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Ms. Kimberly D. Bose,
Secretary, Federal Regulatory Commissions,
Attn: Hillary Berlin, FERC Contact
888, First Street, N.E.
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March 30th, 2019

Re: Project 2100-187 Lake Oroville (Feather River) Dam - California Department of Water Resources (DWR)
Application for Relicensing.

Notice of Protest and Intent to File Motion to Intervene – Safety Concerns

After the failure of the spillway at the Oroville Dam in February 2017, a petition to ‘Hold the DWR Accountable’ (attached) sponsored by the Feather River Recovery Alliance, supported by Butte County Supervisor Bill Connelly was circulated. Six thousand and sixty-nine signatures were collected by volunteers. In response to the spillway failure and the knowledge that several parts of the dam infrastructure do not comply with the original design specifications, the petition calls for a comprehensive and independent forensic study of all aspects of the dam.

Since the incident, there have been worthwhile initiatives and reports:

- an Independent Forensic Team (IFT) has completed a Report on the Spillway incident;
- the FERC After Action Panel (FAAP) issued a report seeking to draw lessons from the incident;
- FERC has commissioned a Section 12 Level 2 Safety Analysis; and
- the DWR has started a Comprehensive Needs Assessment (CNA) process.

The IFT and the FAAP reports raised concerns and made recommendations relating to the condition, operation and management of the Dam. As is discussed below, these recommendations and concerns will not be properly addressed by the Section 12 Level 2 Safety Analysis or the CNA unless there are changes in the approach. Also, given past experience, it is reasonable to question whether the recommendations will be implemented unless there are changes in the way things are handled.

Therefore, the request of those who signed the petition for a comprehensive independent assessment has not been satisfied. In order to clarify and encourage the necessary changes, the petitioners now request a comprehensive analysis of the relevant human and organizational factors in the DWR and of the current management, maintenance, and operating procedures at Oroville Dam. This study should also focus on deferred maintenance policies and the organization’s capabilities to deal with ‘unexpected’ events.

Unless steps are taken, along the lines requested in this notice, to minimize the risks to the downstream communities, the FRRRA will file a motion of intervention in the application for relicensing the Oroville Dam.

Current Concern

In 2018, the DWR implemented a temporary water control manual that limited the lake water surface elevation to 800 ft between mid-October and the end of March. The intent of this operational rule was to ensure 'safety' of the dam by keeping the water level low enough so that storm inflows could be accommodated without the use of the spillways.

In 2019, this prudent 2018 operational management rule limiting the lake level as long as questions about its soundness remain outstanding was dropped.

The lake level on March 29th was over 850 ft and continuing to rise so that it is likely that it will be 853-4ft by the end of March. The 2018/19 Flood Operations Plan (Table 5-3) estimates, given the releases to date, that only in 1 or 2 years in 100 can it be expected that the lake would be at this level at the end of March. This prediction is based on engineering graphs prepared in 1970. Scientists agree that change in climate patterns means that past records are no longer a valid basis for forecasting precipitation and snow melt. It is not surprising that there is widespread skepticism about the forecasts used by the DWR.

The lake level is already at an unusually high level and there is near record snow lying in the mountains. The spillway gates are decrepit and have not functioned reliably for a decade at least. Neither spillway has been tested: there are unexplained leaks in the main spillway and the emergency spillway has not been armed to the river. Is this the year to be filling the lake?

If there is warm rain in the next few weeks, it is possible, or even likely, that the inflows to the lake could exceed the planned 150,000 cfs – FERC has asked the DWR to plan for a potential maximum inflow of 430,000 cfs. The planned maximum release from the spillway is also 150,000 cfs. It is expected that the spillway gates will be opened in the next week. Even if the gates operate as designed, the potential lake level rise could be 5 - 10 ft per day as it was in 1998. So, there is a real risk that water would flow over the emergency spillway; so, as in 2017, earth and rocks would be deposited in the river. Alternatively, the outflows through the main spillway might be increased above 150,000 cfs. From what we have been told, the main spillway is not approved for releases over 150,000 cfs which is the level that the downstream levees can readily handle.

By following the Flood Operations Plan, the DWR causing in a meaningful and unnecessary risk of another incident like those in 1998 or 2017. It is not surprising that there is little confidence in the DWR's planning which is widely thought to be influenced by their prime objective, which is to maximize the amount of water stored despite the risks down-stream.

An additional concern stems from the fact that risk resulting from seepage through the Dam increases as the lake level rises. The seepage is not being properly measured and has not been independently investigated. There have been reports written by credible forensic engineers suggesting that seepage could get out of control without notice and cause catastrophic damage. This has happened at other dams. Until the seepage has been independently investigated and the conclusions made public, allowing the lake level to rise much above the spillway is irresponsible.

The DWR justifies its management of the lake level by saying that their plan conforms to the modified 1970 rule book and has been approved by their regulators. But, little consideration is given to the real world risks or forecasts based on the modern methods that are now being used at Folsom Dam. The focus on compliance is hardly reassuring. The FAAP Panel report pointed out that the DWR focused on 'compliance rather than safety'. Compliance with regulation did nothing to protect us from potential disaster in 2017. The downstream communities are at risk right now.

The DWR is continuing to plan to store the maximum amount of water while ignoring the risk to our lives and livelihoods. If their bet goes against them, our lives will be disrupted and all those dependent on the reliable supply of water could be harmed. But will there be any accountability? There never has been up to now.

Other Californian dams (such as the Anderson Dam in Morgan Hill) which, like Oroville, have either been poorly maintained or have inadequate features, have been required by their independent regulators to keep the lake levels low to minimize the risk to downstream communities. Why is this not required at Oroville where the condition of the dam has been ranked as 'unsafe'?

Status of Assessments of Risks

A forensic study (1/5/18) by an Independent Forensic Team (IFT) into the root causes of the spillway failure in February 2017 dealt with the physical aspects of the spillway failure. It also reported on the deteriorating condition of the dam, the inadequacies of the DWR's management and made recommendations. The recommendations, which were supported by the FERC After Action Panel Report, must be adopted. To date, though, two years after the catastrophic failure of the primary spillway, there has been little indication of any change in the way the Dam has been managed or regulated or of increased transparency.

Two initiatives have been taken:

- The DWR's Comprehensive Needs Assessment (CNA)
The CNA is being monitored by an Independent Review Board, with comments invited from an Ad Hoc Committee representing the local communities.
The Ad Hoc Committee's comments offered in [August 2018 on the limitations of the CNA are attached](#). As of now, there has been no formal response to these comments.
- A Section 12 Level 2 Risk Analysis
This analysis is being carried out by a team of experts nominated by the DWR and approved by FERC. The redacted 'Proposed Plan for Oroville Dam Complex Level 2 Risk Analysis' (12/20/18) indicates that this analysis will include an update of all Potential Failure Modes (PFMs) and rank the risks associated with each.
It is debatable whether the level 2 analysis is appropriately stringent bearing in mind the low confidence among the downstream communities in the safety of the Dam and the inability of the DWR to anticipate events as evidenced, among other things, by the spillway incident.

The petitioners request that before a license is issued:

1. There is a commitment to transparency and accountability. Any studies and analyses relevant to our safety – for instance on the seepage - should be signed by a professional engineer and made public.
2. The scope of the CNA is widened to cover the vulnerabilities identified by the IFT report and referred to in the Ad Hoc Committee's Comments, so that it becomes truly comprehensive and, specifically, addresses Human and Organizational factors.
3. The CNA is completed and its conclusions, with comments from the IRB and the Ad Hoc Committee, published.
4. The Level 2 Risk Analysis is completed, its conclusions published and its recommendations adopted.
5. The following Potential Failure Modes, involving aspects of the Dam where current conditions are not in compliance with the original design criteria, are adequately addressed in either the CNA or the level 2 Risk Analysis or by an independent investigation signed by a professional engineer:



- The spillway head gate structure and mechanism, together with the ongoing leaks in the gates and the spillway
 - Seepage in the dam, which must be monitored in future by appropriate piezometers approved by FERC
 - The Hyatt power plant, the river tunnel and the water discharge
 - The emergency spillway – this was left unfinished in the original construction and there are unquantified risks associated with the present partial completion.
6. A report is prepared on the risks associated having no lower level release. Lake level management procedures should be published and followed to mitigate this risk.
 7. There is an agreed plan to manage the lake level using modern scientific forecasting methods like those in place at Folsom Dam.
 8. The dam is equipped with seismographs, as approved by FERC, to measure the effect of minor tremors so that the risks of failure during a major earthquake can be assessed and mitigated.
 9. There is a commitment to re-establish the Oroville Wildlife Area as a flood plain to reduce the risk of flooding in South West Oroville.
 10. A process for genuinely independent regulation of, or monitoring, the operation and management of the Dam is established. This could be achieved either by moving the Department of Dam Safety out of the DWR, preferably into the Justice Department, or by giving monitoring powers coupled with sanctions to the recently established Community Oversight Committee consisting of local elected representatives.

The Petitioners also seek the commitment of resources to implement these requests and other ITF recommendations by commissioning independent professionals to conduct the necessary research, development, testing and action to address the deficiencies in the current analysis and evaluation methods. This will help ensure the safety and reliability promised to the public at the onset of the project in 1957.

On behalf of the 6,469 Petitioners

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Robert Bateman