

## TECHNICAL MEMORANDUM R-3

30 May 1995

To: Ed Brauner  
Dan Carlson  
Miles Ferris  
Marie Meredith

From: Andy Hauge  
Robin Cort  
Rich Maurer

Subject: Santa Rosa Subregional Long-Term Wastewater Project -  
Revised System Storage Curves  
Ref: 723129.31005

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### SUMMARY

Upon construction of a storage reservoir in the west county or south county, a revision to the target storage curve (volume in storage versus time of year) will be required. The approximate existing target storage curve is shown in Figure 1. The existing and new storage facilities would be managed (control of flows into storage and out of storage) somewhat differently than current practice. Direct discharges and current irrigation demands would be met from the existing storage facilities, while only new irrigation demands would be met from the new storage reservoir. The proposed new storage curves are shown in Figure 2. We propose these revised storage curves as a consequence of our analysis of the alternative west county and south county irrigation projects and consideration of their operating manageability.

### INTRODUCTION

The existing and new storage facilities have different uses and, therefore, should have different storage curves. The existing Laguna storage ponds are used to supply irrigation disposal and, more importantly, are used to attenuate peak winter flows through the treatment plant and store these peaks for later discharge to the Russian River via the Laguna de Santa Rosa. The new storage reservoir, on the other hand, will be used only to help attenuate the peak flows and store water for later release to irrigation disposal in west or south county.

Once the new west county or south county storage reservoir is available, management of the existing storage facilities would, therefore, be revised. One target storage curve would be used for the existing storage and a different target storage curve would be used for the new storage reservoir. The proposed target storage curves for existing and new storage, and the net or total storage curve, are shown in Figure 2.

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## **STORAGE CURVES OPERATION**

The proposed storage curves would operate as follows:

For the existing storage ponds, the goal would be to fill storage (up to about 1,000 MG of the total 1,450 MG of existing storage capacity, as currently practiced) during the late fall and early winter to be able to later satisfy the Laguna irrigation demands. Once the storage requirement is met, the additional flow would be accumulated in the new storage and held until the beginning of the irrigation season in May. During this period, discharge to the Russian River via the ponds would continue to be practiced, but the net volume in storage would be held constant. Starting in May, the existing ponds would be gradually emptied, with the process complete by the end of the irrigation season in late September. To accommodate unusual peak storm flows (such as in 1995), 300 MG to 400 MG reserve volume in the storage ponds would be used to absorb the peaks for later controlled release to the river.

For the new storage reservoir, filling would begin as the existing storage is filled, but would continue throughout the spring, reaching capacity in May. Then, through the summer and fall, the reservoir would be emptied to satisfy the west county (or south county) irrigation demands.

## **CONCLUSION**

The proposed new target storage curves for existing and new storage facilities are presented herein to demonstrate how storage could be managed to satisfy the disposal of water with the addition of a west county or south county storage facility. Some adjustments to the storage scheme presented herein are possible and expected if the proposed west county or south county irrigation project alternative is actually implemented, but the proposed curves are suggested as satisfactory at this level of project formulation.

The proposed new target storage scheme would be consistent with the operation of the proposed new pumping station "S", which would deliver plant effluent to the new storage reservoir. This proposed pump station design and operation are presented in a separate memorandum.

# SANTA ROSA SUBREGIONAL SYSTEM

## EXISTING STORAGE CURVE

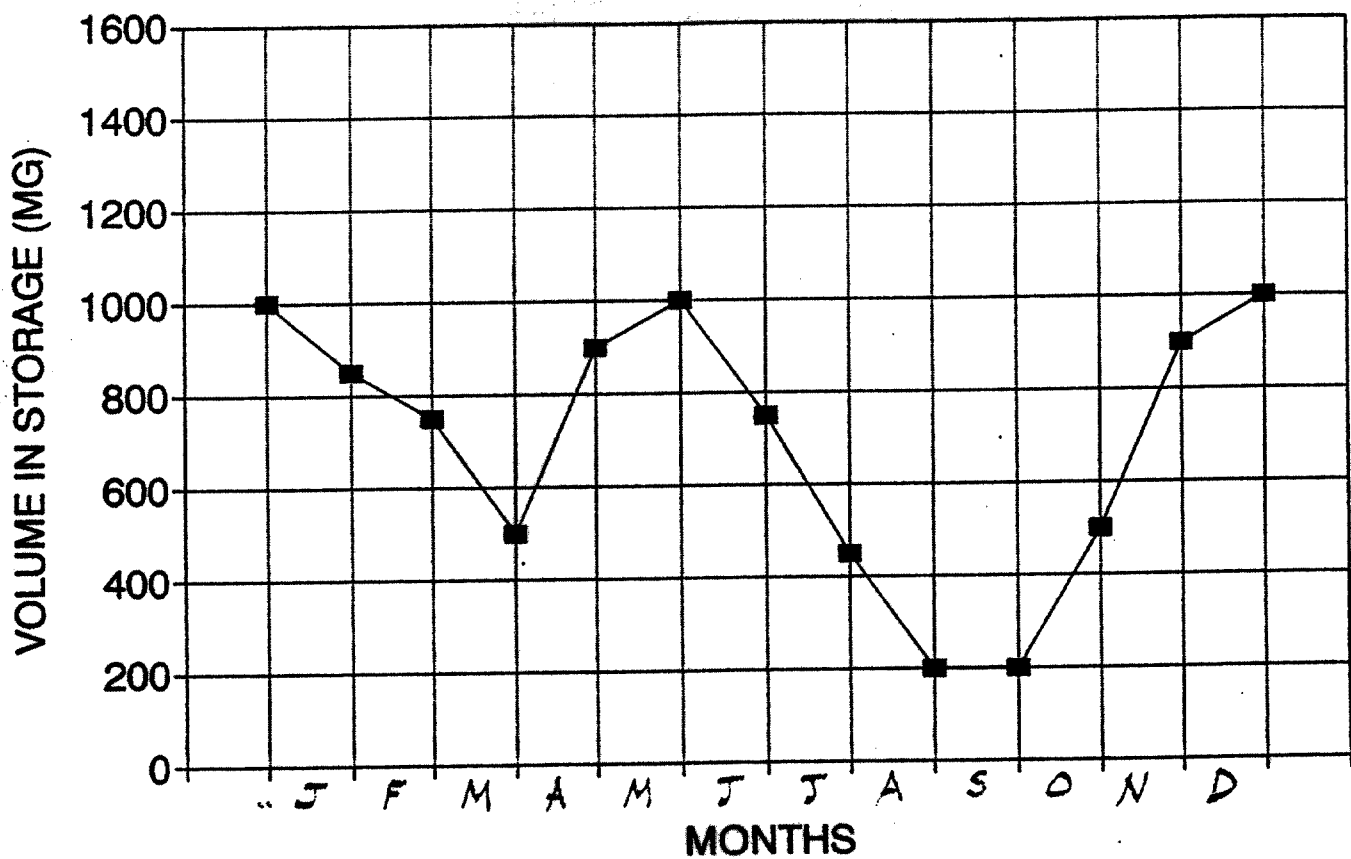
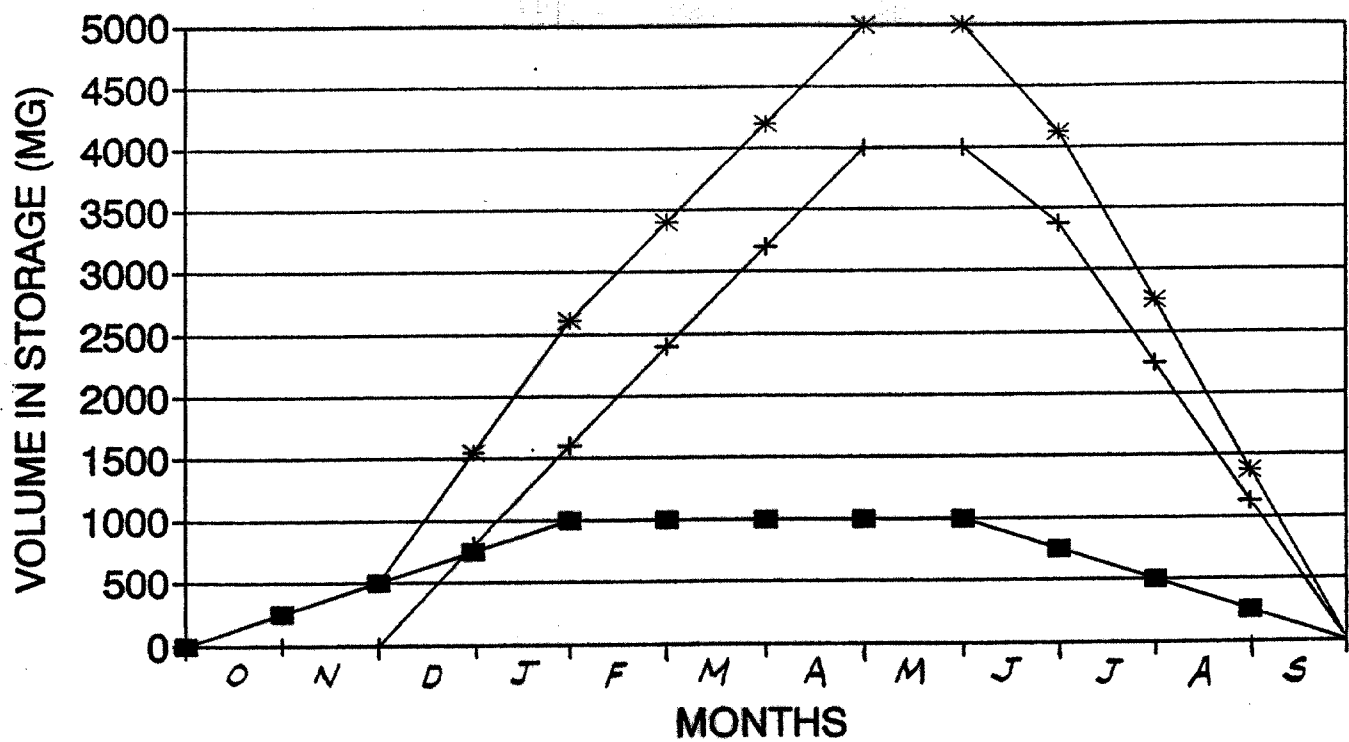


FIGURE 1

# SANTA ROSA SUBREGIONAL SYSTEM

## PROPOSED NEW STORAGE CURVES



—■— EXIST STORAGE —+— NEW STORAGE —\*— TOTAL STORAGE

FIGURE 2