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CALFED BAY-DELTA PROGRAM

Office Memorandum

Date: August 22, 1995
To: Lester A. Snow
From: Steve Yaeger *SY*
Subject: DWR Design and Construction Division Work on Siphons

Attached for your information is a preliminary analysis done at our request by Design & Construction. This analysis examines the potential to maintain the capacity of an isolated facility while adding eight additional siphons (beyond the 4 specified in the last planning effort) by improving siphon inlet design.

By way of background, D&C's early 1995 preliminary study utilized the existing isolated facility alignment proposal while adding inverted siphons at all existing channel crossings (which brought the number of siphons to 12 from the 4 originally proposed). The study also used the historic proposal of siphons consisting of 4 - 25' x 25' barrels. This study showed that the capacity of the facility was reduced from 22,000 cfs to about 14,000 cfs by the additional head loss associated with the additional siphons. However, D&C assumed square ended inlets in that study and did not attempt to examine the effect of inlet improvements.

In this study - dated July 1995 - they examined at our request the impacts of improved inlets on capacity. Their findings are:

Inlet Type	Approx. Capacity of Inverted Siphon (cfs)	
	Siphon Barrel Number and Size per Siphon	
	4 - 25' x 25'	4 - 30' x 30'
Square-Edged	14,500	19,000
Straight-Lined	15,500	20,000
Cylinder-Quadrant	18,500	22,500
Warped	19,500	23,500

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As can be seen, by improving the size and configuration of the siphon inlets, the capacity of the facility can be maintained. The question of capacity then becomes one of economics and whether the incremental cost of the improved inlets is justified by the incremental increase in capacity.

We have asked D&C to prepare some cost estimates and report on that issue. I will transmit the information when it becomes available (estimated to be about late September) with a recommendation on the additional steps we need to take to provide the information on this alternative which we will need for our CALFED Bay-Delta Program.

Attachment

cc: Victor Pacheco
Dick Daniel

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