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ORIGINAL

Decision No. 84527

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

In the Matter of the Application of CALIFORNIA-AMERICAN WATER COMPANY, a corporation, for a Certificate of Public Convenience and Necessity and for authority to carry out the terms of certain contracts relating to the construction of facilities required to render water service in the proposed certificated area.	Application No. 53653 (Filed October 20, 1972)
Investigation on the Commission's own motion into the operations, practices, service, equipment, facilities, rules, regulations, contracts, and water supply of the MONTEREY PENINSULA DISTRICT OF CALIFORNIA-AMERICAN WATER COMPANY, a corporation.	Case No. 9530 (Filed April 3, 1973)

Dinkelspiel, Pelavin, Steefel & Levitt, by Claude N. Rosenberg, and Lenard Weiss, Attorneys at Law, for California-American Water Company, applicant in A.53653 and respondent in C.9530.

Graham & James, by Boris H. Lakusta, and David J. Marchant, Attorneys at Law, Donald G. Hubbard, Attorney at Law, John M. Lotz, and James Saunders, for Standex International Corporation.; Frank E. Garden, Hebard R. Olsen, and Gerald A. McGrath, for Ord Terrace Water Quality Committee; Chickering & Gregory, by James E. Burns, Jr., and David R. Pigott, Attorneys at Law, for Del Monte Properties Company; L. W. Mc Intyre, for the City of Monterey; Allan D. LeFevre, for Gallaway and Sons; John M. Moore, Attorney at Law, for Carmel Valley Limited; Dave Stewart, for Monterey Pacific, Inc.; John Kramer, Attorney at Law, for Richard Meffley, Department of Water Resources; John Crivello, for the City of Seaside; and Loren E. Smith, and Edwin B. Lee, for themselves; interested parties.

Cyril M. Saroyan, Attorney at Law, and Melvin Mezek, for the Commission staff.

SECOND INTERIM OPINION

PROCEDURAL FRAMEWORK

Background of First Interim Decision

This proceeding was instituted on October 20, 1972 by the filing of California-American Water Company's (Cal-Am) Application No. 53653. The application seeks a certificate of public convenience and necessity to serve a 2,000 acre area at the top of the Los Laureles grade, known as Hidden Hills, near Cal-Am's Monterey District's water service area.

Preliminary investigation by the staff led it to conclude that, far from being able to supply Hidden Hills, Cal-Am's sources of water supply might be inadequate to serve its present dedicated service area. Upon recommendation of the staff, Case No. 9530, an investigation in the Commission's own motion, was instituted on April 3, 1973. The Order Instituting Investigation (OII) specified that the investigation was "instituted into the operations, practices, service, equipment, facilities, rules, regulations, contracts and water supply of respondent, for the purpose of determining: (1) Whether respondent's available water supply is adequate and sufficient to enable it to serve new customers in additional areas for which a certificate of public convenience and necessity is being sought or for other areas in which the water utility would normally serve. (2) Whether respondent's presently existing water supplies are adequate to meet the normal continuing growth within areas heretofore certificated to it. (3) Whether there are available additional sources of supply to meet future growth in the general Monterey County area and whether it is feasible for respondent to obtain such sources of supply."

The order of investigation went on to say:

> "Although the scope of this investigation relates mainly to the matter of sufficiency of available water supplies, the Commission is not hereby limiting itself from entering any other order or orders that may be appropriate in the lawful exercise of the Commission's jurisdiction based upon the record made in the hearings to be held herein."

The two proceedings were consolidated for hearing and assigned to Commissioner Holmes. Two days of hearing were held at Monterey before Examiner Edmund F. Catey on April 24 and 25, 1973. Expert testimony on the subject of water resources was presented by a staff engineer, an engineer of Cal-Am's staff, and an engineer and a geologist employed by the developer of Hidden Hills, the Standard International Corporation, now known as Standex International Corp. (Standex). Twelve other witnesses were also heard.

At the close of the second day of hearing, before cross-examination of the expert witnesses, the staff moved that Cal-Am's Monterey District service be restricted. This motion, and other matters, were taken under submission, and on May 30, 1973 we issued our interim Decision No. 81443. In that decision, after a discussion of the evidence, we concluded that:

> "Pending further hearings and orders, Cal-Am should be prohibited from extending water mains to serve any new developments in the Monterey Peninsula Division that are not in final planning stages."

and our interim order directed that:

> "1. Until otherwise permitted by further order of this Commission, California-American Water Company shall not extend or accept distribution mains within or from its Monterey Peninsula Division system to serve new developments, other than municipally sponsored redevelopment or renewal projects, unless prior to the date of this order:
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> "(a) The final subdivision map has been approved for filing by the local governmental body having authority over the filing.

"(b) A subdivision agreement has been entered into between the developer and the appropriate local governmental body.

"(c) All surety bonds, or other alternative guarantees, covering faithful performance and payment for materials, labor, and engineering expenses have been filed with and accepted by the appropriate local governmental body."

Subsequent to the interim order, twenty-one additional days of hearing were held before Examiner Parke L. Boneysteele, two at Monterey and 19 at Seaside, and on December 12, 1974 Application No. 53653 was submitted for final decision and Case No. 9530 for a second interim decision. In all, statements were taken from 17 representatives of civic, conservation and homeowners groups, and local governmental agencies; a total of 47 witnesses testified and 45 exhibits were received.

Second Staff Motion

The first three days of hearing after the issuance of our interim order were largely directed to testimony and statements from residents of Hidden Hills, from civic and conservation groups, from local governmental agencies, and from two subdividers whose projects were affected by the interim order. Cross-examination of Cal-Am's engineer, Albert I. Bennett, and staff Senior Utilities Engineer, James M. Barnes, was completed.

At the sixth day of hearing, on August 17, 1973, before the cross-examination of the consulting engineer and the consulting geologist of Standex had been undertaken, staff counsel Cyril M. Saroyan moved that our interim order in Decision No. 81443 should be further strengthened by changing paragraph 1 under the heading "Conclusions" to read:

"1. Pending further hearings and orders, Cal-Am should be prohibited from providing water service to any new developments in the Monterey Peninsula Division that do not fulfill the requirements of Ordering Paragraph 1 of the order which follows."

and by changing the first part of ordering Paragraph 1 to :

"1. Until otherwise permitted by further order of this Commission, California American Water Company shall not provide water service within its Monterey Peninsula Division system to serve new developments, other than municipally sponsored redevelopments or renewal projects, unless prior to the date of this order: . . ."

The motion was intended to prevent the subdivision of land adjacent to existing mains and the development of condominiums on existing lots. If granted as requested, however, the motion could be interpreted to move the cut-off date of Paragraph 1 of Decision No. 81443 forward to the effective date of this order.

The motion was taken under advisement by the examiner to permit all who might be affected by the motion to appear and be heard. On October 11, 1973, the hearing reconvened, and statements and testimony relevent to the motion were taken from representatives of civic, conservation, business, and labor groups, from local cities and from the county of Monterey, Cal-Am, and Standex. Supervisor Poyner representing the Fourth Supervisorial District of Monterey County read a statement on behalf of the county and the mayors of the six incorporated cities on the Peninsula, by which the local governmental agencies requested a 120 day delay in the consideration of the staff motion during which time the county and municipalities could "work with the Commission staff to investigate and offer solutions for an appropriate and acceptable interim order and fix the responsibility for the long range solution to this critical problem." The supervisor explained that a local advisory committee had been formed for Zone 11 of the Monterey County Flood Control and Water Conservation

District (Zone 11) to work towards both an interim and a long term solution of the area's water supply problems. (The District is a special act of the legislature district created in 1947 by Chapter 52 of the Water Code Appendix. The Monterey County Board of Supervisors is the exofficio board of directors of the District. Zone 11 includes Cal-Am's service area and the Carmel River Valley up to the head of the Los Padres reservoir. It also includes the community of Marina, parts of Fort Ord, and the Canyon del Rey on the Monterey-Salinas Highway, State Highway 68).

At the hearing of March 18, 1974 held for, among other things, the receiving of the results of the local governments' studies, the Director of Public Works of the city of Monterey, L. W. Mc Intyre, presented a letter to the Commission which indicated that the State Department of Water Resources (DWR) was in the process of conducting a study of the ground water supplies available in Zone 11. The study was being financed jointly, with DWR standing half of the cost and Zone 11 and Cal-Am splitting the other half.

The DWR report was completed on July 22, 1974, and formally presented as Exhibit 32 at the hearing on October 1, 1974. The staff, by a letter dated August 23, 1974, asked Cal-Am to prepare a three part exhibit evaluating the DWR report, describing the utility's plans to meet its water requirements until a long range source of surface water could be developed, and presenting conclusions and recommendations regarding Cal-Am's ability to meet its water requirements during the interim period. This report was presented as Exhibit 33, following testimony on the DWR report on October 2, 1974.

Testimony on the Cal-Am report was not completed until the twenty-second day of hearing on December 11, 1974. The second staff motion was therefore taken under submission with the other pending items on December 12.

Cal-Am Request to Withdraw Application No. 53653

On the eighth day of hearing, October 12, 1973 counsel for Cal-Am, Claude N. Rosenberg, stated that, in light of the disposition of the Commission as evidenced by the interim order restricting water service within the utility's service area and taking a pragmatic and realistic view of the situation, Cal-Am felt quite confident that there was little or no likelihood of its application being granted in its present form; and therefore, he believed it was in the interest of all parties concerned, including the utility the developer, and the public, that the application be withdrawn without prejudice. Cal-Am maintained that it had the power to withdraw the application as a matter of right.

Arguments on whether the Commission should permit the withdrawal were heard on December 19, 1973, the fourteenth day of hearing. At the conclusion of the argument the examiner stated that he was taking the matter under submission until a solution of the water supply situation presented itself. Nearly a year later, at the final hearing in this phase of the proceeding, the application was taken under submission for final disposition.

Ord Terrace Water Quality Committee Petition

At the ninth day of hearing, on November 19, 1973 a committee of residents of the Ord Terrace area of Seaside presented a petition bearing 77 signatures. The petitioners complained about the quality of water being furnished in Ord Terrace. The petition was supported by testimony from ten witnesses who reported problems with iron compounds and odors of hydrogen sulfide.

The Ord Terrace water quality problem became an integral part of the Commission's investigation. During the course of the proceeding, the original sponsor of the petition, Frank E. Garden, and his principal supporter, Jerold A. McGrath, both died, and leadership of the committee was ultimately assumed by Mr. McGrath's daughter, Colleen McGrath.

Motions of Del Monte Properties Company

On May 31, 1974, Del Monte Properties Company (Del Monte), a large land owner and developer in the Monterey area, filed a "Request for Order Providing for Water Connections under Contracts Previously Approved by the Commission". In this document Del Monte alleged that it had, pursuant to Commission Decision No. 60908, dated October 18, 1960 in Application No. 42556, contributed the sum of $24,400 to Cal-Am's predecessor as the cost of facilities to serve a parcel of 125.89 acres known as Deer Flats. Del Monte also alleged that, in accordance with Decision No. 67551 dated July 21, 1964, it paid the cash sum of $138,543.78 and donated a parcel of land valued at $16,000 for a storage tank site as contributions in aid of construction for service to a 141.05 acre parcel known as Old Capitol Tract.

Del Monte sold the Deer Flats property to Monterey Savings and Loan Association on December 27, 1972. One of the terms of the purchase and sale agreement was that the buyer be able to obtain all necessary governmental permits to develop the property. Del Monte alleges that, unless Cal-Am is able to honor its contract and furnish water service, Del Monte will have to take back the property and return the consideration paid.

Del Monte still owns the Old Capitol Tract. Cal-Am is required to extend service under the terms of the contract only during a period ending February 14, 1979. If the restriction under Decision No. 81443 is allowed to stand, Del Monte may lose the investment it has made.

Del Monte alleged that Cal-Am has advised that the two properties are the only ones in the service area where such funds have been paid. It also alleges that Cal-Am has said that service to the subject properties will not prejudice service to existing customers.

On June 13, 1974, Del Monte filed another document entitled "Motion of Del Monte Properties Company for Recision or Modification of Interim Order Dated May 30, 1973 (CPUC Dec. No. 81443)". In its motion Del Monte reviewed the record of the first seventeen days of hearing. It "...submitted that the record, taken as a whole, flatly and inescapably contradicts the essential premise upon which the Interim Order was based. It is the position of Del Monte that there is no water shortage in the Monterey Peninsula at present and no danger of one in the immediate future and that therefore the Interim Order must and should be rescinded."

Later in the motion this position was modified somewhat by a request that: "Should the Commission feel, however, that such action would for any reason be inappropriate, it is submitted that, at the least, the Order should be modified to allow service to those developments as to which a preliminary subdivision map had been filed or accepted for filing as of May 30, 1973. This would allow the investigation to proceed at a deliberate pace, and would provide some relief to the hard hit construction industry."

Staff counsel, on November 4, 1974, filed a "Brief of Commission Staff Opposing Request by Del Monte Properties Company for order Providing for Water Connections By California-American Water Company."

Minor Procedural Events

On October 10, 1973, the Commission issued, in this proceeding, Decision No. 81987, granting a variance from the requirements of Decision No. 81443 to permit service to two subdivisions that were in the "advance planning stage" but did not meet, to the letter, the requirements of the order in Decision No. 81443.

On August 20, 1973, Cal-Am filed Application No. 54250, requesting authority to sell its Monte Well Site No. 4 to the Redevelopment Agency of the city of Seaside. Because of the critical

water supply situation in the Monterey District, the application was combined with this proceeding for hearing, which hearing was held at Seaside on October 12, 1973. Authority to transfer the well site was granted by Decision No. 82394 dated January 29, 1974.

Incorporation by Reference

Immediately prior to submission on December 12, 1974, the examiner incorporated by reference all annual reports filed with the Commission by Cal-Am and its predecessor companies operating on the Monterey Peninsula, all effective and cancelled tariffs, and the record in Application No. 48170, by which Cal-Am acquired the water properties of California Water and Telephone Company (CW&T). He also directed Cal-Am to file, as late-filed exhibits, copies of American Water Works Company's Annual Report to Stockholders, its Quarterly Report, and its Form 10-K filed with the Securities and Exchange Commission.

DESCRIPTION OF THE UTILITY, ITS PARENT CORPORATION, AND THE MONTEREY DISTRICT

Cal-Am's Operations

Cal-Am, a wholly owned subsidiary of American Water Works Company, Inc. (American Water Works) acquired the water utility properties of CW&T in 1966 prior to the latter company's merger into General Telephone Company of California. The operations thus acquired included the Monterey District. At the present time Cal-Am serves water in the following districts, in addition to the Monterey District:

District	County	Principal Communities Served in Whole or in Part
Coronado	San Diego	Coronado, Imperial Beach, San Diego, and contiguous unincorporated area.
Sweetwater	San Diego	National City, Chula Vista, and contiguous unincorporated area.
Baldwin Hills	Los Angeles	Baldwin Hills, Inglewood, and contiguous unincorporated area.
Duarte	Los Angeles	Bradbury, Duarte, Irwindale, Monrovia, and contiguous unincorporated area.
San Marino	Los Angeles	San Marino, San Gabriel, Rosemead, Temple City, El Monte, and contiguous unincorporated area.
Village	Ventura	Thousand Oaks, Camarillo, and contiguous unincorporated area.

As of December 31, 1973, Cal-Am provided water service to a total of 104,031 customers. Utility plant in service, less accumulated depreciation, amounted to $51,775,275, and operating revenues for 1973 were $12,371,087.

When Cal-Am acquired the CW&T properties pursuant to authorization granted by Decision No. 70418 issued March 8, 1966 in Application No. 48170,[1/] it paid a cash purchase price of $41,734,768. The pro forma balance sheet presented in that proceeding shows a utility plant acquisition adjustment of $12,285,371 for the payment in excess of the book value of the properties. Decision No. 70418 provided for the amortization of $8,799,829 of the plant acquisition adjustment over a 38½-year period by recording annual

1/ 65 CPUC 281.

charges of $226,642 to Account 537, Miscellaneous Amortization. The remaining $3,485,542 was to be amortized by charges of $91,725 to capital surplus. The decision made it clear that the plant acquisition adjustment would not be included in rate base, that the amortization would not be considered an operating expense, and that there would be no increase in rates as a result of the proposed transfer.

With the exception of Wilford J. Hays, Cal-Am's president, all of the members of Cal-Am's Board of Directors are officers of American Water Works, or its service subsidiary American Water Works Service Company. Of the seven directors of Cal-Am, five are also directors of American Water Works. Mr. Hays is employed and paid by American Water Works Service Company. Meetings of Cal-Am's board are held every other month, usually in Wilmington, Delaware, although there have been meetings in California.

American Water Works Company, Inc.

The American Water Works system is the largest investor owned water utility operation in the United States. As of December 31, 1973, it provided water and sewer service to approximately 1,301,000 customers in 20 different states. Utility plant in service, less depreciation, amounted to $715,974,000. Operating revenues for 1973 were $146,909,000. Cal-Am thus served 8.0 percent of American Water Works' customers, comprised 7.2 percent of its net or depreciated plant, and contributed 8.4 percent of its revenues.

Description of Monterey District

The Monterey District provides water service to the Monterey Peninsula and Carmel Valley areas of Monterey County. Included are the cities of Carmel-by-the-Sea, Del Rey Oaks, Monterey, Pacific Grove, Sand City, and most of the city of Seaside. In addition to the incorporated cities it also serves the communities of Pebble Beach, Carmel Highlands, and various communities and developments in the Carmel Valley, including the village of Carmel

Valley. (A small area in the Carmel Valley, just east of the Los Laureles grade, is served by the Rancho Del Monte Division of Water West Corporation. In addition the city of Seaside operates a municipal system in the Del Monte Heights neighborhood of Seaside, serving approximately 750 connections.)

As of December 31, 1973, the Monterey District provided water to 28,482 customers. Utility plant in service, less depreciation, amounted to $14,089,449. Operating revenues for 1973 were $3,073,479. The Monterey Division thus served 27.4 percent of Cal-Am's and 2.2 percent of American Water Works' customers. Net plant comprised 27.5 percent of Cal-Am's and 1.9 percent of American Water Works' total net plant. The Monterey District contributed 24.8 percent of Cal-Am's and 2.1 percent of American Water Works' total operating revenues.

The Monterey District obtains most of its water supply through diversion of the runoff of the Carmel River watershed. The Carmel River flows approximately 30 miles northwesterly through the Coast Range to the Pacific Ocean, south of Carmel. It drains approximately 255 square miles. The runoff of the Carmel River watershed is collected in Los Padres and San Clemente Reservoirs during winter months of heavy rainfall and is used during the summer season to supplement the natural stream flow. Additional water supply has been developed from wells in the Carmel Valley area and within the city of Seaside. San Clemente Dam, a concrete arch dam constructed in 1923, is located approximately 25 miles upstream from Carmel and Los Padres Dam, an earth fill dam constructed in 1948, is about five miles upstream from San Clemente. Water is released from Los Padres Reservoir, flows down the Carmel River, and is recaptured in San Clemente. Stored water from San Clemente is released directly into Cal-Am's main transmission line. Water from the 12 operating

wells in the Carmel Valley is pumped into the transmission line to supplement the surface supply. There are three booster pumps on the transmission line that are used to increase its carrying capacity In Seaside, at the far end of the system, there are 18 operating wells.

Sources of water during the last five years were, in acre-feet:

Year	Carmel River	Carmel Valley Wells	Seaside Wells	Total
1970	8,552	3,127	3,808	15,487
1971	7,306	4,031	4,307	15,644
1972	7,370	4,519	4,700	16,589
1973	8,690	3,021	3,976	15,687
1974*	8,819	2,572	3,649	15,040

* Twelve-month period, December 1, 1973 through November 30, 1974 (Exh. 15 and Tr. 2307, 2308).

Water storage facilities of the system consist of Los Padres Reservoir, with a capacity of 3,000 acre-feet; San Clemente Reservoir, with a capacity of 1,200 acre-feet; Forest Lake, with a capacity of 340 acre-feet; Pacific Grove Reservoir, with a capacity of 60 acre-feet; and 59 tanks with a combined capacity of over eight million gallons (equivalent to 24 acre-feet). Los Padres and San Clemente Reservoirs are collecting reservoirs, whereas Forest Lake and Pacific Grove Reservoirs are terminal reservoirs, used to meet peak system demands. The water from San Clemente Reservoir is chlorinated when it is released into the transmission main upstream from the filter plant. All of the supply from San Clemente is treated through a pressure filter plant, located approximately two miles downstream from San Clemente Dam. The filtered water is chlorinated again upon leaving the plant in order to maintain a chlorine residual in the system. Water is also chlorinated when released from Forest Lake and Pacific Grove Reservoirs into the distribution system.

The filtered water flows through about 20 miles of steel transmission main, varying in size from 22 inches to 36 inches in diameter, into Forest Lake, which is the principal terminal storage reservoir of the system. The majority of this transmission main is cement lined. The portion of the distribution system between San Clemente and Forest Lake is served from the transmission main. Water is also transmitted from Forest Lake into Pacific Grove Reservoir, the secondary terminal storage reservoir, through approximately two and one-half miles of 30-inch steel main. The transmission and distribution system consists of approximately 450 miles of various types and sizes of pipe, varying in size from 1 inch to 36 inches in diameter. There are 46 booster pumping stations located throughout the system to raise the water to storage elevations that provide proper operating pressures for customers. The Monterey service area varies in elevation from sea level to 1,172 feet.

Normal precipitation varies from 14 inches in the Seaside area to over 40 inches in the upper reaches of the Carmel River Basin.

WATER REQUIREMENTS

Staff Estimate of Water Requirements

The staff estimate of water requirements (and also that of available supply) was presented by Senior Utilities Engineer James M. Barnes, a registered civil engineer who had, before joining the Commission staff, acquired experience in the fields of municipal water works operation and planning and in economic feasibility studies for large water supply and irrigation projects. Mr. Barnes' exhibit and testimony were presented at the first two days of hearing but cross-examination was deferred until after our interim order.

In his report, Exhibit 2, Mr. Barnes confined his estimate to the existing service area. He started with recorded consumption for 1972 of 15,895 acre-feet. Using a five percent factor for unaccountable losses, he estimated that 1972 production was 16,950 acre-feet. To this he added 714 acre-feet as the requirement to serve

the 1,734 vacant lots then existing in the service area, which lots he considered Cal-Am as being committed to serve. He then increased this adjusted estimate to 17,462 for 1973, 17,624 for 1974, and 17,788 for 1975. The equivalent growth rate for these estimates amounted to 0.9 percent per annum.

Mr. Barnes observed in his report that residential customer growth over the last 13 years has increased at an annual rate of about 1.5 percent. He also stated that he expected this growth rate to continue into the future, primarily from developments in the unincorporated area of Monterey County. Later in the proceeding he said that this growth rate could be exceeded by a large amount as a result of growth all over the Monterey Peninsula. He recognized that many of the developed lots for which he reserved a water supply might not be built upon for many years, but under his concept that each lot subdivided represented a commitment by Cal-Am to serve it, he included them in his consideration.

Utility Estimates of Water Requirements

Albert I. Bennett, a registered civil engineer employed by American Water Works Service Company, a subsidiary of American Water Works Company, Inc., testified at the initial hearings and was cross-examined after our first interim order was issued. Mr. Bennett has had many years experience in water works engineering and design. He estimated system deliveries of 17,960 acre-feet in 1975, and made no allowance for unaccounted for water. His estimate, delivered before our interim decision, was not restricted to the existing service area and reflected Cal-Am's historical practice of extending the service area into adjacent contiguous territory in the ordinary course of business pursuant to Section 1001 of the Public Utilities Code.

In Exhibit 33, Cal-Am's evaluation of the DWR report, presented at the nineteenth day of hearing, on October 2, 1974, by a Cal-Am vice president, Richard T. Sullivan, it is anticipated that 1975 requirements would be 18,000 acre-feet. This amount would, based on normal growth and normal water consumption, increase to 21,000 acre-feet in 1980, (a compound growth rate of 3 percent) and to 23,000 acre-feet in 1985 (a compound growth rate of 2-3/8 percent).

The "normal growth" assumed by Mr. Sullivan included both growth from within the existing service area and growth that would result from extensions outside of the service area into contiguous territory which, absent our interim order, would be made in the ordinary course of business.

Historical Record of Water Usage

At the third day of hearing Mr. Bennett presented an exhibit (Exhibit 15) that showed that water deliveries to the Cal-Am system had increased from 4,646 acre-feet in 1940 to 16,589 in 1972, a compound growth rate of over 5 percent over the 32-year period which included World War II.

Turning to our own records we note in Decision No. 30046 dated August 16, 1937 in Case No. 3825 [2/] that sales of water in 1935 were 106,140,000 cubic-feet or 2,437 acre-feet. As noted above, 1972 recorded sales were 15,895 acre-feet. This indicated a compound growth rate of over 4-1/2 percent over a 37-year period which included World War II.

Considering the above figures, and allowing initial consumption of 100 acre-feet for the East Monterey Water Service which commenced operations in 1940 and was acquired by Cal-Am by Decision No. 77247 dated December 23, 1969 in Application No. 51519, we can determine that the historical growth rate over the last forty years has been in excess of four percent, considerably higher than the future growth rates forecasted by any of the expert witnesses in this

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2/ 40 CRC 683, 696.

proceeding. If a 4 percent growth rate in deliveries should resume, Mr. Sullivan's estimated water requirement of 18,000 acre-feet in 1975 would increase to 22,000 in 1980 and 27,000 in 1985, much higher than his estimates for those years.

Other Water Requirement Information

A resident of the Carmel Valley, William B. Brown, testified at the first and third days' hearing and described proposed developments throughout the Peninsula area. Mr. Brown estimated that 3,454 units were in the planning stage.

Staff engineer Barnes made a comprehensive survey of pending developments which he presented at the fifth day of hearing on August 16, 1973 relative to the request of A. R. Gallaway for exemption from Decision No. 81443. Mr. Barnes discovered 31 pending developments inside the service area, comprising 861 residential houses, 987 condominium units, 380 apartment units, 600 hotel rooms, and two commercial developments requiring 13 services. In addition a proposed development contiguous to but outside of the service area would have 45 single family residential units. The planning status of the developments was as follows:

	No. of Developments	No. of Units
a. Developments Meeting Requirements of Interim Decision No. 81443	16	1,016
b. Developments in Active Planning Stages	10	1,323
c. Developments in Inactive Planning Stages	6	547
Total	32	2,886

Although the number of customers has been continuing to rise over the period of 1971 through 1973, absolute usage has tended to decline. The details of these trends, and figures for rainfall as observed at National Weather Service Station No. 5795-04, located near Walter Colten Junior High School in Monterey are:

Year	Number of Customers	Water Consumption Acre-feet	Precipitation Inches
1971	27,597	15,836	13.06
1972	27,925	16,383	14.12
1973	28,634	15,687	27.87

(Exhibits 29 and 31.)

The decline can be explained, at least in part, by the increased precipitation in 1973 which reduced demands for water for domestic irrigation and for watering of golf courses.

The reduced consumption was reflected in an update which Mr. Sullivan gave of Mr. Bennett's estimates on December 10, 1974, the twenty-first day of hearing. Mr. Sullivan said 1973 total deliveries to the system were 15,687 acre-feet and 15,040 acre-feet for the 12 months ended November 30, 1974. Although 1974 usage was down, rainfall was also down, 16.14 inches for the first ten months of the year, as compared to 17.67 inches for the same ten month period in 1973. The reduced rainfall would ordinarily be expected to increase the demand for water for irrigation of golf courses, lawns, gardens, and landscaping but some credit for the reduced consumption must be given to the efforts of Cal-Am's customers to reduce usage and conserve water. Consideration must also be given to changing patterns of land use, with much of the recent growth represented by condominium and rental apartments, planned unit developments, hotels and motels.

Conservation Program

In response to the water supply problem and in an effort to participate in the overall efforts to reduce consumption of electrical energy used for pumping, Cal-Am initiated a water conservation program early in 1974. Large usage consumers were contacted to acquaint them with the need to conserve water and to offer assistance in the development of individual water conservation programs. The District Manager included a letter urging conservation in the May billing, and the bill format was revised to show consumption in gallons in addition to hundreds of cubic feet so that consumers could better visualize the amount of water used. Special efforts were made to reduce water used to irrigate the seven golf courses, the "par three course," and the driving range served by Cal-Am. A quarter page newspaper advertisement urging the public to conserve water was carried in the area's daily newspaper.

Mr. Sullivan reported at the December 11, 1974 hearing that, for the first ten months of 1974, water consumption by residential customers was down 6.40 percent, commercial by 1.40 percent, industrial by 1.11 percent, public authorities by 11.18 percent, and other customer classes by 16.20 percent. Water used for the irrigation of golf courses was reduced 7.20 percent. Although usage declined, the number of active services continued to increase, reaching 28,895 on July 31, 1974.

Mr. Sullivan said that probably the most significant factor in attracting the attention of the local population to the water supply situation was the coverage by the news media of the Commission's hearings and of the other public meetings dealing with water supply.

Cal-Am's water conservation efforts have, however, so far been confined to attempts to exhort and persuade its customers. It has made no efforts to promote low water using appliances and low water requirement landscaping. It also has not attempted to obtain

local city and county ordinances which would mandate such low water using appliances and landscaping for newly constructed commercial developments and housing.

Evaluation of Water Requirement Estimates

Considering the above estimates, initially made two or more years ago, the effects of our first interim order, trends of usage through November 1974, changing land use patterns, and Cal-Am's rudimentary water conservation program, we will find that a reasonable estimate of the 1975 water requirement is 16,500 acre-feet.3/ Under conditions of our interim order this requirement can be expected to increase at a compound annual rate of at least 1 percent to at least 17,350 acre-feet for 1980 and 18,250 for 1985. These estimates are of production requirements for actual consumption only and contain no reserve for any "commitment" to serve vacant lots.

It appears that, had not our interim order been imposed, and if some other restraint to the hook up of additional customers had not occurred, Mr. Sullivan's estimated requirements based on normal growth would very likely have turned out to be valid.

Water Requirements of Hidden Hills and Del Monte Properties Developments

According to Application No. 53653, should the Hidden Hills area become fully developed it would have 1,607 customers with an annual water requirement of 680 acre-feet. The first year requirement would be 104 acre-feet. Mr. Barnes estimated the ultimate requirement at 736 acre-feet. Not all of this would be incremental usage, however, since the Carmel Valley Mutual Water Company, serving Hidden Hills, is presently receiving a temporary emergency supply of water through a 2-inch meter at the upper boundary of the Rancho Tierra Grande subdivision.

At the twentieth day of hearing, October 3, 1974, Del Monte Properties' attorney stated that the Deer Flats tract would require from 50 to 80 acre-feet of water per year and the Old Capitol Tract from 400 to 500 acre-feet.

3/ The staff's results of operations report dated May 9, 1975 in Cal-Am's current Application No. 54942 for a rate increase bases its estimates on a normalized water demand for the test year 1975 of 16,750 acre-feet.

AVAILABLE WATER SUPPLY

The three sources of water supply available to Cal-Am's Monterey District and the amounts taken from each over the past five years are set out above in the description of the Monterey District.

As the proceeding progressed, five professional studies of the water supply available were presented, one each by Mr. Barnes of the staff, Mr. Bennett of American Water Works Service Company, two by witnesses retained by Standex, and one from DWR on behalf of Zone 11. In addition, a resident of the Carmel Valley offered information and estimates.

The studies of Mr. Barnes, Mr. Bennett, and the two Standex witnesses were presented at the first two days of hearing, but cross-examination was, as with their requirement estimates, deferred until after our interim order.

The water supply evidence adduced at the first two days of hearing was discussed briefly in our interim opinion in Decision No. 81443. That data together with the results of the study presented on October 1 and 2, 1974, by Richard W. Meffley, a registered civil engineer on the staff of the DWR are summarized in the following tabulation:

Comparison of Estimates
Of Available Water Supplies
Acre-feet per Year

	Staff	Cal-Am	Standex	DWR
Source	Barnes	Bennett	Stansbury & Bean	Meffley
Carmel River (under present stage of development)	8,500	9,500	9,800	9,500
Carmel Valley Aquifer	5,000	5,000	10,000	13,000
Seaside Aquifers	2,000	3,500	-	2,000
	15,500	18,000	19,800	24,500

In reviewing the evidence we will discuss the Carmel River, the Carmel Valley aquifer, and the Seaside aquifers, in that order.

Carmel River Supply Estimates

Staff engineer Barnes' estimate was based on a review of consultants' reports, specifically a Kennedy Engineers' report prepared in 1968, DWR's Bulletin 3 (the California Water plan), on a review of Cal-Am's operating records, and on information available in the Commission's files. He also made a detailed field inspection of the facilities. The data garnered by Mr. Barnes from his survey of engineering reports indicated to him that theoretical calculations show that the reservoirs produce a safe annual yield of approximately 9,500 acre-feet. He stated, however, that he had reason to doubt that such a quantity could be produced in actual operation. He said that in 1968 the reservoir supply was reportedly depleted after production of approximately 7,500 acre-feet. In 1972 total production from the river was less than 7,000 acre-feet, and in only three of the last 14 years did production exceed 9,500 acre-feet.

On the basis of production records, Mr. Barnes reduced the indicated safe yield to 8,500 acre-feet. The historical records on which Mr. Barnes made the 1,000 acre-feet reduction did not indicate, however, to what extent that available river water was not diverted by Cal-Am during winter months when the river was roily and the water characterized by a high degree of turbidity.

Mr. Barnes rejected the concept of "conjunctive operation" as propounded by Standex's witness, Mr. Stansbury. (Mr. Stansbury advocated that Cal-Am's water sources should be operated in conjunction with one another. During years of normal or above average rainfall, it would be possible to draw more than the estimated safe yield from the surface water supply. During these times, ground water extraction could be correspondingly reduced, and the acquifer recharged. During dry cycles the aquifer could be pumped more heavily to make up for the deficit in the surface water supply. By operating the surface supply conjunctively with the ground water aquifers, the total firm yield would be greater than if the sources were to be operated independently.)

Cal-Am's Mr. Bennett concluded that the safe yield of the Carmel River, under its present stage of development, was 9,500 acre-feet. This estimate was primarily based on a review of the same engineering reports as studied by Mr. Barnes. Mr. Bennett, however, rejected the concept that recorded production indicated that his 9,500 acre-feet estimate should be reduced. In 1968 there was a carryover of 800 acre-feet left in storage. Also, at times when the river was high and spilling from the reservoir in substantial quantity, it was possible to utilize the runoff bypassing the filter plant by pumping from wells immediately adjacent to the stream. By this practice Cal-Am could avoid the high cost of back washing the pressure filters.

Standex's study of water available from the Carmel River was presented by Michael R. Stansbury, a registered civil engineer who had had eight years of planning and design experience with DWR before joining the engineering firm of CH2M/HILL in 1971.

Mr. Stansbury reviewed flows previously estimated by Kennedy Engineers, Cal-Am's runoff data, and records of the United States Geological Survey (U.S.G.S.) extending back to 1902. He determined that the average amount of water available from natural runoff of the Carmel River at the San Clemente Dam Site was 60,000 acre-feet per year. According to Mr. Stansbury, runoff varied from a minimum of 8,100 acre-feet in 1931 to a maximum of 185,000 in 1941.

Mr. Stansbury stressed that Cal-Am's water sources should be operated conjunctively. He estimated that, with existing transmission facilities, an average surface water yield of 9,800 acre-feet could be obtained. The minimum yield that could be obtained in the driest year would be 8,000 acre-feet. In years of lowest runoff, with existing storage facilities, it would be necessary to make up the decreased yield by taking more from the ground water supply. This would be replenished in subsequent years by reduced draft and recharge from stream flow.

According to Mr. Stansbury, the ability of Cal-Am to divert water from the river was severely restricted by the inadequate capacity of the transmission main, varying in size from 22 inches to

36 inches, and having a capacity of approximately 17.5 cubic feet per second (cfs). A larger main would permit diversion of water during those times of the year when it is now spilled down the river. An increase in capacity to 35 cfs would increase the average yield to 14,000 acre-feet and the minimum yield would be increased to 8,300. Should the transmission main capacity be increased to 40 cfs, the average yield would increase to 15,400 and the minimum yield for the driest year to 8,500 acre-feet.

Mr. Bennett prepared, at the request of the staff, Exhibit 15 which showed a record of production of all of Cal-Am's sources for the period 1940-1972. Diversions from the Carmel River varied from 4631 acre-feet in 1940 to a high of 9,830 in 1965. As shown in the discussion of water sources set out above in the description of the Monterey District, the most water taken from the river in the last five years was 8,819 acre-feet diverted in the twelve-month period ended November 30, 1974.

Mr. Meffley's DWR study, presented on October 1, 1974, was directed primarily to ground water available from the Carmel Valley and Seaside basins and the background of that report will be described when we consider those problems. As a part of the ground water study, however, Mr. Meffley investigated surface flow of the Carmel River.

In general Mr. Meffley's conclusions paralleled Mr. Stansbury's. He reviewed the same data but presented his estimates for "water years" extending from October 1 to September 30. He estimated average runoff as 61,900 acre-feet, with a minimum of 7,200 in 1930-31 and a maximum of 209,000 acre-feet in 1940-41. Mr. Meffley concluded that the Carmel River could contribute 9,500 acre-feet to the near term water requirements of Cal-Am's Monterey District service area.

Evaluation of Carmel River Supply Estimates

It is readily apparent that the Carmel River is the key to the Monterey area water supply problem, both as a source of surface water taken directly from the stream and in its role of replenisher of the aquifer comprising the underground reservoir underlying the Carmel Valley. It is reassuring to learn that an annual average of 60,000 or 61,000 acre-feet (less required releases for fishery maintenance) can be expected from this source, should it ultimately be developed to the maximum extent possible.

After evaluating the expert testimony, considering the denial of Mr. Bennett that the reservoirs were actually completely depleted in 1968; considering the recorded minimum dry year flows and the historical record of diversions and the limited capabilities of the transmission main; and accepting the concept of conjunctive operation, we will find that the amount of water that can reliably be expected from the Carmel River in its present stage of development and with existing transmission facilities is 9,000 acre-feet.

Carmel Valley Aquifer Supply Estimates

Both Mr. Barnes and Mr. Bennett based their conclusions as to the safe yield of the Carmel Valley aquifer on a study prepared for Kennedy Engineers by Dames and Moore, consulting geologists, which study comprised Appendix A of the Kennedy report, and also on DWR Bulletin 3. Using these reports as a basis, they both concluded that 5,000 acre-feet was a reasonable "safe annual yield" from the aquifer.

In an attempt to show that considerably more water was available from the Carmel Valley aquifer and could be used to serve the Hidden Hills development, Standex retained Robert T. Bean, a registered geologist who had been, prior to 1966, a Supervising Engineering Geologist with DWR, and who then served as a technical advisor on hydrology for the United Nations before entering private practice in 1971.

Mr. Bean estimated the water storage capacity of the alluvial fill of the Carmel Valley by utilizing a surface area of 2,625 acres for that part of the aquifer east of Potrero Canyon, a saturated thickness of aquifer of 65 feet, and a specific yield[4/] of 0.22, to obtain a gross storage capacity of 37,537 acre-feet. By limiting the study area to that east of Potrero Canyon he felt that he eliminated the danger of seawater intrusion resulting from a drawdown of the water table. He recognized that it was not feasible or practicable to drill enough wells to approach complete dewatering of the saturated aquifer materials, and concluded that the usable groundwater storage capacity of the Carmel Valley aquifer east of Potrero Canyon, below a depth of 20 feet from the ground surface is at least 15,000 acre-feet. By utilizing data on surface inflow into the Carmel Valley for the two successive driest years since 1902 (the water years 1960 and 1961), Mr. Bean determined that the safe yield of the aquifer would be somewhat above 10,000 acre-feet. In other years the yield would have been up to 15,000 acre-feet or more.

Mr. Bean emphatically endorsed conjunctive operation of surface and ground water supplies. He pointed out that the aquifer was, in itself, an underground reservoir, one having a gross storage capacity many times the combined capacities of San Clemente and Los Padres reservoirs (37,000 vs. 1,200 and 3,000 acre-feet). In his professional opinion, the underground reservoir is readily recharged from the flow of the river, and has the advantage of having little if any loss of carry-over storage from one year to the next by evaporation. Mr. Bean pointed out that conjunctive operation of ground water and surface water reservoirs has been successfully accomplished for many years in nearby areas, particularly in the Santa Clara and Salinas Valleys.

4/ Specific yield is the water storage capacity of a unit volume of material.

Mr. Bean was retained by Standex on April 3, 1973, the date of opening of Case No. 9530, and his completed report was presented at the second day of hearing on April 25, 1973. The startling conclusion of Mr. Bean, after his necessarily hurried study, that from two to three times the amount of water estimated by Dames and Moore, and adopted by Messers. Barnes, and Bennett, was available from the Carmel Valley aquifer, was one of the reasons which caused the Zone 11 advisory committee to initiate the DWR study.

The report of the DWR, admitted as Exhibit 32 on October 1, 1974, was prepared by Mr. Meffley and Richard S. Brown, Assistant Engineering Geologist under the direction of Carl L. Stetson, District Engineer. Mr. Meffley and Mr. Brown were assisted by a crew of four other technical people. The contract for the report was entered into on January 29, 1974, and the report was distributed on July 22, 1974. The cost of the report was $30,000, half of which was borne by DWR and the other half by Zone 11 and Cal-Am. Mr. Meffley testified to the report at our hearings.

The approach used by the DWR group was somewhat similar to that of Mr. Bean. A detailed geologic map of the perimeter of the valley was made to determine the areal extent of the alluvium and of the older geologic formations that extend under the valley. In this endeavor they were supported by an unpublished mapping made by O. E. Bowen, which study will be published by the California Division of Mines and Geology.

Data from well drillers' logs was used to estimate the depth of the alluvium and to determine a specific yield. A refraction survey[5/] was run across the mouth of the Carmel River to determine if there was a granite ledge serving as a barrier to sea water intrusion.

5/ The refraction survey was conducted by inducing a pulse of sound waves into the alluvium and measuring the time required for echos caused by the sound waves hitting bedrock to return to the surface.

Mr. Meffley concluded that the alluvial area of the valley was 4,210 acres having an average depth of 76.5 feet. The refraction survey, however, showed no granite barrier at the mouth of the river, so Mr. Meffley eliminated the area west of the Mt. Diablo Meridian from consideration. The meridian is slightly east of the Coast Highway, State Highway 1, and about two miles west of Potrero Canyon, the landmark used by Mr. Bean as a cut off point. This approach reduced the usable alluvial area to 3,670 acres.

Mr. Meffley then determined the mean specific yield of the aquifer to be 0.2359. Estimating the net extraction during 1972 as 6,700 acre-feet, and measuring the lowering of the mean water table as being only 9.6 feet below the level of the Carmel River bed, he concluded that additional well fields could be developed to operate the basin more extensively. Such fields could lower the average water table another 10 feet over that reached in 1972 and provide an additional 8,600 acre-feet, increasing the total yield to 15,000 acre-feet. Not all of the 15,000 acre-feet would be available for use by Cal-Am, however, considering that Water West extracts some water and water is pumped by private users for irrigation of agricultural lands.

Mr. Meffley stated that permeabilities of the alluvium are high. Percolation from the river, minor tributaries, and winter precipitation would recharge the additional draft on the basin in average or better than average rainfall years. Although the period of his study, the water year from October 1, 1972 to September 30, 1973, was one of the wetter years on record, Mr. Meffley was confident that the usable storage capacity of the aquifer east of the Mt. Diablo Meridian, which he determined to contain 39,300 acre-feet in the fall of 1972 and 52,500 in the spring of 1973, was sufficient to provide his estimated safe annual yield of about 15,000 acre-feet, which would, after allowing for local valley use, make available 13,000 acre-feet of ground water to Cal-Am.

Mr. Meffley's report concluded with a statement that a more detailed study of the Carmel Valley ground water basin would not be justified without additional data. Such additional data would not substantially refine the results of the initial DWR study but might increase the level of confidence in the results. One of the topics recommended for future study was the conducting of seismic studies across the valley at four locations for the purpose of determining the thickness of the alluvium.

Mr. Meffley testified, however, that he felt that his group had sufficient data to accomplish the scope of the first DWR assignment without undertaking any further studies.

Cal-Am, in the appraisal of the DWR report requested by the staff (Exhibit 33 presented by Mr. Sullivan), stated that it had no basis for disagreeing with the DWR conclusion that the Carmel Valley aquifer could provide a sustained annual yield of about 15,000 acre-feet or that the water table could be lowered an additional 10 feet. It also stated that it agreed with the DWR contention that additional wells can be developed in the valley as water requirements necessitate, dependent upon the availability of well sites, the issuance of necessary permits, and adequate treatment of the well water.

The only witness who disputed the DWR was Edwin B. Lee, an engineering physicist who is a resident of the Carmel Valley. Mr. Lee's primary concern was that pumping from the aquifer was already destroying phreatophytes[6/] growing on the valley floor, particularly along the river banks, and causing erosion.

6/ Deep rooted plants which obtain their water from the water table or the layer of soil just above it.

Mr. Lee contended, among other things, that the cross section of the portion of the valley buried by the alluvium was more nearly triangular in section, rather than the rectangular section tacitly assumed by Messers. Bean, and Meffley when they applied an average thickness to the alluvial area. He also contended that the estimate of the surface area of the water table should be reduced by 500 acres in the upper reaches of the valley because of the paucity of well drillers' data in that area. Mr. Lee argued that any estimate of available water should be reduced by 732 acre-feet for transpiration of the riparian forest. Mr. Lee concluded that the present safe yield is substantially less than the 5,000 or 6,000 acre-feet which the existing wells can produce.

Evaluation of Carmel Valley Aquifer Supply Estimates

In evaluating the estimates of the five expert witnesses who studied the Carmel Valley aquifer, we recognize that extraction of additional water from the Carmel Valley could well have environmental consequences, particularly with respect to native vegetation. We have not, heretofore, discussed the problems associated with the quality of the water produced from the aquifer. We will consider here the quantitative amount of water that we believe can be reliably withdrawn from the aquifer. Later in this opinion we will take up the environmental and water quality aspects of extracting such amounts.

In our consideration of the amount of water available from the aquifer we must rely very heavily on the qualifications of the witnesses and our appraisal of their expertise.

Although both Mr. Barnes and Mr. Bennett are registered professional engineers with broad and extensive experience in the water utility field, neither has specialized in the fields of hydrology and geology. They both relied heavily on the conclusions of the Dames and Moore report, the authors of which were not available to explain their findings and answer questions on cross-examination. This record contains no adequate explanation of how the

Dames and Moore estimate was obtained or whether that organization might revise its opinion in light of the Bean and DWR studies.

Mr. Lee's qualifications are those of an engineering physicist. We recognize that this is a valuable discipline which provides a theoretical background for research into virtually any physical science problem, including the one at hand. We are impressed with the effort and dedication that Mr. Lee has contributed to the proceeding. We also recognize however, that he has neither training or experience in the specific field we are considering, and his judgements must be evaluated with that reservation.

Mr. Bean brought both training and experience, but his study was admittedly a hurried one. Although Mr. Bean was able to defend it most competently, we still are faced with the nagging impression that, perhaps, with more time for investigation and reflection some other conclusions might have been reached.

The DWR study of Mr. Meffley and his colleagues merits very serious consideration on its face alone. The DWR is officially empowered to carry on topographical surveys and investigations into matters pertaining to the water resources of the state[7/] and may either independently, or in cooperation with any person or a local or federal agency, investigate either or both surface and underground water conditions. It is the agency that local governmental units, and state agencies such as this Commission, would normally be expected to look to and rely on as a source of expertise in water resource matters.

Fortunately, however, in this case, we do not have to rely on the legitimacy of the sponsorship in evaluating the study. The qualifications of the witness, Mr. Meffley, and the highly professional manner in which he presented the study, were such as to dispel any

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7/ Water Code Sections 225 and 226.

doubts as to its overall quality. We are satisfied that Mr. Meffley was afforded both sufficient time and expert assistance necessary for an adequate study of the situation.

We note that the DWR measured the lowering of the mean water table due to existing pumping as being only 9.6 feet and that Mr. Meffley is recommending a further drawdown of only 10 feet. The drawdown is only a fraction of his assumed average thickness of 76.5 feet. Considering that the average surface width of the Carmel Valley alluvium is about 2,500 feet, the assumption of an approximately rectangular cross section 20 feet in depth, as made by DWR, appears reasonable.

In the event that the cross section of the bedrock of the valley is V shaped, it would seem that the average depth would be much deeper than 76.5 feet. In any event, considering the relative shallowness of the proposed drawdown, the shape of the lower layers of the alluvium is relatively unimportant.

We do recognize, however, that, in the absence of a seismic survey of the valley alluvium, and the scarcity of data on thickness of the alluvium in the upper reaches of the valley, the DWR report might possibly prove somewhat optimistic. We will reduce Mr. Meffley's estimate of 15,000 acre-feet per year, to 13,000 of which 11,000 would be available to Cal-Am. We will find that under conjunctive operation of surface and ground water sources, that at least 11,000 acre-feet per year of water can be reliably extracted from the Carmel Valley aquifer on a continuing basis.

According to Cal-Am's president, Mr. Hays, Dames and Moore advised Cal-Am in 1973 that the presently developed wells in the Carmel Valley have the ability to deliver from 6,000 to 7,000 acre-feet of water per year. This estimate includes the Begonia well which will need iron and manganese removal equipment before its output can be used, however.

Seaside Aquifer Supply

In our discription of Cal-Am's Monterey District we set out a table which showed how production from the Seaside wells varied, for the five year period from 1970 through 1974, from approximately a low of 3,650 acre-feet to a high of 4,700 acre-feet.

The existance of the Seaside aquifer is, for Cal-Am, a very fortunate happenstance. Located at the end of the long fish hook shaped transmission system originating at the San Clemente reservoir, it takes the place of a large terminal reservoir and significantly reduces transmission main requirements. There is an obvious temptation to get the maximum production possible under such circumstances.

All of the 18 operating Seaside wells are within two miles of the ocean and the Playa wells, some of the major producers, are within 3,500 feet. Sea water intrusion is thus a definite possibility should the Seaside aquifer (or aquifers) be overproduced. Staff engineer Barnes recognized this possibility. To his knowledge, no salt water intrusion has yet occured. He reported that Cal-Am's consultants, Kennedy Engineers, had, in December 1968, recommended that the rate of withdrawal be reduced to 2,000 acre-feet in 1975, tapering down to 1,500 in 1980. Because of the real possibility of salt water intrusion, and a lack of knowledge about the rate of recharge of the Seaside ground water basin, he concluded that Kennedy's recommendations were valid and reasonable, and adopted 2,000 acre-feet as his estimate of safe annual yield.

Mr. Bennett, Cal-Am's planning engineer, concluded that the utility could safely extract 3,500 acre-feet from the Seaside basin on a long term basis. This could be exceeded for a year or two, if in other years, pumping were to be cut back to let the water table recover. Mr. Bennett based this conclusion on the fact that the chloride level of the pumped water was not increasing, thus indicating no intrusion of sea water. Of this 3,500 acre-feet, about 3,000 acre-

feet would satisfy the requirements of the Seaside area with the remainder being exported westward into Monterey.

Mr. Bennett conceded that the trend in the water table has been downwards. The water level in the Luxton well, an observation well located on the high ground east of Fremont Street 3,000 feet back from the ocean, has fallen below sea level on occasions. Mr. Bennett was not alarmed by this drop since he concluded that there was a good likelihood that a fault to the west of the Luxton well and the major producing wells of Seaside sealed them from salt water intrusion.

Mr. Bennett considered the Kennedy estimates to be suggestions, not recommendations, and said that he thought Kennedy had been influenced by water quality difficulties in the Fort Ord area, where wells were showing increasing levels of chloride. He also said that Kennedy's estimates for reduced consumption assumed completion of a new high level dam on the Carmel River by 1975.

The DWR report was based on data furnished by Cal-Am, the city of Seaside, the U.S. Army Corps of Engineers (Corps) and the U.S.G.S. The report states that the data are adequate to estimate ground water yield and recharge but are inadequate to evaluate sea water intrusion.

According to the DWR report most of the Seaside ground water originates to the east and northeast as precipitation on the grass and bush covered terrain of the Fort Ord Military Reservation. There are actually two aquifers in the Seaside area. Near the coast the recent sand dunes form a minor aquifer. A second, and main aquifer underlies the sand dune deposit. In 1972 the minor aquifer supplied 190 acre-feet, about 4 percent of the total. The three wells tapping this aquifer (one of which was the Monte well, since sold and abandonded) have shown increases in chloride when heavily pumped, suggesting sea water intrusion. The DWR considered the minor aquifer to have little potential.

The main aquifer is a mixture of clay, sand, and gravel. Three vertically moving faults in the underlying Monterey shale determine the thickness, and thus the yield, of the aquifer. A fourth fault, lying along the Laguna del Rey and Arroyo del Rey, forms the southern boundary of the aquifer. While the faults affect the thickness of the main aquifer, they do not act as barriers to recharge nor to sea water intrusion. There are no wells of proper construction located close enough to the ocean to provide an early warning of sea water intrusion into the main aquifer.

The DWR found that the water table had dropped about 1.2 feet a year since 1958. The continued draft has caused the water table to drop below sea level in Playa Well No. 3 and to fall from 45 feet to 13 feet above sea level in Ord Village Well No. 1.

According to the DWR report the average extraction over the period 1958 to 1973 by Cal-Am and the city of Seaside had increased from 300 acre-feet in 1958 to 4,490 in 1973, with a maximum withdrawal of 5,180 acre-feet in 1972.

During the cross-examination of Mr. Meffley it was found that the DWR had not considered a total of 7,200 acre-feet of water pumped by East Monterey Water Service from 1958 to 1965, prior to its acquisition by Cal-Am. It also was brought out that the city estimated that its extraction of water would increase from 490 acre-feet in 1973 to 700 in 1980.

The DWR report originally estimated a safe yield of 2,200 acre-feet from the Seaside basin. Following the hearing at which Mr. Meffley testified, the DWR revised its estimated safe yield to reflect the East Monterey pumping. The final safe yield was 2,700 acre-feet of which 700 acre-feet should be allocated to the city and a nearby well in Fort Ord, leaving 2,000 acre-feet available for Cal-Am. The letter from DWR revising the estimate was read into the record by the examiner at the hearing of December 10, 1974.

The DWR report contained the following specific recommendation:

"2. Ground water pumping from the Seaside area be reduced from that presently pumped, and ground water levels and ground water quality be monitored to detect possible degradation of the ground water aquifers by sea water intrusion." (Exh. 32, page 2.)

At the conclusion of the report, under the heading "Future Studies", the DWR suggested:

"Additional activities which should be undertaken in the Seaside area to protect the underlying ground water basin are as follows:

"1. The California-American Water Company, Fort Ord, and the City of Seaside should shut down major producing wells (and adjacent wells) for a period of time to get an accurate water level recovery during the winter. A two-day shutdown would probably be adequate for this test.

"2. Sea water intrusion observation wells should be drilled west of the Playa wells. One shallow observation well in the upper aquifer and a deeper observation well perforated in the deeper aquifer and sealed off in the upper aquifer would be required.

"3. Test observation wells should be installed about one-half mile east of the Ord Grove well and about one-half mile east of the Seaside Test Well No. 5.

"4. A program of monthly well measurements should be initiated for the observation wells discussed above." (Exh. 33, page 20.)

Cal-Am, in its appraisal of the DWR report, Exhibit 33, had the following comment concerning the DWR conclusion that pumping was in excess of the recharge:

"In the years 1970-71-72 and 73, the underlying ground water aquifer in the Seaside area may have been in excess of the recharge. At the present rate of pumping in the year 1974, we do not believe it will exceed the recharge capability." (Exh. 33, page 4.)

Regarding the additional activities suggested by DWR, Cal-Am commented:

Re DWR Activity 1-Seaside:

"The company agrees that it would be advantageous to shut down the major producing wells for at least a two-day period which would enable the company, Seaside and Fort Ord to get an accurate water level recovery record. Cal-American will adopt this policy as far as their wells are concerned, and recommend that the other water producers do the same." (Exh. 33, page 9.)

Re DWR Activity 2-Seaside:

"The company agrees that an observation well would be advantageous west of the Playa wells, but doubts that the shallow observation well would be of any value since the major producing wells in Seaside are drawing mainly from the lower aquifer. The cost would be about $7,500, and will be recommended for the 1975 Budget." (Exh. 33, page 9.)

Re DWR Activity 3-Seaside:

"Such wells may provide some additional information; however, since these wells would be located within the boundaries of Fort Ord on Government property, the company can not undertake their installation." (Exh. 33, page 10.)

Re DWR Activity 4-Seaside:

"Any observation wells will be monitored at least once a month." (Exh. 33, page 10.)

According to Exhibit 33, Cal-Am would, assuming normal growth, and augmentation of the surface supply, meet its estimated 1985 requirement of 23,000 acre-feet by diverting 9,500 acre-feet from the Carmel River, pumping 10,000 to 11,000 acre-feet from the Carmel Valley underground, and 2,500 to 3,500 acre-feet from the Seaside aquifer. (Exhibit 33, page 20.)

In the questioning of Mr. Sullivan, by staff counsel, about the DWR recommendation that Seaside pumping be curtailed, the following exchange took place:

"Mr. Saroyan: Q. Do you agree -- does your company agree with this reduction, this figure that DWR has given, submitted?

"If not, why not?

"A. Well, previous testimony by company witnesses indicated that our estimate of the safe annual yield of Seaside was 3,500 acre-feet. Of course, the DWR indicated 2,700 acre-feet total safe yield.

"We feel that regardless of whether it is 35 or 27, that until certain modifications in the distribution system are made which we get into later in this exhibit, there really makes no difference because we have to utilize our existing Seaside wells annually depending upon the demand until the modifications are made.

"Q. That was the next question I was to ask you.

"In other words, no immediate reduction to that figure is going to take place; isn't that correct?

"A. That is correct. It all depends on supply and demand or demand, I should say." (Tr. 2,303.)

In his response Mr. Sullivan apparently overlooked that he was comparing Cal-Am's estimated safe yield based on its recorded extractions only, to the DWR total recommended safe yield for the entire Seaside Basin, which safe yield provided 700 acre-feet for the city of Seaside system and a well located on Fort Ord property.

Evaluation of Seaside Aquifer Estimates

Again, in evaluating the Seaside estimates we will not consider the water quality aspects, other than salt water intrusion, and consider that problem later in this opinion.

In light of the DWR report, and the earlier qualms of Kennedy Engineers, we have no choice but to adopt the staff and DWR estimate of 2,000 acre-feet as the total maximum amount of water that can be reliably taken by Cal-Am from the minor and major aquifers.

The safe yield of 3,500 acre-feet assumed by Cal-Am's engineer Mr. Bennett exceeds the DWR estimate of 2,000 by 75 percent. The 4,700 acre-feet extracted in 1972 exceeded it by 135 percent! It is obvious that the Seaside aquifers are being over exploited and there exists a real and frightening possibility that salt water may intrude into the aquifers and make them unavailable for use for many years. From the testimony and reports it appears that Cal-Am intends to extract from 2,500 to 3,500 acre-feet from the aquifer for an indefinite period into the future.

We will find that no more than 2,000 acre-feet of water per year can be reliably extracted from the Seaside basin. Because of the operating configuration of Cal-Am's Monterey District, we believe that the Seaside aquifers will always be pumped to the maximum extent allowable. We therefore will find that the concept of conjunctive operation is not feasible for the Seaside aquifers.

Total Available Supply

Based on the above analysis, and before considering water quality, environmental aspects, and required additional well and transmission facilities, we find that a total of 22,000 acre-feet of water are available to Cal-Am's Monterey District annually, on a continuing basis, from the following sources:

Carmel River (Under Present Stage of Development)	9,000 acre-feet
Carmel Valley Aquifer	11,000
Seaside Aquifers	2,000
Total	22,000 acre-feet

As mentioned earlier in our discussion of the second staff motion, Cal-Am, as part of its Exhibit 33, prepared at the request of the staff, described its present water supply capabilities and its intention to add interim capacity until a long run source of surface supply from the Carmel River can be developed.

It is our interpretation of Cal-Am's Exhibit 33 that, although presently developed wells in the Carmel Valley are capable of producing 6,000 acre-feet per year, existing iron removal equipment and transmission facilities can only process and transmit an amount of not more than 4,500 acre-feet. It follows therefore that the maximum total amount of water supply that can be prudently produced and delivered by existing facilities is 15,500 acre-feet, determined as follows:

Carmel River (Under Present Stage of Development)	9,000 acre-feet
Carmel Valley Aquifer	4,500
Seaside Aquifers	2,000
Total	15,500 acre-feet

Considering our finding that a reasonable estimate of 1975 water requirements is 16,500 acre-feet, we conclude that there is a present deficit of 1,000 acre-feet in the available water supply of the Monterey District, and that this deficit is being met by overdrafting of the Seaside aquifers.

Required Immediate Action

As we will explain later in this opinion, it is highly unlikely that an additional source of water can be made available to the Monterey Peninsula and Seaside urban areas for at least three years and probably much longer. If the present, or an increased, level of pumping from the Seaside aquifers should continue, there is the very real possibility that salt water intrusion would render some or all of the Seaside aquifer unusable. With the present overstrained water supply situation, the effects of such an event on the quality of life of Cal-Am's Monterey customers and the economy of the area would be most severe.

We will find that there is no prospect, for the foreseeable future, of developing a sufficient supply of water to accommodate the Hidden Hills area. We will, therefore, grant Cal-Am's request that Application No. 53653 be withdrawn without prejudice to a similar request's being filed when an adequate water supply should become available. This action is not intended to require Cal-Am to curtail or discontinue the emergency temporary supply to the Carmel Valley Mutual Water Company presently serving Hidden Hills through the existing 2-inch

service connection at the boundary of Cal-Am's service area at Rancho Tierra Grande Unit No. 3, but our declining, at this time, to order such discontinuance does not constitute a long-term commitment that such service be continued.

We will find that there is insufficient water to justify granting of Del Monte's request that Cal-Am be authorized to extend water service to the Deer Flats and Old Capitol Tracts. The water supply situation is sufficiently critical that we will find that there is no justification for rescinding or liberalizing our Interim Order of May 30, 1973. Accordingly, all of Del Monte's motions will be denied.

Although recorded water usage has declined slightly since the issuance of our interim order, customer growth has continued. It is unrealistic to conclude that this growth can continue without increasing the demand for water.

Section 2708 of the Public Utilities Code provides that:

> "Whenever the commission, after a hearing had upon its own motion or upon complaint, finds that any water company which is a public utility operating within this State has reached the limit of its capacity to supply water and that no further consumers of water can be supplied from the system of such utility without injuriously withdrawing the supply wholly or in part from those who have theretofore been supplied by the corporation, the commission may order and require that no such corporation shall furnish water to any new or additional consumers until the order is vacated or modified by the commission. The commission, after hearing upon its own motion or upon complaint, may also require any such water company to allow additional consumers to be served when it appears that service to additional consumers will not injuriously withdraw the supply wholly or in part from those who theretofore had been supplied by such public utility."

We will find that the presently existing water supplies of Cal-Am are inadequate to meet the normal continuing growth within its present service area. We also will find that Cal-Am has reached the limit of its capacity to supply water to its existing service area.

In lieu of granting the second staff motion we will order that Cal-Am not provide water to any new service connections, other than those in municipally sponsored redevelopments or renewal projects, unless a valid building permit has been issued prior to the date of this order.

In ordering this connection freeze we take full cognizance of the fact that the effects of this action will fall most heavily on the working people of the building trades. We also recognize that it will distort the normal pattern of real estate values. It is our intention that the freeze be lifted at the earliest prudent moment.

The exemption of redevelopment and urban renewal projects is made with the understanding that we have allowed in our determinations for water to be extracted from the Seaside aquifers by the Seaside municipal system and that the other redevelopment and renewal projects are to some extent replacing existing structures. Should growth in usage continue at an undue rate, we will re-examine this exemption.

Since some additional growth in usage can be expected under the terms of the order that follows this opinion, we will order Cal-Am to research conservation programs of other water purveyors and draft a vigorous and effective water conservation program and submit it for our consideration and approval.

As a further step for the protection of the Seaside aquifer, pending the reduction of Cal-Am's extractions to 2,000 acre-feet per year, we will order Cal-Am to implement and report the results of DWR's activities 1, 2, and 4 for Seaside, as agreed to by the utility in its Exhibit 33. We will also order Cal-Am to draft and submit a standby plan for water rationing should such a step be indicated as necessary by the reports made of the results of the DWR activities.

The DWR also recommended certain "activities" for the Carmel Valley. Pending completion of the Dames and Moore study of siting and drilling of new valley wells, now in progress, and the completion of definitive plans for increasing production from the Carmel Valley aquifer, we will not order the implementation of any of these activities.

AUGMENTATION OF SUPPLY

The expert testimony in this proceeding has demonstrated that there are water resources available to the Monterey Peninsula area ample to accommodate any anticipated demand for a long period in the future. The problem is that of the facilities required to store and divert the surface water available from the Carmel River, to extract water available from the Carmel Valley aquifer, to treat the water from both these sources, and to transmit the water to the more densely populated areas. The solution to the problem breaks down into three separate phases, a near term phase, that of providing 1,500 more acre-feet per year from existing wells in the Carmel Valley; an intermediate phase of expanding the production capabilities of the Carmel Valley aquifer from 6,000 acre-feet per year to 11,000 acre-feet; and a long range phase involving a large dam on the Carmel River. Cal-Am believes that it might be 10 years or more before such an additional surface supply would be available to the community. We believe that this is a realistic and, in fact, somewhat optimistic estimate.

Facilities Required for Near Term Phase

There are two obstacles to the immediate expansion of deliveries from the Carmel Valley: water quality and transmission line capacity.

Standards of the U. S. Public Health Service[8/] prescribe a maximum limit of iron concentration in water of 0.3 Mg/l[9/] and of

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8/ Now administered by the U. S. Environmental Protection Agency.

9/ "Mg/l" is the abbreviation for milligrams per litre, which is essentially the same as the formerly accepted term of "parts per million". These extremely small concentrations can be visualized by realizing that, if expressed in terms of Martinis, a Mg/l is the equivalent of one ounce of vermouth to an 8,000 gallon tank car of gin.

manganese of 0.05 Mg/l. Although much larger concentrations are not likely to have an toxicologic significance, iron and manganese are highly objectionable constituents in water for either domestic or industrial use. Domestic consumers complain of the brownish color which iron imparts to laundered goods and the rust-colored stains which it leaves on porcelain plumbing fixtures. Iron appreciably affects the taste of beverages.

Manganese also produces a brownish color in laundered goods and impairs the taste of beverages, especially coffee and tea.

Iron and manganese content of the water from the Carmel Valley tends to increase towards the lower end of the valley. Water from wells in the upper part of the valley can be blended with surface water to produce acceptable concentrations, but when the Schulte well, Cal-Am's last well in sequence down the valley, was drilled, water with an iron concentration of 3.23 Mg/l and a manganese concentration of 0.35 Mg/l was produced. Before this water could be used it was necessary to install a treatment plant to remove the iron and manganese.

To drill its next, and to date last, well, the Begonia well, Cal-Am moved back upstream where it thought that iron and manganese concentrations would be less. The Begonia well produced water averaging 0.66 Mg/l of iron and 0.14 Mg/l of manganese. Cal-Am feels that it cannot make use of the water from the Begonia well until an iron removal plant is placed in service. With the completion of the Begonia iron removal plant, Cal-Am will have the ability to handle iron and manganese removal from all existing wells except the two Scarlett wells, which wells apparently produce water of satisfactory iron and manganese content.

Cal-Am has completed the design of a 6,000,000 gallon per day iron and manganese removal plant for the Begonia site. The utility estimates that, at 1973 price levels, the plant would have cost $540,000. With the completion of the Begonia treatment plant ✓

Cal-Am could put the Begonia well, which has a capability of 1,500 acre-feet per year, into operation and would then have the ability to produce 6,000 acre-feet annually from the Carmel Valley aquifer. In the opinion of Cal-Am, pumping of 6,000 acre-feet would not have a material effect on the environment.

Before Cal-Am could deliver 6,000 acre-feet annually from Carmel Valley underground sources it would be necessary to augment its transmission facilities.

Cal-Am studied the relative merits of two alternative methods of transporting water from the Carmel Valley. One alternative was to parallel existing transmission facilities through Carmel and the Del Monte Forest to Forest Lake Reservoir and downtown Monterey. The other was to run a new line from the lower Carmel Valley, at the Canada de la Segunda, over the ridge dividing the Carmel Valley and the Canyon del Rey, and thence into the Del Rey Oaks-Seaside area. Cal-Am decided that the second alternative would be the most economical, even though it involved pumping, and has aquired the necessary right-of-way and completed the preliminary design.

The Canada de la Segunda line would require a million and a half gallon balancing reservoir in the Carmel Valley, a pumping plant, 21,000 feet of 30-inch line, a million gallon storage reservoir at the crest, and 6,000 feet of 24-inch line. In addition, transmission and distribution plant in Seaside would require reinforcing, making a total of approximately 6 miles of new pipeline. Cal-Am estimated the cost at $3,200,000 and thought that it would take approximately 3 years to complete.

The need for the Canada de la Segunda project has long been recognized. In 1968 the following conclusions and recommendations were included by Kennedy Engineers in their report:

> "16. The forecast continuing growth in Monterey, Seaside, and Canyon Del Rey cannot be met by existing transmission supplemented by foreseeable additions to Seaside well supplies. The most economical transmission relief appears to be a line from the

Carmel Valley at Canada de la Segunda to Canyon Del Rey via the right of way already owned by the Company.

"17. It is recommended that engineering for construction of the pipeline to Canyon Del Rey be budgeted for 1969 and that the Company be prepared to construct this project by 1970."

The record does not indicate when the right-of-way was acquired but from Conclusion 16 it is obvious that the need of the Canada line was recognized by Cal-Am sometime before 1968. Cal-Am has proceeded with the preliminary design but further progress has been stymied by a lack of funds with which to pay for new construction.

Financing Near Term Phase Facilities

At the twentieth day of hearing, on October 3, 1974, Cal-Am's president, Mr. Hays, in answering one of Cal-Am's attorney's questions, described the difficulties the utility was experiencing in financing:

"Q. And do you have a statement to make concerning the financial aspects of the company's position, both interim and long-term financing, concerning the water supply problems in the area under discussion in these proceedings?

"A. Yes, I do.

"Q. Would you make that statement?

"A. In April of this year, the company offered for sale, six million dollars of debentures in order to fund most of its bank borrowing.

"Many institutional purchasers were contacted, but due to the low-earnings position of the company, it was only possible to find buyers for five and a half million dollars worth, five million of which will be sold in November, and five hundred thousand in January.

"The five and a half million dollars of debentures will not fully fund the bank borrowing, and it will be necessary to carry a million-dollar term loan with the bank until other financing can be arranged.

"We would have preferred to sell first mortgage bonds, but the earnings of the company would not permit the issuance of additional bonds.

"Under the terms of the trust indenture, the earnings before taxes, based on income, must be at least 1.75 times the interest charges.

"At the end of March 1974, at which time the company began to arrange for the financing, the recorded coverage for the twelve-months ending March 31, was only 1.34 times.

"Based upon the company's earnings, recorded in the twelve-months ending June 30, 1974, the coverage was only 1.41 times, and on a pro forma basis, with the interest on the five and a half million of debentures included at nine point seven-eighths percent interest--that is incorrect--it should be nine and seven-eighths percent interest, the coverage would only have been 1.10 times.

"Debentures could not be sold at that interest rate at today's market.

"The company has a rate increase application pending with the Public Utilities Commission for a much-needed increase in rates to bring the rate of return to the proper level of 10.09 percent. 10/

"This rate increase application includes all districts of California-American Water Company.

"We believe that to be a fair return based upon our cost of capital.

"We realize the heavy workload on the Commission and the staff, but we are hopeful that rate relief will be granted in December of this year or January of next.

"During 1974, the company reduced its operating and maintenance expenses to a bare minimum and has limited its capital additions to the internally-generated funds which amount to approximately 1.6 million dollars on an overall companywide basis.

10/ Application No. 54942 filed June 7, 1974.

"These restrictions must be continued in 1975 until rate increases are authorized and earnings improved.

"When rate increases have been authorized by the Public Utilities Commission, the company should be in a position to negotiate interim bank borrowing to finance capital improvements, which would include those mentioned by Mr. Sullivan in his testimony.

"Bank borrowing is only an interim form of financing and must be paid off periodically by the issuance of some type of long-term security.

"Bonds are the most logical and advantageous to the ratepayers.

"MR. WEISS: Thank you, Mr. Hays.

"No further questions." (Tr. 2,180-2,188.)

Earlier, on December 18, 1973, on the thirteenth day of hearing, Mr. Hays explained to the examiner why Cal-Am was precluded from raising capital by sale of stock:

"Q. In answer to a question by Mr. Hubbard, you explained that you couldn't sell debt securities because the earnings coverage required by your indenture would not permit it, but you also said that you couldn't sell equity securities.

"Who would you sell the equity securities to, if you could sell them?

"A. If we were to sell common stock, it would probably be to the American Water Works Company.

"Q. Why do you feel the American Water Works Company wouldn't purchase common stock?

"A. They must be assured of some type of an earning on their investment, and they couldn't put in that kind of money into a project or into the purchase of stock of California-American without being reasonably sure of some type of a return upon their investment.

"Q. Why couldn't they be assured of a return on their investment?

"A. Oh, they could, if we were to go before the Public Utilities Commission and receive the increases in our earnings sufficient to support additional debt and additional equity, it could be sold, but under the present circumstances it is just not feasible." (Tr. 1,470.)

Later, on December 11, 1974, the twenty-second day of hearing, Mr. Hays, in answer to questions by the examiner, described his understanding of the financial arrangements between American Water Works and its subsidiaries, particularly Cal-Am:

"Q. Just what financial assistance can you expect from the American Water Works Company?

"A. The American Water Works Company owns all of the common equity in this company, and has paid in capital surplus, but I don't believe that we could expect American to buy any additional common equity in the company when their present return on book common equity is only 1.8 percent.

"Q. Is Cal-Am Water Company--excuse me, American Water Works Company experiencing any difficult in financing?

"A. American Water Works Company is not doing any financing.

"All of their subsidiary companies do the financing themselves.

"Q. When the subsidiary companies issue equity, don't they sell it to the American Water Works Company?

"A. Some preferred stock has been sold to others.

"I believe the majority, not necessarily 100 percent, of the common equity is owned by American Water Works Company.

"There may be some small amount of common stock owned by others in some of the subsidiary companies, but as to the amounts, I don't know.

"Q. Do you know if any of the subsidiaries have sold stock in recent years, common stock?

"A. I don't know, but I don't believe so.

"Q. Has California-American Water Company ever sold common stock to American Water Works Company?

"A. Nothing in addition to the original financing.

"Q. As the company has grown, wouldn't it be expected that it would be financed with both debt and equity?

"A. Well, there will be a time when there--it will be necessary for additional equity financing.

"Q. What advantages do you believe accrues--accrue to the California-American Water Company of being part of the nationwide holding company operations of American Water Works Company?

"A. Entirely advice in financing and operations.

"They are a company of long existence, and have a great deal of experience and talents in various fields which we are allowed to call upon through the American Water Works Service Company." (Tr. 2,435-2,436.)

A cynical reader of the above-quoted passages could be pardoned for drawing the conclusion that the fate of the Seaside aquifers depends on whether Cal-Am's Board of Directors (all of whom are officers or employees of American Water Works or its service subsidiary) decides that Cal-Am is receiving revenues from all of its operating districts sufficient to provide a return on equity attractive enough to serve as an incentive for further investments by American Water Works.

Earlier, in describing the acquisition of California Water and Telephone Company's water properties by Cal-Am, we described the financial burden with which Cal-Am was commencing operations. Of the $41,734,768 purchase price only $29,449,397 represented earning assets, the remaining $12,285,371 being carried as a non-earning plant acquisition adjustment.

In 1966, when Cal-Am's Application No. 48170 to aquire the water properties of California Water and Telephone Company was being considered, the Utilities Division of our staff was concerned that a situation similar to that now existing might transpire. The Utilities

Division representative, coincidently now the examiner who heard the subject case, questioned American Water Works' president, John J. Barr, whether the indicated pro forma return on Cal-Am's common equity would be sufficient to attract the capital necessary to provide good service:

"Q. Turning to another subject, Mr. Barr, you testified earlier that you testified in many rate proceedings in many other States?

"A. Yes, I have, sir.

"Q. And you have heard much testimony concerning desirable level of earnings for utility companies --

"A. Yes, I have.

"Q. -- while you were in hearing rooms?

"Have you heard testimony that good earnings on common stock are a requirement for good service?

"A. I think good earnings on common stock can go to the general credit of the company and that can influence its ability to provide good service.

"Q. Well, do you feel that good earnings on common stock are required to furnish good service?

"A. Basically, yes.

"Q. Well, do you feel that 2.61 percent on common stock as developed by Mr. Engstrand is good earnings?

"A. No, I do not think it's the category of good, but I think I should have the opportunity to say that in this instance I do not think it implies any risk to good service.

"EXAMINER DONOVAN: Any other questions?

"MR. BONEYSTEELE: Just following up on Mr. Barr's last comment, why don't you feel that 2.61 is?

"THE WITNESS: First of all, there will be a considerable amount of internally generated funds available for improvements, capital additions, as needed. There is a locked-in two hundred and twenty-some-odd thousand just because of that amortization.

"Q. Would 2.61 percent rate of return on common equity be adequate for the balance of the American Water Works System?

"A. No.

"Q. So would the rest of the system be carrying the California operations?

"A. Carrying in the broad sense. What I had hoped to say was that American Water Works is in the position to provide capital funds and I offer the assurance that they will be provided as needed." (Tr. 158.) (Emphasis supplied.)

Earlier in that hearing, Mr. Barr was asked about American Water Works' intentions as to staffing Cal-Am's Board of Directors and financing of capital improvements:

"Q. On the management of California-American, what type of decisions will be made locally by the local president and what kind will be referred to the Delaware office of American Water Works?

"A. Well, I don't think any will be referred to the Delaware office of American Water Works Company as such. It would be our policy to operate under what I am inclined to describe as normal corporate practice in that we will have a board of directors of the company that would set policy, if you will; that board being comprised of representatives of American Water Works Company and hopefully of substantial indivíduals in the service area of the company. And having established general policy, it would be our expectation that the chief executive officer would carry out those policies.

"But, to our way of operating, the chief executive officer has as one of his prime responsibilities to suggest operating policies that should be adopted by the board. So I don't--what I am attempting to say is that this would be a normal corporate operation with policy set by its board of directors and carried out by its executive officers.

"Q. Will a majority of the board of directors be officers of American Water Works, officers or employees?

"A. Well, not necessarily. I think it would depend on the circumstances. As I would envision it, when we initially undertake operations we would have a board of six which would have as its initial membership Mr. Hays and five representatives of American Water Works Company. Now, with time I would expect that the board should be expanded to nine and I would expect that there would be fewer representatives of American Water Works Company and possibly five, depending on the circumstances, a minimum of three representatives from the service areas, and Mr. Hays.

"But again following normal procedures the stockholders elect the directors and do what they think is for the best interest of the company.

"Q. What will be the budgeting procedure for California-American? Will the budget be made up at the California-American level?

"A. The budget will be made up at the California-American level. Our procedures are that they be made by the operating company, submitted to the board of directors for consideration and action.

"Q. Board of directors of the operating company?

"A. Yes.

"Q. Then, taking the capital budget, for instance, how will the funds become available that are required to implement the capital budget?

"A. Well, of course, it's a little hard to say until you know what the capital budgets are and when they occur, but as a general policy, if you will, in the American Water Works system operation funds are provided for capital improvements by depreciation funds and retained earnings, the one source. When it becomes necessary to add new capital to the company, we normally follow the procedure of temporary financing, mostly through banks, until such a point as those borrowings have reached a magnitude where they warrant and justify the issuance of securities. And I think that is the basic policy and is the way that we would provide funds or Cal-American would derive funds for its plant expansion and improvement.

"Q. The funds Cal-American will obtain, internal financing, will they come through California-American or--excuse me--through American Water Works?

"A. To the extent of debt financing and even preferred stock financing, if any, I would say no. To the extent of common equity I would anticipate that American would do everything in its power to maintain its position as 100 percent owner of the common stock.

"Q. Well, what control does American exert then to see that the subsidiaries' capital expenditures are sound and well controlled?

"A. We review--again I say we and I speak of the board of directors of the operating company--review a proposal for capital improvement, the basis of the necessity for the rendition of the proper standard of service. You of course always have to recognize the ability of the company to provide the funds. But I would say 99.9 percent of the decision is made on the basis of necessity to maintain the proper standard of service." (Tr. 110-112, A. 48170.) (Emphasis supplied.)

The above excerpts from transcripts have been quoted at length to contrast the assurances of American Water Works and Cal-Am before the acquisition with their performance now. Nine years have passed. The "substantial individuals in the service area of the company" have not yet taken their places around the board table, which still is located on the banks of the Delaware, and although American Water Works may be "in the position to provide capital funds" they have not been provided and apparently will not be "provided as needed" unless the Commission acquiesces to Cal-Am's applied for rate increases.

According to Cal-Am's annual reports, American Water Works has not contributed any cash to Cal Am's capital since the utility's formation in 1966. Ordinarily, when a corporation depends on internally generated funds to finance needed capital expansion it maintains a modest dividend payment. Cal-Am, however, has earned

net income of $7,519,356.62 and paid out $5,455,000.00, a payout ratio of 72.55 percent. In two of the nine years, Cal-Am paid out more than 100 percent of its earnings in dividends.

In the 1967 annual report, an item of $842.46 identified as "Condemnation Suit" appeared under balance sheet Account 146, Other Deferred Debits. By December 31, 1974, this item, more specifically defined as 'Sweetwater Condemnation Procedures" had grown to $4,472,956.25.

Since no advances nor contributions to permanent capital from American Water Works appear on the balance sheet, it follows that Cal-Am must have financed this litigation itself and this deferred debit is nearly twice Cal-Am's December 31, 1974 earned surplus of $2,350,733.93.

Since the Sweetwater suit is for the ultimate benefit of American Water Works, as sole stockholder, the holding company has to date caused a net of $2,408,599.63 to flow out of the utility, shown as follows:

Net Income	$ 7,519,356.62
Dividends	(5,455,000.00)
Sweetwater Condemnation	(4,472,956.25)
	$(2,408,599.63)

In 1973 Cal-Am earned $512,864.61 and paid out, in dividends to American Water Works, $605,000.00. In 1974 it earned $913,728.91 and paid out $385,000.00.

The earnings and dividend record of Cal-Am was not explored at the hearings, and the obvious question as to why Cal-Am reduced its dividend so sharply in 1974 must, for the time being, go unanswered. It is interesting to note, however, that the 1974 Annual Report to the Commission shows that Cal-Am's depreciated net plant grew by only $308,741.14. The Sweetwater deferred debit grew by $521,889.11. Cal-Am spent more in 1974 on the Sweetwater

condemnation than it did in increasing its plant investment in the entire Cal-Am system, and had to cut its dividend to do it.[11/]

We note from American Water Works' 1973 Form 10-K as filed with the Securities and Exchange Commission, Exhibit 42 in this proceeding, that, in 1973, American Water Works invested $8,028,000 in common and preferred stock of its subsidiaries, $7,009,000 in common stock of Keystone Water Company alone.

The time has come for American Water Works to make good on its president's assurance that the parent company will provide Cal-Am capital funds which funds certainly are needed. The first step should be to fund the Sweetwater condemnation costs which were incurred solely for the benefit of Cal-Am's only stockholder. The $4,500,000 thus made available should be more than ample to fund the Canada de la Segunda Project.

In our Decision No. 84234 dated March 25, 1975 in Pacific Power and Light Company's Application No. 54651 for authority to increase its rates for electric service, we suggested a method of financing through sales of stock directly to the utility's customers by means of surcharges on their monthly bills. By so doing smaller

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11/ American Water Works 1974 Annual Report to Stockholders contains the following note to financial statements:

"NOTE 6/CONTINGENCY

In a preliminary opinion rendered in mid-September 1972, and confirmed by an interlocutory judgment of condemnation on February 20, 1973, the Superior Court of California, County of San Diego, fixed $14,485,000 as the award to be paid to a subsidiary, California-American Water Company (Cal-Am) in the condemnation of a part of its properties located in that county. On May 14, 1973, Cal-Am filed a Notice of Appeal with the Fourth Appellate District Court, San Diego District. In the event that the trial court's award is sustained after appeal, a loss of approximately $2.7 million, would be sustained, but there would be no continuing adverse effect upon the Company's consolidated income."

All that Cal-Am has received so far for its $4,472,956.25 spent on the Sweetwater condemnation is the prospect of a further loss of $2.7 million.

amounts of high cost debt would be required, and conceivably debt cost could be reduced. In view of Cal-Am's present financial condition, we extend this suggestion to Cal-Am and recommend that such a financing method be given very serious consideration.

The Order Instituting Investigation in Case No. 9350 does not include financing, capital structure, and Cal-Am's relations with its parent company. The record shows that Monterey's water problem is not lack of water but lack of funds. In the order that follows we will expand the OII to include the financing and Cal-Am's relationship to American Water Works. We also will expand the OII to include rate structure so that we may consider how the cost of the required facilities should be supported through rates.

Construction of Required Near Term Facilities

In the past we would have ordered forthwith the immediate construction of the Begonia iron removal plant and the Canada de la Segunda pipeline project pursuant to Section 762 of the Public Utilities Code, the applicable portion of which reads:

> "762. Whenever the commission, after a hearing, finds that additions, extensions, repairs, or improvements to, or changes in, the existing plant, equipment, apparatus, facilities, or other physical property of any public utility or of any two or more public utilities ought reasonably to be made, or that new structures should be erected, to promote the security or convenience of its employees or the public, or in any other way to secure adequate service or facilities, the commission shall make and serve an order directing that such additions, extensions, repairs, improvements, or changes be made or such structures be erected in the manner and within the time specified in the order. If the commission orders the erection of a new structure, it may also fix the site thereof."

In 1971, however, the Legislature added Section 762.5, as follows:

"762.5. The commission, as a basis for making any order pursuant to the provisions of Section 762 relating to location of structures, shall give consideration to, and include in its order findings upon, the following factors:

(a) Community values.
(b) Recreational and park areas.
(c) Historical and aesthetic values.
(d) Influence on environment. (Added Stats. 1971, Ch. 68.)"

In addition, the Commission is, as a state agency, subject to the requirements of the California Environmental Quality Act of 1970 (CEQA), as amended, Division 13 of the Public Resources Code (commencing with Section 21,000).

Pursuant to CEQA, we adopted by Decision No. 81237 dated April 3, 1973 in Case No. 9452, our Rule 17.1, "Special Procedure for Implementation of the California Environmental Quality Act of 1970 (Preparation and Submission of Environmental Impact Reports)". In Decision No. 81237 we stated:

"However, if an operating water utility needs to increase its plant in order to provide adequate service to its customers (see Solemint Water Co. (1968) 68 CPUC 111; A. and M.J. Sterkin (1967) 66 CPUC 740) the matters raised in such proceeding are within the purview of the jurisdiction of the Commission. It is the Commission which must weigh the service needs of the customers along with environmental, technical, and economic considerations to determine whether new plant should be constructed. When an EIR is required in this situation, the Commission would be the lead agency." (75 CPUC 133 148.)

The record contains no information on how the Canada project or the Begonia plant would affect the Section 762.5 factors nor does it contain the environmental data necessary to comply with CEQA. Staff counsel recommends that we order the utility to commence with the construction of the Canada project but, in light of specific directives from the legislature, we shall defer action on this recommendation until we are in possession of the necessary environmental and community information.

At the next hearing in this proceeding we will consider the application of CEQA, Section 762.5 of the Public Utilities Code and Rule 17.1 to the construction of the Begonia iron removal plant and the Canada de la Segunda pipeline project. In particular we will consider motions to determine who is the proponent of the projects (Rule 17.1, Section (e), Subsection (2)(F)) and thus responsible for payment of fees for recovery of costs incurred in preparing environmental impact reports (Rule 17.1, Section (o)).

In the order which follows we will direct Cal-Am to file monthly reports on the status of financing and constructing the Begonia iron removal plant and the Canada de la Segunda project. We will also direct that a copy of each report be furnished to the Zone 11 Water Advisory Committee.

Facilities Required for Intermediate Phase

Cal-Am has directed its consultants, Dames and Moore, to undertake a comprehensive study of the practical aspects of siting and drilling wells in the Carmel Valley. This study should be completed late in 1975 or early in 1976. Cal-Am estimates that three wells, each costing $75,000 at current price levels, and a third iron and manganese removal plant, costing between $500,000 and $700,000, would be necessary, plus a pipeline to the transmission main. The total estimated cost of these facilities would be about $1,000,000.

Cal-Am would have to aquire the necessary well sites, possibly through condemnation.

The drilling of wells and other "projects" requiring a permit from local authorities would, under the terms of CEQA, require an Environmental Impact Report (EIR) for which Monterey County would be the "Lead Agency".

The environmental effects of the 10-foot drawdown as proposed by the DWR must also be considered. If the water table were to be drawn down below the root zone of the existing phreatophytes the character of the vegetation on the valley floor would change, willows being replaced by oaks and buckeyes, for example.

It was brought to the attention of the Commission by testimony of the Chief of the Division of Water Rights of the State Water Resource Control Board, Kenneth L. Woodward, that a 1973 court decision, County of Inyo v Yorty, 32 CA 3d 795; 108 Cal. Rptr. 377, dealing with a similar situation, interpreted CEQA as requiring the city of Los Angeles (Sam Yorty as mayor) to prepare an EIR on the effects of additional extraction of water and drawdown of the water table in the Owens Valley. Such EIR was to be filed with "the planning agencies of the county or counties where the project is to be constructed and where significant ecological impact may occur."

We shall defer any action on the intermediate phase until the submission of the Dames and Moore report. We shall, in further hearings in this proceeding, investigate more specific proposals, methods of financing such proposals, and the meeting of the requirements of CEQA. We will order Cal-Am to file quarterly reports on the status of the development of an intermediate term supply and furnish a copy of each report to the Zone 11 Water Advisory Committee.

Facilities Required for Long-Term Phase

Cal-Am states that the most feasible method of augmenting the long range supply is by the construction of a dam on the Carmel River, just downstream from the existing San Clemente Dam. Cal-Am's preliminary cost estimate of the dam, treatment facilities, and transmission mains, came to $40,000,000 at 1973 price levels.

Cal-Am sees at least three ways of undertaking such a project - the utility undertaking the entire project on its own; some public agency, such as Zone 11, undertaking the financing and construction of the project and leasing the facilities to Cal-Am; or the U. S. Corps of Engineers undertaking a multi-purpose project which would include flood control. In the event the Corps should construct the project, Cal-Am would be required to finance and construct treatment and transmission facilities costing $8,960,000.

The dam, as contemplated by Cal-Am's consultants, Kennedy Engineers, would be 274 feet in height, have a storage capacity of 33,000 acre-feet, and a firm yield of 21,000 acre-feet a year. The Corps, several times during the proceeding, presented status reports on studies for a multi-purpose dam through Jacob Eararí, a civil engineer. Just before submission in December of 1974, the Corps made public a "Public Information Brochure on Water Resources - Alternative Plans of Improvement for Carmel River Basin" which was presented for information purposes only by Mr. Sullivan as Exhibit 40. According to the brochure a dam for a multipurpose reservoir, contemplated by the Corps as one alternative to provide flood control, would be an earth embankment 455 feet high. The capacity would be 154,000 acre-feet of which 42,000 acre-feet would be reserved for flood control. It would yield 29,000 acre-feet of water annually if the water was to be diverted at the dam site. The cost of the dam would be $59,500,000 of which $52,560,000 would be allocated to the "Non-Federal" or water supply function.

Financing Long Term Phase

Cal-Am estimates that if it were to undertake construction of the required facilities, and if it could provide the necessary financing, revenue of at least $4,920,000 over and above the 1973 level of $3,200,000 would be required, an increase of over 150 percent. This assumes no increased corporate income tax since accelerated income tax depreciation would offset the income requirement for common and preferred stock.

If a public agency were to finance the project through municipal bonds, Cal-Am believes that $2,760,000 additional revenue would be required, an increase of 86 percent. This estimate made no allowance for any ad valorem taxes that Cal-Am might be required to pay on its possessory interest in such a project.

The record does not contain sufficient information to evaluate what the impact would be of financing the $52,560,000 cost under the Corps dam alternative, plus the required treatment and transmission facilities, but obviously it would have a very substantial effect.

The substantial increases in revenue required under any of these proposals, and the question of how they should be apportioned between present and future customers, reinforces our conclusion reached earlier that our Order Instituting Investigation should be amended to include financing and rates.

In the order that follows we will direct Cal-Am to file quarterly reports on the status of development of a long term water supply and to furnish a copy of each such report to the Zone 11 Water Advisory Committee.

Ord Terrace Water Quality Problems

We earlier described the petition of the Ord Terrace Water Quality Committee presented at the November 19, 1973 hearing. This area is served from wells drawing upon the Seaside aquifer which water contains iron and noticeable amounts of hydrogen sulfide. The

distribution system was installed by the former East Monterey Water Company and the distribution system pattern generally consists of parallel and interconnected 4-inch asbestos cement and 2-inch galvanized steel distribution mains, one on each side of the street.

Cal-Am was at first of the opinion that, since water samples taken within customers' houses were generally much worse than those taken outside, the problem was within the customers' plumbing. It installed a polyphosphate feeder at the Ord Grove plant in an attempt to reduce the corrosive properties of the water.

No noticeable improvement occurred, however, and the problem occupied much of the time of Cal-Am's water quality superintendent, Ronald A. Perdue, a graduate chemist. A water quality consultant from Kennedy Engineers was engaged by Cal-Am to investigate the problem independently of Cal-Am.

Mr. Perdue made several detailed progress reports at the hearings. Cal-Am's attempts to rectify the Ord Terrace water quality were monitored by assistant utilities engineer Francis Stanley Ferraro, a graduate civil engineer of our staff. At the December 11, 1974 hearing, Mr. Ferraro presented the following appraisal of and recommendations concerning the situation:

> "Inspections of California-American Water Company's facilities in Ord Terrace were made June 3, August 2, September 30 and November 12. During these inspections, meetings took place with California-American's representatives, Colleen McGrath, the Co-Chairman of the Ord Terrace Water Committee, Robert Ryder of Kennedy Engineers, representatives of the City of Seaside and customers in the Ord Terrace area.
>
> "Through many discussions, meetings and inspections, the staff has concluded that:
>
> "1. Iron and sulfate reducing bacteria are the probable cause of the objectionable taste and odors in Ord Terrace.

"2. The iron and sulfate bacteria probably entered the distribution system during its initial development or sometime thereafter and began to flourish in all the iron pipes, especially those of the customers.

"3. The taste and odor problems did not become noticeable until chlorine was injected into the system by the water company in order to combat the hydrogen sulfide in the water supply.

"4. The addition of chlorine in low amounts less than 1 Mg/L resulted in the killing of the iron bacteria which then served as a nutrient source for the sulfate reducing bacteria. This, coupled with the environment of warm water 70-80°, and low pH of approximately 6.9 in the Ord Terrace water supply, accentuated the taste and odors and made the water served objectionable.

"In order to correct the taste and odor problems, California-American has done the following:

"1. In April and May, 1974 in the Ord Terrace area, the utility installed 19 blow-offs and 1 gate valve, did some minor connecting of distribution mains and began to extensively flush its system.

"2. In April, 1974 the utility replaced the activated carbon with sand in the filters at the Ord Grove well.

"3. Increased the chlorine residual to 1.5 ppm.

"4. Installed a sodium hydroxide or caustic soda feeder to control the pH and placed it into operation on June 21, 1974. At present, the utility is attempting to maintain a pH of approximately 7.1.

"5. Allowed customers, who requested it, to have their pipes flushed at no charge to them.

"There was no improvement noted in the water quality until the caustic soda feeder was placed into operation. Its addition, together with continued flushing, increased the pH sufficiently to reduce customer complaints. However, during a three-week period in October and November, 1974 the caustic

soda feeder was turned off in order to correct a problem at the pumping station. Thereafter, customer complaints to the staff indicated that without pH control the water quality deteriorated during the above period.

"Due to the chain of events surrounding the problems of water quality in Ord Terrace, the staff has concluded that in order to maintain an acceptable water quality in Ord Terrace, California-American Water Company should:

"1. Maintain a dosage of chlorine which will hold a chlorine residual of at least 1.5 Mg/L at the Ord Grove well site.

"2. Flush the problem areas of Ord Terrace on a regularly scheduled basis and inform the customers as to the dates and hours.

"3. Continue the policy of allowing those customers with problems to have their pipes flushed at no charge.

"4. Maintain the pH at a sufficient level to produce an acceptable water quality.

"The water quality in Ord Terrace has been a long complex problem which only recently has shown signs of improvement. The Commission staff will continue to work with the parties and will maintain a continuing review of the water quality furnished the Ord Terrace area." (Exhibit 45.)

Following Mr. Ferraro's testimony, Miss McGrath resumed the stand and reported that, while the quality of water was better, it was not good. There were still problems with odor and color, and she said that people of the area were still unaware of Cal-Am's program of flushing the plumbing of individual customers.

In reviewing the Ord Terrace problem, we note that there have been no complaints concerning salinity, and the overpumping of the Seaside aquifer does not seem to be the cause. The vigorous reaction of the residents to poor quality, but still potable, water is but a harbinger of what is to be expected, in a much wider area, should sea water intrusion finally occur.

We will implement the staff's recommendations in our order and we suggest to Cal-Am that, if it has not already done so, it should notify customers in the Ord Terrace area of the plumbing flushing program. We will also order Cal-Am to report periodically on the status of its efforts to improve the quality of water in Ord Terrace.

CONTINUATION OF PROCEEDING

The Monterey Peninsula water supply problem, as described in the foregoing opinion, involves complex engineering, geological, financial, and social issues. In order to maintain a coherent record of our monitoring and supervising this water supply problem, the Commission's investigation, Case No. 9530 will continue.

Because there is sufficient water in the Carmel Valley aquifer to meet Cal-Am's near and intermediate term needs we will not, at this time, expand this investigation to include the Rancho Del Monte Division of Water West Corporation, which also pumps from the Carmel Valley aquifer.

FINDINGS AND CONCLUSIONS

Findings

1. A reasonable estimate of water requirements for the year 1975 is 16,500 acre-feet.

2. The total supply of water available to the Monterey District of Cal-Am, annually on a continuing basis, is 22,000 acre-feet, determined as follows:

From the Carmel River (under present stage of development)	9,000 acre-feet
From the Carmel Valley Aquifer	11,000
From the Seaside Aquifers	2,000
Total	22,000 acre-feet

3. The maximum total amount of water that can be prudently produced by Cal-Am's existing facilities is 15,500 acre-feet, determined as follows:

From the Carmel River	9,000 acre-feet
From the Carmel Valley Aquifer	4,500
From the Seaside Aquifers	2,000
Total	15,500 acre-feet

4. The concept of conjunctive operation of surface and underground supplies is not feasible for the Seaside aquifers.

5. There is no prospect, for the foreseeable future, of developing a sufficient supply of water to accommodate the Hidden Hills area for which a certificate of public convenience and necessity is sought.

6. There is an insufficient supply of water to justify the granting of the request of Del Monte that Cal-Am be authorized to extend water service to the Deer Flats and Old Capitol Tracts.

7. The water supply situation is such that there is no justification for rescinding or liberalizing our interim order of May 30, 1973.

8. The presently existing water supplies of Cal-Am's Monterey District are inadequate to meet the normal continuing growth within its service area.

9. Cal-Am's Monterey District has reached the limit of its capacity to supply water and, except as provided in the order that follows, no further consumers can be supplied from the system of such utility without injuriously withdrawing the supply wholly or in part from those who have heretofore been supplied by the corporation.

Conclusions

1. The relief requested in Application No. 53653 should be denied without prejudice.

2. The motions of Del Monte that Cal-Am be authorized to extend service to the Deer Flats and Old Capitol Tracts should be denied.

3. The motion of Del Monte for revision or modification of interim order dated May 30, 1973 (Decision No. 81443) should be denied.

4. Ordering Paragraph 1 of Decision No. 81443 should be reaffirmed and continued in effect.

5. Until otherwise permitted by further order of this Commission, Cal-Am should not provide water to new service connections, other than

those in municipally sponsored redevelopment or renewal projects, unless a valid building permit has been issued prior to the effective date of this order.

6. Cal-Am should research conservation programs of other water purveyors, draft a vigorous and effective water conservation program, and submit such program for our consideration and approval.

7. Cal-Am should implement DWR Seaside Activities 1, 2, and 4 as agreed to in Cal-Am's Exhibit 33.

8. Cal-Am should draft and submit to the Commission a standby plan for water rationing.

9. The order instituting investigation should be expanded to include finances, Cal-Am's relationship to its parent corporation, and rate structure, insofar as these subjects affect the Monterey Peninsula water situation.

10. The Commission staff of the Finance and Accounts and Utilities Divisions should be directed to investigate the topics described in Conclusion 9 and prepare a report or reports for our consideration.

11. Cal-Am should be directed to file monthly reports on the status of financing and constructing the Begonia iron removal plant and the Canada de la Segunda pipeline project. Copies of each such report should be furnished to the Zone 11 Water Advisory Committee.

12. Cal-Am should file quarterly status reports on its progress in augmenting the intermediate term and long-term water requirements of its Monterey District, and furnish a copy of each such report to the Zone 11 Water Advisory Committee.

13. Cal-Am should continue its efforts to improve water quality in the Ord Terrace area of Seaside and, specifically, continue with activities 1 through 4 recommended by the staff in Exhibit 45. Cal-Am should file quarterly reports on the quality of the Ord Terrace water and of the status of the utility's efforts to improve it, and furnish a copy of each such report to the Ord Terrace Water Quality Committee.

14. Case No. 9530 should be continued.

SECOND INTERIM ORDER

IT IS ORDERED that:

1. The relief requested in Application No. 53653 is denied without prejudice.

2. The requests and motion of Del Monte Properties Company entitled "Request for Order Providing for Water Connections Previously Approved by the Commission" and "Motion of Del Monte Properties Company for Rescission or Modification of Interim Order Dated May 30, 1973 (CPUC Dec. No. 81443)" are denied.

3. Ordering Paragraph 1 of Decision No. 81443 is reaffirmed and continued effective as of May 30, 1973.

4. Until otherwise permitted by further order of this Commission, California-American Water Company shall not provide water to new service connections within its Monterey Peninsula District, other than those in municipally sponsored redevelopment or renewal projects, unless, prior to the effective date of this order, a valid building permit has been issued.

5. California-American Water Company shall research conservation programs of other water purveyors, draft a vigorous and effective water conservation program, and, on or before October 31, 1975, submit such program for our consideration and approval. Approval will be by means of a letter from our Secretary.

6. California-American Water Company shall implement Department of Water Resources Seaside Activities 1, 2, and 4 as agreed to by California-American Water Company in its Exhibit 33 in this proceeding. The two-day shut down of wells called for in Activity 1 shall be accomplished before March 31, 1976. The observation well called for in Activity 2 shall be completed by September 30, 1975. The program of monitoring the observation well called for by Activity 4 shall commence by October 1, 1975. Monthly reports of the results of monitoring the test well, together with an interpretation and evaluation of such results, shall be furnished to the Commission monthly, commencing on October 31, 1975.

7. California-American Water Company shall draft and submit to the Commission, on or before October 31, 1975, a standby plan for water rationing.

8. The Commission's investigation is expanded to include California-American Water Company's finances and its relationship to American Water Works Company, insofar as these subjects affect the adequacy of the water supply of the utility's Monterey District.

9. The Commission's investigation is expanded to include the rate structure of California-American Water Company's Monterey District.

10. The Commission staff of the Finance and Accounts and Utilities Divisions is directed to investigate the topics described in Ordering Paragraphs 8 and 9 and prepare, on or before June 30, 1976, a report or reports for our consideration.

11. Within thirty days after the effective date of this order, and the last day of each month thereafter, California-American Water Company shall file a report on the status of financing and constructing the Begonia iron removal plant and the Canada de la Segunda pipeline project.

12. Within thirty days after the effective date of this order, and each July 31, October 31, January 31, and April 30 thereafter, California-American Water Company shall file status reports on its progress in augmenting the intermediate term and long-term water requirements of its Monterey District.

13. California-American Water Company shall continue its efforts to improve water quality in the Ord Terrace area of Seaside and specifically continue with Activities 1 through 4 recommended by our staff in Exhibit 45. Within thirty days after the effective date of this order, and each July 31, October 31, January 31, and April 30 thereafter, California-American Water Company shall file reports as to the quality of the Ord Terrace water and the status of the utility's efforts to improve it.

14. The reports required from California-American Water Company in Ordering Paragraphs 6, 11, 12, and 13 shall continue until authorization for their discontinuance is received by further order of the Commission. A copy of each report shall be filed with the Zone 11 Water Advisory Committee. A copy of each report required by Ordering Paragraph 14 shall be furnished to the Ord Terrace Water Quality Committee.

15. Case No. 9530 is continued.

The effective date of this order shall be twenty days after the date hereof.

Dated at San Francisco, California, this 10th day of JUNE, 1975.

President

Commissioners