

OROVILLE COMPREHENSIVE NEEDS ASSESSMENT

Independent Review Board Report

DATE: August 7, 2020

TO: Mr. Sergio Escobar, Project Manager
Oroville Comprehensive Needs Assessment
California Department of Water Resources

FROM: Independent Review Board for
Oroville Comprehensive Needs Assessment

SUBJECT: Report No. 9

On Friday August 7, 2020, representatives from the DWR Division of Engineering (DOE), DWR Division of Operations and Maintenance (DOM), Division of Safety of Dams (DSOD), the Federal Energy Regulatory Commission (FERC), industry consultants working on the CNA and members of the Independent Review Board (IRB) met remotely via a virtual Internet meeting for presentations and open discussions on the status of the reports for the CNA. The following presentations were made to the IRB:

- CEII Report Update and Revisions,
- Public Report,
- CNA Task 1 Report Revisions,
- CNA Task 2 Report Revisions,
- CNA Task 3 Report Revisions,
- CNA Task 4 Report Revisions,
- CNA Task 5 Report Revisions,
- CNA Task 6 Report, and
- Comment Log Update.

The meeting agenda is attached at the end of this report.

Following the virtual meeting, the IRB deliberated and prepared a draft of this report. Comments made on the individual presentations and the IRB's responses to DWR

questions for the IRB are included in this report. A reading of the IRB's draft report was made to representatives from DWR, DOE, DOM, FERC, and industry consultants working on the project the following Monday, August 10 at 12:00 pm. The meeting was adjourned following the reading of the report.

All IRB members were present on both days including (Elizabeth) Betty Andrews, Lelio Mejia, Bruce Muller and Paul Schweiger. The list of meeting participants for both days is attached.

DOCUMENTS PROVIDED FOR IRB REVIEW

The following documents were provided for review by the IRB prior to the meeting:

- Oroville Dam Comprehensive Needs Assessment Report (Public Release Version), Draft Final Report, August 2020
- Oroville Dam Comprehensive Needs Assessment (CEII Version) – Draft Final, August 2020
- Oroville Dam Comprehensive Needs Assessment – Task 1: Emergency Spillway - Draft Final (CEII), July 2020
- Oroville Dam Comprehensive Needs Assessment – Task 2: Operations, Draft Final (CEII), July 2020
- Oroville Dam Comprehensive Needs Assessment – Task 3: FCO Headworks and Spillway, Draft Final (CEII), July 2020
- Oroville Dam Comprehensive Needs Assessment – Task 4: Low - Level Outlets; Draft Final (CEII), July 2020
- Oroville Dam Comprehensive Needs Assessment –Task 5: Oroville, Bidwell Bar, and Parish Camp Embankments; Draft Final (CEII), July 2020
- Oroville Dam Safety Comprehensive Needs Assessment –Task 6: Instrumentation and Monitoring (CEII), July 2020
- Oroville Dam Comprehensive Needs Assessment –Task 6: Historical Instrumentation Report (CEII), July 24, 2020
- Comments and Recommendations Resolution Log, Independent Review Board, Oroville Comprehensive Needs Assessment Project, Updated August 4, 2020

QUESTIONS FOR THE IRB

1. Does the IRB have any recommendations or comments on the reports?

Response:

Draft versions of the Public Release Version of the CNA report and the Task 6 CNA report with a companion Historical Instrumentation Report, as well as updated final draft versions of the CNA reports for Tasks 1, 2, 3, 4, 5, and the CEII CNA report were provided for IRB review. The IRB appreciated the Project Team's methodical presentations on how they addressed each of the IRB's report review comments from prior reviews, including some of the preliminary review comments provided by the IRB several days prior to the meeting. The IRB concurs with the Project Team's resolution of their report review comments, and commends the Project Team for the quality and clarity of the reports.

Final report review comments from the IRB were provided to the CNA Project Team in writing on August 7, following the meeting. These IRB review comments are primarily editorial and were provided for the CNA Project Team's consideration in finalizing the reports. For the Task 6 report on Instrumentation and Monitoring, the IRB has one recommendation. Section 8.7 of the report that is titled: "*Future Interpretation and Evaluation of Data*" provides a list of improvements to the organization and presentation of data that are recommended to improve current operation and maintenance procedures. While the items listed are all valuable recommendations, they are all related to the issue of data display without addressing data interpretation and evaluation, and do not address the human element at the root of most failures. DWR can have the best data sets and the best displays, and still be at high risk if it does not address the human element in the interpretation and evaluation of the data. **The IRB recommends** that a review be performed to refine DWR's process for assessing, evaluating, and making decisions regarding actions to be taken to identify and address anomalies identified in the data. DWR must assure that its process prevents "normalization of deviance," wherein certain vulnerabilities, abnormal instrument readings, or observations become expected or normal. A strong process and organizational culture will lead to understanding the behavior and taking corrective action where necessary. This review should include a discussion on how the human element will be addressed to ensure reliable interpretation and evaluation of the data.

2. Does the IRB have any recommendations or comments on the comment log?

Response:

The IRB reviewed the comment log and updated the status of recommendations as appropriate based upon the information provided in draft reports and presentations to date. The CNA Project Team only had the opportunity to update the recommendations from IRB Report #8, and the IRB concurs that the IRB Report #8 recommendations have been addressed. The CNA Project Team expressed that they would be providing another update in the next week or so addressing the remaining outstanding recommendations. On receipt of that input, the IRB will again review the comment log and identify a final disposition for remaining comments.

3. Does the IRB have any other recommendations or comments?

Response:

During the meeting, the IRB was informed that DWR expects to provide a draft of the public release version of the CNA report for review and comment by the Ad Hoc Group. The IRB is pleased that the Ad Hoc Group will be reviewing a draft of the report as part of DWR's process for finalizing the report.

The IRB appreciates the significant effort put into the CNA reports, the presentations explaining how previous IRB report comments were addressed, and the cooperative input from all participants. The IRB commends DWR for the special effort and accommodations they made to make the virtual meeting effective given the significant challenges the COVID-19 pandemic has imposed on the Project Team.

IRB RECOMMENDATIONS SUMMARY

M9-1 The IRB recommends that a review be performed to refine DWR's process for assessing, evaluating, and making decisions regarding actions to be taken to address anomalies identified in the project monitoring data.

Respectfully submitted,



Betty Andrews



Lelio Mejia



Bruce Muller



Paul Schweiger