

Oroville Dam Safety Comprehensive Needs Assessment

7/12/2019

Log of Comments and Recommendations from the Independent Review Board (IRB)

- Comment logs provided to the Ad Hoc Group are snap-shots of the log on a specific date.
- The comment log is updated as work progresses.
- The log lists the comments and recommendations that have been issued by the IRB at that point in time.
- The log captures DWR's responses to each IRB comment, and whether DWR "*Concurs*" or "*Does not Concur*" with a specific comment or recommendation, or whether the response to that item is "*Under Review*." Additional information related to the comment and response may also be provided.
- The status of each recommendation is indicated as follows:
 - **Under Consideration** – The Project Team is considering the IRB recommendation.
 - **Planned** – The IRB has accepted the Project Team's response to the recommendation and an action to address the recommendation is planned by the Project Team.
 - **In Progress** – The Project Team's planned action is in progress.
 - **Closed** – The IRB has reviewed and confirmed that the Project Team's planned action has been completed and the recommendation has been adequately addressed.
 - **Not Adopted** – The Project Team did not adopt the IRB recommendation. An explanation for not adopting the recommendation has been or will be provided.
 - **Superseded** – The recommendation was superseded by the IRB and therefore not adopted by the Project Team. An explanation for any recommendations that are superseded will be provided and referenced to the revised recommendation.
- As work progresses, the actions being taken to address an item, or DWR's position (*Concur/Do Not Concur*) might change.

| Comment No. | IRB Comments/Recommendations | CNA Project-Level Action to Address the Recommendation | IRB Status Assessment | Date Closed | Comments |
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| M01-01 | The IRB recommends that the CNA Project Team develop a plan for execution of project integration, perhaps under a Task 7. As part of this new task, interdependencies between the tasks and between Tasks 1-6 and Task 7 (or project integration) should be mapped out and reflected in the project schedules for all tasks. | Concur. To date, we have: • Formed Integration team. • Developed Integration Project Management Plan (PMP) (in process). • Developed CNA workplan showing interdependencies (in process). | Closed | 12/14/2018 | |
| M01-02 | The IRB recommends the CNA Project Team broadly identify potential dam safety issues and concerns, including issues not specifically addressed in the six CNA Tasks, and conduct a screening level risk assessment to better understand the magnitude of risk associated with each issue or concern. If any of the issues or concerns indicate a need for expedited action, proceed to identify and implement actions necessary to reduce the risk either permanently or temporarily while the planning study proceeds. | Concur. • Will occur in the context of the Part 12D PFMA/FERC Level 2 Risk Analysis workshops, within Task work, and in Project-level work. • Will recommend expedited actions as they are identified. • Existing conditions and current risks will also be identified in the upcoming CNA Existing Conditions Assessment, a preliminary semi-quantitative risk analysis scheduled for April 2019. | In Progress | | |
| M01-03 | The IRB recommends the CNA Project Team establish evaluation criteria for alternative selection prior to formulating alternatives. | Concur. • First draft of evaluation criteria presented at IRB Meeting No. 2. • Further development of evaluation criteria and adoption of DWR Asset Management Risk Matrix presented at IRB Meeting No. 3. • Final Draft evaluation criteria to be presented at IRB Meeting No. 4 | Closed | 3/15/2019 | |
| M01-04 | The IRB recommends that in the initial phase of each task, the CNA Project Team explicitly state an objective of identifying what is working well to ensure that proposed alternatives do not harm operations that are working well. | Concur. Compiling this information. | In Progress | | |
| M01-05 | The IRB recommends that the CNA Project Team include gain or loss of project benefits amongst the consequence categories to be considered in evaluating risk reduction. | Concur. • This will be included in the risk assessment consequences. • Will document Project benefits in developing and evaluating alternative plans. • This will be captured in the five Project Objectives, Existing Conditions Assessment, and in the evaluation criteria | Closed | 3/15/2019 | |
| M01-06 | The IRB recommends that the CNA Project Team evaluate and document existing components and alternatives with respect to their robustness, redundancy, reliability, and resiliency. | Concur. • Will be included in evaluation criteria. • These factors are now captured in the individual task <i>Measure Development Objectives</i> and in the <i>Considerations</i> used to evaluate criteria used to evaluate how measures/plans meet Project Objectives. | In Progress | | |
| M01-07 | The IRB recommends that the CNA Project Team consider adopting a "value planning" approach to the development of alternatives. | Concur. • Risk, benefits, and cost efficiencies will be considered throughout conceptualization and selection of measures and alternatives. • Measures and Plans will first be evaluated for their ability to meet Project Objectives. A second round of evaluations will consider the costs to implement Measures/Plans to better determine the cost efficiency of alternative Measures/Plans in reducing risk (i.e. risk reduction/dollar). | Planned | | |
| M01-08 | The IRB recommends that the CNA Project Team adopt the principle of "begin with the end in mind" which can be implemented by outlining the final reports as soon as possible. | Concur. • We developed and distributed a report outline for review. Currently, we are continually updating the Final Report Draft outline and will present at IRB meetings. • Updated Final Report Draft outline presented at IRB Meeting No. 3 • Draft Task Report Outline developed and will be presented at IRB Meeting No. 4 | Closed | 3/15/2019 | |

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| M01-09 | The IRB recommends that an effort be undertaken to define a common understanding of the terminology to be used across all tasks. | Concur. We are: • Developing (Draft #1 of the) CNA glossary. • Developing (Draft #1 of) a memo defining the baseline and future without-project condition. • Have updated the CNA Glossary and shared Version 2 of the Glossary with the IRB during IRB Meeting No. 2. • Continuing to develop a memorandum defining the current without-plan condition. | In Progress | | |
| M01-10 | The IRB recommends that quality management be viewed more holistically than just quality control and quality assurance. | Concur. We are: • Working closely with Task team leads to maintain consistent quality across Tasks. • Including Task team leads in quality management of Project-level documents. • Reviewing Task progress at bi-weekly meetings. | Closed | 12/14/2018 | |
| M01-11 | The IRB recommends that the CNA Project Team consider a holistic approach to the evaluation of all mechanical, electrical, and control systems required for the safe operation of Oroville Dam, including those associated with operation of the Hyatt Powerplant. | Concur. • The Project will review all mechanical, electrical, and control systems for the following facilities: - HPP and intake - RVOS outlet - Palermo outlet - FCO headworks • Potential failures of mechanical and electrical systems are being considered in the PFMA, Level 2 Risk Analysis, and upcoming CNA Existing Conditions Assessment workshops. | In Progress | | |
| M01-12 | The IRB recommends that the CNA Project Team consider evaluating plans for providing redundancy in external systems that deliver power to the grid, as part of its evaluation of the low-level outlet facilities. | Concur. • DWR internal discussions are ongoing. • Task 4 will examine and review existing redundant systems to help deliver power to the grid. | Closed | 12/14/2018 | |
| M01-13 | The IRB recommends that any risk assessment, whether at the task or project level, include an explicit statement of assumptions that form the contextual basis of that assessment. | Concur. We will: • Define baseline condition, and state assumptions therein. • State assumptions clearly for all alternative plans and with-project conditions. • Existing Conditions Assessments and evaluation of potentials Measures/Plans will consider PFMs that will describe the Initiation, Progression, and Continuation to Failure, along with a definition of what failure means. | In Progress | | |
| M01-14 | The IRB recommends that the title of Task 1 be revised to: "Alternatives Evaluation to Ensure Spillway Integrity to Safely Pass the PMF". | • Will review and present all Task titles at IRB Meeting No. 3. | Superseded | | See recommendation M3-7 |
| M01-15 | The IRB recommends that the CNA Project Team question previous assumptions regarding downstream consequence thresholds and take advantage of the new incremental dam breach hydraulic analyses to develop accurate consequence information. | Concur. • We will develop accurate consequence information using best-available information. • The updated consequence thresholds are in current use with the Part 12D Level 2 Risk Analyses and will be used by the upcoming CNA Existing Conditions Assessment. | Closed | 12/14/2018 | |
| M01-16 | The IRB recommends the CNA Project Team either address how climate change has been accounted for in developing the operational plan for the facility, including potential changes in hydrograph shape, size, and seasonality, or explain why it is not a concern. | Concur. • Currently we are developing a plan for addressing climate change in the CNA project. • This has now been added as one of the Measure Development Objectives for Task 2. | Planned | | |
| M01-17 | If not already completed, the IRB recommends that the Task 3 be expanded to include the hydraulic performance of the FCO Spillway as it relates to the operation of the FCO gates. | Hydraulic analysis of FCO gate structure and chute have been completed by Spillways Recovery Design Team. Currently viewed as a constraint in Tasks 1, 2, 3, and 4. | Closed | 12/14/2018 | |
| M01-18 | The IRB recommends that the information describing the reservoir evacuation deficiency be added to the scope of work for task 4 to provide context. | Concur. • Will be listed as an issue and opportunity. | Closed | 12/14/2018 | |

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| M01-19 | The IRB recommends that the project summarize and document the analysis and/or assumptions relative to sedimentation in the reservoir at the dam. | Concur. | Planned | | |
| M01-20 | The IRB recommends that the project also include an assessment of the benefits that could be derived from making the reservoir volume between elevations 350 feet and 640 feet available for active management. | Concur. • Will be evaluated in Task 4 and applied to other tasks as appropriate. • Currently identified as the T4-6 Measure Development Objective for Task 4. | Planned | | |
| M01-21 | The IRB recommends that Task 5 include developing recommendations, as appropriate, for future collection of additional data on the embankment characteristics that would significantly reduce uncertainty for the evaluation of the dam embankment reliability. | Concur. • These tasks are being completed by DWR in response to FERC 2014 Part 12D recommendations • Tasks 5 and 6 have identified an Early Implementation Project to install 11 new piezometers in the Oroville Main Dam, which will better determine water levels within the dam and foundation, and will provide an opportunity for in situ and laboratory testing of downstream shell materials. | In Progress | | |
| M01-22 | The IRB recommends that future presentations to the public and the final project report provide a description of the rationale for the tasks included in the project. | Concur. • Presented at IRB Meeting No. 2 and Ad Hoc Committee Meeting No. 2. • The 6 tasks address all major facilities at Oroville Dam (all 3 embankment dams (Main Dam and 2 saddle dams - Task 5), both spillways (Emergency and FCO- Tasks 1 and 3), all three outlets (Hyatt PP, Palermo, RVOS) as well as a potential new outlet - Task 4, as well as operations - Task 2, and performance monitoring/instrumentation - Task 6. It is a pretty comprehensive evaluation of existing conditions for all Oroville facilities as well as looking at ways to improve the reliability of the facilities to perform consistently with their purpose and design intent. | In Progress | | The IRB would like to see supporting documentation for the selection of the 6 Tasks |
| M02-01 | The IRB recommends that plan options be evaluated using a structured Multi-Criteria Decision-Making approach such as "choosing by advantages." | Noted. • Will respond with updated evaluation criteria and approach at IRB Meeting No. 3. • Draft Final Evaluation Criteria to be presented at IRB Meeting No. 4. Methods such as "Choosing by Advantage" found not to be best fit for CNA as the results of CNA Initiative will not be a single alternative or Plan, but a small number of alternative Plans for future consideration by DWR in reducing risks and improving reliability of all dams and other facilities in the SWP portfolio. However, the two-round approach in "Choosing by Advantage" whereby cost of the alternative Plan is considered in the second round for considering cost efficiency in reducing risk will be adopted in the CNA approach. | In Progress | | |
| M02-02 | The IRB recommends that "permissibility" or "minimizing permitting challenges" be added to the list of evaluation criteria. | Concur. | Closed | 12/14/2018 | |
| M02-03 | The IRB recommends that all evaluation criteria be framed as the measurement of positive outcomes. | Concur. • Second draft of evaluation criteria will be presented at IRB Meeting No. 3. • Draft Final Evaluation Criteria will be presented at IRB Meeting No. 4. As presented in IRB Meeting No. 3, Evaluation Criteria will be based on the existing DWR Asset Management Matrix. The 5 Project Objectives and the Consequence categories to be evaluated are from the Asset Management Matrix and are oriented to maximize positive outcomes or to minimize negative outcomes, which is also a way to measure a positive result. | Closed | 3/15/2019 | Looking for evidence of a focus on positive outcomes |

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| M02-04 | The IRB recommends that among the approaches to plan formulation considered, the CNA Study Team include the development of plans focused on addressing different "themes," or collections of attributes captured by the evaluation criteria. | Concur. • Under development. • Will be carried out at the Project Integration level following the development of viable Measures that will be completed by the individual Task teams. | Planned | | |
| M02-05 | The IRB recommends that the basis for the 150,000 cfs flow constraint be substantiated in the documentation for the CNA studies, and encourages the use of risk-based information in the analysis by performing sensitivity analyses to assess the relative risk for various flow levels. The IRB recommends that the sensitivity analysis be performed for releases from the dam ranging from 100,000 cfs to 200,000 cfs in increments of 10,000 cfs for use in operational decision-making, both for interim operations and possibly for long-term revisions to the WCM. This analysis should include an estimate of the return period or recurrence interval associated within this range of incremental flow releases. | Noted+D33. • Will consider and include in technical task details. | Under Consideration | | |
| M02-06 | The IRB recommends that alternative measures be considered to create artificial power demand to allow energy dissipation so that the grid demand will not be the limiting factor for powerhouse outlet capacity during a flood event. | Concur. • Internal DWR discussions are ongoing. | Closed | 3/15/2019 | |
| M02-07 | The IRB recommends that DWR assess the adequacy of the previously completed FCO headworks stability analyses in light of the revised flood routing of the 2018 PMF study. | Concur. • Task 3 will consider all previous analyses. | Planned | | |
| M02-08 | The IRB recommends that DWR develop a written plan (to be included in the documentation of the analysis) for validation of the model to be used in the non-linear analysis of the FCO headworks and the results of the analysis. | Concur. • This work will be performed as Part 12D recommendation response. | In Progress | | |
| M02-09 | The IRB recommends that DWR develop a written plan for assessing the performance of the mechanical/electrical components of the FCO headworks under seismic loads. | Concur. • This will be completed under Task 3. | Planned | | |
| M02-10 | The IRB recommends that the Team embrace a holistic approach and consider other issues that may not have been brought up by the FERC Part 12D process. | Concur. Will be included in Task 1-6 technical work and in Part 12D PFMA/FERC Level 2 Risk Analysis Workshop | In Progress | | |
| M02-11 | The IRB recommends that the Team take advantage of the new findings about the characteristics of the embankment zones and consider further implications on the overall stability of the dam, keeping an open mind about uncertainty in the various aspects of the evaluation, including the strength of the embankment materials in the vegetated area and other zones of the dam. | Concur. • This work will be performed as Part 12D recommendation response and utilized in Task 5. • Updated, recently compiled construction information, and recently completed filter, seepage, and slope stability analyses being conducted as part of the Part 12D response has been presented to both the FERC PFMA/Level 2 risk analysis and to the CNA Task 5 team. | In Progress | | |
| M02-12 | The IRB recommends taking advantage of information on the recorded performance of the embankment during significant events in the life of the dam to provide further understanding of the dam's characteristics. | Concur. • This work will be performed as Part 12D recommendation response and utilized in Task 5. • Detailed information on performance of dam during construction, first filling, Core Block cracking, 1975 Earthquake, and performance over time presented to Independent Evaluation Team during Level 2 Risk Analysis in January 2019. | In Progress | | |
| M02-13 | The IRB recommends that the Team thoroughly document their knowledge and understanding of the performance of the dam including explanations for the very low observed seepage, the significance of the vegetated area on the downstream slope of the embankment, and the effectiveness of the internal filtered seepage collection system for dam performance monitoring. | Concur. • This work will be performed as Part 12D recommendation response and utilized in Task 5. • Detailed information on seepage collected in Grout Galleries and D/S Toe, history and reasons for D/S Vegetated Area, and recent Filter Analyses presented and discussed at Level 2 Risk Analysis in January 2019. | In Progress | | |
| M02-14 | The IRB recommends that DWR further develop and update the final CNA report and task report outlines for each successive IRB meeting. | Concur. • Updated report outlines will be presented at IRB meetings. • Draft Outline for Task Reports to be presented at IRB Meeting No. 4. | Closed | 3/15/2019 | |

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| M03-1 | The IRB recommends further development of the evaluation framework in the near term to include additional consequences or outcome categories, including beneficial project outcomes. | Concur. • Evaluation Criteria and framework now oriented around DWR Asset Management Risk Matrix and to have the following Project Objectives: 1. Maximize Public Safety 2. Maximize Regulatory Compliance 3. Maximize Flexibility and Reliability for Water Delivery 4. Maximize Flexibility and Reliability for Other State Water Project Purposes 5. Minimize Financial Impacts | Closed | 3/15/2019 | |
| M03-2 | The IRB recommends that the integration team develop a common and consistently applied terminology and approach to defining and articulating issues (aka problems or needs), objectives, and constraints across the project. | Concur. • Task Needs and Measure Development Objectives have been revised to be consistent and clear on their purposes. Will be submitted for review during IRB Meeting No. 4. • Constraints were found to overlap across different Tasks and have been removed from the Task level and collected into one place and labelled as <i>Project Constraints</i> . Will be submitted for review during IRB Meeting No. 4. | In Progress | | |
| M03-3 | The IRB recommends that a minimum set of hard constraints be identified as an essential first step to establishing absolute requirements for measuring plan viability. | Concur. • Constraints were found to overlap across different Tasks and have been removed from the Task level and collected into one place and labelled as <i>Project Constraints</i> . Hard Constraints are identified. Will be submitted for review during IRB Meeting No. 4. | Closed | 3/15/2019 | |
| M03-4 | Where regulatory requirements are uncertain, the IRB recommends that a well-informed assumption and justification for those requirements be articulated and reviewed with the responsible agency(ies) for their comment and concurrence, prior to engaging in measure development. | Concur. • Meeting regulatory requirements is now identified as one of the five Project Objectives: <i>Maximizing Regulatory Compliance</i> - will also be one of the five Evaluation consequence criteria. • Regulatory guidelines now identified as a <i>Soft Constraint</i> in Project Constraints. • Project Team will meet with responsible agencies to better define guidelines and objectives of regulatory requirements and agencies before finalizing the development of Measures. | Planned | | |
| M03-5 | IRB recommends that the Integration Team develop a standard format for the tables of issues, objectives, and constraints that each Task Team can populate using a common terminology and formulation approach. | Concur. • A standard format and template was developed and individual Task teams populated their tables using consistent terms for Task Needs and Measure Development Objectives. Will be presented at IRB Meeting No. 4. | Closed | 3/15/2019 | |
| M03-6 | The IRB recommends that all task names be revised to replace "Alternatives" with "Measures." | Concur. • Task titles and Needs Statements along with the Measure Development Objectives for all six tasks have been revised. Consistent terminology has been adopted by the Task teams. | Closed | 3/15/2019 | |

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| M03-7 | The IRB recommends that the title to Task 1 be revised to "Evaluating Measures to Enhance Spillway Reliability and Resiliency". | Noted. • The Needs statements for all Tasks have been revised to be consistent with each other and with the Project Objectives. The new Needs Statement for Task 1 is as follows: <i>What enhancements or new facilities for the Oroville Dam Spillways are needed to improve safety and reliability?</i> • The revised Task Titles/Needs Statements for the six tasks have been submitted to FERC. • The revised Needs Statements, Measure Development Objectives, and terminology for all six Tasks will be presented at IRB Meeting No. 4. | Closed | 3/15/2019 | |
| M03-8 | The IRB recommends that the Project Team identify and assess data gaps related to the geology of the affected overflow area from between the secant pile wall and the river, and collect any additional data needed to support the recommendation of measures. | Concur. • Task 1 has been developing a 3D geologic model of the Emergency Spillway to better understand the subsurface geologic conditions. To develop the geologic model, data collected during the Oroville Spillways Emergency and Recovery efforts (including subsurface geology, surficial geologic mapping, and geophysical profiles) were combined with more recent surficial geologic mapping of the scour channel. • While there are still some gaps in the geologic understanding of the hillside between the secant pile wall and the Diversion Pool, the resolution of the geologic model should be sufficient to perform the level of analysis needed to identify, assess, and recommend potential measures. Specifically, the 3D geologic model will be used in conjunction with various hydraulic simulations to perform scour and erosion analysis, which is being guided by scour expert Dr. Michael George (BGC Engineering). • Following the completion of the CNA Project and when specific plans are considered for implementation by DWR, it is likely that additional geologic data will need to be collected for preliminary designs. | In Progress | | |
| M03-9 | The IRB recommends that the interaction of the FCO, River Valve Outlet System and Hyatt Powerplant be fully defined to determine whether there is an FCO release level that could potentially incapacitate the Hyatt PP and/or River Valve Outlet System (RVOS) due to excessive tailwater elevation. | Concur. • The Task 4 team held a meeting with OFD engineering and operations to gain a better understanding of the tailwater elevation influence on the ability to discharge water from the Hyatt PP and the RVOS. A summary of our findings will be presented at IRB Meeting No. 4. In general, Hyatt discharge capacity begins to be reduced when spillway flows reach 22,000 cfs (increasing tailwater elevation to 226.5-feet) and is fully inhibited when spillway flows reach 105,000 cfs (tailwater elevation equals 236.0 feet). The RVOS may only be operated when tailwater elevation is between 223.0-feet and 227.0-feet. | Closed | 7/12/2019 | |

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| M03-10 | The IRB recommends consideration be given to basing Hyatt Powerplant capacity on seasonally adjusted historical generating unit availability data, and that inflows be seasonally adjusted based on historical monthly inflows. | Concur. • We have learned from OFD engineering and operations that five of the six units at Hyatt are generally considered available, and that the assumption that all six units are available may not be appropriate. This is considered anecdotal evidence based on recent performance at Hyatt. For this reason, we have adjusted our outlet capacity model to consider a maximum of 5 units. We have also refined our outlet model to consider winter and summer inflow variations. We plan to use an average of 10,000 cfs for winter months (December through May) and approximately 2,000 cfs for summer months (June through November). | Closed | 3/15/2019 | |
| M03-11 | The IRB recommends that structural considerations be explicitly addressed with respect to allowance for unbalanced operations of the gates. | Concur. • Recent linear analyses have indicated overstressing of the piers during some unbalanced loading conditions (e.g. placement of one single bulkhead). • The structural model that is currently in development is designed to evaluate this, among many other, potential failure modes for the FCO Headworks. The load case of unbalanced gate operation, resulting in unbalanced loading on the piers is one of the load cases being considered in the new phase of analysis. This analysis will also include calibration using performance based testing, also recommended by the IRB. • Preliminary results have been presented to the FERC PFMA/Level 2 risk analysis. The results of future analyses will be considered under CNA Task 3. Potential risk reduction measures (e.g. lateral bracing) will be considered as potential Measures for Task 3. | In Progress | | |
| M03-12 | The IRB recommends that the scope of Task #6 be expanded to include visual monitoring of the performance of the dam. | Concur. • Visual monitoring is already part of the informal daily and weekly surveillance by Oroville Field Division staff, and more formally included in quarterly and annual inspections by multiple parties. Training for visual monitoring, including information on pertinent PFMs, is currently provided to DWR personnel. • Potential improvements in visual monitoring, including improved training of personnel, will be considered as part of the potential risk reduction Measures that will be developed under CNA Task 6. | Planned | | |
| M04-1 | The IRB recommends that a clear strategy be developed to determine how CNA preliminary risk assessment work will be checked for consistency with L2RA results prior to completion of the CNA. The strategy should include a process by which adjustments can be made to the CNA, if necessary. | Concur: Integration Team has developed a process to coordinate results of CNA Existing Conditions Assessment with L2RA. Process has been rolled out to CNA Task Leaders who are checking CNA results with available L2RA results. | In Progress | | |
| M04-2 | The IRB recommends that a process is developed to ensure that the initial screening of PFMs is done in a consistent manner across all tasks. | Concur: Integration Team developed process that is being used by CNA Task Leads | Closed | 7/12/2019 | |
| M04-3 | The IRB recommends that a process be developed to ensure that the screening of risk reduction measures is done in a consistent manner across all tasks. | Concur: Integration Team developed process that is being used by CNA Task teams to consistently incorporate risk reduction into the development of project measures. | In Progress | | |
| M04-4 | The IRB recommends that DWR consider preparation of a parallel final report based on non-critical energy infrastructure information (CEII) which could be released to the public without the need for redaction. | Concur: A report will be prepared without CEII that can be publicly shared. | Planned | | |
| M05-1 | The IRB recommends that a record be kept of the 245 PFMs that were not carried forward along with an explanation of why each PFM was ruled out. | | | | |
| M05-2 | The IRB recommends that the CNA Study Team develop a process to incorporate consideration of uncertainty in the selection of risk reduction measures. | | | | |

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| M05-3 | The IRB recommends that the non-linear model for the FCO headworks structure be used to also assess the stresses and strains for both balanced and unbalanced loads associated with the probable maximum flood. | | | | |
| M05-4 | The IRB recommends that DWR consider installing two (as a pair) additional piezometers some tens of feet to the right of proposed piezometers P-200A and P-200B, along the road at elevation 350 and within the footprint of the river channel, to measure water levels below Zone 5A upstream of the seepage barrier. | | | | |
| M05-5 | The IRB recommends that the definitions of "direct" and "indirect" costs used for CNA purposes be revisited. | | | | |