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Steve Yaeger  
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1416 Ninth Street, Suite 1306-3  
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Re: Briefing papers on Delta levees

Dear Sir:

Thank you for the opportunity to review and comment on the Briefing Paper on Delta Levees dated August 1993 and the Memorandum Report on Review of Seismic Stability Issues For Sacramento-San Joaquin Delta Levees.

I think both documents appear to reflect an ever-improving understanding of Delta levees and those preparing such reports should be commended.

### Briefing Paper On Delta Levees - August 1993

Page 2 - Levee Standards - The HMP standard levee height is one (1) foot above the 100 year flood, not one and five tenths (1.5) feet as shown.

Page 2 - Levee Standards - The FEMA standard levee height for Urban Development is three (3) feet above the 100 year flood, not one and five tenths (1.5) feet as shown.

Page 3 - The local district agreement on the HMP was subject to funding. It was expected that FEMA and NDAA disaster claims would be honored in a reasonably expeditious manner and that State Levee Subvention Funds would be available at a total of about 10 million dollars per year. Many FEMA and NDAA disaster claims from 1982, 1983 and 1986 have not yet been honored and the State Levee Subvention Funds have been sporadically provided with average annual levels less than expected. Aside from funding, other major obstacles were encountered. There was a new policy by the Department of Fish and Game that Districts would be subject to criminal prosecution for performing work on the waterside of the levees unless "Streambed Alteration" permits which imposed severe restrictions on levee work were first obtained. Due

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to this requirement alone, many levee projects were delayed one to two years. Also adding to the problem is the failure of the State Water Resources Control Board to provide a water quality certification so that the general Corps of Engineers permit could be renewed for dredging. FEMA appears to be satisfied with the good faith effort and progress of local districts. FEMA has orally informed the State and the local districts that the deadline will not be applied but rather a district by district evaluation of progress towards the objective will be substituted.

Page 3 and other pages where subsidence and peat soil are mentioned - It is important to understand that most of the Delta does not have peat soil. The Delta as defined in Water Code section 12220 contains about 738,000 acres. About 415,000 acres is referred to as Delta lowlands, those lands which are less than five (5) feet above sea level. Almost all the Delta uplands and much of the Delta lowlands initially had little or no peat soil. Due primarily to oxidation, it is believed that about 2 inches per year of peat soil has been lost. Since most of the Delta has been subjected to drainage for about 100 years, about 200 inches or about 16.5 feet of peat has oxidized away. Because of oxidation, areas which once had 16.5 feet or less of peat soil now don't have any. Subsidence of the land surface and levee problems related to subsidence affect only the levee systems in the lowest portions of the Delta and in many cases only portions of those levee systems.

If you look at the Department of Water Resources Thickness of Organics Map, which I think is based on measurements taken in 1976, you will see the areas containing organics. I have attached a copy of such map showing the measured thickness. The DWR's 1993 Delta Atlas at page 26 contains a colored map showing the general areas and ranges of depths. The areas containing more than 10 feet of peat in 1976 comprise about 70,000 acres. Another way to view it is that about 10 to 15 percent of the Delta lands remain subject to further significant subsidence. The best way to keep Delta levee problems in perspective is to try to establish the actual number of miles of problem levees in each category. With proper understanding and a unified effort by all the stakeholders including fish and wildlife and environmental interests, the Delta levee problems can be solved.

Page 15 - Slope and Foundation Stability. One important aspect which I did not see mentioned is levee alignment. Waterside erosion due to wavewash, scour, rodents, falling vegetation or other causes generally results in the centerlines of levees being moved landward. The landward pro-

gression results in fills being placed on relatively unconsolidated foundation materials, thereby adding significantly to the quantity of fill required and extending the time required for placement. In some cases, a better strategy might be to modestly add fill in the waterward direction. For the lower Delta, foundation materials waterward of the present day levee centerline should be significantly more consolidated than those in the landward direction. Figure 3 on Page 3 of the Briefing Paper and Figure 2 on Page 6 of the Seismic Stability Report should reflect a greater movement of the centerline of the levee in a landward direction. The foundation consolidation should be shown to be greater near the current waterline than at the current centerline.

Page 23 of the Briefing Paper dealing with Levee Funding should mention the funding provided through the State's Natural Disaster Assistance Act (NDAA). During the period of 1980 through 1986, the NDAA was the primary mechanism whereby the State provided a significant share of funding towards Delta levees. This was very important to Federal assistance. The Federal attitude was that it shouldn't help a State if the State wasn't trying to help itself. Pages 81 and 82 of the 1993 Delta Atlas show NDAA expenditures of about 26.5 million dollars along with the FEMA 65 million and local 5.7 million. The local expenditures do not include the expenditures on the work not eligible for disaster assistance or the interest paid by local districts on borrowings to pay disaster-related claims pending reimbursement. Prior to 1988, the State Levee Subvention Program was quite modest. The August 1987 DWR Delta Atlas shows for the period 1981-86 total State subventions of 7.29 million dollars or an average of about 1.2 million dollars per year. In 1973, the program was funded at about \$200,000.00. Significant State funding for the Delta levee subventions did not occur until after the voter rejection of SB 200 (Peripheral Canal legislation). I know there is a list of the State Levee Subvention Program funding by year, but I could not find my copy. Dave Lawson in DWR probably can provide the listing.

Hopefully, the above is helpful.

Yours very truly,



DANTE JOHN NOMEILLINI  
Manager and Co-Counsel

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Enclosures