The Ventura River Story

By Leland Bennett
General Manager and Chief Engineer
Ventura River Municipal Water District

THE VENTURA RIVER STORY

By Leland Bennett
General Manager and Chief Engineer
Ventura River Municipal Water District

Foreward. A documentary of any sequence of events is likely to be a rather boring diatribe to all but those intimately involved in some, or all, of the recorded happenings. While it appears unlikely that such a documentary regarding the solution of the Ventura River area water problem will be any less boring than other similar documentaries, I feel a certain obligation to myself, if no one else, to write such a document. In a sense, this will be a summary statement and final report on a 14-year period of employment with VRMWD that spans almost one-half of my professional career. To the extent that the first person is used in the report, it is hoped that the reader will understand that the happenings recorded here were in no sense attributable to one person's personal efforts but were invariably the result of teamwork and co-operation among the many people, entities, and agencies involved.

History. Chronic water supply shortages had plagued the residents and farmers of the Ventura River watershed area for many years. As early as 1925, the need for water conservation works was recognized in the Ojai Valley area of the watershed and an attempt made to provide a solution. The Lippencott report, prepared in 1925 for and at the expense of a group known as the Matilija Water Project Committee, outlined a fairly ambitious project for importation of water to the Ojai via a tunnel from Sespe Creek. Nothing concrete came of this proposal, probably due to lack of financing. A few years later in 1933, the State Division of Water Resources (predecessor of the State Department of Water Resources) issued its Bulletin No. 46 covering the results of its Ventura County water supply investigations conducted between 1927 and 1933. In 1934, Lippencott and Kerr made a study for the City of Ventura to find a solution to its future water needs. Their proposal was put to the people and failed at the polls.

In 1940, the Corps of Engineers investigated flood control requirements of areas along Ventura River. This investigation could have resulted in a water conservation facility, as one solution considered was a large storage reservoir on Ventura River with a dam at Foster Park. However, a down river levee from Ventura Avenue oilfield to the Pacific Ocean was adopted and constructed as the most economical solution to the flood control problem.

The next attempt at a water supply project came in 1941 when the engineering firm of Taylor and Taylor proposed a

small Coyote Creek dam project for the City of Ventura as a means of supplementing its dwindling water supply. This proposal was defeated at the polls as was a more ambitious proposal by the same firm in 1944 which involved both Matilija and Coyote Creek facilities.

In 1944, the Ventura County Flood Control District was formed by special act of the State Legislature. This organization, with the three principal watershed areas and the County designated as separate zones with each responsible for its own water supply financing, indicated the provincialism that existed then as it does now in water supply matters affecting the County of Ventura. The Flood Control District is governed by the Ventura County Board of Supervisors with an appointed advisory committee in each zone recommending a course of action for the respective zones. The Flood Control District employed Donald R. Warren, consulting engineer, to promulgate plans for water conservation and flood control facilities to alleviate water problems in the respective zones. In Zone 1, this solution called for $3 million bond issue to finance the construction of Matilija Dam, Hoffman Dam on Coyote Creek, plus a system of pipelines including an interconnection between the two reservoirs. Unfortunately, construction of Matilija Dam and a pipeline into the Ojai Valley nearly exhausted available bond funds, so the second dam and the balance of the pipe system were not built. The Matilija Project was much maligned because of its construction and financial woes and because of doubts as to its water conservation value when the three years following completion of the dam in 1948 were so devoid of rainfall that the reservoir was little more than an oversized puddle. However, a huge storm in the winter of 1951-52 produced flood flows that filled the reservoir to capacity in a matter of hours. Regardless of the criticism leveled at the Matilija Project, the 1,500 or so acre-feet it yielded annually during the years following its filling was a life saver for the Ventura River area. Through its later integration with Ventura River Project facilities, the project continues to perform an important function even though recent difficulties with reactive aggregate concrete have led to a substantial reduction of reservoir capacity. By the time Matilija Dam and pipeline were completed, it was clear that far greater facilities would be required to take care of the long-range needs for water in the Ventura River area. Late in 1948, the Flood Control District employed a board of consultants to study future Zone 1 requirements, examine Coyote Creek dam sites, and recommend works to meet projected requirements to 1975. The consultants filed their report in May of 1951 in which they recommended a 90,000 acre-foot reservoir on Coyote Creek with a 150 cubic-foot-per-second canal from Ventura River to the Coyote Creek Reservoir for diversion of surplus river flow. This proposal could be considered the birth of the concept eventually built into the Ventura River Project,

i.e., the idea of long-term carry over storage on Coyote Creek with local watershed runoff being supplemented by diversions from Ventura River.

The record is not known to me on the whys or wherefores, but about the time the consultants filed their report, the Flood Control District entered into a new co-operative investigation agreement with the State Water Resources Board for a study of County water resources and requirements for water conservation works. In connection with these investigations, the State reviewed the consultants' Ventura River report and in June 1952 issued an interim report in which they raised the consultants' cost estimates and cast doubts on the adequacy of a 90,000 acre-foot reservoir.

While the Flood Control District continued its efforts in the late 40's and early 50's toward implementation of water conservation works to solve the water supply problems in the three flood control zones, it was generally conceded that subsequent water works would be sponsored by some entity other than the Ventura County Flood Control District. This expected partitioning of the County for the handling of water matters took effect when the area generally covered by Flood Control Zone 2 voted formation of United Water Conservation District in 1950.

Formation of VRMWD. With the die cast, the people of Zone 1 were quick to follow suit. It would be difficult at this point in time to reconstruct the considerable effort of the group of local people who fostered and followed through on the successful formation of the Ventura River Municipal Water District. It is clear that Bill Bertles and the Oil Workers' Union with which he was associated were a driving force in the initiation of the movement. It is plain, too, that Roy Pinkerton and the Ventura County Star-Free Press he edited and published were wholehearted supporters of the move. About fifteen men, comprising a steering committee chaired by Lynn Rains of Ojai, were the workers who circulated formation petitions, spread the word about the proposed district, and enlisted support for the formation election. The steering committee included several members who, upon formation of the district, were elected to its first board of directors. Attorney Robert R. Willard handled legal matters for the formation and R. B. Lewis provided required engineering information. The VRMWD was formed on October 17, 1952, and lost little time in following through on its formation promise to invite the U.S. Bureau of Reclamation to make a water requirement and water supply study of the Ventura River area, a move which the Flood Control Supervisors had been unwilling to make. The people of the area had been observing the development of the Cachuma Project by the Bureau in neighboring Santa

Barbara County and apparently were pleased with the "know how" handling of the project.

The Bureau Study. On March 9, 1953, the newly formed municipal water district entered into a matched fund, co-operative investigation contract with the Bureau. This was followed closely by the employment of the writer as engineer-manager and the opening of a district office at 480 North Ventura Avenue, Ventura. Such was the situation when I entered on the scene on July 6, 1953.

By fall of 1953, the Bureau investigators had completed reconnaissance-level studies required to determine approximate long-range water requirements, comparison of the merits of available dam sites, and determination of the river diversion and storage capacity required to meet the long-term water needs of the area. This work naturally was facilitated by the existence of the results of the numerous investigations previously conducted by others. The Bureau proposed the construction of a 250,000 acre-foot reservoir on Coyote Creek, a 500 cubic-feet-per-second diversion canal from Ventura River to Casitas, and a backbone main conveyance system to distribute water throughout the District. Under this proposal, Matilija Reservoir and its associated pipeline would form an integral part of the project with the chief role of Matilija being its use as a detention storage reservoir to control flood peaks to increase diversions to Casitas.

The District was in no way committed to seek Federal Reclamation financing as a corollary of the co-operative investigations with the Bureau. There were those who felt that going the reclamation project route would be detrimental to the concept of local control, the desire for which had been one of the prime reasons for seeking a new district. For this reason, the district maintained an open mind on the matter of seeking Federal financing or financing with District bonds. As soon as preliminary cost estimates for the proposed project became available, the District made analyses to determine the relative merits of Federal and District bond financing. Because about 60 percent of the project cost that allocated to agricultural use under Federal Reclamation Law financing is repaid without interest, the great fiscal advantage of Federal-- over local bond financing -- was readily apparent. Elapsed time studies to compare expected project completion dates under the two financing methods showed some advantage for local bonds unless significant departures from standard bureau procedure were invoked. The matter of local control was eliminated as an issue when discussions with the Bureau revealed that once the project was completed, full control would lie with the District.

Adoption of the Plan. In March of 1954, after discussing the Bureau proposal with the formation steering committee and other interested groups, all of which expressed approval of the plan, the District adopted the Bureau plan as that it wished to build and asked the Bureau to process its feasibility report through the Department of the Interior with a view to authorization of the project as a Federal Reclamation Project. At the same time, even though the feasibility report was not issued in draft form until July 1, 1954, the District asked the Bureau to consider the possibility of a preconstruction contract under which the Bureau would prepare final design and specifications for the project works at District expense while processing of the report proceeded through the regular steps. This proposal seemed logical as a time saver regardless of the eventual method of financing the project. With plans and specifications in hand, the District would be in a position to proceed under a local bond issue if it became evident that the project would not be authorized as a Federal Reclamation Project. On the other hand, if Congressional authorization were obtained, the usual two-year delay between authorization and construction required for preconstruction work would be avoided and construction could start as soon as funds were appropriated. This unique approach to final design proved so unusual that approval of the Secretary of the Interior was deemed necessary. The Secretary did approve, however, and a $720,000 preconstruction contract was executed in August 1954.

The Regional Office version of the Ventura River Project feasibility report was published in December 1954 and sent to the Commissioner of Reclamation in Washington, D.C.

Opposition to the Project. Publication of the final report brought to life the first serious opposition to the project. A group calling itself "The Taxpayers' Committee," with membership conspicuously associated with the Oil Industry, issued a brochure entitled "The Search for Facts about Ventura's Water Problem." The group raised questions about the advisability of building such a large project at this time, pointing to inability of anyone to prophesy 50-year need, possibility of cheap desalted ocean water, etc. They suggested review of Bureau findings by Stanford Research Institute. At the time, oil interests accounted for some 75 percent of the District's assessed value so there was adequate justification for the group's concern. The group hired a consultant to make a review of the Bureau's findings. The consultants gave them the answers they wanted by showing that a smaller project would suffice if use projections were limited to 25 years rather than the 50-year repayment period. This convinced no one of the invalidity of the Bureau proposal, so the group employed Stanford Research Institute to make independent

determinations of the area's water needs. S.R.I.'s report confirmed the future needs for water as determined by the Bureau, pointing out that future municipal and industrial requirements probably would exceed those projected by the Bureau. (Current Bureau study appears to bear out S.R.I.'s conclusions) The S.R.I. report effectively ended the oil interests active opposition, and their representatives became staunch supporters when the Bureau agreed to an ascending schedule of annual payments geared to expected expansion of the demand for project water.

In processing the Ventura River Project report, the various bureaus within the Department, the U.S. Department of Agriculture, the Army Engineers, the U.S. Public Health Service, and the State of California were asked to review the proposal. All of the Federal agencies presented very favorable reports on the project. The State of California, however, submitted surprisingly vitriolic comments opposing the project. They contended that the smaller project proposed in their report to the County of Ventura would provide a 25-year supply at smaller unit cost for water conserved and would be perfectly satisfactory because Feather River water eventually would be available to Southern California (at about twice the unit cost under the Bureau plan) to meet requirements above the yield of the State proposal. We had an opportunity to review the comments before they were formally submitted and had meetings with the State Water Engineer in hopes of convincing him of the merits of the Bureau plan. Unfortunately, the State would not modify its position, and the unfavorable comments were submitted.

Project Authorization. Early in February 1955, while the report review procedure was still in progress, Congressman Teague introduced a Ventura River Project authorization bill in the House of Representatives, and Senators Knowland and Kuchel authored a similar bill and introduced it in the Senate. Meanwhile, the review by other agencies was completed and the report, approved by the Secretary of the Interior, was sent to the Bureau of the Budget for consideration.

Hearings before the House and Senate subcommittees on Interior Affairs were scheduled respectively for succeeding days in June, 1955. I preceded the local representatives to Washington, D. C. by about one week in company with John Hamilton and John Morgan, the Bureau engineers who were to present the report to the subcommittees. We spent the time discussing the project with the technical staff of the subcommittees and with as many of the members as we could. Consequently, by the date of the hearings, most of the committee members had some familiarity with the proposed project. We had been fortunate earlier to induce Committee Chairman Aspinall to visit the project area for a personal

briefing on the local water problem and the proposed solution. Likewise, we were able to get Senator Kuchel to take a similar tour and, of course Congressman Charles Teague was made thoroughly familiar with the proposed project. Their remarks to the respective subcommittees were most helpful. Four members of the District Board of Directors, the District's Attorney, Robert R. Willard, Star-Free Press Editor, Roy Pinkerton, Ojai Valley farmer Neil Ensch, and I comprised the District contingent at the hearings. Through an intensive information dissemination campaign, most labor unions, service clubs, and other local civic groups had sent communications to Washington attesting to their support of the project. To overcome the adverse comments of the State Division of Water Resources, a group of District representatives and Editor Pinkerton called on the California Governor and requested State support for the project. As a result, when the hearings convened, each committee chairman had in hand a telegram signed by the Governor that stated in effect that regardless of the State Water Resources comments, the official position of California was to favor the Ventura River Project and request its authorization. The authorizing bills were approved by the respective subcommittees and full committees of each House and approved by the Senate but failed to reach the floor of the House in 1955. This was not too discouraging, however, as it seemed certain the House would act favorably on the bill soon after it reconvened in 1956.

Repayment Contract Approval. At the time the District made its decision to seek Federal financing early in 1954, an optimistic schedule for commencement of storage at Casitas was evolved. This goal was the winter of 1958-59. As discussed above, District-financed final design and preparation of specifications in advance of project authorization was a first step toward this goal. This contract was later expanded to cover preacquisition right-of-way work so that the start of construction on the dam would not be held up through lack of right of way. A second step, another without precedent, was to develop a suitable repayment contract and present it to the voters for approval prior to project authorization. From meetings with local groups, it was apparent a preponderance of the people favored the project and organized opposition was nonexistent. But, because of the great importance of contract approval, a broad public information compaign was undertaken. A small pamphlet telling the story of the water problem and the proposed solution was published and distributed widely. The District took a booth at the Ventura County Fair, and, using a model of the reservoir, a model section of the proposed dam, and pertinent maps, District personnel answered questions about the proposed project and distributed copies of the project brochure. The Ventura County Star-Free Press also continued its extensive publicity in support of the proposed project. The contract

election results showing a 30:1 margin of "yea" votes proved the value of the publicity effort. There is little doubt that this overwhelmingly favorable vote was a factor in obtaining final Congressional authorization of the project early in the 1956 session.

Project Appropriations. All of this maneuvering to gain project authorization, repayment contract approval, and completed construction plans and specifications would have been for naught had one additional move not been achieved. This was the matter of obtaining an appropriation of Federal funds to commence construction of the project. Normal sequence of a project's development entails Congressional authorization during a session of Congress, followed in the ensuing fiscal year of a request for a small appropriation to cover the cost of final design with requests for construction funds following in subsequent fiscal years. To achieve project storage in the winter of 1958-59, such a leisurely course of action was out. To be included in a particular fiscal year appropriation request by the Department of the Interior, an item must be included in the Bureau's submission to the Secretary of the Interior several months before the beginning of that fiscal year and, as part of Interior's request for funds, is subject to the scrutiny of the Bureau of the Budget.

It was no small matter to convince all concerned that the Ventura River Project had reached the stage by late 1955 that inclusion of a construction appropriation request for Ventura River Project for fiscal year 1956-57, contingent on project authorization, was justified. Fortunately, because of the previously established record of the District for unprecedented actions to solve its water problems, people throughout the Bureau of Reclamation and the office of the Secretary of the Interior entered into the spirit of the race against time. They saw an opportunity to set some new records which would attest to their proficiency and co-operation. Consequently, the Interior Department's appropriation request for fiscal year 1956-57 went to the Bureau of the Budget and to Congress with a request for $4.4 million Ventura River Project construction funds. Final approval of these funds seemed to be the only remaining prerequisite to commencement of project construction in the summer of 1956 and attainment of the goal of storing water in Lake Casitas in the winter of 1958-59. Of course, there were still a few minor details to work out. The Chief Engineer and the Commissioner of Reclamation were most reluctant to advertise for bids on the dam before Congress acted on the appropriations. Yet, this was essential to the schedule, and they were eventually convinced. The District's water right permits were slow in coming from the State but, at long last, were issued by the State in time to avoid delay in the construction start. Despite actions taken to complete dam site right-of-way work ahead of the

July 1, 1956, target date, problems in obtaining orders for possession and right of entry appeared for a time to jeopardize the construction start, but these difficulties also were resolved in due time. Perhaps the most disconcerting problem of all was the discovery after the $4.4 million request went to Congress that the need for initial fiscal year appropriations in that amount was based on an extended construction schedule that would call for Casitas storage in the winter of 1959-60 rather than 1958-59. To achieve the expedited construction schedule to meet the adopted goal of storage of 1958-59, an additional $2 million would be needed the first fiscal year. No one argued that this was the case, but most members of the interior and Bureau of the Budget staff were apprehensive about upsetting the precarious $4.4 million contingency appropriation by asking for the additional $2 million. Congressman Teague and Senator Kuchel were equal to the task, however, and when the Public Works Appropriations were approved on July 1, 1956, they included an appropriation of $6.4 million for Ventura River Project. Twenty-four hours later the construction contract for Casitas Dam was awarded to Winston Bros., Inc. of Minneapolis. The contract required that the dam be sufficiently completed by November 15, 1958, to permit its use for the storage of project water.

Increased Cost. Just when it seemed that everything was under control and completion of the project on time almost a certainty, rising costs entered the picture. The combination of increased costs for material and labor plus the inflated land prices reflected in right-of-way costs made it plain that the voter-approved construction ceiling of $27,500,000 would fall some $4.4 million short of meeting total project costs. This left no alternative, other than an incomplete project, but to ask the people to vote approval of a repayment contract amendment to raise the construction ceiling to $30,900,000. Reasons for the increase were made known to the electorate, and the required special election held. The 12:1 margin of approval indicates strong continuing support for the project although not quite so enthusiastic as indicated by the 30:1 vote on the original proposition.

Project Construction. During the investigation, authorization, final design period, and subsequent three years of project construction, there were many side lights and other events that made life interesting. The District maintained constant liaison with the Bureau construction staff and the right-of-way acquisition people from the Department of the Interior's Solicitor's Office and were called on several occasions to provide testimony and other data in connection with the several condemnation cases involved in obtaining project rights of way. The Bureau people were particularly cognizant of the District's role as

future operator of the project and conferred on matters of project design and construction that could affect this future District function.

To prepare for its job of operating the project works, the District, among other things, recognized the need for a centrally located headquarters. After identifying the approximate location of the geographical center of the District, an investigation was made of the availability and cost of suitable property for such a headquarters. This resulted in the purchase of the present 9-acre site at Oak View. Soon after the land was purchased, and preliminary planning started for a suitable operation and maintenance office and yard, we found that the Bureau planned to spend a considerable sum for a temporary project construction headquarters. As the District office site appeared to be a good location for this headquarters, we offered a portion of the area to the Bureau on a rent-free basis for their garage and warehouse. Their plans also called for a temporary office building at an estimated cost of $60,000. As this would comprise part of the project cost repayable by the District, it seemed like a waste to build anything but a permanent building that could serve as the District's operation and maintenance office after it had served the Bureau's purposes. The Bureau was amenable to this approach, and arrangements were worked out under which the District built the present office building with its own funds and provided it to the Bureau rent-free for the period of construction. The Bureau, as mentioned above, built a warehouse and garage on the District's land. At the end of construction, the District fell heir to these facilities, took over the office building, and commenced operations with a fine set of headquarters facilities.

Construction of the project, while not entirely without problems, was completed on time. The heavy rains of early 1958 held up work on the dam fill for a couple of months, but this was overcome by use of additional equipment when the weather cleared. Delays in attaining agreement between the Bureau and the State on specifications for the relocation of Highway 150, and more particularly on the portion of the cost to be repaid by the project, led to a somewhat abbreviated construction period for this work. Consequently, then the first rains came in late 1958, the relocated highway was not completed. In order to keep the old road open until such time as the new route could be used, the highway contractor placed an eight-foot-high fill on top of the Coyote Creek bridge. This seemed like an extraordinary solution to the problem, but in the absence of any large storms, worked out satisfactorily.

The Bureau of Reclamation operated the diversion and storage works through the first winter. These works and completed portions of the conveyance system were transferred

to the District for operation and maintenance on July 1, 1959. The balance of the system was transferred to the District on October 1, 1959, and the Bureau people departed to return only once a year to evaluate the District's care of the system.

The project works constructed for the District by the U. S. Bureau of Reclamation were build to modern waterworks standards. Automation built into the system makes it as nearly manual operation free as practicable. The telemetering system installed in the project operated over leased telephone lines to perform numerous intelligence functions automatically and to provide operation information data at a central control panel which calls attention to any malfunction or abnormal operating situation at a glance. Pumping plants are started and stopped in sequence as required to keep up of balancing reservoir levels. The central control panel includes alarm supply at any of the chlorination stations. This board also includes emergency switches which permit an operator in the District office to shut down a pumping plant by simply turning a switch. Because of this reliable comprehensive telemetering system, the District's operating force is a fraction of that which would be required without it. For example, under manual operation, each of the District's seven booster pumping plants would require some measure of around-the-clock surveillance. With the system, a single pumping plant technician provides routine operation and maintenance services, and one electronic technician and an electrician look after the telemetering system and the electrical control equipment at both the booster stations and the five chlorination stations. That the District has operated and maintained the entire system in a highly satisfactory manner is evidenced by the laudatory terms incorporated in the Bureau's reports on its periodic inspections of the system.

Casitas Recreation Area. In its feasibility study on Ventura River Project, the U. S. Bureau of Reclamation gave recognition to the recreation potential of Lake Casitas.

In legislation authorizing Ventura River Project, Congress included provisions for expenditure of $100,000 of Federal funds on a nonreimbursable basis for construction of "minimum basic facilities for the accommodation of the visiting public."

The U. S. Park Service, an agency of the U. S. Department of the Interior, made a detailed study of the recreation potential and came up with a proposed master plan of development. One of the Park Service's early recommendations was that the County of Ventura assume responsibility for the recreational development of the lake as it was recognized that the area of interest in recreational use of the lake would be much broader than that

covered by VRMWD. The County declined the offer on the basis that it was County policy to limit its participation in recreational activities to the development and operation of small, rural-type parks such as Camp Comfort and Foster Park.

The Park Service estimated that capital investment in the park would be around $1 million by the time full potential of the area was developed. A million bucks for fun is no small sum, and it was only on the assurance that some additional financial aid would be forthcoming from the State Department of Fish and Game and that a major part of the investment eventually would be repaid out of park revenues that the VRMWD Board somewhat reluctantly agreed to handle the proposed recreational program. Also, this appeared to be the only way to get the $100,000 of Federal money as there were strings attached which said, "no operating agency, no funds."

It has been proven elsewhere that a well developed recreation area can be self-supporting if reasonable fees are charged for the services rendered. However, to get into business, a sizable capital outlay is essential to cover the cost of minimum facilities. Early year requirements for capital were estimated by the Park Service to be $680,000.

Thus far, the District has concentrated on these features of the early year section of the plan, total investment being approximately $650,000. As mentioned previously, $100,000 of this amount has come from the Federal Government and was used almost entirely for main park roads and pipe for the mains in the park water system. One hundred seventeen thousand dollars have been furnished by the State of California under its Wildlife Conservation Board program for enhancement of fishing. These funds were used exclusively for fishing access facilities consisting of additional main roads, permanent ramp facilities, docks, and chemical toilets. This covers half of total requested allocation as an additional $117,000 will be required for a concrete ramp section and parking area when lake nears capacity. The balance has come from the District taxpayers. Through expenditure of these funds, development has about reached the stage expected by the Park Service under its early years program. A service station was included in this phase of the plan, but, thus far, we have felt no need for that concession.

Annual visitations to the park last fiscal year exceeded 500,000. Revenue for this period was around $162,000, some $10,000 less than operation and maintenance expenses charged to the park. Revenue for the first eight months of this fiscal year have amounted to $109,800 as compared with expenses totalling $107,650 for the same period. So, it appears at long last that revenues will

exceed expenses and some of the taxpayers' dollars will start trickling back to the taxpayers' pockets. This narrow view of the recreation area financial picture obviously ignores the broad important aspects of this facility. Any good chamber of commerce or economic development student will confirm the fact that each tourist to the area spends something in the neighborhood of ten dollars per day that otherwise would not have found its way into the local economy. If they are right, and I see no reason to doubt it, operation of the Lake Casitas Recreation Area is providing an annual increment of some $5,000,000 to the economy of the District area, not an insignificant amount in any league.

Water Supply Difficulties. The 8,000 to 9,000 acre-feet of storage accumulated by the Bureau in the first year of operating plus a partially filled Matilija Reservoir comprised the entire project water supply when the District took over in 1959. The winters of 1959-60, 1960-61, and the early part of the winter of 1961-62 were so deficient in rainfall that accretions to storage between June of 1959 and February 1962 were practically nonexistent. Consequently, by the end of calendar year 1961, the available supply had reached such a low point that allocation of the balance of the stored water among the current customers of the District appeared to be the only solution for continuing in business. Level of Casitas was about one and one-half feet above the bottom of the lowest intake gate, so designs had been prepared for barge-mounted pumps to permit utilization of the 3,000 acre-feet of dead storage by pumping into the intake. Things looked very bleak when, early in February of 1962, a torrential storm hit the area. Over twenty inches of rain fell within a five-day period, and water was everywhere. When the storm was over and most of the stream flow accounted for, Lake Casitas contained 53,000 acre-feet of water and Matilija was full. The Good Lord had provided, and from that day to this there has been an ample supply of project water to meet all needs.

District Extension of Project Works. When the Ventura River Project was conceived and preliminary plans were being prepared, it was recognized that the system of main conveyance pipelines would have to be augmented by the addition of lateral distribution pipelines before all areas of the District would be able to obtain District water service. To avoid construction of many miles of pipeline that would not be required until actual development took place, the decision was made at that time to limit Federal project construction to a backbone-type main conveyance system throughout the District. This left future construction of submains and lateral pipelines as a responsibility of the District. Much of the District's manpower and financial resources has been devoted to the financing, design, and construction of these essential

additions to the project system. To date, the District has invested approximately $3 million in such additions to the system, about $1 million of this amount being for lateral pipelines and service connections for which the District is being reimbursed. Two of the more significant sections of pipeline include among project extensions are the four miles of 33-inch-diameter from Canada Larga down Ventura Avenue to the northerly city limits of Ventura and the Rincon pipe system which made a modern community water system available to industry and communities along the Rincon that theretofore had relied on trucked water for their domestic supply.

Problems with Matilija Dam. Early in 1964, the State Division of Dam Safety made its periodic check of Matilija Dam. They noted serious cracking in several cells of the top five lifts of the dam arch and ordered that cores be taken and sonic tests performed to appraise the extent of the deterioration. While the Water District had operated the Matilija Facilities since 1959 under lease agreement with the Flood Control District, the State people looked to the Flood Control District as owner of the structure for performance of required tests and corrective measures. The Flood Control District contracted with Bechtel Corporation in August 1964 for performance of the tests. Their report was transmitted to the Flood Control District in March 1965. Their investigation confirmed that the cracked cell concrete was badly deteriorated due to alkali aggregate reaction but the balance of the arch concrete was sound. They also reported that the limited work they had done on checking the stability of the abutments indicated possible abutment trouble. Bechtel recommended installation of strain gages at several levels in each abutment to permit measurement of abutment behavior under all loading conditions. They estimated that several years would be required to obtain enough data to determine the stability of the abutments. Three alternatives were suggested for correcting the faulty concrete problem if abutment tests showed them to be sound. These were (1) remove and replace the faulty cells, (2) remove the top 30 feet of the arch, or (3) remove the dam.

The State expressed an unwillingness to permit the dam to be operated through another winter at its full height. Since removal and replacement of faulty concrete was deemed impracticable, the available alternatives seemed to be remove the top 30 feet or remove the dam. Studies made by the Water District showed that while removal of the top 30 feet of the dam would reduce its capacity from 7,000 acre-feet to 3,800 acre-feet, the reservoir's usefulness as a detention storage facility would still be about two-thirds of its full height potential. It occurred to us that removal of only a portion of the top 30 feet sufficient to provide spillway capacity for the design flood would be less costly and just as satisfactory as removing the entire top

of the dam. The Water District urged the Flood Control District to take this course of action which it eventually did after much discussion. Abutment tests have been carried out through two fill and empty cycles, and preliminary analysis of the test data indicates that the abutments are adequate. However, Bechtel Corporation is undecided as to whether or not the tests should continue through one more cycle.

The New Bureau Study. Streamflow records since the original Bureau study was made in 1953 reveal that the drought period that commenced in 1944 and continued through 1964 was a drier period of record than the 1918-1935 period used by the Bureau in 1953. Hence, the calculated safe annual yield of the project instead of being 27,800 acre-feet has been reduced to about 26,000 acre-feet. Loss of a portion of Matilija's effectiveness has reduced the project's capability somewhat so that it presently is considered to be about 25,000 acre-feet annually. Certain other changes have occurred since 1953 that tend to invalidate the water requirement projection made by the Bureau in 1953. Per capita use of water has increased markedly due to the use of new home appliances. Recent population projections indicate greater population densities than studies made in 1953, and development of steep hillside lands indicates that more of the area within the District will eventually be developed to water using uses than was considered practicable in 1953. Considering all of the above, it appeared that the time had come for a second look at the area's future requirements for water and consideration of further development of local supplies to meet such needs. In June of 1965, the District completed a matched-fund, co-operative investigation agreement with the Bureau of Reclamation for those purposes. While the study has not been completed yet in regards to cost estimates and issuance of a written report, certain basic conclusions have been made known. The new water requirement projection was a real shocker as their studies showed A. D. 2020 requirement of 79,000 acre-feet annually, some 45,000 acre-feet more than the supply available from existing water conservation works. With regard to further development of the local supply, the Bureau concluded that enlargement of the Robles-Casitas Canal to 2,000 cubic-feet-per-second capacity and raising of Casitas Dam to provide a total storage of 300,000 acre-feet were the only economically feasible project extensions. The combined effect of these two modifications would be to increase the available supply by some 4,000 acre-feet annually. If and when water needs approach the magnitude projected by the Bureau, major works for the importation of water from elsewhere or for desalting of sea water will surely be needed.

The Current Water Situation. Despite the dire predictions for an impending water shortage in the not too distant future, the District presently enjoys an abundant supply for present demands. Storage in Lake Casitas stands at 112,500 acre-feet with several thousand acre-feet more expected through continued inflow, river diversions, and transfers from Matilija Reservoir which is now at capacity. The project has a capability at this level of storage to provide 16,000 acre-feet per year on a safe annual yield basis while annual water sales stand at 8,000 acre-feet. So, it appears that for quite a few years into the future existing water supply facilities will supply all of the area's needs for supplemental water.

Conclusion. The District's functions are performed by a staff of competent, dedicated, well-trained employees. In my view the people of the District are fortunate indeed to have its water system and its other activities in such capable hands. The people of the District can take pride in the quality of their water system with its well maintained surface facilities and beautiful and usable Lake Casitas and its extensive recreational facilities. One need not ponder long to realize that without the Ventura River Project the area truly would have no future.