



MEMORANDUM

FC 14 (01-02-07)

TO: CEO Beau Goldie

FROM: DOO Frank Maitiski

SUBJECT: Dam Safety Program Update

DATE: 12/21/2010

Staff committed to inform the Board on critical Dam Safety Program issues. This is the 6th Dam Safety Program Update for 2010.

Dam Safety Program – Board Work Study Session

A Board Work Study Session on the Dam Safety Program is scheduled for January 25, 2011. The agenda will include briefing and discussion of the Dam Safety Program elements, past dam work and upgrades, the evolution of dam seismic stability, an update on Anderson Dam seismic stability findings and the associated Anderson/Coyote Dam operating restrictions, and an update on issues for each District dam

Anderson Dam Seismic Stability Evaluation

The major tasks in this project include field and laboratory investigations (complete except for the fault rupture study noted below), seismic stability analyses (almost complete), and the writing of the final report (which will take place after completion of the analyses).

Preliminary results on the seismic stability of the dam embankment were developed and shared with first DSOD and FERC on October 12, 2010 and then the Board of Directors on October 26, 2010. The dam was determined to have inadequate seismic stability and the operating restriction was increased to 37 feet below the spillway as an interim measure to ensure public safety. More refined analysis on the probable deformation and recommended operating restriction will be provided to the District by December 22, 2010. After a parallel peer review and presentation and review by our Technical Review Board, this analysis will be presented to DSOD and FERC on February 9, 2011. Staff has already implemented preliminary measures to comply with the existing interim operating restriction, including releases of water to the SF Bay when needed, and has begun negotiating the details of the restrictions with DSOD and FERC.

A draft seismic stability evaluation report will be provided to DSOD and FERC for comment in April 2011, with the final report completed in May 2011.

The initial fault trench for evaluating fault activity was completed on December 14, 2010. This initial fault trench did not produce clear evidence that the fault is inactive, which is required to eliminate the issue of fault rupture of the outlet. This work and the next steps will be presented for consideration to our Technical Review Board on January 7, 2011 for review.

See Attachment for table summarizing status of 3 seismic stability evaluation projects.

Anderson Dam Seismic Stability Retrofit Project

Based upon the seismic stability evaluation results on Anderson, staff has initiated work to scope and budget a seismic stability retrofit. Early tasks focus on developing the overall project delivery strategy and refining project scope; major current outstanding scope issues include whether the existing outlet and spillway are adequate. A budget adjustment to create a separate project and fund it in FY 2011 will be taken to the Board for approval on January 25, 2011. Staff has also begun preparation of a stakeholder engagement plan to address this project and related efforts.

Dam Maintenance EIR

Dam Safety Program Update

After completion of review by Counsel, the draft Dam Maintenance EIR will be issued for public review in January 2011. Although the nature and extent of comments may impact the schedule, the Dam Maintenance EIR is currently scheduled for certification by May, 2011.

Almaden, Calero and Guadalupe Dam Seismic Stability Evaluations (SSE1B)

The major tasks in this project include field and laboratory investigations (complete), seismic stability analyses (which will start after DSOD acceptance of the results of the field and laboratory investigations), and the writing of the final report (which will take place after completion of the analyses).

Field and laboratory investigation results were analyzed and engineering material properties for the dams will be developed by the consultant and presented to DSOD on December 7 and 8, 2010. Although there are some technical details to be clarified, DSOD has agreed in general with the adequacy of the field investigation and the proposed engineering material properties.

The field investigation has confirmed the presence of alluvial materials in portions of the foundations at all the SSE1B dams, with probable liquefaction under Calero Main Dam. The field and lab investigation has also confirmed that the Guadalupe Dam embankment is weaker than desirable. Although preliminary results on the seismic stability of the dam embankments will not be presented to DSOD until the fall of 2011, staff feels it possible that both Calero Main Dam (apparently liquefiable foundation material) and Guadalupe Dam (weak embankment) will be found to have inadequate seismic stability. It is too early to tell whether Almaden Dam will be deficient. A draft seismic stability evaluation report will be provided to DSOD for comment in February 2012, with the final report completed in March 2012.

The results of the geologic mapping portion of the field investigation studies indicate that there are no active faults per DSOD criteria at these dams, and therefore no fault rupture concerns. Therefore, the conditional follow-up fault investigations will not be needed.

Chesbro, Lenihan, Stevens Creek, and Uvas Dam Seismic Stability Evaluations (SSE2)

The project scope under the current agreement with Terra/GeoPentech TGP) includes the seismic stability evaluation for Lenihan and Stevens Creek Dams (SSE2A), with Chesbro and Uvas Dams (SSE2B) to be evaluated after the agreement is amended. The major tasks in the SSE2A project include field and laboratory investigations (the initial round of drilling at Stevens Creek is completed and the work plan for the Lenihan Dam field investigation is under preparation), seismic stability analyses (which will start after DSOD acceptance of the results of the field and laboratory investigations), and the writing of the final report (which will take place after completion of the analyses).

The planned schedule calls for completion of the first 2 dams (SSE2A) by January 2012 and next 2 dams (SSE2B) by December 2013, subject to negotiation with DSOD. An updated schedule will be provided to the Board of Directors once the schedule has been accepted by DSOD.

The initial round of drilling and lab investigation at Stevens Creek shows foundation alluvial materials that are potentially liquefiable. Field exploration will continue after consultation with DSOD. Although it is very early in the investigation, this does significantly raise the likelihood that some downstream retrofit will be needed.

The results of the geologic mapping portion of the field investigation studies, and a conditional task authorized to better characterize the fault traces near Lenihan Dam, indicate that there are no active faults per DSOD criteria at these dams, and thus no fault rupture concerns. Therefore, the majority of the conditional follow-up fault investigations will not be needed.

Dam Inspections and Maintenance

SCVWD Dams - Seismic Stability Evaluation – Consultant Agreement Status

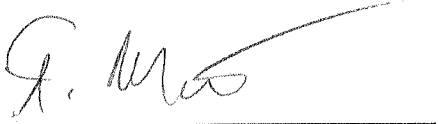
Anderson
Consultant: AMEC Geomatrix
Consultant Budget: \$3.126 million, 75% expended
Conditional Task Budget Authorized: \$328,527 authorized (72%) of \$457,000 budgeted, for downstream shell Becker Hammer testing, support for fault rupture field investigation MND, fault rupture investigation, for sensitivity analysis, for reservoir restrictions ,and for conceptual remedial alternatives.
Completion: 76% complete
Completion Date: Preliminary results on the seismic stability of the dam embankment confirmed that the dam had inadequate seismic stability and were presented to DSOD and FERC and the Board in October 2010. We will complete the report by May 2011. It is likely that the final report on the fault rupture issue will occur on a separate track after May 2011.
Issues: seismic stability of embankment confirmed to be deficient, fault rupture of outlet pipe still under investigation

SSE1B (Almaden, Calero, Guadalupe)
Consultant: URS
Consultant Budget: \$3.3 million, 69% expended
Conditional Task Budget Authorized: \$84,629 authorized (10.5%) of \$810,000 budgeted, for Calero Dam Becker Hammer Testing and for Calero Fault investigations.
Completion: 69% complete
Completion Date: Preliminary results on the seismic stability of the dam embankments will be presented to DSOD in summer 2011. We will update the Board thereafter, with completion of the report by March 2012
Issues: seismic stability of embankments is probably deficient at Calero Main and Guadalupe Dams, with Almaden Dam to be determined.

SSE2 (Lenihan, Stevens Creek, Chesbro & Uvas)
Consultant: Terra/GeoPentech, A Joint Venture
Consultant Budget: \$1.89 million FY 2010, 31% expended (\$2 million planned for FY 2012 budget for Chesbro and Uvas Dams)
Conditional Task Budget Authorized: \$19,776 authorized (4%) of \$449,000 budgeted, for characterization of Lenihan Fault traces.
Completion: 31% complete
Completion Date: Planned schedule calls for completion of Lenihan & Stevens Creek Dams by January 2012 and Chesbro & Uvas Dams by December 2013, subject to negotiation with DSOD.
Issues: Seismic stability of embankments – Stevens Creek is looking to be more likely to be deficient, with Lenihan Dam too early to tell.

Dam Safety Program Update

Fall DSOD inspections of Almaden, Calero, Guadalupe, Lenihan, Rinconada and Vasona Dams were completed on December 1, 2010. The DSOD area engineer was very pleased with the status of the dams and the maintenance completed on them.



Frank Maitski
Deputy Administrative Officer
Water Utility Technical Support Division Deputy's Office

Attachment