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October 20, 2014

Melissa Harris, Project Manager  
United States Department of the Interior  
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**Subject: Draft Environmental Impact Statement (MP-720/ENV-6.00)  
Upper San Joaquin River Basin Storage Investigation (Project)  
Fresno and Madera Counties**

Dear Ms. Harris:

On September 5, 2014, the California Department of Fish and Wildlife (Department) received the above referenced 7,000-page *Draft Environmental Impact Statement* (DEIS). Acting as the federal lead agency under the National Environmental Policy Act (NEPA), your agency has prepared and circulated the DEIS to inform cooperating and other public agencies of the potential environmental impacts which could result from Project implementation. The DEIS indicates that the environmental document was prepared consistent with the substance, format, and process requirements of both NEPA and the California Environmental Quality Act (CEQA), and could therefore be relied upon by the Department in the event we are involved in approving some aspect of the Project. However, the DEIS has not been circulated through the State Clearinghouse as required under CEQA (Section 15205(b)(4)). The Department provided informal comments to your consultant (MWH Americas, Inc.) on an administrative draft of the DEIS in April 2013.

The Department understands that Project approval would allow for the construction and operation of the Temperance Flat Dam on the San Joaquin River approximately 6.8 miles upstream of the existing Friant Dam. In addition to the construction and operation of the dam and its permanent appurtenant facilities (diversion works, hydropower generation and transmission facilities, and access roads), several temporary facilities (coffer dams, aggregate quarry, batch plant, staging areas, and waste areas) would be constructed to facilitate Project implementation. The Project would also involve the decommissioning of several existing facilities (Kerckhoff Powerhouse No. 1, Kerckhoff Powerhouse No. 2, and the Wellbarn Road boat ramp) from within the inundation area upstream of the new dam. The Project would involve mostly federal lands but portions of the Project area are privately held. The 665-foot tall concrete arch gravity dam would create the capacity to impound as much as 1.26 million acre-feet of San Joaquin River water, and would reportedly result in increased surface water storage and improve flood management, provide for hydropower generation, and the betterment of water supply reliability. The DEIS also indicates that the Project will provide benefits to the downstream fisheries. At capacity, just over 12,000 acres of lacustrine, woodland, grassland, and riverine communities would be inundated upstream of

the dam, while the permanent appurtenant and temporary facilities would occupy a comparatively small acreage of upland shrub and woodland communities (encompassing some seasonal wetlands) above the reservoir. In the DEIS, the Project and five Project alternatives are outlined, which constitute slight variations in the location of the permanent appurtenant and temporary facilities and the conveyance of water released downstream of the dam. Botanical, wildlife, aquatic, and wetland studies were conducted on the federally owned lands in support of the DEIS between 2007 and 2011; however, these studies were not conducted on the privately held portions of the Project area.

In the DEIS, Project-related impacts to several plant and animal species, and fish and riparian habitats which occur at and near the Project area are discussed. Some of the impacts will be reduced to a "less than significant" level through the implementation of minimization and mitigation measures, while other impacts will be "unavoidable and significant". In summary, the DEIS states that the significant:

- 1) impacts, associated with the loss of special status plants, will be mitigated to less than significant levels through the relocation of those plants and plant populations prior to Project implementation;
- 2) impacts, associated with the loss of riparian and other sensitive communities, will remain **significant and unavoidable**, even after the impacts are minimized and mitigated for;
- 3) impacts, associated with the loss or degradation of Waters of the United States (including wetlands and Waters of the State), will be reduced to less than significant through the creation of wetlands;
- 4) impacts, associated with the introduction and spread of invasive plants during Project construction activities, will be reduced to less than significant through the implementation of a weed management plan;
- 5) impact to special status invertebrates, amphibians, reptiles, passerines, and bats, as well as to ringtail, American badger, San Joaquin pocket mouse, birds protected under the Migratory Bird Treaty Act (except the golden eagle and the bald eagle), migratory and wintering deer herds, and riparian habitat for special status bird species, will be mitigated to less than significant levels; and
- 6) impacts associated with impacts to the golden eagle and the bald eagle will be minimized through a set of planned avoidance and minimization measures, but will remain **significant and unavoidable**;

The impact analysis does not appear to be complete or timely since it is based on biological studies which were not conducted over the entire Project area and which are as much as seven years old. **The Department recommends the designation of a State lead agency and the analysis of the potential Project-related impacts over the entire Project area within the scope of a CEQA review.** Among other things, this will facilitate an appropriate analysis of the impacts to the State-listed species so the Department would be able to utilize

the CEQA document in the preparation of an Incidental Take Permit (ITP) pursuant to Fish and Game Code Section 2081(b) and in compliance with the California Endangered Species Act (CESA).

The Department has significant concerns with the Project-related impacts to the San Joaquin River below Friant Dam. The DEIS implies that the Project would be beneficial to restoring the San Joaquin River below Friant Dam, and to the ecosystems in the lower San Joaquin River and Delta, mainly due to the conclusion that increased storage will benefit water temperatures. However, while temperature benefits would likely be realized during drier years, the DEIS fails to adequately consider the ecosystem benefits that flood releases currently provide to the aquatic and riparian communities downstream of Friant Dam and the potentially detrimental effects to those ecosystems by eliminating flood flows from the hydrograph.

Floodplain inundation through release of flood flows in Central Valley rivers has been shown to significantly benefit both growth and survival of outmigrating Chinook salmon juveniles (Jeffres et al., 2008; Sommer et al., 2001). For example, juvenile survival in the Stanislaus River was estimated to be 5 to 10 percent during base flow releases and nearly 100 percent during prolonged flood control releases, even when winter water temperatures were highly suitable, based on a comparison of data from rotary screw traps at Oakdale and Caswell (Zeug et al., 2014).

There may be some benefit to water temperatures from the Project, but overall it would mean less water and altered timing of releases for the San Joaquin River and the Delta. Temperature benefits for reintroduced Chinook salmon would be spatially limited to Friant Dam and Reach 1 of the San Joaquin River below Friant, and temporally limited to late summer and fall, benefitting spawning and egg incubation, but providing no benefit to or harming other life stages of salmon. Downstream reaches of the San Joaquin River, the lower San Joaquin River, and the Delta would see no temperature benefit and a loss of habitat due to reduced flows.

### **Department Jurisdiction**

**Trustee Agency Authority:** The Department is a Trustee Agency with the responsibility under CEQA for commenting on projects that could impact plant and wildlife resources. Pursuant to Fish and Game Code Section 1802, the Department has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species. As a Trustee Agency for fish and wildlife resources, the Department is responsible for providing, as available, biological expertise to review and comment on environmental documents and impacts arising from project activities, as those terms are used under CEQA.

**Responsible Agency Authority:** The Department has regulatory authority over projects that could result in the “take” of any species listed by the State as threatened or endangered (or candidates for listing), pursuant to Fish and Game Code Section 2081. If the Project could result in the “take” of any species listed as threatened or endangered under CESA on non-federal lands, the Department may need to issue an ITP for the Project. CEQA requires

a Mandatory Finding of Significance if a project is likely to substantially impact threatened or endangered species (sections 21001{c}, 21083, Guidelines sections 15380, 15064, 15065). Impacts must be avoided or mitigated to less than significant levels unless the CEQA Lead Agency makes and supports Findings of Overriding Consideration (FOC). The CEQA Lead Agency's FOC does not eliminate the Project proponent's obligation to comply with Fish and Game Code Section 2080.

**Lake and Stream Alteration Agreement (LSAA):** The Department also has regulatory authority with regard to activities occurring in streams and/or lakes that could adversely affect any fish or wildlife resource, pursuant to Fish and Game Code sections 1600 *et seq.* In the event that all or a portion of Project implementation will be carried out by an entity other than the federal government (the federal government is not an entity as defined in Fish and Game Code sections 1600 *et seq.*), prior to ground-disturbing activities which could affect the bed, bank, or channel of the San Joaquin River, Millerton Lake, or any other streams, the Department recommends the Project proponent submit a Lake and Stream Alteration Notification to the Department for the Project. The Department is required to comply with CEQA in the issuance or the renewal of an LSAA. For additional information on notification requirements, please contact our staff in the Stream Alteration Program at (559) 243-4593.

**Water Rights:** The San Joaquin River has been declared Fully Appropriated by the State Water Resource Control Board (State Water Board). According to the DEIS (page 28-88), the State Water Board informed Reclamation that Reclamation would have to seek a revision of the Fully Appropriated Streams Declaration (State Water Board Order 89-25, Exhibit A) pursuant to Title 23 of the California Code of Regulations (CCR), Section 871, along with submittal of a proposed application for a new water right (California Water Code Section 1202, *et seq.* and Title 23 of the CCR, Section 650 *et seq.*) for operation of the proposed Project. The proposed water right application would not be accepted or processed until the State Water Board adopts an order changing the Fully Appropriated Streams Declaration. The Department, as a State Trustee Agency, is consulted by the State Water Board to provide terms and conditions designed to protect fish and wildlife resources prior to water rights actions appropriating the State's water resources.

Reclamation operates Friant Dam under Water Right Permits 11885, 11886 and 11887 and License 1986 (Applications 234, 1465, 5638, and 23, respectively) (Water Right). The State Water Board approved an Order in 2013 which modified Reclamation's Water Right to authorize long-term implementation of the San Joaquin River Restoration Settlement Act (Settlement). The San Joaquin River Restoration Program (SJRRP) was established to implement the Settlement. The Water Right Order and Settlement provide for SJRRP flows dedicated for the purpose of restoration, preservation, and enhancement of fish and wildlife resources. Proposed water storage and diversion at Temperance Flat Dam should not conflict with the required SJRRP flow releases at Friant Dam. In addition, new water right conditions for the proposed Project should include releases from Temperance Dam designed for the purpose of enhancing water quality/temperature downstream from Friant Dam.

## **Specific Comments**

Deer WLD-9: Migratory and Wintering Deer Herds: The deer in the vicinity of the Project are California Mule Deer. Although there has been little direct investigation of deer in the Project Area, it is believed that the majority of the population is part of the South Sierra Foothill herd and is not migratory.

Recent unpublished research in adjacent areas indicates that migratory deer from the San Joaquin Deer Herd winter as close as three or four miles from Squaw Leap and that North Kings Deer also migrate to the Madera side of the San Joaquin River. It is possible that deer from three herds; the San Joaquin, North Kings and South Sierra Foothill intermingle in the Project Area, due to its proximity to the known range of these herds, which was published as early as 1952 (Longhurst, 1952). The San Joaquin River is not considered a barrier and deer migrate across it to wintering and summering areas on either side

Mitigation Measure WLD-9: Migratory deer depend on each segment of habitat within their migratory range for survival. Elimination of one segment of seasonal habitat can have the same effect as directly eliminating the population that utilizes that habitat. Because deer populations are concentrated within their winter range, that segment of habitat is critical for a larger percentage of the total population than an equivalent acreage of summer range. It is estimated that the inundation of 6,000 acres of prime deer winter range by Pine Flat reservoir reduced the carrying capacity of the North Kings Deer Herd by 1,000 animals (Ashcraft and Heubach 1964).

Key habitat areas are critical for migratory populations and the loss of a segment of habitat cannot easily be mitigated to a less than significant level. The animals that utilize the lost habitat are simply lost across the entire migratory range. Likewise but on a smaller scale, resident deer herds are also lost by habitat destruction of either fawning sites or entire habitats. Adjacent areas purchased as "mitigation" do not replace the lost animals but simply protect existing animals already in those areas. To adequately reduce impacts from a significant impact to less than significant levels, habitat in adjacent areas would need to be enhanced, in perpetuity, to allow the existing population to be supported on less acreage.

ES-7: The Project Purpose and Need states that the project is needed to enhance water temperature and flow conditions in the San Joaquin River below Friant Dam for salmon and other native fish. Reclamation believes that temperatures would be enhanced during late summer and fall of some years. However, it is unclear how the Project would enhance flows below Friant Dam without respect to the SJRRP hydrographs.

ES-8: Similar to our above comment, it is unclear how extra storage capacity will provide beneficial flows if that water is intended for some other use; the system may lose flood releases during larger rain events than would occur without the Project. This would make releases below Friant even more homogeneous each year and would further reduce the ability of the San Joaquin River to mimic a natural stream.

Table ES-3, FSH-8 and FSH-9: FSH-8 seems misleading as the Project would be beneficial for open-water shad habitat but as FSH-9 indicates, there would be no more shad spawning

habitat; there would be no recruitment of shad to benefit from the additional open water habitat.

Table ES-3, FSH-10: A loss of potential floodplain habitat from reduced frequency, magnitude, and duration of floodplain inundation would not be beneficial for juvenile Chinook.

Table ES-3, FSH-11: It is unclear that this will be beneficial for salmon.

ES-60, Table ES-3: There appears to be an impact that was not considered in the DEIS; introduction and/or spread of aquatic invasive species (e.g., zebra and quagga mussels) due to adding another reservoir and increasing boat/public access to the area.

Chapter 5, p 5-4, Table 5-1: 1) California roach should be included in this table. They are in the family Cyprinidae along with the several other native fish listed in the table (Sacramento sucker, Sacramento pikeminnow, Sacramento blackfish, hitch, and hardhead). These fish are part of the native minnow assemblage which require riverine habitat for their reproductive life stage. If the native fish that are listed in Table 5-1 are present in the Project Area, then California roach would likely be present as well; and 2) The "Study Area Distribution" section of Table 5-1 should be revised by stating that all the native minnows utilize the San Joaquin River below Kerckhoff Dam.

Chapter 5, p 5-4, Paragraph 1: *Margaritifera* spp. is a freshwater mussel. Western pearlshell is *Margaritifera falcate*.

Chapter 5, p 5-69, Impact FSH-1: Hitch and California roach should be included as fish that will be significantly impacted under all the action alternatives.

Chapter 5, p 5-69, Impact FSH-1, p 3: The fish mentioned in this paragraph are capable of living in reservoirs; however, these fish populations will be significantly impacted or eliminated due to the inability to reproduce.

Chapter 5, p 5-81, Impact FSH-7: The majority of the Project Area is located within the riverine portion of Millerton Lake. This area is a canyon with steep walls which would not provide suitable spawning habitat for black bass. Therefore, these action alternatives should not be considered beneficial.

Chapter 5, p 5-2: Since the quality and quantity of the smaller gravels have not been evaluated in this section of the river, it may not be appropriate to make an inference about the quality of the spawning habitat in this area.

Chapter 5, p 5-2, Par 4: This indicates that gravel is highly embedded due to low gravel recruitment. The opposite is actually true in much of the Project Area; high gradients and frequent mobilization has resulted in loose, easily mobilized gravels which are not embedded. In reality, nearly all spawning habitat for American shad, rainbow trout, and striped bass would be inundated by the dam, likely severely impacting or eliminating those fisheries. The American shad population in Millerton Lake is unique in that it is the only known landlocked population in existence.

Page 5-55, Figure 5-2: The caption states that these are modeled temperatures for Reach 1, but does not specify where in Reach 1. The Department currently monitors water temperature at 27 sites in Reach 1A, and has found that temperature trends vary considerably depending on the distance from Friant Dam. During many years, temperatures within a few miles of Friant Dam are suitable for any life stage of Chinook salmon at any time of year, while temperatures at the bottom of Reach 1A are more dependent on the amount of flow and air temperature.

Page 5-57: The floodplain analysis only considers the magnitude of peak flows, omitting any analysis of peak flow duration. While the peak magnitude is of interest for maintaining geomorphology and determining the extent of floodplain inundation, the duration of floodplain inundation is important for the health of the aquatic and riparian ecosystem. Under current conditions, there are periods during Normal Wet and Wet years that have one or two months of flood control releases from Friant Dam. Under any Project scenario, both the magnitude and duration would be reduced to Restoration Flows in the SJRRP Settlement; therefore, the peak would be lower and last for no longer than two weeks. This reduces the duration of floodplain inundation by fifty percent or more during times of year when it would be beneficial for riparian recruitment, primary and secondary productivity, and Chinook salmon and other fish species.

Page 5-102, FSH-14: Less frequent and reduced magnitude of flood flows from Millerton would mobilize spawning gravel less frequently and in fewer areas than under current conditions, leading to degradation of existing spawning habitat for salmonids below Friant Dam and potentially reducing spawning success and embryo survival of Chinook salmon. Less frequent and reduced flood flow releases from Millerton Reservoir would also result in less frequent, reduced, and shorter duration of floodplain connectivity in the Extended Study Area, and would therefore have a potentially significant impact on rearing habitat for Chinook salmon. Due to these potential Project-related impacts to spawning and rearing habitat, reducing the magnitude and/or frequency of flood flows could have significant negative effects on the ability to restore self-sustaining populations of spring- and fall-run Chinook salmon in the portion of the San Joaquin River between Friant Dam and the Merced River confluence. Further, the DEIS does not appear to consider the duration and extent of floodplain connectivity, as well as the increased benefit of 8,000 cubic feet per second (cfs) versus 4,500 cfs flows, but should.

Page 5-102, FSH-14: The DEIS states that "the ecological significance of change in flood pulse frequency" between 4,000 cfs and 8,000 cfs "is unclear," and that since the Settlement will require pulses, it will be less than significant. This suggests that the impacts are uncertain and the analysis lacks sufficient information to conclude that the impacts are less than significant. Analyses should evaluate the biological impacts of the proposed Project, independent of the Settlement.

Chapter 12, p 12-9, lines 1-24: A description of the Chowchilla Bypass Structure indicates that it "controls the proportion of flood flows that remain in the San Joaquin River between the Chowchilla Bypass and the Mendota Canal." In this description, it is unclear whether "Mendota Canal" refers to the Delta-Mendota Canal (DMC) or to the segment of the San Joaquin River channel leading to the Mendota Pool and Mendota Dam.

Chapter 12, p 12-27, lines 28-32: The description of the San Joaquin River reach between Sand Slough Control Structure and the Mariposa Bypass indicates that the design capacity at this reach is 1,500 cfs. This description could be enhanced by acknowledging vegetation encroachment within the channel in this reach of the San Joaquin River. Encroachment issues hinder the San Joaquin River ability to pass flows up to its design capacity, under existing conditions.

Chapter 12, p 12-33, lines 19-23: Description of the No Action Alternative under Impact FLD-1 acknowledges potential flood system improvements along the San Joaquin River below Friant Dam as part of SJRRP, but does not mention other flood system improvements within the Extended Study Area. Please note that regional flood management planning workgroups have identified and developed additional flood system improvements in the San Joaquin River below Friant Dam. These system improvements (projects) have been developed in conjunction with ongoing SJRRP improvements and include multi-purpose projects (i.e., with integrated flood risk reduction and conservation objectives). These projects are part of the implementation of the 2012 Central Valley Flood Protection Plan, pursuant to the California Central Valley Flood Protection Act of 2008, and could be included in this discussion. For additional details, please visit: <http://usjrflood.org/> and <http://midsjrfloodplan.org/>

Chapter 5 and Modeling Appendix: There are a number of assumptions made in the “EDT” habitat model that make the results unreliable for the purposes of comparing alternatives or determining impact significance. These include: (1) changes in habitat conditions modeled in EDT only considers spring-run Chinook salmon and not fall-run Chinook or other native fish species; (2) the full range of stream flows were not considered as monthly average flow does not capture habitat extent and variability adequately; and (3) the model lacks transparency, calibration, or peer review of its methods of converting flow and temperature data (and its weighting of each’s importance to the population) to predictions of population success. It would be more appropriate to use a comparison of physical habitat availability under different flow regimes by using a 2-dimensional (or 1-D) hydraulic model to construct flow-habitat curves for different life stages and applying those curves to the different daily flows for each alternative hydrograph.

Chapter 15, Page 15-35, Impact SWQ-4: The DEIS states that the inundation of the three abandoned mines would result in low probability of substantial increases of toxic contamination, and the report concluded that the impact of the action alternatives would be potentially significant. However, the environmental analysis did not include an evaluation of the bioaccumulative properties of mercury or methylmercury in Millerton Lake or the proposed Temperance Flat Reservoir. The bulk of the literature supports the concept that reservoir creation and operation exacerbate mercury contamination by creating conditions that increase the production and bioaccumulation of methylmercury in aquatic life. Mercury is toxic in all of its forms, but methylmercury is the one form that is most toxic and readily available for bioaccumulation in fish, birds, and wildlife mammals as well as humans.

For decades, scientists have observed that the creation and enlargement of reservoirs results in the increase of methylmercury concentrations in reservoir water and the fish residing in the reservoirs (Abernathy and Cumbie 1977; Bodaly et al. 1984; Hall et al. 2009; Johnston et al.



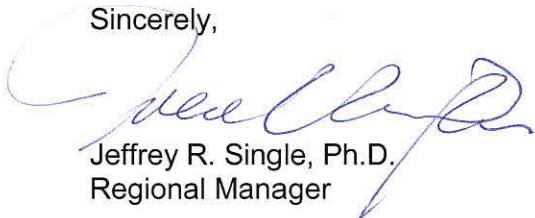
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1991). Reservoir aqueous methylmercury concentrations were statistically proportional to the amount of land flooded (Bodaly et al. 2007; Selch et al. 2007). After initial flooding, fish methylmercury concentrations increase 2 to 7 fold, and the elevated concentrations can continue for up to 35 years (Genivar 2006; Schetagne et al. 2003; Therrin 2005; Therrin and Schetagne 2005). Some of the other environmental factors that have been found to be important in determining predatory fish methylmercury concentrations in California reservoirs include, but are not limited to: reservoir total and methylmercury water and sediment concentrations, reservoir chlorophyll-a concentrations, reservoir water level fluctuations, reservoir dam height, and the ratio of aqueous methylmercury to chlorophyll-a (Louie et al. 2013).

As stated in the DEIS, Millerton Lake is currently listed for mercury on the 2010 CWA 303(d) list of impaired waters. The beneficial uses that are not being protected include wildlife habitat and water contact recreation because bioaccumulated methylmercury is a threat to fish and wildlife and human consumers of fish. The Project will likely not support beneficial uses in the proposed Temperance Flat Reservoir, as well as possibly worsen the mercury contamination problem in Millerton Lake. Therefore, the potential adverse impacts of the Project should be listed as **Significant**, regardless if the abandoned mines are inundated. Additionally, the State Water Resources Control Board (SWRCB) is currently developing the Statewide Mercury Control Program for Reservoirs (SWRCB 2014). The Department suggests consultation with the SWRCB concerning this issue prior to developing the Final Environmental Impact Statement.

We appreciate the opportunity to comment on the DEIS. If you have any questions regarding our comments, please contact Steve Hulbert, Environmental Scientist, at the address provided on this letterhead or by telephone at (559) 243-4014, extension 289.

Sincerely,



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