Spring Head of Old River Barrier Installation

Description of Activity — Spring Head of Old River (HOR) barrier installation and operation coinciding with VAMP experiment for years 2001-2007.

Schedule and Milestones — As part of the CALFED ROD, the temporary barriers are described as a continuing action that will be implemented on an interim basis until permanent barriers are constructed. The milestones contained in the ROD for permanent barriers are:

- Complete funding plan by early 2003.
- Complete facilities design by the middle of 2005.
- Seek funding and authority to complete Head of Old River barrier by the end of 2006.
- Seek funding and authority to complete Middle River barrier, Tracy barrier and Grant Line Canal barrier by the end of 2007.
- In the interim, prior to installation of permanent operable barriers, DWR will apply for and obtain permits to allow the continued operation of the temporary barriers.

Issue to be Resolved — The highest VAMP pulse flow (7000 cfs) creates unacceptable conditions at the temporary Head-of-Old River barrier, as currently designed. This year's implementation of the VAMP may require a 7000 cfs pulse flow. This situation needs to be assessed and a plan for implementation of VAMP this year developed.

VAMP calls for pulse flows at Vernalis of up to 7,000 cfs. Based on actual experiences during year 2000, it is uncertain whether the HOR barrier can be operated safely at 7,000 cfs without risk of significant damage to local levees through overtopping or breaching of the barrier. Attached is a plot showing the river stages measured at the HOR barrier in April 2000 and the corresponding SJR flows at Vernalis. The plot shows that at 6,400 cfs, the stage was about 8.2 feet MSL, which began to approach the minimum safe freeboard for a 10-foot high barrier.

The riverbed of the San Joaquin River changes frequently because it is subject to periodic scouring and sediment deposition. The reconfiguration of the riverbed changes the water levels / flow relationship on the SJR on any given location from year to year. The attached plot of the channel at the Vernalis station shows the magnitude of the changes that can occur.

The limitation for barrier operations relate to the maximum height of the barrier and the differential water level across the barrier (upstream vs. downstream). Since both of these changes depend on channel geometry, it is difficult to provide assurances from year to year, whether the barrier will be able to withstand the

7,000 cfs VAMP flows. DWR has been investigating raising the HOR barrier height to 11 feet MSL, however detailed stability analysis has not yet been completed.

DWR staff works closely with local interests regarding the installation and operation of the barrier. The SDWA and RD 544 (Upper Roberts Island) are very concerned about operating the HOR barrier at 7,000 cfs. Both agencies are concerned about emergency operations of the HOR barrier if flows were to dramatically increase due to an unusual storm event. An emergency breach of the barrier could cause high flows and velocities downstream of the barrier that could possibly put reclamation district levees at risk. The existing RD 544 permit requires DWR to devise an emergency operations plan that is satisfactory to both the SDWA and RD 544.

Reclamation District 2062 (Stewart Tract), on the south side of the HOR barrier, has historically been against raising the barrier above ten feet MSL. The District's levee berm that the HOR barrier abuts is at 11 feet MSL. Keeping the HOR barrier elevation at ten feet provides the District assurance that any overtopping of the barrier will not immediately impact their levee.

Proposed Resolution of Issues — A stakeholder/agency team consisting of the people listed below would assess the situation with the intent of developing a recommendation for the implementation of VAMP this year. If a consensus recommendation cannot be achieved, several recommendations (with pros and cons) will be developed. This task is to be completed and the results presented to the WOMT by February 13. If necessary, the WOMT will provide policy guidance to the team and request that they refine the recommendation(s) and report back to WOMT the following week.

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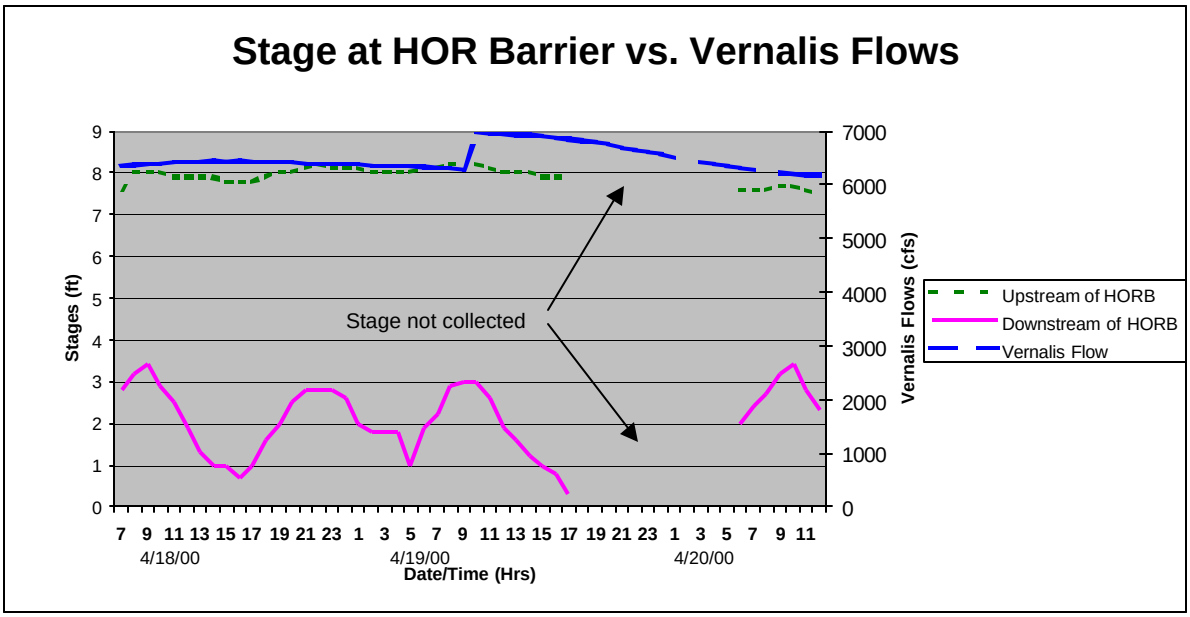
Dan Fults (SJRGA)
Pat Brandes (USFWS)
Curtis Creel (DWR)
Ron Lee (DWR)
Alex Hildebrand (SDWA)
Tom Morstein-Marx (USBR)
Jim Starr (DFG)
Jerry Smithson (USGS)
Mike Ford / Mark Holderman (DWR)

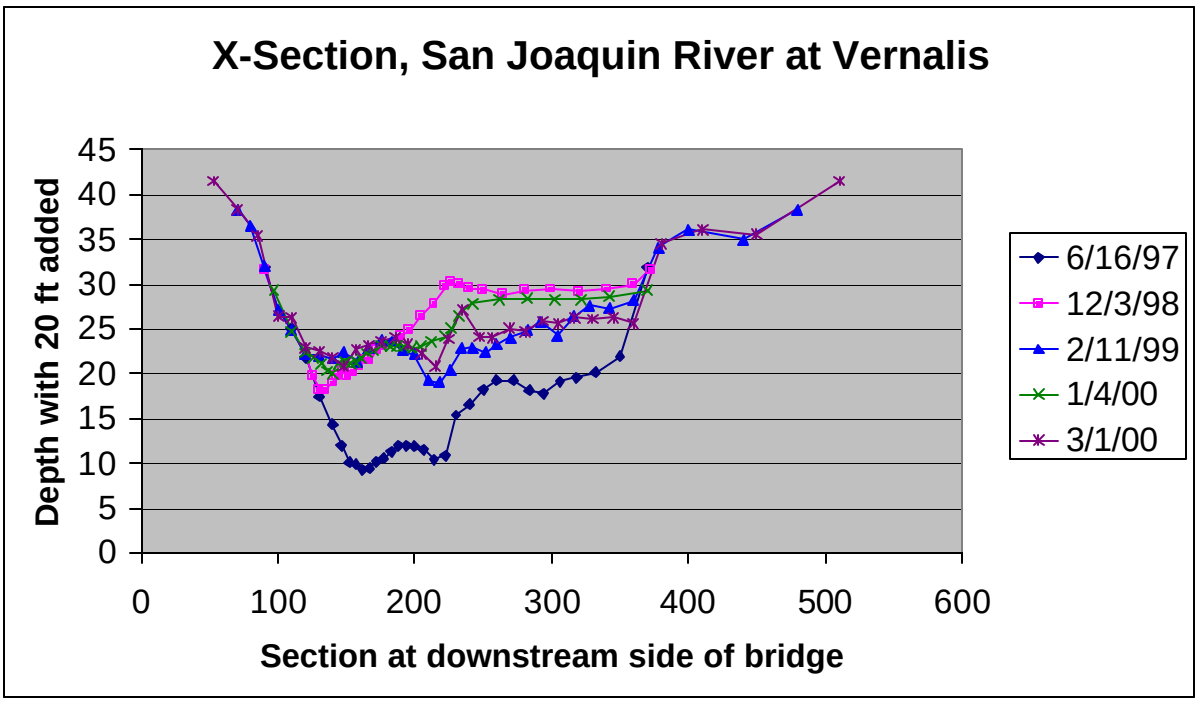
Possible alternatives to be assessed by the team include:

- Building a bigger HOR barrier (increase height to 11 feet MSL) and revising barrier emergency operations / response plan to the satisfaction of local RD's

- Conducting dredging on the SJR near the HOR barrier to increase channel conveyance capacity, and reduce stages near HOR barrier
- Revising the 7,000 cfs VAMP target to a lower value until a permanent barrier is constructed

Funding Required — None at this time.


Stage at HOR Barrier vs. Vernalis Flows
Stages (ft)
Vernalis Flows (cfs)
Stage not collected
Upstream of HORB
Downstream of HORB
Vernalis Flow
Date/Time (Hrs)
4/18/00
4/19/00
4/20/00


X-Section, San Joaquin River at Vernalis
Depth with 20 ft added
Section at downstream side of bridge
6/16/97
12/3/98
2/11/99
1/4/00
3/1/00