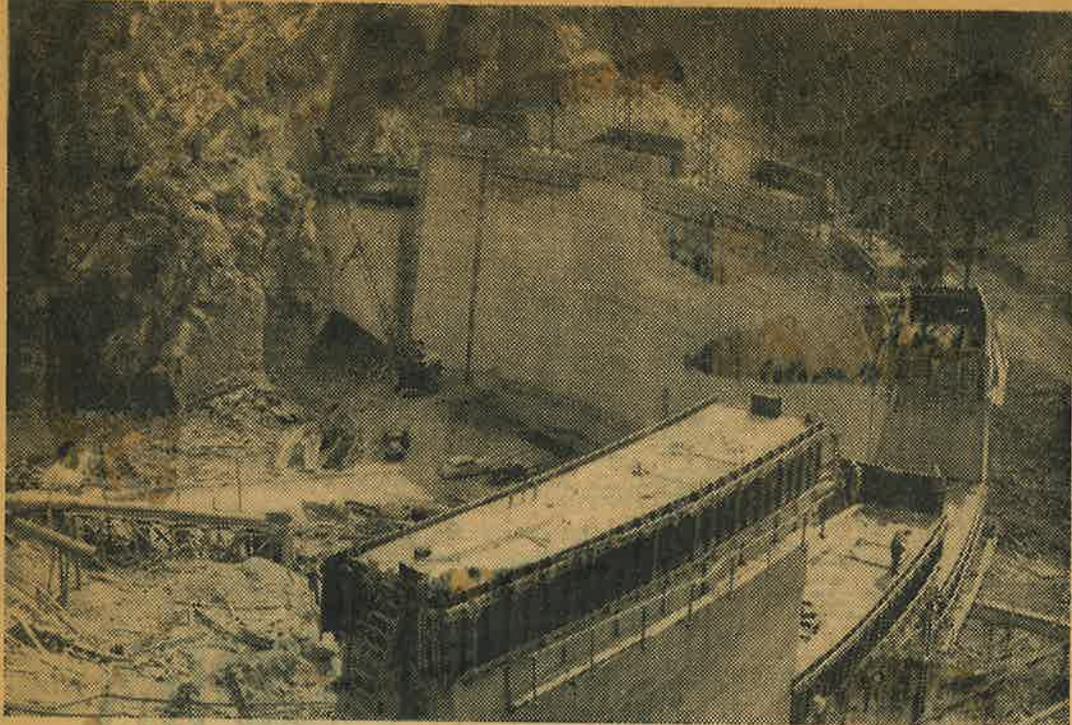


V-18-47



**GROWING STEADILY**—Matilija dam yesterday had reached an elevation of 1,085 feet in the highest block as workmen continued to rush it nearer completion. At the base of the dam, can be seen a crane with a 100-foot boom which is hoisting buckets of concrete into the forms atop the dam. On top of the forms can be seen the trestles which will reinforce the concrete.

(Star-Free Press Photo)

4/26/47

# Clay Condition on Abutment Studied

CONCRETE pouring has stopped on Matilija dam and won't be resumed until trouble over a clay condition on the left (north) abutment has been ironed out, it was disclosed today. At present, exploration and excavation of a clay seam on the left abutment about 120 feet up from the base of the dam is

continuing while contractors, the engineering firm of Donald R. Warren and company and the county await arrival here of state officials to go over the problem.

## MUST BE CORRECTED

After the state's examination, it will be decided whether the clay can be mined out sufficiently so that building of the dam higher on the left side may continue. It may possibly be found by the state that the dam, for safety reasons, can be built no higher on the left side. The state gave tentative approval of the section before now, but it gives definite approval only section by section as the dam is laid up the mountainside.

Therefore, the present situation has to be corrected before further approval will be given. It was reported there is a variance of opinions as to whether the clay can be mined out.

## LETTER EXPLAINS

Contractors said they are going along with maintenance work, keeping the job alive and getting the concrete trestle ready to go ahead when clearance is given by the state for further approval.

The situation at the dam is explained in the following letter just received by the board of supervisors from Edward Hyatt, state engineer, division of water resources. It follows:

"Gentlemen:

"There is presented herewith a brief review of recent developments at Matilija dam and a statement of the position of this office with respect thereto.

"An inspection of the left abutment foundation for the Matilija dam on March 28, 1947, indicated sufficient clay seams from elevation 1035 to 1080 feet to require additional foundation excavation. Work done after that date has re-

vealed more extensive zone of clay lenses than first indicated. The consulting board and representatives of this office inspected the foundation conditions on April 11. During a conference, following the inspection on that date, Mr. Carl Nelson, of the Donald R. Warren company, reaffirmed the design criteria originally proposed by Mr. Donald R. Warren that abutment footings would be spread until sufficient ribs of sandstone were reached to carry the arch thrust with loadings not to exceed 600 pounds per square inch.

## HOLE DRILLED

"Excavation from April 11 to April 17 disclosed a more extensive movement of the ribs of sandstone and wider layers of clays between the sandstone blocks than was expected at the time of inspection. (See STATE HALTS page 2)

specification on April 11. In order to determine if these layers of clay were continuous, a hole was drilled in a large massive block of sandstone in the base of block 'O' on April 17. This hole drilled to a depth of 24 feet revealed a 2 foot layer of clay at a depth of 14 feet, another layer of clay at a depth of 23 feet. As this clay is not impervious and as it softens in water, as was evidenced by seepage found in the excavation under block 'N,' it is difficult to determine at this time the extent to which excavation must be carried to find rock not imbedded in clay. Mr. John Hallock, representative of the Donald R. Warren company, stated that he would make extensive explorations during the next week to locate the limits of the clay imbedded sandstone. Such exploration work is urgently needed at this time in order that modified plans that will best meet the situation may be prepared.

## STOP ORDERED

"In view of the unsatisfactory foundation conditions as presently disclosed on the left abutment, it is the conclusion of this office that no further concrete should be placed in the structure above elevation 1065 feet until that abutment has been explored sufficiently so that, (1) a design can be made for a section of dam that will be adequately safe to the height proposed, or (2) a decision can be reached as to the safe height to which the dam can be built. This procedure will also permit an estimate to be made of the cost of completion and will more readily allow any advisable changes to be made in the upper portion of the arch. It is recommended that the contractor be advised accordingly by the board of supervisors.

"As you are aware, the duty of this office is the supervision of dams solely in the interest of public safety. However, so far as is consistent with this function, it is desired to cooperate to the fullest extent in protecting the interests of all parties concerned."

Very truly yours,  
EDWARD HYATT  
State Engineer

# Supervisors Vote Additional Funds For Matilija Work

4/30/47

TO allow for excavation of flawed material from the left (north) abutment of Matilija dam, supervisors of the Ventura county flood control district after a lengthy, perturbed discussion yesterday afternoon set up funds not to exceed \$47,000. The funds are to provide Contractors Atkinson Kier

Bressi and Bevanda with money to excavate clay seams which were unearthed under block C and beneath the end block of the left abutment of the dam where concrete pouring operations were underway. Pouring activities, upon state order, were stopped the latter part of last week until the trouble over the clay seams can be corrected. Thus, only routine clearing operations have been going on at the dam since then.

The supervisors, in setting up their fund order yesterday, paved the way for the contractors to start immediately the excavation of the unfit clay and shale materials from the abutment. They authorized proceeding on excavation under O block in the gravity section to a limit of \$42,000, the excavation to be done by the contractors on force account basis. The remaining \$5,000 (in addition to \$3,000 allowed last week) is for excavation of material under the end block.

## ONLY WAY OUT

Reluctant to vote any more funds because of the already high cost of the dam, supervisors took the action as the only way out after it had been recommended by the Donald R. Warren company. Sanford Butts phrased their sentiments by saying, "I'm not very happy about it, but we've got the cat by the tail."

Carl Nelson, Warren's partner, originally had wanted the supervisors to set up approximately \$130,000 to care for both excavation of the unfit-for-dam-foundation material and for the concrete that will have to be poured to replace the excavation. But the board followed County Surveyor Robert Ryan's suggestion of waiting to see how much excavation is needed before setting up any funds for pouring.

Supervisors, after nearly an hour's executive session with Warren's representatives—he is away from his business for about three months—came back to open meeting and requested Nelson to give a statement on conditions that exist at the dam. Nelson declared that a week ago Monday borings to a depth of 25 feet showed that added excavation over what was originally anticipated would be necessary.

He then told how the contractors were halted after the state

(Continued from page 1)  
the 1065 foot elevation until foundation conditions could be explored and a satisfactory design established.

With pouring halted, zone one of the flood control district then had the obligation to clear out the excavation and expose satisfactory foundation before concrete pouring proceeded, Nelson said.

Nelson explained how division of dam men and Warren representatives, including a Caltech geologist, went over the dam Monday. The geologist feels the site is satisfactory for the type of design Warren programmed, Nelson declared. The division of dams won't make any comment or approval until a program to eliminate the unfit materials has been worked out.

It was Nelson's opinion that excavation will have to go down between 17 and 20 feet to get to foundation material. He said test borings could be taken but that they would hold up excavation, thus further delaying work of the contractors.

## WHO'S TO BLAME?

After Nelson had made his recommendation as to setting up excavation funds, Supervisor Lester Price wanted to know whose fault it was that things such as extra excavation came about. He felt the public was entitled to know. Nelson said every dam is subject to contingencies, but that those on Matilija dam had been above the usual contingencies allowed because of the inflation factor. He also claimed that boring after boring could have been taken without defects showing up. That happened at Davis, he declared, saying that in spite of exploratory work that the dam there had to be redesigned twice. Nelson felt that the supervisors and the Warren company had taken every precaution normally expected in planning the dam project.

To Butts' query on whether there was any assurance that the dam would be approved finally, Nelson explained that the state has been approving the dam five feet at a time as it advanced up the canyon slope. He said there may have to be some change in design since most arch dams are designed to fit foundation conditions. He declared the state had

approved the section in question prior to the time of pouring (which forced open the defective seam of material).

## RYAN SKEPTICAL

Ryan didn't see how the flaw could have been missed. "That baby's tremendous," he declared.

When Butts declared he didn't see how he could vote to spend the taxpayers money on any errors the Donald Warren company might have made, Nelson wanted to know on what premise Butts founded his statement. He declared that "the one small place in the abutment" had looked satisfactory and must have looked satisfactory to the state. Nelson suggested the county could hire its own expert engineer if there is any question about the service extended by the Warren company.

Lester Price felt the people of the district were critical of the work in the field and not, especially, of costs which had risen because of inflation. John Hallock, a Warren representative, answered by saying that on the dams on which he had worked none had foundations which resembled the original drawings.

If that's so, said Robert Lefever, why weren't the people (and the board) informed so in the bond issue. He feared the dam costs were going to make the water derived too exorbitantly priced. He felt the figures for the dam should be closer than nearly three times as much as the estimate.

Hallock said that the foundation conditions at first hadn't seemed to indicate that there would be any such troubles as those which have developed. But all the explorations in the world wouldn't have unearthed all the flaws, he contended.

After making the excavation fund orders, supervisors signed the amended applications to the state division of water resources for surplus waters from Matilija and Coyote creeks, which could be obtainable in good years after the Matilija and Casitas dams are built. The applications ask for 3,000 acre feet for irrigation and domestic use and 4,300 for municipal purposes a year from Matilija creek and 6,000 acre feet for irrigation and domestic use and 4,000 for municipal purposes from Coyote creek.