sluicing operation. By altering the timing, frequency and magnitude of flows in Alameda Creek below the ACDD, coupled with sluicing approximately 900 cubic yards of bed material, without conducting a complete biological and hydrologic study, it is optimistic and speculative to make a prediction that fish habitat will be improved. We are concerned that fish habitat will not be improved but will be degraded by the proposed Project and that steelhead and other fish

numbers will decline due to an increased alteration of the natural hydrology as referenced above (CDRP DEIR, EJTV 2008; Sak, pers. com., 2008). We are also concerned the sluicing operations at the ACDD will cause mortality to fish and other wildlife by smothering redds and degrading water quality.

Section 4.5 and/or Section 4.6 do not sufficiently evaluate effects of channel forming flows on biological resources. Important considerations should include channel shape/form (cross sections, widths, depths, slopes, planform), aggradation/degradation, bank stability, lateral/horizontal stability, erosion, and sediment load with special attention to biotic and abiotic factors of aquatic/riparian ecology. Stream geomorphology, including the shape, profile, plan view, and structural elements, strongly influences the hydraulic characteristics of streams (Rosgen 1994, Ziemer and Lisle 1998, Fukushima 2001), which determines the distribution, abundance and habitat for fish (Beschta and Platts 1986, Bisson et al. 1987, Sullivan et al. 1987, Naiman 1998). The particle sizes and distributions of bed material influence channel characteristics, bedload transport, food supplies for fish, spawning conditions, cover, and rearing habitat. Riparian vegetation helps stabilize channel banks and contributes in various ways to fish productivity (Bechta and Platts 1986). We are particularly concerned with the current and historic practice of sluicing at the ACDD. While we support the concept of maintaining material transport, the process of sluicing 900 cubic yards of sediment during one event needs to be examined further. One of the largest capacity dump trucks on the market today is the Super 18 (Desert Trucking), which has a capacity of 20-22 cubic yards or around 25.5 tons. Thus, the current operation of ACDD is similar to 45 extra large dump trucks unloading consecutively in Alameda Creek. The impacts to listed species from such operations have a very high potential to be significant. The DEIR should include information addressing the flows used in the past to sluice at ACDD and the amount of time it took to move 900 cubic yards of bed material as supporting evidence for impact conclusions. The DEIR should also discuss the size and composition of the material sluiced at ACDD.

The DEIR uses different CEQA baseline time intervals for channel forming flows in sections 4.5 and 4.6. In Section 4.5, Fisheries and Aquatic Habitat, under impact 4.5.5, a brief discussion on channel forming flows is provided. The discussion asserts that the baseline period of DSOD-regulated operations and associated variable operation of full diversions with no bypasses is likely too short and too variable to have had a changed effect on channel form. The following statements are from the Streamflow and Alameda Creek Geomorphology Section in the DEIR: High flows have the ability to transport immense amounts of sediment, large-sized material in the bed load, and large woody debris. The effect on channel form in such events (episodic) can be dramatic, including rapid bank and bed erosion in some areas and sedimentation elsewhere. These episodic storm events play an important role in shaping the channel morphology of Alameda Creek, notably in the steeper watershed (pg 4.6-44 DEIR). According to Figure 4.6.5, the ACDD is in a steeper part of the watershed.

The information provided in the DEIR contradicts the effect determination that a substantial change to sediment transport and channel-forming flows are not expected since flows will be reduced in above-normal and normal water years, and peak flows substantially reduced

in drier years. The proposed Project will substantially alter streamflows in Alameda Creek downstream of the ACDD such that they will be outside the range of pre-Project conditions and have the potential to result in substantial hydrologic changes. This is particularly relevant when comparing periodic operations at the ACDD during the DSOD-restricted baseline period.

Mitigation Measures 5.5.5a and 5.5.5b

The SFPUC fishery biologists (CDRP DEIR, EJTV 2008; Sak, pers. com., 2008) have indicated trout numbers are already low, so monitoring will do nothing to mitigate effects to biological resources from increased diversions at the ACDD. We have reason to believe anadromous steelhead will be present in the watershed well before the ten-year monitoring period is complete. Since the mitigation measure does not include steelhead, it does not sufficiently address conditions in the reasonably foreseeable future. We believe the impact is avoidable by implementing suitable bypass flows and fish passage in compliance with Fish and Game Code sections 5937 and 5901.

Diversions and Bypass Flows

In our November 22, 2005 response to the Calaveras Dam Replacement Project Notice of Preparation (NOP) letter, we provided comments requesting the CDRP DEIR include an assessment of the bypass flow requirements for steelhead in Alameda and Calaveras creeks. The ETJV 2008 study referenced in the CDRP DEIR addresses the spawning phase of resident rainbow trout, but a complete assessment including the entire life history of resident trout and anadromous steelhead, is needed to address the relationship between streamflow and impacts to biological resources from water diversions. Immigration and emigration of adult and juvenile trout/steelhead must be included in the assessment to encompass life history criteria. Critical riffles, as well as suitable attraction flows to initiate migration, need to be addressed.

While it is important to consider diversions in the winter months, the analysis is inadequate without including other times of the year, especially spring and early summer months. Diversions during spring and early summer months have a high potential to significantly impact trout/steelhead and other biological resources. Specific concerns during this time of the year include significant impacts to trout/steelhead adult and juvenile out-migration and impairment to fish access to required aquatic habitat necessary for survival.

Effects of Entrainment on Fish Populations Downstream and Upstream of the ACDD:

According to the DEIR, under existing conditions, resident rainbow trout are most abundant in Alameda Creek upstream of the ACDD. An unknown number of these trout are washed over the ACDD and/or entrained in the diversion tunnel to Calaveras Reservoir. Once entrained, fish are conveyed through the approximate 1.5-mile tunnel and drop approximately 35 feet over the concrete tunnel spillway outlet structures (pg 4.5-66, 4.5-67 DEIR). Thus, survival probability of entrained fish is estimated to be low (pg 4.5-68 DEIR). A fish screen is necessary to prevent fish and amphibians from entering the tunnel and being impacted by the drop onto the outlet structure. It will also prevent future steelhead from being entrained behind the Calaveras Dam as they are transported through the tunnel.

Since electrical or sound fish barriers, as proposed, are unproven in preventing fish or amphibians from entering the ACDD at higher flows, DFG recommends a physical barrier, such as a screen, designed to comply with the NMFS/DFG guidelines.

The DEIR states limited rearing habitat has likely kept the trout population extremely low in reaches downstream of the ACDD. Thus, under existing conditions, the trout population upstream of the ACDD has limited value as a "source population." A habitat-based stream assessment should include an assessment of the amount of available rearing habitat downstream of the ACDD under various conditions to help determine the value of trout upstream of the ACDD as a "source population." It is likely that rearing habitat has been limited due to reduced flows by diversion through the ACDD facility. Thus, with adequate bypass flows, the land-locked steelhead would have very high value as a "source population" once aquatic habitat below ACDD and Calaveras Reservoir improve with the increased flows.

No supporting data is provided to substantiate the statement that the ACDD is not having a substantial adverse impact on fish populations. We also anticipate that a return to pre-DSOD operations compared to baseline operations would have a significant effect to individual fish and the "source population" above ACDD.

Effects on Native Fish in Calaveras Creek Below Calaveras Dam and in Alameda Creek Downstream of the Confluence with Calaveras Creek in the Primary Study Area

The DEIR refers to the results of recent surveys conducted by SFPUC in Calaveras and Alameda creeks (Table 4.5.3, ETJV 2008). The assessment is interpreted such that existing hydrologic conditions "appear" to sustain aquatic habitat in a manner that supports a native fish community, which includes resident rainbow trout, in good condition. From Table 4.5.3, only 0.1% of fish sampled in reach A-2 were trout, and 0% in reach C-1 were trout. A total of 0.1% relative abundance is not an indication of good health for trout.

Upon further examination of Table 4.5.3, it becomes apparent that over 75% of the fish sampled were roach. California roach (*Lavinia symmetricus*) prefer relatively warm water temperatures and the disproportionately high numbers of this species is an indication of low fish diversity. The DEIR does not provide sufficient supporting evidence that the existing hydrologic conditions are sufficient to support a native fish community.

Impacts During Construction Period Operations

There would be two shutdowns of the outlet works during construction (mid-April to mid-November in 2011 and 2012 or 2012 and 2013) to allow excavation of the dam foundation and extension of the outlet conduit, and to connect the new intake shaft to the outlet conduit. Minimum bypass flows would need to be maintained below the dam to ensure additional impacts are not occurring due to low or no flow.

Impacts During Filling and Normal Restored Storage Operations

Modeled flow data in Alameda Creek is presented in terms of monthly average flow within year type (wet, above-normal, dry) and a statement is made that the net flow in Alameda Creek would not change appreciably on an average annual basis (pg 4.4-82 DEIR). The

hydrologic conditions in Alameda and Calaveras creeks are "flashy" and are known for their sudden changes in flow. Fish and other wildlife have adapted to these conditions. Thus, monthly average and average annual flow data are not adequate for identifying suitable minimum bypass flows that mimic the natural hydrology of the watershed or for making effects determinations for biological resources. Trout/steelhead migrate and spawn when conditions are suitable even if only available during a brief window of opportunity. Thus, flows should be evaluated using at minimum a daily time scale to have more biologically meaningful data. Trout/steelhead need sufficient streamflow during a large enough window of time to pass the obstacles which block them from completing their life cycle (see Sullivan et al. 1987). Therefore, sufficient flows to pass adults and juveniles over critical riffles should be provided.

The DEIR includes a brief discussion of cone valve operations with respect to native fish and amphibians. Topics include a brief discussion of rapid or sudden increases/decreases in flow releases, potential stranding of rainbow trout juvenile during rearing periods, scour, dewatering and/or washout of redds, exposure to predators and water quality. We request this section include a more complete analysis that examines all life history phases of trout and steelhead, foothill yellow-legged frog (FYLF) and California red-legged frog (CRLF). Also, at this time, we are not confident the two new low-flow valves capable of releasing 0.5 to 35 cfs will be able to provide the minimum bypass flows needed to mimic the natural hydrograph and to support fish in "good health," based on the analysis provided.

In summary, the proposed operations of ACDD and Calaveras Dam do not mimic the natural hydrology of Calaveras or Alameda Creek. Sufficient scientific biological and hydrological analyses were not conducted to address the impacts to biological resources and adequate analysis and disclosure was not provided for impacts due to cone valve operations. The impacts to selected fish species were briefly assessed but steelhead were not included and amphibians were not addressed sufficiently.

Effects of Project Operations on Fish Habitat in Calaveras Reservoir and in Streams Upstream of the Replacement Dam

The DEIR indicates there are no data that confirm the lack of hydraulic connectivity has affected or would significantly affect trout or other fish populations in either the reservoir or Arroyo Hondo. This statement is particularly concerning since there is data to confirm a lack of hydraulic connectivity between Calaveras Reservoir and the Arroyo Hondo that does significantly affect trout/steelhead. We are aware SFPUC staff has such data. In a letter dated November 22, 2005, DFG provided the following comments to the Calaveras Dam Replacement Project NOP:

> DFG's concerns about the potential fish passage problems associated with the lowering of the surface water elevation were corroborated during a field site visit made by SFPUC, the National Marine Fisheries Service (NOAA Fisheries), and DFG staff on August 17, 2004. During the creek assessment, DFG staff observed that lowering of the surface water elevation had resulted in a significant lack of hydrological connection (approximately 1.5-mile dry zone) between Arroyo Hondo and Calaveras Reservoir and that there were numerous adult-sized steelhead trout residing in the upstream perennial pools.

Another letter was sent to Mr. Josh Milstein concerning fish passage for the adfluvial trout population due to lowering of the surface water elevation at Calaveras Reservoir dated October 14, 2004 concerning the August 17, 2004 observations:

> During the creek assessment, DFG staff observed that lowering of the surface water elevation had resulted in a significant lack of hydrological connection between Arroyo Hondo and Calaveras Reservoir...DFG is concerned that the lack of hydrological connection and lack of a low flow channel in Arroyo Hondo is likely significantly impacting the steelhead trout population by limiting access to and from the reservoir from Arroyo Hondo.

In a letter dated January 11, 2008, DFG provided comments to the Alameda Creek Population Recovery Strategies and Instream Flow Assessment for Steelhead Trout (December 2007), Alameda County:

> In July 2007, DFG staff worked with SFPUC staff to relocate adult steelhead that were trapped and dying in pools of Arroyo Hondo, unable to migrate back to Calaveras Reservoir (DFG letter dated July 6, 2007).

In a letter dated July 18, 2008, DFG provided a Letter of Permission (LOP) to Mr. Brian Sak, Supervising SFPUC Fishery Biologist, to conduct adult steelhead rescues at Arroyo Hondo due to a lack of hydrologic connectivity. In an email communication between DFG and SFPUC (October 30, 2009), it was confirmed that on July 28, 2008, nine fish were relocated by SFPUC fishery biologists. Of those nine fish, there was one mortality upon release into the reservoir. Snorkel observations indicated approximately ten fish were left behind and not successfully captured.

Due to the overall evidence that fish populations may be impacted by this lack of hydrologic connection, we recommend the impacts be disclosed and avoidance, minimization, and mitigation measures be reevaluated.

Effects of Project Operations on Native Fish in Alameda Creek in the Extended Study Area

Structures including the BART weir, PG&E gas pipeline drop structure, and a series of inflatable dams are mentioned. The features are described as preventing fish migration and impairing other habitat functions and would be expected to continue to do so for an undefined time. The statement that fish migration will be prevented for an undefined time is misleading. According to a letter dated July 15, 2009 from the Alameda Creek Alliance, comments on the Draft Biological Assessment for the Calaveras Dam Replacement Project are:

> On July 31, 2007, the Alameda County Flood Control and Water Conservation District and the Alameda County Water District signed a Memorandum of Understanding (MOU) for an agreement to develop a preliminary design of a fish passage facility in the Alameda Creek flood control channel. The MOU states the goal of these agencies to "have the Fish Passage Facility constructed by the end of calendar year 2010," before construction of Calaveras Dam begins. This facility will provide fish passage for anadromous fish past the

BART weir and the middle ACWD rubber dam, the primary barriers to steelhead migration up lower Alameda Creek. The lower ACWD rubber dam is being removed this summer. The ACWD operates the upper ACWD rubber dam to have the dam deflated during winter storm events, which will allow some anadromous fish to bypass the dam and migrate into Niles Canyon during some winter flows once the BART weir is laddered. The next significant fish passage barriers on Alameda Creek are the USGS gaging station weir in lower Niles Canyon, owned by the SFPUC and likely not a barrier to fish migration at higher flows, and a PG&E gas pipeline crossing in the Sunol Valley. The DPEIR for the SFPUC's WSIP (Table 5.7-13) states that the PG&E gas pipeline crossing fish passage project is scheduled for completion by 2009.

Therefore, a time has been identified for fish passage remediation at the BART weir, PG&E gas pipeline, and series of inflatable dams. A discussion of this information should be incorporated in the CDRP EIR. Although anadromous steelhead were not in Alameda Creek in 2005, land-locked steelhead were, and it appears the anadromous form of the species will be present before the CDRP is implemented. As such, the DEIR should include anadromous steelhead in the impact analysis.

Hydrology

Construction of the Replacement Dam Would Temporarily Change Flow Rates in Calaveras and Alameda Creeks Downstream of Calaveras Dam

The Impact Conclusion in the DEIR should quantitatively identify what is defined as within the range of past operations. A historic baseline should not be applied to the impact assessment for changes in flow rates in Calaveras and Alameda creeks downstream of Calaveras Dam without including the same level of analysis for Impact 4.5.6: Effects on native fish in Calaveras Creek below Calaveras Dam and in Alameda Creek downstream of the confluence with Calaveras Creek in the primary study area, since the two sections address the same action.

Hetch Hetchy/Local Simulation Model and 15-Minute Interval Model

According to the DEIR, the Hetch Hetchy/Local Simulation Model (HH/LSM) includes actual, measured historical information about the hydrology that occurred in each month over the 82-year record. We request clarification about the source of information used. According to the DEIR (pg 4.6-60), the HH/LSM simulates system operations over the course of an 82-year sequential hydrologic period but does not necessarily precisely depict the past, historical operations of the system. We request clarification for the assumptions used in the model.

From Appendix D4, a model was used with 15-minute interval data to create hydrographs for operations of the ACDD. The model that was developed routed inflows to either the stream or through the diversions tunnel based on assumptions from operations and capacity constraints. We request clarification for the assumptions for used in this model.

Effect of CDRP on Wetlands and Other Aquatic Habitats

Impacts of Construction

Mitigation Measure 5.4.2, Habitat Restoration Measures, requires SFPUC to restore temporarily impacted wetland, stream, pond, and riparian habitats located above the 756-foot inundation elevation within 3 years of completion of construction. The document should disclose the need to wait 3 years to restore temporary impacts and any additional long-term impacts this may cause.

Impacts of Operation

The DEIR indicates the change in flows would have no expected net effect on the riparian woodland communities. Changes to streamflows are known to have effects on riparian woodland communities (Gillies 1998). The concept that a reduction in flows during winter and spring in relation to stand regeneration for willow and alder riparian forest would be offset by increased summer flows, that conversion of existing riparian habitats (such as sycamore alluvial woodland and valley oak woodland, to alder- and willow-dominated) would be minimal, and the claim that channel incision is not expected to be an important factor because of the large cobble content of the substrate is speculative with insufficient supporting evidence. Since channel incision is often the result of impaired material transport and Calaveras Reservoir impairs material transport, channel incision is expected to be an important factor, especially when coupled with grazing impacts.

Impact Conclusions

Impacts from inundation of the Arroyo Hondo is proposed to be offset by improvements to the functions and services of more than 16,000 feet of Alameda Creek downstream of the ACDD as a result of implementing minimum bypass flows proposed by the CDRP. The bypass flows are part of the Project and will be a requirement to be in compliance of Fish and Game Code Section 5937. Therefore, they are not appropriate as mitigation to offset the impacts to Arroyo Hondo.

Calaveras Creek Downstream of the Dam

Sufficient evidence is not provided to support the speculative statement that flow released at Calaveras Dam would have less benefit for CRLF than flows bypassed from the ACDD (pg 4.4-87 DEIR), and Figure 4.4.6 provides contradicting evidence. Impacts to CRLF from cone valve releases are briefly discussed but are not sufficiently assessed in the DEIR. DFG is aware of ongoing monitoring of FYLF and CRLF in the Alameda Creek watershed by East Bay Regional Parks District (Bobzein and Didonato 2007) and other researchers (Kupferberg et al. 2006), (also see: Kupferberg 1996 and 1997). These monitoring programs are studying FYLF, a species known to be very sensitive to ambient stream conditions, as well as the responses to temperature and flow regimes in Alameda Creek. Stream temperature is known to affect the timing of egg deposition by the adults as well as the duration of egg and tadpole development. Flow regimes and ramping rates are therefore critical in providing suitable habitat for egg placement and ensuring that eggs are less likely to be washed away (i.e., in storm events or from high bypass flow ramping rates) or left to desiccate during receding streamflows. DFG recommends the DEIR include data

collection/analysis and review of existing literature. We further recommend that this document more completely address temperature, flow, and ramping rates and their potential impacts on these important and significant amphibian populations.

Alameda Creek Downstream of ACDD to Calaveras Creek Confluence

The DEIR does not include sufficient evidence to support the statement: "Flow release schedules specified in the MOU are intended to support resident rainbow trout, but the resulting flows would also support California red-legged frog and other amphibians," pg 4.4-89. The life history and specific habitat requirements for these species are different. Since "minimum flows would provide less water than under baseline years without diversion," we are concerned sufficient flow would not be available to sustain breeding or rearing habitat. We are also concerned that without screens, the ACDD tunnel will cause entrainment to CRLF and FYLF.

Effect of CDRP on California Tiger Salamander

Table 4.4.4 identifies areas within 0.7 miles from suitable habitat as considered potentially suitable for California tiger salamander (CTS). "According to interim guidance provided by CDFG and USFWS, habitat assessments and field surveys for the California tiger salamander should consider upland and aquatic habitats within 1.24 miles (2km) of potentially suitable breeding habitat (USFWS and CDFG,2003)," (SFPUC San Joaquin Pipeline System Project EIR Comments and Responses, SCH No. 2007032138, May 21, 2009). Therefore, the upland estivation habitat should be calculated using 1.24 miles from accessible breeding ponds and the appropriate mitigation shall be based on those calculations.

Table 4.4.12 indicates temporary construction would affect CTS habitat for year 1 to year 4. The DEIR should indicate how much and the locations of CTS habitat to be affected for more than one year or one breeding cycle. Although impacts to CTS habitat may be temporary, any take of CTS requires a California Endangered Species Act (CESA) permit and full mitigation.

Effect of CDRP on Alameda Whipsnake

Table 4.4.13 indicates temporary construction would affect Alameda whipsnake (AWS) for year 1 to year 4. The DEIR should indicate how much and the locations of AWS habitat to be affected. Although impacts to AWS habitat may be temporary, any take of AWS requires a CESA permit and full mitigation.

Vegetation and Wildlife

5.4.3a Compensation Goals and Objectives

Compensation for impacts to all habitat types and species should be in place prior to the beginning of construction to minimize temporal impacts. We request clarification if the proposed goals and objectives provide flexibility to wait up to five or ten years to begin compensation efforts, or if that is the amount of time expected to meet success criteria. If the proposal is to wait up to five or ten years before beginning compensation efforts, (depending on the habitat type) the measures should be revised.

5.4.3b-l

Compensation for impacts from the CDRP must include a DFG-approved conservation easement protecting the site in perpetuity; a DFG-approved management plan; and an endowment which provides for management of the site in perpetuity.

Cumulative Impacts

6.2.3.3 *Fisheries and Aquatic Habitat*

Construction Impacts

A means to provide water to Calaveras and Alameda creeks during construction should be included in the DEIR. One way water could be provided to Calaveras Creek below the dam is by running a large screened hose or pipe from the reservoir into the creek and creating a siphon.

Minimum bypass flows at the ACDD can be met prior to the construction of the proposed ACDD bypass facility. The diversions at the ACDD can be reduced or not conducted such that the minimum bypass flow requirement is met. Therefore, it would be feasible to provide sufficient steelhead flow releases before construction is complete.

Operational Impacts

The DEIR outlines a number of uncertainties regarding suitable flow releases for steelhead. A hydrologic study can be conducted to determine the amount of water that is needed to support steelhead trout through critical reaches under various water year conditions within the reaches affected by the Project, specifically the reach of Alameda Creek from Alameda Creek Diversion Dam downstream to Alameda Creek's confluence with Arroyo de la Laguna. Results of such a study should be included in the CDRP EIR to determine the appropriate bypass flows.

Water Quality

The DEIR indicates that between 1987 and 2005, SFPUC dosed Calaveras Reservoir with 174,050 pounds (approximately 87 tons) of copper sulfate to control algae. According to the DEIR, SFPUC may continue to use copper-based herbicides to control algal blooms in the future. We recommend SFPUC continue pursuing less toxic alternative measures to control algal blooms and avoid using copper-based herbicides. Since aqueous copper is known to be highly toxic to aquatic organisms (Eisler 1998; Baldwin et al. 2003), we are concerned the use of copper-sulfate in Calaveras Reservoir will have unintended impacts to special-status and listed species below the dam. At a minimum, if copper-based herbicides are proposed to be continued, an analysis should be included in the DEIR on the potential impacts to listed species and sensitive habitat types. Careful consideration should be given to application timing with regards to species life history and habitat needs.

For any activity that will divert or obstruct the natural flow of, or change or use any material from the bed, channel, or bank (which may include associated riparian resources) of any river, stream, or lake, DFG may require a Lake and Streambed Alteration Agreement (LSAA), pursuant to Section 1600 et seq. of the Fish and Game Code, with the applicant. The CEQA document should fully identify the potential impacts to the stream or riparian

resources and provide adequate avoidance, mitigation, monitoring and reporting commitments for completion of the agreement. A Notification Package for Lake and Streambed Alteration Agreements and Section 1600 et seq. of the Fish and Game Code can be obtained at http://www.dfg.ca.gov/habcon/1600/ or by contacting the Regional Office at (707) 944-5520.

We appreciate your consideration of our comments and look forward to working with you to address the issues. If you have any questions, please contact Mr. Wes Stokes, Environmental Scientist, at (707) 944-5571 or wstokes@dfg.ca.gov; or Mr. Greg Martinelli, Water Conservation Supervisor, at (707) 944-5570.

Sincerely,

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