

Summary of Meeting
CALFED Bay-Delta Program Levee and Channel Technical Team
June 18, 1998

Key Discussion Items:

- Seismic Risk Assessment Issues were discussed.
- The ART Team was presented.
- Integration of levee-ecosystem-conveyance was discussed by the group.
- There was an update on subsidence and emergency response.
- Permit Coordination and Funding issues were discussed.

Action Items:

- A paper on estimates of levee fragility due to earthquake shaking was presented to the group. The paper includes mapping of the Delta islands in Zones I to Zone IV with Sherman Island being the most susceptible and the only island in Zone I. There was a table of estimates of levee fragility for a theoretical magnitude 6 earthquake.
- The Agency Review Team (ART) and the methodology for investigating an issue were presented. ART members who bring up an elevated issue are assigned the lead for investigating the issue and writing a white paper. Two issues related to subsidence and Suisun Marsh levees were brought up by Frank Wernette and his white papers were included in the handouts. A third issue related to maintaining the configuration of the Delta is being investigated by Gary Stern and a white paper is pending.
- Various levee-ecosystem-conveyance configurations for levee improvements were presented as overheads.
- There was an update on the subsidence sub-team meeting and the progress that group is making.
- There has been a change of heart about not forming an emergency response sub-team. A sub-team consisting of 10 members of the Levee and Channel Technical Team was formed during the meeting.
- The issue of advancing payments for habitat enhancement was discussed and it was noted that there has not been closure on the issue from a legal standpoint.
- The next meeting of the CALFED Levee and Channel Technical Team will be on July 22, 1998 from 9-12 in a room yet-to-be-determined at the Resources Building.

Draft Meeting Notes
CALFED Bay-Delta Program Levee and Channel Technical Team
June 18, 1998 at 9:00 am in room 335 of the Resources Building

Attendance List:

Margit Aramburu, Delta Protection Commission
Bill Betchart, private consultant
Lori Clammaro, Delta Protection Commission
Rob Cooke, CALFED (chair)
Gil Cosio, Murray Burns and Kienlen
Steve Deverel, private consultant
Mike Driller, DWR
Les Harder, DWR
Chuck Howard, US Bureau of Reclamation
Kenneth King, private consultant
Gwen Knittweis, CALFED
Gil Labrie, DCC Engineering
Ed Littrell, Fish and Game
Ulrich Luscher, Woodward Clyde Inc
B.J. Miller, San Luis Delta Mendota Water Authority
Michael Norris, DWR Central District (minutes)
Lynn O'Leary, Corps of Engineers / CALFED
Dave Samson, CALFED
Curt Schmutte, DWR Central District
Mark Schultz, DWR
Ralph Torres, DWR
Jeff Unruh, William Lettis and Associates
Frank Wernette, Fish and Game
John Winther, Delta Wetlands
Tom Zuckerman, Central Delta Water Agency

Rob Cooke convened the meeting. The meeting minutes from 5-11-98 CALFED Levee and Channel meeting were reviewed and approved by the group with no comments.

Les Harder and Ralph Torres did a slide show presentation on seismic risk assessment. A handout was available. The handout included definitions and discussions of levee failure, levee fragility, estimates of liquefaction-induced levee failures, and estimates of levee failures for non-liquefaction earthquake-induced displacements. The slide show included examples of liquefaction from earthquakes in Japan, Moss Landing, and Santa Barbara. It was noted that there has been no significant Delta levee damage ever occurring from earthquakes. Margit asked if there was general concurrence on this as some people have stated otherwise and Les felt there is general concurrence on this. Les said he was aware of a news article stating that the 1906 earthquake fixed a seepage problem on one of the islands and Tom Zuckerman said that the

August of 1982 levee failure on McDonald Island could not be traced to seismic activity. There was a slide on levee slip failure showing the water surface elevation for summer, Delta average, and flood stage. There was a slide on damage potential zones within the Delta and mapping for zones I through IV with Sherman Island being the only island in Zone I which is the zone of highest susceptibility to earthquake-induced levee failure. Zones III and IV have susceptibilities that are close and represent the southern and northern portions of the Delta, respectively.

Tom asked if consolidation and the work done on levees over time have made the levees more or less vulnerable than in the old days when levees were skinny and Les said the assessment was done for the levee conditions today and not in the past. Tom felt there should be an analysis done into whether the work being done on levees today is making levees more or less vulnerable to earthquakes and Les felt that, in general, the work was moving things in the right direction and not the other way around.

B.J. Miller asked about the peak base acceleration value of 0.05g and the conditional probability of earthquake failures. Tom asked about studies on the relative vulnerability of the Delta levees versus the water project facilities and aqueducts and Les said he didn't think a study like that had been done although certain facilities such as Oroville Dam and the aqueduct near Coalinga had been tested by earthquakes in the past. Chuck Howard asked about information on liquefiable materials for 600 miles of Delta levees and Les said that information is good in some areas (such as where Roger Foote and Associates have done studies) to not so good in other areas. Les said boring work in some areas can run up to \$2 million to \$6 million. Gil Cosio discussed the data that was provided to Les for the charts to be constructed. Chuck Howard wondered if we're going to use the data to fix the Delta and Les said we could never fix the Delta to withstand an enormous earthquake. If funds are limited, Les would concentrate his work on the south levees on Sherman Island. The cost to fix the entire Delta would produce sticker shock according to Les.

John Winther said 20:1 toe berms constructed under Curt Schmutte's Delta levees programs seem to stabilize levees pretty well. Les gave an example of material that performed well to fix levees statically but did not perform well under liquefaction. Ed Litrell asked if there was a published list of islands that are most likely to fail and Les said that list exists for Sherman Island. Ed brought up the question because he deals with willing sellers of Delta land for habitat creation but then hears criticism from others that the habitat shouldn't be developed in that area because the levees are in poor shape and likely to fail. Ed would like some published data so he can counter to comments like that.

Margit said the Zone I to IV drawing does not include the full legal Delta and Lynn O'Leary said that was because the study looked at levees holding back water all the time and not just during flood events (ie above sea level).

Ralph Torres summarized how the report will be finished and either printed as an appendix to the CALFED report or as a stand-alone report.

B.J. Miller said certain water exporters feel the seismic risk to the Delta is unacceptably high and the studies we are doing are attempting to disprove that but Rob Cooke said the studies we are doing are not trying to disprove it but are rather investigating the issue.

Tom Zuckerman asked about the Boulanger study discussed on page 2 of the handout and it's availability. B.J. Miller said the draft BDAC packet for the draft alternatives doesn't have seismicity as an issue.

Chuck Howard wondered if more detailed studies would produce more red zones (Zone I) in addition to Sherman Island and Les thought it would.

Les discussed the "fragilities" table in the handout and said it was for a magnitude 6 earthquake. Les was not aware of any significant failures for anything less than a magnitude 5 ½.

B.J. Miller asked if the latest modeling work being done by George Barnes and Francis Chung could be brought into the seismicity group to estimate resulting salinity from a levee failure. Rob Cooke reminded the group of what happened from the levee failure in 1972. B.J. wondered about a levee failure that wasn't fixed soon enough and resulting salinities at the export pumps were totally unacceptable. As an example, B.J. wondered about a levee failure that occurred in August and couldn't be fixed soon enough.

Bill Betchart asked about the relative cost to fix the Sherman Island levees versus the other 7 western islands and Les said he wasn't tasked with that assignment. Bill wondered about a strategy of using funds to do preventative work on the other 7 and then having to deal with failures only occurring on Sherman Island as opposed to another strategy such as going after Sherman Island levees and leaving the other 7 vulnerable. It appeared to be a very hard question for anyone to answer.

Curt Schmutte said he would bet on levees on Bradford Island failing before Sherman Island although the water quality impacts would not be as great. According to Curt, Bradford Island has more liquefiable sand and a narrower levee geometry. Les said the seismic review board still felt that Sherman was more susceptible than Bradford although he hoped that neither he nor Curt ever had to collect on that bet.

The next agenda item dealt with the Agency Revision Team (ART). There was a handout listing the ART representatives. Rob discussed "elevated issues" versus "new issues". Rob explained that the person on ART that raises an issue under "elevated issues" is assigned the lead person for the issue and tasked with doing a white paper on it. Frank Wernette was the lead person for a subsidence topic and another topic dealing with the Suisun Marsh levees and his two white papers were included as handouts. A white paper from Gary Stern on maintaining the configuration of the Delta is pending. For new issues, Curt said shallow water habitat needs to be added to the list. Ed Litrell took exception to the issue worded "some stakeholders feel strongly that the environmental regulatory process is confrontational, non-responsive, and a very low level of trust exists." Ed felt the issue needed to be reframed. Curt noted the issue worded

“levees and channels are kept stripped of vegetation to avoid the delay of environmental documentation and mitigation” is not always true and he noted some islands are doing just the opposite to get habitat credits. Rob Cooke said to send in comments on issues.

The next agenda item dealing with levee-ecosystem-conveyance integration was presented by Rob Cooke. Rob had overheads of the various levee configurations shown in the handouts. Margit noted that the overheads show some things that have been implemented and work but, even though that may be the case, there are still those that don't like some of the configurations even if project goals are met. Margit comments were focused on the use of rock in some of the configurations. There was some discussion of channel islands. Some areas where new fill is shown being added on the overheads were actually channel islands in the past that were dredged to get materials to fix the levees. Configurations for setback levees were shown but John Winther said it is almost impossible to build that configuration on deep peats.

The next agenda item dealing with subsidence and emergency response was presented by Lynn O'Leary. Lynn said the goal is to write a report that goes into the larger levee report. Lynn discussed the “zone of influence” issue and there was an analogy to a donut shape where the ERPP will not look at subsidence issues on island interiors (ie the hole in the donut) as opposed to the levee itself. Lynn said “deformational modeling” may or may not be done in time for inclusion in the report. Lynn had minutes from the subsidence sub-team meeting.

John Winther asked about right-of-ways and whether or not those numbers are in the budget tables. Rob said one proposal has it to provide funding on the order of 65% fed, 25% State, and 10% local but the 10% could be in terms right-of-ways, easements, and other lands. Another proposal is for the locals to pay 10% in addition to right-of-ways, easements, and other lands. The funding proposals will continue to be researched.

With regard to emergency response, there has been a change of heart about not forming a sub-team according to Lynn. A sub-team consisting of Tom Zuckerman, Bob Johnston (nominated but not in attendance), Ed Litrell, Curt Schmutte, Bill Betchart, Gil Cosio, Chris Neudeck (nominated but not in attendance), Margit Aramburu, Lynn O'Leary, and Gil Labrie was officially formed.

Rob Cooke discussed the proposed AB2105 handout in the packet authored by Machado and noted it had already been cut from \$10 million to \$5 million and would probably be cut even further to \$3 million.

The next agenda item dealing with permit coordination was presented by Gwen Knittweis. Gwen said there aren't a lot of new items since the last meeting. Gen said there are attempt to coordinate with Ken Landau of the RWQCB but there are problems with staff shortages.

Curt Schmutte noted that, with respect to funding issues, he and Ed Littrell are looking at avenues for advance payments for habitat enhancement before the work is being done. Gil asked about doing that under the Subventions program too. Gwen asked about legal issues concerning

advanced payments and Curt noted there wasn't total consensus from the legal advisors on that issue.

Bill Betchart asked about continued funding for seismic risk analysis in response to looking at the funding handout.

Rob scheduled the next meeting of the CALFED Levee and Channel Technical Team for Wednesday July 22, 1998 from 9-12.

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