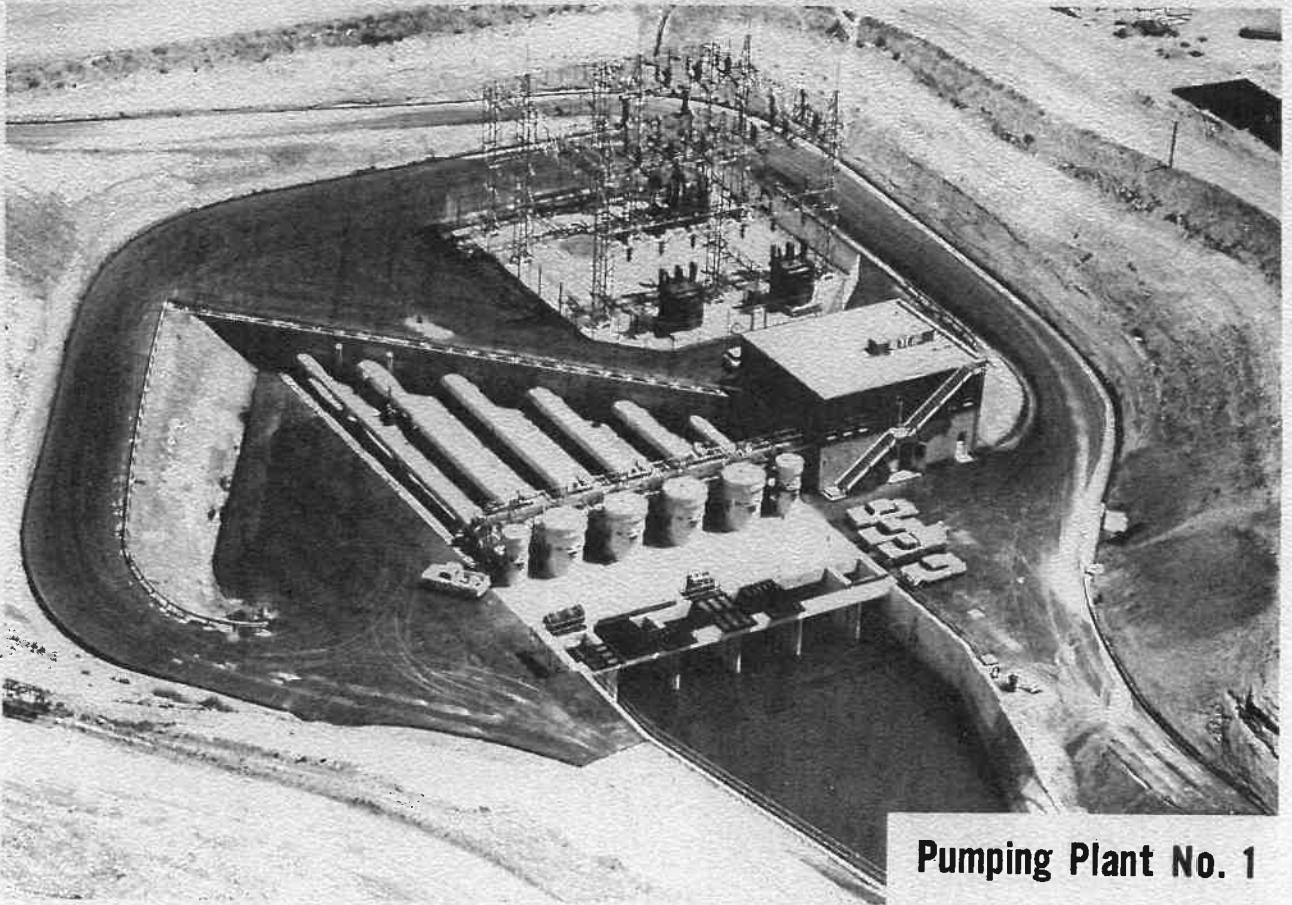


# **Arvin-Edison**

## **Water Storage District**

*Forrest Frick, President*

*William E. Kimmons, Manager*



**Pumping Plant No. 1**

## **Project Construction Report**

**May 1, 1967**

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**Future Farmers of America from Arvin and Bakersfield turn first shovelful of earth during Arvin-Edison Project ground-breaking - February 27, 1964.**

#### **Summary**

The past year saw the completion of construction of the main conveyance facilities of the project and the delivery into the District of the first water from the Central Valley Project and percolation of nearly 40,000 acre-feet of this water to the underground at the Sycamore Spreading Works. More water is being percolated during the current season. Other than certain work which is to be deferred, the last of the major construction contracts has been awarded so that all features of the project are now under construction or completed and the design activity is essentially completed. Completion of construction work under way, which will make the project operative, is still scheduled for the end of 1967.

Federal loan funds expended for project construction up to May 1967 have reached a total of \$29,700,000. This represents completion of approximately 80 percent of project construction work. In addition, \$4,600,000 of District funds have been expended for

right-of-way acquisition. With all major elements of the project completed or under contract, it is estimated that the project can be completed at a cost less than the \$45,600,000 originally estimated in the latter part of 1961.

During March and April of this year a total of 18,500 acre-feet of water was delivered from the Central Valley Project for percolation to the underground, and additional quantities of water are available for the balance of this season for percolation and possibly for limited deliveries on an interim basis to water users in the District.

On July 8, 1966, a celebration was held to commemorate the first introduction of Central Valley Project water into the District. Principal speaker at the affair was Commissioner of Reclamation Floyd Dominy. Mr. Forrest Frick, president of the District, threw the switch at Pumping Plant No. 1 which started water operations.

#### **Water Marketing Program**

During 1966 additional water marketing activity was carried on. A prime

objective of this program was to contract with additional excess lands in order to obtain the maximum possible water entitlement under the District's water service contract with the United States.

At this time the District has executed water service contracts covering about 15,300 acres of formerly excess lands which, when combined with the 64,500 acres of eligible lands in the District, results in an entitlement to Central Valley Project water averaging about 183,500 acre-feet per year. Final steps are under way in the execution of an amendment of the District's water service contract with the United States which will make it possible to apply the 1,500 acres of urban lands to the formula for determination of the District's entitlement. With this addition, the eligible lands within the District will come to a total of 81,300 acres, which will bring the District's average water delivery to 191,000 acre-feet per year over the long-term period, which is equal to the maximum possible

supply available under the Federal water service contract.

As of May 1967 a total of 284 contracts with individual landowners had been executed, representing service to about 46,300 acres and the sale of about 161,000 acre-feet of firm water per year, including 2,500 acre-feet per year to the East Niles Community Services District. This represents a sale of nearly 90 percent of the 180,000 acre-feet of water per year offered. During 1967 the Board of Directors will consider the marketing of the remaining 19,000 acre-feet contemplated for surface water delivery.

#### Financing Activities

The beginning of project operations will require the expenditure of funds for purchase of large quantities of water and electric power for the coming year. The water purchased will be spread and percolated to the underground, providing the ground water storage necessary to assure firm water deliveries beginning in 1968. Therefore, there will be no water revenues during 1967 to pay for this water and power, with the possible exception of limited amounts from interim water service later in the year. As a result, it was necessary to arrange for borrowed funds to finance the current year's operations.

For this purpose, a limited assessment was levied, pursuant to Section 44030 of the California Water Code (Water Storage District Law) upon 14,961.55 acres of land selected for firm water service beginning in March 1968. The amount of the assessment was \$35 per acre, totaling \$523,654.25. The Board does not intend to call the assessment, but instead a warrant issue in the amount of \$520,000 secured by the assessment was advertised and sold to the low bidder, the Bank of America, on the basis of an interest rate of 3.78 percent per annum. The warrants have five-year maturity periods and are callable at any time. The borrowed funds were obtained on March 1, 1967, and a total of \$175,000 has been transferred to the United States as payment for water ordered for the year 1967 and for power for pumping at Pumping Plant No. 1 during March and April. The remainder of the funds are deposited in the District's account to be used for future water payments and power charges.

It is anticipated that the borrowings for water and power charges will be required for several years until the District can build up adequate reserve funds.

The District, through its assemblyman, Mr. Kent Stacey, sponsored an

amendment to the Water Storage District Act which permits the District to borrow money through the issuance of revenue warrants secured by the fixed revenues provided for in the District's water service contracts with its landowners. This legislation was adopted by the Legislature and was approved by the Governor on April 12, 1967. Accordingly, the District is taking the steps necessary to issue revenue warrants, utilize the proceeds to retire the water and power warrant issue and cancel the assessment. This method of borrowing will be utilized in the future as necessary to meet interim fund requirements in excess of water revenues.

Congressional appropriations of Public Law 130 loan funds for construction of the District's project will fall short of actual project construction expenditures during the current fiscal year (1966-67) by about \$5 million to \$5.5 million. Therefore, in order to keep the project construction on schedule and avoid costly interruptions of contract work, the District has borrowed \$5,500,000 to meet construction payments during the balance of this fiscal year. A temporary note in this amount was sold to the successful bidder, Bank of America, with provision for an interest rate of 3.33 percent per annum. The warrants are callable at any time after July 1, 1967, and it is planned to retire them prior to December 31, 1967, from loan funds to be available after July 1, 1967.

The District continues in its program of retirement of bonds issued pursuant to Assessment No. 5, which was levied in November 1963 for the purpose of raising an amount of \$4,600,000, representing the District's contribution toward project capital costs as required by the District's loan payment contract with the United States. The bond issue in the amount of \$3,815,000 covering assessments not paid in full at the time of levy is being retired over a 10-year period through a series of annual calls. The third annual call is being collected during the current tax year and the District's bonded indebtedness had been reduced to \$3,315,000 as of December 31, 1966.

Early in May, the District's president, Forrest Frick, appeared before the Appropriations Committee of the Senate and House of Representatives in support of an item of \$9 million in the 1968 budget of the Bureau of Reclamation, which item represents PL 130 loan funds for the Arvin-Edison system. It appears that the committees will act favorably upon this budget item and that these funds will be

available to complete the work planned during the coming fiscal year.

#### Construction Activity

The District to date has awarded 31 construction and equipment supply contracts, of which 13 are now completed. The remainder of these contracts are scheduled for completion by the end of 1967. During the calendar year 1966, the District awarded nine contracts, totaling \$12,216,000. During calendar year 1966 construction and related expenditures averaged about \$1 million per month. It is estimated that between July 1, 1966, and June 30, 1967 (FY 67), in excess of \$15 million will have been expended on construction activity.

Construction is complete on the main conveyance system, including 43 miles of canals, the Intake Canal and the Arvin-Edison Canal (North and South reaches); Pumping Plant No. 1 (installed capacity of 26,000 horsepower); and the three-mile discharge pipeline of Pumping Plant No. 1. The Sycamore Spreading Works, comprising a gross area of 418 acres, was completed last year, and the Tejon Spreading Works, comprising a gross area of 575 acres, was completed during May 1967.

The contract for construction of the Caliente Unit of the distribution system pipelines was completed during April, and only the occurrence of unseasonal rainfall has delayed completion of final details in Arvin and Edison units. Contracts are under way for the remaining three units. The distribution system pipelines will have a total length of 165 miles and will include 45 appurtenant pumping plants. Contractors on these units have completed the installation of about 137 miles of pipeline varying in diameter from 12 inches to 60 inches, and a total of 30 pumping plants have been completed and are ready for testing. Completion of the distribution units is scheduled as follows:

	Completion Date
Caliente Unit	Complete
Arvin Unit	June 1967
Edison Unit	June 1967
Tejon Unit	October 1967
White Wolf Unit	December 1967
Mettler Unit	December 1967

A contract was also awarded for furnishing and installing automatic controls for each of the distribution units. Installation of the equipment is to be coordinated with the completion of the construction in each distribution unit.

Construction is about 80 percent complete on 27 water wells. A contract for furnishing and installing pumps,

motors and starters for these wells was awarded during May, and installation is to be completed in January 1968. A total of about 70 water wells is planned for the District's completed project. Arrangements are being made with the Bureau of Reclamation to permit delay of construction on the remaining wells, including pumping equipment and manifolding for a period of time necessary to evaluate the results of early year water spreading and well pumping activities. Based upon this evaluation, the locations of the remaining wells can be selected. The costs for this delayed work are estimated to be \$2,620,000, including a contingency allowance as reflected in project costs presented later in this memorandum.

Construction work not yet under contract includes a pumping plant and a discharge pipeline for the uphill portion of the Tejon Spreading Works, manifold piping necessary to connect the District wells to the Arvin-Edison Canal and a 12,000 volt power distribution network connecting the well field pumps to central metering points at the Sycamore and Tejon Spreading Works sites. Design of these facilities is essentially completed, and contracts therefor will be awarded later in the year when water operations will permit the work to be done.

#### Status of Project Costs

The total project cost was estimated in 1962 to be \$45.6 million. Table 1 presents an up-to-date estimate of project costs reflecting actual costs of work completed, contract bid prices for work under way, and estimates of the costs of work remaining. A contingency allowance in excess of \$1.8 million has been allocated to each of the contract features. Presented also in Table 1 is a breakdown of project costs as estimated in the 1962 Feasibility Report. The table shows an estimated total project cost of \$45.6 million; however, it will be noted that included in this estimate is an unallocated contingency amount of \$1.4 million together with a contingency in excess of \$1.8 million that has been allocated to project features. Based on past experience regarding the use of contingency allowances, it is reasonable to believe that a portion of the \$1.8 million will remain unexpended when the project features listed are complete. Thus, the total project cost might be estimated at this time to be as much as \$2 million less than originally estimated. Recognizing this possible saving, any additional improvements which might be found



A-EWSD President Forrest Frick makes brief remarks before throwing switch to start Pumping Plant No. 1.

desirable by the Board should now be considered.

In last year's annual report, dated April 4, 1966, it was noted that the additions of the Tejon Spreading Works and a more costly distribution system were made possible through savings on bids for initial project features and the use of contingency funds provided in the feasibility estimate. Examination of Table 1 shows that the system which had been estimated to be more costly than the one presented in the 1962 feasibility report will actually cost less than the amount provided for in 1962. Each of the six distribution units was bid at a cost less than estimated immediately prior to the bid opening, and each contract bid was also less than funds allocated in 1964 when the final system was adopted.

#### Water Spreading Test Operations

During the summer and fall of 1966 a full-scale test operation of the Sycamore Spreading Works was conducted. Water for the spreading test was obtained from the Friant-Kern Canal through the completed Intake Canal, Pumping Plant No. 1 and Arvin-Edison Canal-North. During the five-month period of testing, the spreading ground dikes and structures were subjected to "Shakedown" operations to get them into condition for long-term

operation. Also, data were compiled on infiltration rates and characteristics to provide the basis for operational procedures at the Sycamore site as well as at the Tejon Spreading Works. During the testing, about 40,000 acre-feet of water was percolated to the underground. During the current season, a total of 18,500 acre-feet has already been percolated.

#### Contracts for Power Service

The District and the United States have executed a form of contract for interim electric power service from the Central Valley Project. Finalization of a long-term contract has been delayed pending completion of contractual arrangements for power transfers from the Pacific Northwest. It is hoped that this contract can be executed in the near future. The interim agreement expires on July 1, 1967, and must be renewed at that time if a long-term contract has not been secured.

The Pacific Gas and Electric Company has given the District a draft of an agreement for distribution to the District's loads of the power wheeled over the Company's lines, with provision for single meter billing, of all the District's loads. It is estimated that about \$400,000 per year will be saved by the District by the provisions of this agreement as compared to "usual" metering arrange-

ments. The District has approved the form of this agreement and it should be executed in the near future.

#### Hydrologic Investigations

The investigation of underground hydrologic conditions was continued during the past year. This program has included a canvass of all wells in the District, annual measurement of ground water levels in these wells and determination of mineral quality of the well waters. During the past year water samples were collected from about 600 wells and mineral analyses were compiled for these water samples.

Compiled information indicates that the water levels in the district are continuing to decline at the rate of seven to ten feet per year. Water levels in some of the wells have declined as much as 50 feet since 1962, when detailed water level measurements were initiated. Information compiled on ground water levels and ground water quality will be of great value in evaluating the effects of the District's water program in the years to come. Detailed evaluations of the District's proposed spreading and recovery program were also continued.

The annual survey of land use in the District's area was conducted during the summer of 1966. The results of the survey were compiled for the District's records and were also supplied to the U.S. Bureau of Reclamation as required by the District's water service contract with the United States.

The land use survey indicated no significant change in total irrigated land within the District. However, the acreage devoted to cotton, potatoes and truck crops during 1966 changed markedly from the 1965 acreages as indicated by the following:

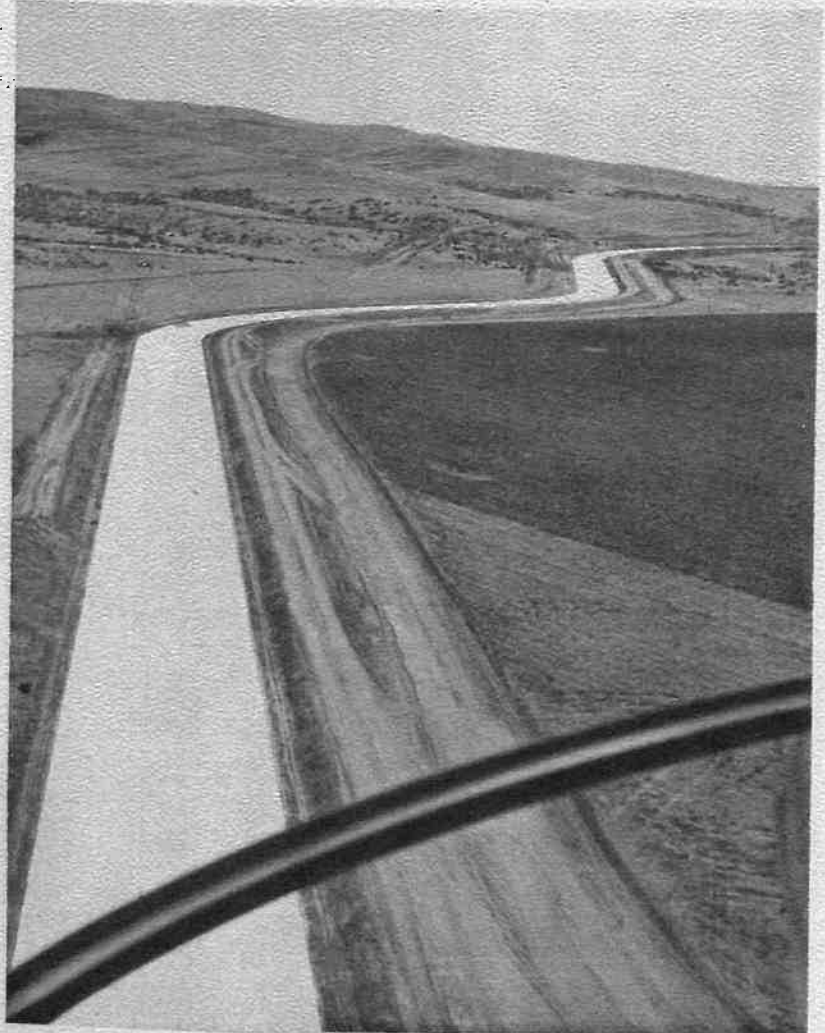
Crop	Acreage	
	1965	1966
Cotton	38,000	30,000
Potatoes	20,000	23,000
Truck Crops	6,000	9,000

Acreages planted to other crops changed only in minor amounts.

#### District Organization

During the past year the District engaged a permanent manager, Mr. William Kimmons, who was formerly manager of Lewiston Orchards Irrigation District in the State of Idaho. Mr. Kimmons is presently building a staff of employees and training them.

The District has also retained an architect who is preparing plans for a



Helicopter view of main project canal between Sycamore and Tejon Spreading Works.

headquarters office building to be constructed near the Sycamore Spreading Works. Construction of this building is planned to begin late in the summer of 1967.

#### Future Activity

Project construction activity will continue through June 1967 on borrowed funds. The President's budget for fiscal year 1967-68 contains an appropriation of \$9 million for the project. Barring unforeseen construction difficulties beyond the scope of contingency allowances, this amount will be sufficient for completion of the work now planned, including well field equipment, the Tejon Pumping Plant and the well field manifold piping, and

all of this work should be completed on or about the end of 1967. Thus, it will be possible to deliver water to any location within the surface water service area before the beginning of the water year on March 1, 1968. The 27 wells now under construction will also be completed before that time which, when combined with the 40,000 acre-feet of Class 1 water, will be sufficient to supply the requirements of a firm water service area of up to 20,000 acres. Construction remaining after March 1, 1968, will consist of delayed well manifold and power line construction which must await the results of further water spreading activities.