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Ms. Magalie R. Salas
Federal Energy Regulatory Commission
888 First Street, NE
Washington, DC 20426

December 18, 2006

Re: Project No. 2100-134, California Oroville Facilities
Comments of Friends of the River, Sierra Club, and South Yuba River Citizens League on Draft Environmental Impact Statement (FERC/DEIS–0202D)

Dear Ms. Salas,

The Oroville Facilities Draft Environmental Impact Statement (dEIS) fails to include construction and operation of significant new project facilities necessary for the licensee to conduct operational surcharge operations of regulated flows consistent with the *existing* Corps of Engineers Reservoir Regulation Manual in effect since 1970. Such facilities are required in licenses issued by the Commissions under its responsibilities in sections 10(a) and 15(2) of the Federal Power Act and the Commission's *Engineering Guidelines* regarding spillway design and performance criteria. Under section 10(b) of the Federal Power Act, such facilities cannot be constructed without a license from the Commission.

In addition, the Project definition of the dEIS fails to include any direction to direct the licensee to work with the Corps of Engineers to identify and implement operational changes to the Oroville Dam Corps of Engineers Reservoir Regulation Manual to improve the plan of floodwater management operations at Oroville Dam—including surcharge, as well as forecast and coordinated flood operations.

As noted in our motion to intervene, such facilities and direction to the licensee are an essential part of a "best adapted comprehensive plan for improving or developing a waterway…, and for other beneficial public uses, including irrigation, flood control, water supply, and recreational and other purposes…." §10(a)FPA, (*emphasis added*).

Since these issues are the most significant issues in this proceeding, a new EIS should be circulated with these features as project elements in the preferred

alternative, or, failing that, should be adopted as mitigation measures in the final Oroville Facilities EIS.

1986 main service spillway operations. Note the ungated spillway to the left, and transmission line towers and road downstream. ACE required design-outflow surcharge operations call for an operational regulated release that could deliver up to this flow over the hillside, reducing and eventually shutting down flows in the service spillway. DWR

Comments on Individual Sections of the EIS.

§2.1.3.2 & pp. 92 & 94: The EIS states, "The U.S. Army Corps of Engineers requires Lake Oroville to be operated to maintain up to 750,000 acre-feet of storage space to capture significant inflows for flood control." "DWR operates Lake Oroville to maintain up to 750,000 acre-feet of storage space to capture significant inflows under the direction of the Corps." "The Oroville Facilities currently contribute up to 750,000 cfs without compensation for the purpose of attenuating flood flows."

As described in the motions to intervene of Sutter County et. al. and Friends of the River et. al., these statements do not properly capture flood-control space obligations of the licensee, and fail to recognize that operational floodwater management operations require a *900,000* acre-feet flood-space reservation to accomplish regulation of project-design outflows to no more than the project-design objective release.

An accurate and more complete and relevant statement would be as follows:

> When Oroville Dam was licensed, it was envisioned that 750,000 acre feet of flood control space would be available to regulate standard-project-flood outflows (the Corps design flood[1] for successful Oroville Dam flood operations) to no more than the objective release of the dam. It was not, however, anticipated that this flood-space reservation could achieve project objectives without the construction of the Marysville Dam, a project that was never constructed.
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> In the absence of Maryville Dam, The U.S. Army Corps of Engineers requires that Lake Oroville Reservoir dedicate 750,000 acre-feet below gross pool and 150,000 acre-feet of surcharge storage to operate the reservoir to produce regulated outflows consistent with Corps of Engineers regulations to no more than 150,000 cfs (the objective release of Oroville Dam) during the Corps Oroville Dam design flood. These operations require the use of the main gates and service spillway—and the main gates and both spillways for spillway surcharge operations. In addition, both the main spillway and ungated spillway are used to produce higher flows when conducting Emergency Spillway Release Diagram operations.
>
> The absence of armoring on the auxiliary spillway means that flood release operations cause or may cause damage to project lands and facilities, and have and may cause actions by operators such as exceeding objective release flows to avoid surcharge operations. Given existing Corps of Engineers operating requirements, the absence of this project feature is also inconsistent with Commission "*Engineering Guidelines*," something that was not envisioned at the time of initial licensing.

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[1] The standard project flood (SPF) was the Corps flood-control project design standard for protection of urban areas at the time of the design of Oroville Dam and the publication of its Reservoir Regulation Manual. In Sharing the Challenge: Flooplain Management into the 21st Century, Report of the Interagency Floodplain Management Review Committee to the Administration Floodplain Management Task Force (Galloway Report), June 1994, the committee endorsed its role in the design of flood management projects. (Recommendation 4.1: Reduce the vulnerability of population centers to damages from the standard project flood discharge.) The SPF is derived from the standard project storm, which "should represent the most severe flood-producing rainfall depth-area-duration relationship and isohyetal pattern of any storm that is reasonably characteristic of the region…." (Corps Engineer Manual 1110-2-1411, p. 2) This flood methodology was developed to size flood management projects, and should not be confused with the much larger Probable Maximum Flood (or the FERC Inflow Design Flood [presumably the PMF in this proceeding]), which was developed to design spillway structures and avoid dam failures.

§2.1.5: There is an appropriate commitment to project safety that appears to be inconsistent with the project definitions and staff recommendations in the dEIS:

> As part of the relicensing process, Commission staff would evaluate the continued adequacy of the proposed project facilities under a new license. Special articles would be included in any license as issued, as appropriate.

This commitment is what should be expected in any relicensing. However, the apparent conclusion of the "*continued adequacy of the proposed project facilities*" was not demonstrated in the dEIS. In fact, intervenors Sutter County et.al. and Friends of the River et.al. have demonstrated that this conclusion is, in fact, not the case.

Setting aside the dEIS assertion of "adequacy" and assuming that the Commission intends to include "special articles" it is difficult to understand the meaning or means of accomplishment of this laudable commitment in the absence of any description of proposed special articles in the dEIS. We see none of the project-safety facilities or operational changes we or Sutter County et.al. have proposed to be included in the dEIS for the protection of downstream communities. Instead, we see a vague assertion that these matters will be attended to outside of the relicensing proceeding, an assertion that suggests that the Commission staff does not, in fact, intend to develop such articles in this licensing proceeding.

Perhaps since no project alternative appears to be proposed to include facilities necessary to avoid damage to project lands and facilities or sufficient to fulfill their existing or contemplated flood-management functions, these subject areas are not considered to fall within the category of project safety. For residents in downstream communities, this may seem to be a troubling and irresponsible conclusion.

(Presumably Commission and DWR staff have concluded that the operational or emergency use of the unarmored spillway will not result in any risk of failure of crest control at the dam. However, there is no evidence supporting this assumption in the dEIS. We note that any correspondence on crest control is not available to the public because of security concerns, so we cannot form any independent judgement concerning this matter.)

dEIS, p. 74,75 Water Supply and Flood Control: Barely a page is devoted to flood control here. After noting that scoping identified that "the effect of flood releases on Lake Oroville dam and downstream facilities" and flood-control operational improvements were issues, the dEIS concluded that "[b]ecause the Corps is

primarily responsible for flood-control operations, these issues are outside of the FERC relicensing process."

This conclusion is not responsive to the issues raised in scoping and other communications with the licensee and the Commission, although it does reflect the position of the licensee.

With regard to the issues raised by agencies and intervenors regarding the adverse effect of *existing Corps required* flood releases on Commission licensed facilities, the answer provided seems to misunderstand the issue being raised. Resolution of these issues must be a major part of this relicensing proceeding and are not the responsibility of the Corps of Engineers.

- The Commission has a duty to ensure that licensed facilities are consistent with its *Engineering Guidelines* and can be safely and confidently operated by its licensees. In the preface to its *Engineering Guidelines*, it notes that they "have been prepared by the Office of Energy Projects (OEP) to provide guidance to the technical Staff in the process of applications *for license* and in the evaluation of dams under Part 12 of the Commission's regulations." (*Emphasis added*)

- The Commission's regulations (18CFR 4.51(g)(2)) require r*elicensing* applicants to "demonstrate that existing structures are safe and adequate to fulfill their stated functions."

- Section 10(b) of the Federal Power makes it clear that "no substantial alteration or addition not in compliance with the approved plans shall be made to any dam or other project works…without the approval of the Commission."

- Section 15(b) of the Federal Power Act requires the construction and operation of safe and functional project facilities.

- Finally, under Section 10(a) of the Federal Power Act, projects licensed by the Commission "will be best adapted to a comprehensive plan for improving or developing the waterway…and for other beneficial uses, including irrigation, *flood control*, water supply, and recreation, and for other purposes referred to in section 4(e). (*emphasis added*)

With regard to operational improvements in the Corps of Engineers manual, Under Section 10(a) of the Federal Power Act, the Commission has the power to require its licensee to work with the Army Corps of Engineers to develop appropriate revisions

in the Lake Oroville Reservoir Regulation Manual to develop forecast-based operations and develop coordinated operations with other reservoirs in the Sacramento River system.

We also note that Sutter County et.al. has asserted in its motion to intervene that since operational experience has demonstrated that the 150,000 acre-feet of surcharge storage cannot be counted on in the absence of the missing spillway, it will seek this 150,000 acre-feet from the existing conservation pool at the Dam from the licensee or the Corps of Engineers. Such a proposed action certainly highlights the need for the Commission to fulfill its section 10 duties to license projects best adapted to a comprehensive plan, including irrigation, flood control, and water supply. It cannot do this without an expeditious resolution of the spillway adequacy issue for flood operations.

dEIS p. 92 1970 Manual: According to the dEIS, "Lake Oroville would continue to be operated in accordance with the Corps's 1970 Reservoir Regulation Manual." As described in the motions to intervene of Sutter County et. al. and Friends of the River, et. al., these operations impose a duty on the Commission to address the spillway adequacy problems of the auxiliary spillway to ensure consistency with the Commision's *Engineering Guidelines* and ensure that operators have the confidence to conduct surcharge operations when required. To reflect this circumstance we again suggest adding the following wording.

> When Oroville Dam was licensed, it was envisioned that 750,000 acre feet of flood control space would be available to regulate standard-project-flood outflows (the Corps design flood[2] for successful Oroville Dam flood operations) to no more than the objective release of the dam. It was not, however, anticipated that this flood-space reservation could achieve project objectives without the construction of the Marysville Dam, a project that was never constructed.

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[2] The standard project flood (SPF) was the Corps flood-control project design standard for protection of urban areas at the time of the design of Oroville Dam and the publication of its Reservoir Regulation Manual. In Sharing the Challenge: Flooplain Management into the 21st Century, Report of the Interagency Floodplain Management Review Committee to the Administration Floodplain Management Task Force (Galloway Report), June 1994, the committee endorsed its role in the design of flood management projects. (Recommendation 4.1: Reduce the vulnerability of population centers to damages from the standard project flood discharge.) The SPF is derived from the standard project storm, which "should represent the most severe flood-producing rainfall depth-area-duration relationship and isohyetal pattern of any storm that is reasonably characteristic of the region…." (Corps Engineer Manual 1110-2-1411, p. 2) This flood methodology was developed to size flood management projects, and should not be confused with the much larger Probable Maximum Flood (or the FERC Inflow Design Flood [presumably the PMF in this proceeding]), which was developed to design spillway structures and avoid flow exceedance dam failures.

> In the absence of Maryville Dam, The U.S. Army Corps of Engineers requires that Lake Oroville Reservoir dedicate 750,000 acre-feet below gross pool and 150,000 acre-feet of surcharge storage to operate the reservoir to produce regulated outflows consistent with Corps of Engineers regulations to no more than 150,000 cfs (the objective release of Oroville Dam) during the Corps Oroville Dam design flood. These operations require the use of the main gates and service spillway—and the main gates and both spillways for spillway surcharge operations. In addition, both the main spillway and ungated spillway are used to produce higher flows when conducting Emergency Spillway Release Diagram operations.

The absence of armoring on the auxiliary spillway means that flood release operations cause or may cause damage to project lands and facilities, and have and may cause actions by operators such as exceeding objective release flows to avoid surcharge operations. Given existing Corps of Engineers operating requirements, the absence of this project feature is also inconsistent with Commission "*Engineering Guidelines*," something that was not envisioned at the time of initial licensing.

dEIS pp. 92 & 369 Compliance with Federal Flood Control Obligations: The dEIS notes the following:

> Under proposed Article A130, *Flood Control*, DWR would operate the project in accordance with rules and regulation prescribed by the Corps pursuant to section 204 of the Flood Control Act of 1958. This is consistent with the existing license requirements.

As described in the Sutter County et.al. and Friends of the River et.al. motions to intervene, this license requirement has already been violated—in violation of both Corps and Commission rules—and major levee downstream levee breaks were experienced. People died. The existence of requirements to follow Corps and Commission rules will not solve the problem of operators exceeding design release objectives to avoid surcharge operations, the problem is that operators are demonstrably reluctant to conduct Corps and Commission-required flood control operations in the absence of a spillway on the auxiliary spillway—a matter that is the Commission's principal responsibility to address. If there was ever an issue to be confronted squarely in a Commission analysis, this one is it. Instead, it is not analyzed and a spillway is not included as a project alternative (preferred or otherwise).

Given the importance of this matter, we excerpt portions of our motion to intervene already on the record:

> Operator Willingness to Make Flood-Control-Diagram (FCD) Operational Releases at the Licensed Facility that Causes Damages to Project Lands and Facilities:
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> Given the understandable desire to avoid damage to project lands and facilities, it is not clear that Oroville Dam operators are prepared to conduct ACE FCD surcharge operations that maintain releases within the design objective release during the lower ten feet of ungated-spillway operations. Reports of operational experience support this concern. In main service spillway operations during the 1997 New Year's Day flood, Oroville Dam operators increased releases to 160,000 cfs from the 150,000 cfs objective release and notified the City of Oroville to be prepared to make evacuations to evacuate portions of the City because passthrough releases might be expected soon.[3] Based on their assessment of the condition of levees protecting their communities, local authorities called for evacuation of significant areas in downstream Sutter and Yuba Counties along the Feather River, with approximately 100,000 people evacuated.
>
> Since reservoir storage peaked 200,000 acre feet below the gross pool, 13.8 ft below the ungated-spillway crest,[4] it seems unlikely that operators would have 1) decided to *exceed* the FCD objective release (in an apparent effort to delay, prevent, or reduce potential levee-overwhelming unregulated releases) when the downstream floodway was near design capacity—in a floodway that had been determined to be not reliably capable of withstanding its design flow several years earlier[5]— and 2) reached the conclusion that ESRD flows

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[3] According to the licensee, "In 1997, it [was] believed that Oroville storage was almost to a point where 300,000 cfs of inflow was going to pass through the reservoir. DWR was making plans to evacuate the power plant. The 300,000 cfs would have topped the levees and put 10 feet of water into the town of Oroville." *Oroville Facilities Relicensing, Engineering and Operations Work Group — Issue Sheet Development*, revised May 21, 2001. (EE56)

[4] *YCWA Technical Memo*, p. II-8. *Sacramento and San Joaquin River Basins, California, Post-Flood Assessment*, March 1999. p. 5-41. U.S. Army Corps of Engineers, Sacramento District, March 1999. The Assessment was a production of the Sacramento and San Joaquin River Basins, Comprehensive Study of the ACE Sacramento District and the Reclamation Board of the State of California.

[5] The 1997 New Year's Day Flood resulted in major levee breaches along the Feather River (between Marysville and the Bear River) and along the Sutter Bypass. Both breaks occurred at or near design stage, and the Feather River break probably occurred above the channel design flow. The levee break along the Feather River at these flows was foreseeable. In 1990, the ACE and the State Reclamation Board made a

(eventually potentially leading to a full passthrough release exceeding 250,000 cfs) were imminent if they also expected that 150,000 acre feet of surcharge storage was *also* available to regulate releases to within the objective release.[6]

As noted in more detail in the footnote, the impression that Oroville Dam operators did not intend to operate the dam according the ACE Reservoir Regulation Manual is reinforced by the official reports of the 1997 flood operations, which describe only a 750,000 acre foot flood reservation as available to constrain Dam outflows to the objective release.

Ensuring that Commission-licensed facilities are sufficient to meet their intended purposes is an important part of the Commission's responsibilities.

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determination that levee foundation problems meant that this portion of the Feather River floodway could only reliably accommodate 268,000 cfs, rather than the 300,000 cfs design flow. (ACE, *Sacramento River Flood Control System Evaluation, Phase II – Marysville/Yuba City Area, EA/Initial Study*, April 1993, p. 6) This new floodway-competence assessment was not reflected in ACE or licensee Oroville Dam operation plans or actual operations—nor in FEMA floodplain maps, although the ACE published a map of the estimated 1% annual risk flooded area (*Phase II Report*, p. 5) .

[6] The impression that Oroville Dam operators were not (and perhaps are not) prepared to operate to a 900,000 acre foot flood-control reservation to limit releases to the objective release from Oroville Dam is reinforced by the official reports of the 1997 flood operations of the licensee. The ACE/DWR Division of Flood Management "Information Report" submitted to the Assembly Water, Parks and Wildlife Committee hearings on the January 1997 floods portrays a 750,000 acre foot flood reservation at Oroville Dam. (March 11, 1997). The *Final Report, Governor's Flood Emergency Action Team*, May 1997 portrays a flood-control space of 750,000 acre feet for Oroville Dam. (Appendix figure B-3). Additionally, the 1999 ACE/Reclamation Board, State of California *Post-Flood Assessment* states, "The flood management reservation of 750,000 acre-feet is used to reduce flows downstream from the dam to the objective release of 150,000 cfs and to reduce flows below the confluence with the Yuba River, in conjunction with flood management flows from New Bullards Bar Dam, to 300,000 cfs." (p. 3-23)

Subsequently, a state/federal review of the controlling flood-operations requirements for Oroville Dam occurred in a meeting that included the licensee and the ACE on January 12, 2001. In a letter from Joseph Countryman, MBK Engineers, to Michael Bonner, Program Manager, Yuba Feather Flood Protection Program, Department of Water Resources, the subject of the meeting was summarized: "The primary issue was how the dam should be operated when a flood is large enough to potentially cause the reservoir to surcharge above elevation 901 feet. It was pointed out that the flood control manual for Oroville Reservoir depicted such an event on Chart 32 . . . This chart shows that under "Present Conditions" (no Marysville Reservoir) the downstream objective flows are maintained by allowing the reservoir to rise above the emergency spillway crest (elevation 901 feet) to a maximum storage of 3,719,000 acre-feet (elevation 910.7 feet). In addition, Paragraph 28 (Page 25) of the flood control manual states: *"During the interim period until storage is provided on the Yuba River, control is achieved by use of maximum surcharge at Oroville Dam* . . . The surcharge storage available between 901 feet and elevation 910 feet amounts to 144,000 acre-feet of flood space and is about 19% of the designated flood space below elevation 901 feet. Mr. Paul Pugner, Chief, Water Control Bran[ch] at the [Sacramento District of the] Corps, has confirmed that the reservoir should be operated to surcharge above elevation 901 for flood management until additional reservoir flood control space can be constructed on the Yuba River."

This is reflected in the Commission's regulations regarding relicensing filings. 18CFR 4.51(g)(2) requires a relicensing application to "demonstrate that existing structures are safe and adequate to fulfill their stated functions." More broadly, the Commission's regulations are part of its overall §10 authority and responsibilities. The relevant part is easily summarized:

> [T]he project adopted…shall be such as in the judgement of the Commission will be best adapted to a comprehensive plan for improving or developing a waterway or waterways for the use or benefit of…and for other beneficial public uses, including…flood control…[and] if necessary in order to secure such plan the Commission shall have authority to require the modification of any project and of the plans and specifications of the project works before approval. (§10(a)(1))

The Commission is not alone in highlighting the importance of ensuring that facilities (and operating procedures) properly support the floodwater-management operations of a multipurpose dam. The National Research Council "Committee on Flood Control Alternatives in the American River Basin" examined the 1986 failure of Bureau of Reclamation operators of the nearby federal Folsom Dam to make flood releases consistent "with the…USACE flood control diagram in force at the time." They concluded "[p]rocedures need to be adopted to ensure that flood releases are made as required by operating regulations if intended flood risk reduction is to be achieved."[7]

Similarly, given the large populations living behind levees in deep flood basins of the Feather, Sacramento, and American Rivers downstream, the Commission and the licensee have a duty to ensure that the licensed facilities

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[7] *Flood Risk Management and the American River Basin*, National Academy Press, 1995, p. 43-48. In the case of Folsom Dam, it was never determined why operators failed to make required flood releases—an action that eventually surcharged the reservoir and resulted in releases from the dam that exceeded the dam's objective release. However, a 1995 Flood Management Report prepared by the U.S. Bureau of Reclamation in response to 1992 Congressional legislation directing the Bureau to make prompt (and even anticipatory) releases established an apparently new priority to make flood releases instead of trying to avoid damage to property in the downstream floodway. Additionally, the 1986 and 1997 Folsom Dam flood-release operations did result in millions of dollars of damage to the spillway and dam outlet works. Subsequent repairs to the outlet works featured anticavitation features that should result in less damage from future flood operations. In 1996, 1999, and 2004, Congress authorized additional modifications to the Folsom dam to make it safer to surcharge the reservoir, as well as to increase its outlet- and flood-storage capacity—and forecast-based release operations again in 1999 and 2004.

> of this major upstream high-hazard[8] dam are consistent with the flood-operations requirements adopted by the Army Corps of Engineers for Oroville Dam if the dam is to have its intended floodwater-management benefits. The potential consequences of not meeting this duty for a large urban area (either from abandoning operational use of surcharge space or from a meaningful loss of crest control at the dam) have been vividly illustrated by the recent flooding of deep floodplains in New Orleans.

dEIS, p. 94 Operational Changes: According to the dEIS:

> DWR would continue to operate the project for the purpose of flood control as directed by the Corps. Any modification of the project's flood control operation would be the responsibility of the Corps. To the degree that modifications would potentially affect dam safety, the Commission's Division of Dam Safety and Inspections and DWR's California Division of Safety of Dams would also be involved in the review process. Reservoir regulation manuals are strictly maintained and revised by the Corps, although DWR could be consulted by the Corps. If major operational revisions to the project are required as a result of future changes in hydrology, those could be addressed through the standard license reopener article.

The dEIS is silent on how the *existing* structural deficiencies of the Oroville Dam facilities that affect the willingness of its operators to conduct operations required by *existing* Corps regulations will be addressed. The dEIS is also silent on *if* the Commission will consider this *operational* impact of a structural deficiency to be properly addressed by the dam safety program, or whether only the risk of loss of crest control from such operations is properly addressed by the program.

The Commission's broad responsibilities under the Federal Power Act are such that these critical public-safety issues need to be addressed in the most expeditious proceeding nor can they be avoided at the time of licensing or relicensing Commission facilities.

dEIS, p. 93, Revisions to the Corps Manual: The dEIS noted the following:

> Friends of the River recommended that DWR work with the Corps and other interested parties, such as the Work Group, to develop revisions to

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[8] Because of the major consequences to human life and property that could result from a "failure or incorrect operation" of Oroville Dam, (FERC's *Engineering Guidelines*, 1-2.2, April, 1991), Oroville Dam would be properly characterized by the Commission as a high hazard dam.

> the Oroville dam reservoir regulation manual concerning surcharge, forecast, and coordinated operations.

Friends of the River, Sierra Club, and the South Yuba River Citizens League recommended that the Commission *require* DWR to work with the Corps and other interested parties to accomplish these efforts. The dEIS also footnotes a reference to the Work Group, which it suggests "is a reference to one of the work groups established for relicensing." This last reference is in error. As noted in our motion to intervene:

> Intervenors are environmental group members of the Yuba Feather Work Group (Work Group), a stakeholder-based collaborative formed to work on flood management and related environmental restoration issues in the Yuba and Feather River watersheds. The Work Group is composed of SYRCL, Friends of the River, Nevada County, Sutter County, Sierra Club, Yuba County Water Agency, and state and federal agencies comprising Cal Fed.[9]

The Yuba Feather Work Group was not established to work on relicensing. The Department is a member, and the Department has vigorously and repeatedly maintained that neither Yuba or Feather River flood management issues or the adequacy of the Oroville Dam ungated spillway are properly placed before the Commission. No other member of the Work Group has taken this position, and as noted in filings placed before the Commission by Sutter County, after repeated discussions with licensee's staff, the Work Group wrote a letter to the licensee in February 19, 2003 stating "that the Oroville FERC relicensing is the proper forum to address flood control issues related to Oroville facilities and operation."

dEIS, p. 94, Emergency spillway dam safety issues: The dEIS noted the following:

> Any dam safety issues associated with the emergency spillway are properly addressed through Commission's ongoing dam safety program.

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[9] Cal Fed Agencies include: California's Reclamation Board, Bay Delta Authority, State Departments of Parks and Recreation, **Water Resources**, **Fish and Game**, Conservation, Health Services, Food & Agriculture, the Delta Protection Commission, San Francisco Bay Conservation and Development Commission, State Water Resources Control Board; the U.S. Bureaus of Reclamation and Land Management, the **Fish & Wildlife Service**, EPA, **Army Corps of Engineers**, Geological Survey, Natural Resources Conservation Service, Forest Service, **National Marine Fisheries Service**, and Western Power Administration. Bolded agencies attend Work Group Meetings. The mission of the CALFED Bay-Delta Program is to develop and implement a long-term comprehensive plan that will restore ecological health and improve water management for beneficial uses of the Bay-Delta System. Facilitation for the Yuba Feather Workgroup is funded from a grant by Cal Fed.

As noted in the Friends of the River et. al. intervention, the Corps Oroville Dam Reservoir Regulation Manual requires the use of the ungated spillway to make regulated operational flood control releases to within the Dam's objective release. Such use was not contemplated when Oroville Dam was first licensed—and the use of the term "emergency" first applied. Under the current Corps Manual and under the Commission's *Engineering Guidelines*, the first 10 feet of the ungated spillway would best be characterized as an auxiliary spillway. Precision in language is important here, since more damage to project lands and facilities is often expected with the use of emergency spillways.

The final EIS should adopt the use of a term more consistent with the characteristics and function of this "spillway without a spillway,"

Again, it is not clear whether the Commission intends to limit "dam safety" issues to the risk of losing crest control at the dam, or confront the broader operational issues of the demonstrable reluctance of the dam's operators to damage project lands and facilities and violate Corps objective release requirements to avoid surcharging the reservoir instead.

And again, the Commission has a duty to choose the most expeditious proceeding to resolve these deficiencies, but neither can it meet its previously discussed duties under the Federal Power Act and relicense Oroville Dam with such deficiencies.

dEIS, p. 328, Butte County Emergency Operations Center: The dEIS concludes that Butte County's Emergency Operations Center faces a flood risk from dam failure or the operations of the Oroville Facility. We are not familiar with the location of Center and its relationship to expected and modeled flood release or modeled flood flows, but we are troubled by the dEIS conclusion that "[e]ven during the 1997 flood, a low probability event, the Emergency Operations Center was not damaged." Assuming that the Center is downstream of Oroville Dam, this statement is troubling for several reasons:

- The release from Oroville Dam was only 10,000 cfs more than the 150,000 cfs objective release. There was no release in 1997 sufficient to easily overwhelm levees in Butte County or invade significant developed areas there.

- However, such a release was anticipated. The City of Oroville had been notified to expect pass-through releases of up to 300,000 cfs. As noted earlier, this is a likely consequence of the reluctance of Oroville's operators to conduct regulated surcharge operations. Nevertheless, siting Emergency Operations Centers in a location where they could be inundated by pass-through releases can adversely affect operations even if such a facility is not

flooded. After all, staff at such a facility must prepare (and perhaps) to evacuate as well.

- Deciding the true probability of the 1997 event is at best an exercise in theological speculation. Regardless, it occurred less than ten years ago, and the event was smaller than the Corps design flood for the Feather River at Oroville. Standard Federal recommendations (including executive orders) for siting critical infrastructure such as emergency operations centers are to avoid areas subject to even low probability flooding—and certainly avoiding susceptibility to standard project floods (the Oroville design flood), which cannot be successfully regulated by Oroville Dam without the operational use of the ungated spillway according the Corps Reservoir Regulation Manual, something that the Department's operators appeared to be unwilling to do in 1997.

dEIS, 5.1: We note in the staff recitation of its licensing responsibilities under Section 10 of the Federal Power Act to license a project best adapted to a comprehensive plan, *flood control* has been left out. Given the comparatively recent experience of flooding, loss of life, and Oroville Dam releases in excess of project-design objective release from the licensee, this omission needs to be corrected by expeditious and definitive actions from the Commission. The dEIS does not accomplish this.

Oroville Dam, Powerhouse, and Spillways. Ungated spillway lip is the lengthy low point to the left of the main service spillway. Regulated design-release out flows of up to 150,000 cfs could flow downslope across the hillside during Corps of Engineers required surcharge operations.
DWR, 2005

1986 Oroville Dam main-service-spillway flood operations DWR

ACE required regulated design-release operational-surcharge operations would divert up to this entire flow over the ungated spillway and onto the hillside to the left of the main-service spillway. In spite of believing during the 1997 New Years Day flood that it was in hours of needing to use this unarmored “spillway without a spillway,” DWR proposes to relicense Oroville Dam without constructing an auxiliary spillway to ensure that its operators have confidence that such flows do not mobilize the hillside and disrupt project facilities in this area. In 1997, DWR operators made releases above the design objective release, apparently to avoid using the auxiliary spillway. Intervenors (in part) seek an action by the Federal Energy Regulatory Commission to require such an auxiliary spillway.

Respectfully submitted,

FRIENDS OF THE RIVER
By _____/s/_____

Ronald M. Stork
Friends of the River
915 20th Street
Sacramento, CA 95814
(916) 442-3155 x 220
rstork@friendsoftheriver.org

SIERRA CLUB

By_____/s/_____

Allan Eberhart
24084 Clayton Road
Grass Valley, CA 95949-8155
(530) 268-1890
vallialli@wildblue.net

SOUTH YUBA RIVER CITIZENS
LEAGUE

By _____/s/_____

Jason Rainey
Executive Director
South Yuba River Citizens League
216 Main Street
Nevada City, CA 95959
(530) 265-6232
jason@SYRCL.org