

GENERAL

At the outset of the design for the SLAC project (in the Spring of 1961) it was decided that a complete review of water supply possibilities should be made. Within a radius of about five miles from SLAC there are about a dozen purveyors of water. Some of these obtain the water from wells exclusively, some from the Hetch-Hetchy System (City of San Francisco) exclusively, and some a combination of both. The avenues of water supply available to SLAC were:

1. Palo Alto System
2. California Water Service Company
3. Stanford System
4. Hetch-Hetchy System
5. Menlo Park System

DISCUSSIONPALO ALTO SYSTEM

After discussion with the Palo Alto City Manager it was evident that this possibility should be dropped. Salient points in connection with Palo Alto's position were:

1. Palo Alto would not be interested in providing water service unless Palo Alto would also provide sewer service.
2. SLAC is in San Mateo County, whereas the existing operating portion of the Stanford campus is in Santa Clara County. This latter portion now delivers its sewage to Palo Alto. For Palo Alto to cross the County line for either water or sewer service would cause political complications with Menlo Park and a definite change in policy by the City of Palo Alto.
3. Palo Alto was interested in providing service only as a profit generating venture.

4. Palo Alto would require the University to engineer and build the systems and then turn them over to the City.
5. If Palo Alto were to serve SLAC, it would be with Hetch-Hetchy water.

CALIFORNIA WATER SERVICE COMPANY

Discussion with a representative of the California Water Service Company also eliminated this purveyor from consideration. Salient points were:

1. California Water Service Company may not take on new contracts without the approval of the San Francisco Public Utilities Commission (Hetch-Hetchy) and the State Public Utilities Commission. Approval by them would be unlikely as the SLAC area is now allotted to Menlo Park.
2. A service agreement could be made with Stanford whereby Stanford would buy the water from Hetch-Hetchy and California Water Service Company would maintain and operate the SLAC system for a negotiated fee.
3. California Water Service Company's rates were higher than any other purveyor's rates in the area.

STANFORD SYSTEM

Stanford University has a water system which serves only the academic uses of Stanford land in Santa Clara County. It would be a violation of the Raker Act to serve anything other than academic uses with the system. The system is supplied by wells, except that at times when the wells provide inadequate flow, water from the Hetch-Hetchy Aqueduct is admitted to bolster the supply. Stanford's contract with Hetch-Hetchy has about 19 years to run. Any revision of this contract to serve Stanford lands in San Mateo County (where SLAC is located) would require Hetch-Hetchy and State Public Utilities Commission approval as this land is now allotted to Menlo Park. This is,

nevertheless, a possibility.

HETCH-HETCHY SYSTEM

Another possibility would be a direct contract between the Federal Government and Hetch-Hetchy for SLAC. This would also require approval of the State Public Utilities Commission, because, as mentioned before, the land around SLAC is allotted to Menlo Park. The representative of the San Francisco Water Department, Mr. J. O'Marie, stated that HetchyHetchy is in the wholesale water business on the Peninsula and a change in policy would be necessary for it to become a purveyor of water like Menlo Park, Palo Alto, etc.

MENLO PARK SYSTEM

Discussion with the City of Menlo Park Water Department revealed the following:

1. Stanford lands in San Mateo County and the lands of the Sharon Estate are currently allotted to the City of Menlo Park on the Hetch-Hetchy and State P.U.C. maps.

2. Menlo Park Water Department currently serves the portion of the City west of the Alameda de las Pulgas, including the portions of the Sharon Estate already developed and the Stanford Hills residential area which borders on SLAC. The system has 500,000 gallons existing storage capacity. The Sharon Estate is developing fast with apartments, a golf course, and an Allstate Insurance building as immediate problems. Menlo Park is expanding its water system to meet these Sharon requirements. The current Sharon needs are for 1-million gallons of storage on Sand Hill with an ultimate requirement of several million gallons for Sharon alone. Stanford University, in

considering the possibility of development of Stanford lands adjoining SLAC has requested Menlo Park to reserve main line capacity for its future purposes. This, the main from the existing pumping plant to the reservoir site will be oversized by the City for ultimate purposes.

3. Menlo Park would be willing to deliver water to Stanford for any academic use (including SLAC) at its cost from Hetch-Hetchy plus an agreed amount to cover pumping and other operating costs.

4. The schedule of expansion of Menlo Park's water system is almost coincident with SLAC's water requirement schedule.

5. The City would be willing to provide line and storage capacity for SLAC needs on the basis of a charge payable at the time of connection.

6. Menlo Park's existing system is the only one immediately available for use to supply water for temporary construction and fire protection needs for the period of six to nine months after the start of construction.

COST STUDIES

After considering all of the factors listed above, it was decided to perform economic analyses of the following logical alternatives:

<u>DESCRIPTION</u>	<u>ALTERNATE</u>
<u>Direct Connection of SLAC to Hetch-Hetchy Aqueduct</u>	
A. With storage at Elevation 400' on a hill just south of the Freeway (not in the SLAC leased area)	I
B. With storage in an open reservoir in the center of of the Laboratory Area at elevation 300'	II
C. With storage on Jasper Ridge at elevation 600'*	III
D. With storage on Sand Hill at elevation 485'*	V

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DESCRIPTIONALTERNATEBy Connection to Menlo Park's Expanded System

With joint storage at elevation 485' on

Sand Hill*

IV

*Note: These provide gravity fire flow. All others require emergency fire flow pumps.

COST COMPARISONS

Capital and connection costs for each system are summarized below. To provide comparable costs the cost of each alternate includes the estimated construction cost plus E.D.&I. costs but no contingencies.

Alternate I	\$433,500	Est. constr. cost
	<u>43,000</u>	E.D.&I.
	\$476,500	Total
Alternate II	\$434,000	Est. constr. cost
	<u>43,000</u>	E.D.&I.
	\$477,000	Total
Alternate III	\$436,500	Est. constr. cost
	<u>44,000</u>	E.D.&I.
	\$480,500	Total
Alternate IV	\$214,500	Est. SLAC constr. cost
	<u>21,000</u>	Est. SLAC E.D.&I.
	\$176,000	Est. connection charge (incl. E.D.&I. but less contingencies)
	\$411,500	Total
Alternate V	\$481,500	Est. constr. cost
	<u>48,000</u>	E.D.&I.
	\$529,500	Total

DISCUSSION AND RECOMMENDATIONS

The above alternates fall into two directly comparable groups for comparison purposes: (1) Alternates III, IV and V which provide gravity flow for the fire protection reserve, and (2) Alternates I and II which require emergency pumps for fire flows.

Group (1) is obviously preferable. In this group Alternate III was eliminated because Jasper Ridge is a biological preserve used by the University for academic purposes and cannot be duplicated. Any disturbance of this long established preserve could be justified only if no other alternatives existed. Of the two remaining most desirable alternates (IV and V), Alternate IV indicates an initial savings of approximately \$118,000.

Since Alternate IV also indicates an initial savings of approximately \$75,000 over either of the other alternates (each of which requires emergency pumping for fire flows) the selection of Alternate IV is in the best interests of SLAC and the Federal Government.

The direct monetary savings of the following factors is not readily determinable but these secondary advantages of Alternate IV were also considered:

1. Menlo Park can make its system immediately available for construction water requirements by a 4-inch connection for this purpose.
2. An application to the State Public Utilities Commission for changes in allotted service areas is not required.
3. SLAC will not have to maintain pumping plants or storage basins.
4. The greater portion of the SLAC system can be looped using the new Menlo Park main as one side of the loop.

The considerable initial savings as well as the secondary advantages both make connection to Menlo Park's expanded system (Alternate IV) the logical water supply system for SLAC.

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