

Mr. King: See me  
about this.  
E.F.

C O P Y

243

STATE OF CALIFORNIA  
DEPARTMENT OF PUBLIC WORKS  
SACRAMENTO

Division of Water Rights  
Call Building, San Francisco

San Francisco, Calif.  
Dec. 24, 1921.

In re Application No. 2695

Mr. Ed. Fletcher,  
c/o W. L. Huber,  
1st Natl. Bank Bldg.  
San Francisco, Calif.

Dear Sir:

Your application of above number and map of reservoir have been checked over. Your attention is called to the following points.

The map of the reservoir is deficient in that a capacity curve is not shown. These capacities should be given for each 10 ft. contour, which may be given in the form of a table or as a curve.

It is also required to file a map showing the land to be irrigated, and the location of the conduit system.

State when this map may be reasonably expected. Also give at this time the approximate number of acres to be irrigated.

When the information requested above has been received, your application will be submitted for further consideration.

Very truly yours,  
PAUL BAILEY  
ACTING CHIEF OF DIVISION  
By E. HYATT, JR.  
Executive Engineer

STATE OF CALIFORNIA  
DEPARTMENT OF PUBLIC WORKS  
Sacramento

Division of Water Rights  
Call Building, San Francisco

San Francisco, Calif.  
January 24, 1922

Re Application No. 2695

Mr. Ed. Fletcher  
c/o A. E. Chandler, Atty.  
723 Balboa Building  
San Francisco, California

Dear Sir:

Your letter of January 21st requesting extension of time for completing the above numbered application has been received.

In compliance with your request you have been granted until July 1, 1922 within which to file maps and otherwise complete your application.

Very truly yours,

H. A. KLUEGEL  
CHIEF OF DIVISION

By E. HYATT, JR.  
Executive Engineer

FB:HEM

243



STATE OF CALIFORNIA  
DEPARTMENT OF PUBLIC WORKS  
SACRAMENTO

DIVISION OF WATER RIGHTS  
910 EIGHTH STREET

June 13, 1922

Application No. 2013.

Ed Fletcher Company,  
Fletcher Building,  
San Diego, California.

Gentlemen: Attention Mr. T. H. King, Chief Engr.

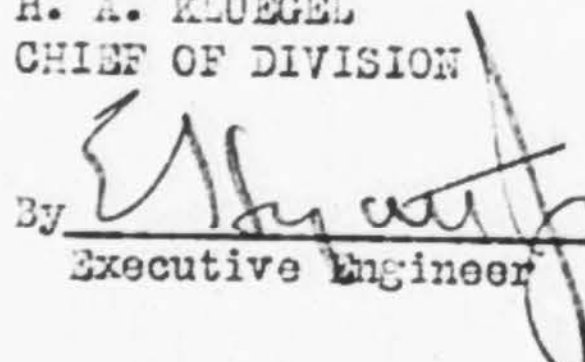
Your letter of May 20, in the matter of the above numbered application for water from Boulder Creek for power purposes, has been given attention and your attitude in the matter is appreciated.

No immediate action is contemplated by this Division and if the Federal Power Commission is to hold a hearing in the near future, no further steps will be taken until the result of the hearing is known.

The application will, therefore, be allowed to maintain its present status until further word is had from the Power Commission.

Very truly yours,

H. A. KLUEGEL  
CHIEF OF DIVISION

By   
Executive Engineer

EH: IM

[HYATT]

STATE OF CALIFORNIA  
DEPARTMENT OF PUBLIC WORKS  
SACRAMENTO

DIVISION OF WATER RIGHTS  
910 EIGHTH STREET

July 12, 1922

Application No. 2695

Mr. Ed. Fletcher,  
Fletcher Building,  
San Diego, California.

Dear Sir:

Examination of the above numbered application shows the following deficiencies to which your attention is invited:

Paragraph 5 shows a pipe line 10 miles long. This pipe line should also be shown on a map.

Paragraph 17. The vicinity wherein the water is to be used is stated, but the acreage to be irrigated is not shown.

Paragraph 18 should be consistent in total with Paragraph 17.

Paragraph 20. The only map in connection with this application on file with this office is a contour map of the reservoir which shows the area in 20-foot contours. The Rules and Regulations are very plain on this point and state contour maps of the reservoir sites should show the area in 5 or 10-foot contours. Besides this contour map, a map should be submitted showing the location of the ditch and also the location in detail of the land to be irrigated.

One copy of your application is herewith returned to you and, as provided in Section 17 of the Water Commission Act, you are allowed sixty days after this notice in which to file an amended and perfected application.

Very truly yours,

H. A. KLUEGEL  
CHIEF OF DIVISION

By   
Executive Engineer

JCF:JIM  
Enc.  
Reg.

cc to Mr. A. E. Chandler,  
723 Balboa Building,  
San Francisco, Calif.

243



STATE OF CALIFORNIA  
DEPARTMENT OF PUBLIC WORKS  
SACRAMENTO

DIVISION OF WATER RIGHTS  
910 EIGHTH STREET

July 20th 1922.

Application No. 2695

Mr. Ed Fletcher,  
Fletcher Building,  
San Diego, California.

Dear Sir:

Thru an oversight on the part of this office, a certain discrepancy in the above numbered application has not been called to your attention;

It is noted that under Paragraph 17, you state:

"The use of the water will be for irrigation of the Linda Vista Mesa and domestic supply of the City of San Diego."

From this statement, it is very evident that the use of the water is contemplated for both Agricultural and Municipal purposes, and you are advised that a separate application is required to cover each of these purposes.

Application blanks for each of the purposes are enclosed herewith with the request that you submit the applications in such form as you may deem advisable for the purpose of covering both the Agricultural and Municipal use.

Application No. 2695 should continue to cover the Agricultural phase of the project. The Municipal phase of the project should be covered by a separate application for which an additional filing fee is required.

Very truly yours,

H. A. KLUEGEL  
CHIEF OF DIVISION

By   
Executive Engineer.

JCF:M

Enc

STATE OF CALIFORNIA  
DEPARTMENT OF PUBLIC WORKS  
SACRAMENTO

DIVISION OF WATER RIGHTS  
910 EIGHTH STREET

July 28, 1922

Application Number 2695

Mr. Ed Fletcher,  
Fletcher Building,  
San Diego, California,

Attention Mr. T.H. King,  
Chief Engineer

Dear Sir:

In answer to your letter of July 25, 1922, relative to the above numbered application, please be advised that there is now on file in this office a tracing and print submitted in connection with the agricultural appropriation. It will not be necessary to submit a separate tracing for the municipal application.

It will, however, be necessary that two prints of this same tracing be filed with this office in support of the application. Suggestion is made that this office attend to having these blue prints made at your expense. If this suggestion meets with your approval will you, at the time of filing the municipal application, authorize this office in writing to proceed in this manner.

Very truly yours,

H. A. KLUEGEL  
CHIEF OF DIVISION

BY   
Executive Engineer

JCF:MC



243

August 2 1922

Mr. H. A. Kluegel,  
Chief of Division of Water Rights,  
Department of Public Works,  
Sacramento, Calif.

Application No. 2695

Attention Mr. E. Hiatt, Jr.

My dear Mr. Hiatt:

Answering Yours of July 28th, will you kindly  
have the blueprints made and bill sent to me, and I  
thank you very much for being willing to do this  
for us.

Yours sincerely,

EF:KLM

August 5, 1922.

File 110-3

Department of Public Works,  
Division of Water Rights,  
Sacramento, California.

Application No. 2015

[Iris Boulder Creek  
Power Project]

Gentlemen:

We certainly appreciate your patience and  
fairness in this matter but with certain litigation up  
with the city, with the supreme court decision soon to  
come referring to water rights of the Cuyamaca Water  
Company, and with the claim of a man named Moyer of  
the land on which we wish to make the diversion, things  
have been very much "up in the air", but we hope within  
90 days to clarify the whole situation, and unless  
someone else is pushing you in this matter, we would  
appreciate it very much if you can see your way clear  
to let this matter ride for that length of time.

Yours sincerely,

EF:KLM



Env. No 243

STATE OF CALIFORNIA  
DEPARTMENT OF PUBLIC WORKS  
SACRAMENTO

DIVISION OF WATER RIGHTS  
910 EIGHTH STREET

August 9, 1922

Application Number 2695

Mr. Ed Fletcher,  
Fletcher Building,  
San Diego, California.

Attention Mr. T.H. King

Dear Sir:

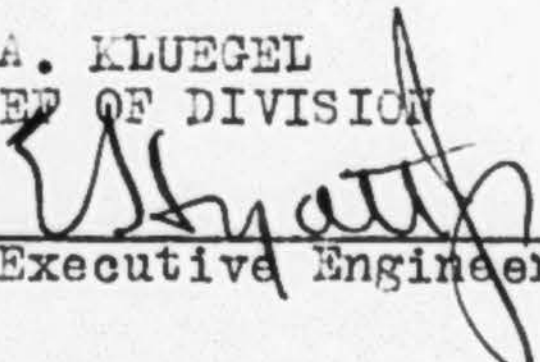
Acknowledgment is made of receipt by this office of three applications of which two are for agricultural purposes and the third is for municipal use within the city of San Diego.

Please be advised that it has been impossible to file any of these applications because no filing fee was submitted with the same. Request is made that you forward these filing fees at your early convenience.

It is noted with regard to the agricultural applications that you contemplate under each the irrigation of 150 acres from separate springs. If the same land is to be irrigated under each application, there is no reason why the project for the irrigation of this land from the two points of diversion should not be covered by a single application. Blanks are enclosed herewith for such an application if it is your desire to act on this suggestion. If it is necessary that you have at hand the two agricultural applications to make out this suggested application, kindly advise this office and copy of same will be sent to you immediately.

Very truly yours,

H. A. KLUEGEL  
CHIEF OF DIVISION

BY   
Executive Engineer

5  
JCF:MC



Env. No 243 -



STATE OF CALIFORNIA  
DEPARTMENT OF PUBLIC WORKS  
SACRAMENTO

DIVISION OF WATER RIGHTS  
910 EIGHTH STREET

August 19, 1922

Applications Nos. 2695-2989-2990-2991

8,700  
3,500  

---

4,300

Mr. Ed Fletcher,  
Fletcher Building,  
San Diego, California.

Dear Sir:-

Attention: T. H. King

6,300  
3,500  

---

2,800

Examination of applications 2695 and 2989 and map in connection therewith, and of applications 2990 and 2991, shows the following deficiencies to which your attention is invited:-

APPLICATION NO. 2695

5000  
70  

---

3500.00 ac ft Required  
3500 ac ft - 4.3 ac ft  
20  

---

7.2  
7

Paragraph 2 shows an amount equal to the total capacity of the reservoir. This amount will logically be reduced by the amount which will be used from this source as a municipal supply for the City of San Diego and also as hereinafter indicated.

Paragraph 7 - The map indicates that the storage dam will also serve as a diversion dam.

Paragraph 8 - The capacity of a twenty-four inch pipe if laid on a grade of one foot to one thousand has been computed to be 6.42 cubic feet per second which is the equivalent of approximately 4,700 acre feet per annum. Since the irrigation season will probably be less than the full year, the total amount which may be conveyed through this conduit will be less than 4,700 acre feet per annum. Kindly comment on this condition and amend your application to correct same.

20 ft x 1000  
" 20 ft

724  

---

316092  
12164  

---

4328

Paragraph 19 - Please fill in completely.

APPLICATION NO. 2989

Paragraph 2 - Since the amount specified is the same as the capacity of the reservoir, it is logical that same should be reduced by the amount which will be used for irrigation purposes.

Paragraph 7 - The map indicates that the storage dam will also serve as a diversion dam.

Paragraph 8 - Should be filled in completely. This information is necessary for the computation of the capacity of the conduit.

8 Sec ft



H-2-10-19/11/20

#2

Paragraph 18 - Should be filled in to cover the period indicated under paragraph 16.

One copy of amended application 2695 and a copy of application 2989 is returned herewith, and under Section 17 of the Water Commission Act you are allowed sixty days in which to complete same by submitting the information requested above.

APPLICATIONS NOS. 2990-2991

Paragraph 2 - In accordance with enclosed form 69, the maximum amount of water for which either application could be approved would be 1.87 second feet continuous flow or its equivalent in case of rotation. This amount should accordingly be entered under this paragraph .

Both of these applications are further deficient in that no maps according to the Rules and Regulations have been filed in support thereof and also in that certain of the information called for by the various paragraphs of the applications has not been submitted.

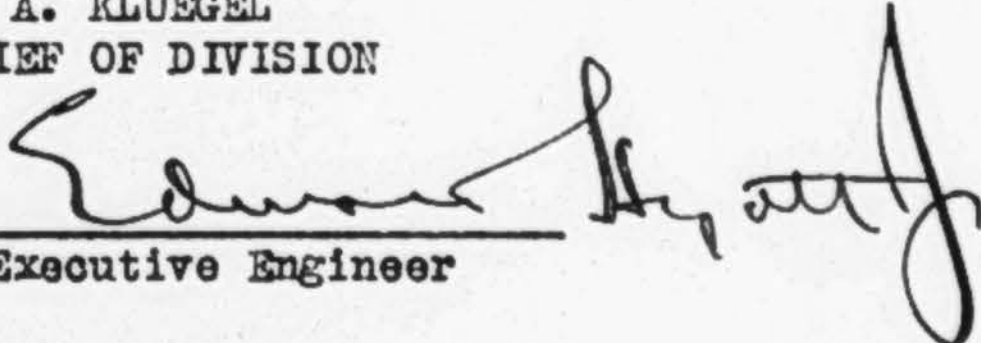
We are enclosing herewith six blanks of township plats on which, since the applications are for less than three cubic feet per second, maps as required by the Rules and Regulations may be submitted.

One copy only of each of these applications is filed. It is believed that a copy of each application was retained by you for your own files and request is made that amended applications be submitted in accordance with information contained on such retained copies. Should additional blanks be needed, same will be sent upon request.

Under Section 17 of the Water Commission Act you are allowed sixty days after this notice in which to complete these applications.

Very truly yours,

H. A. KLUEGEL  
CHIEF OF DIVISION

By   
Executive Engineer

JCF:IM  
Enc.  
Reg.



STATE OF CALIFORNIA  
DEPARTMENT OF PUBLIC WORKS  
SAC, SACRAMENTO

DIVISION OF WATER RIGHTS  
910 EIGHTH STREET

August 22, 1922

Application Number 2013

Mr. Ed Fletcher,  
Fletcher Building,  
920 Eighth Street,  
San Diego, California.

Dear Sir:

Acknowledging your letter of August 5th in  
the matter of the Boulder Creek filing.

In view of the involved situation you are ad-  
vised that an extension to December 1, 1922, in which to  
complete this filing has been allowed.

We would appreciate an opportunity to discuss  
this matter with you personally, and would be pleased to  
take it up with you the first time you are in Sacramento.

Very truly yours,

H. A. KLUEGEL  
CHIEF OF DIVISION

By

  
Executive Engineer

EHH:VT

August 25, 1922

File 110-3

Application #2013

[Boulder Creek Case]

Major H. A. Kluegel, Chief of Division,  
Department of Public Works,  
Division of Water Rights,  
Sacramento, Calif.

Attention Mr. Hyatt, Jr.

My dear Mr. Kluegel:

Answering your letter of August 22d, I thank  
you very much for the extension to December 1st to complete  
our filing.

The next time I am in Sacramento, I shall be  
glad to call and discuss this matter with you.

Yours sincerely,

EF:KLM

533(1)  
511  
2-2-11-22



# 243

STATE OF CALIFORNIA  
DEPARTMENT OF PUBLIC WORKS  
SACRAMENTO

DIVISION OF WATER RIGHTS  
706 FORUM BUILDING

October 31, 1922

Applications 2695-2989

Mr. Ed Fletcher,  
Fletcher Building,  
920-8th Street  
San Diego, California

Attention Mr. T.H.King  
Chief Engineer

Dear Sir:

Acknowledgment is made of the receipt of two letters from your office dated October 26, 1922, in accordance with the request contained in the letter signed by Mr. Fletcher, you are hereby allowed extension to November 10, 1922, in which to submit maps in connection with the above numbered applications. In case further information is required for the completion of these applications you will be asked for such information after the examination has been made of the amended applications and the maps in connection therewith.

Very truly yours

H.A. KLUEGEL  
CHIEF OF DIVISION

BY [Signature]  
Deputy Chief of Division

JCF:MC

*Mailed 10/31/22*

# 243

STATE OF CALIFORNIA  
DEPARTMENT OF PUBLIC WORKS  
SACRAMENTO

DIVISION OF WATER RIGHTS  
706 FORUM BUILDING

November 22, 1922

Applications Nos. 2695-2989-2990  
and 2991

Mr. Ed. Fletcher,  
Fletcher Building,  
San Diego, California.

Dear Sir:-

Attention Mr. T.H.King, Chief Engineer

Acknowledgment is made of receipt of two tracings and three blue prints of each of maps in connection with the above numbered applications to appropriate water from San Diego River in San Diego River.

Examination of applications 2695 and 2989 shows same to be sufficiently in form for advertising which will be instituted by this office in due course.

Applications 2990 and 2991 are deficient in that no maps in accordance with the Rules and Regulations of this office, have yet been submitted, and also in that certain of the information necessary for the completion of certain of the paragraphs of these applications has not yet been received.

Reference is made to a letter from this office dated August 19, 1922, which allowed, under Section 17 of the Water Commission Act, an extension of sixty days for the completion of the applications.

Please be advised that unless the information now requested for a second time for the completion of these applications is received within thirty days after this notice, it will be assumed that you do not care to proceed with them and applications Nos. 2990 and 2991 will be cancelled from the records of this office.

Very truly yours,

H. A. KLUEGEL  
CHIEF OF DIVISION

By [Signature]  
Deputy Chief of Division

JCF:IM  
Reg.

*E.F.G.*

*E.F.G.*



[HYATT]

STATE OF CALIFORNIA  
DEPARTMENT OF PUBLIC WORKS  
SACRAMENTO

January 11, 1923

DIVISION OF WATER RIGHTS

110-3  
Application No. 2013

Colonel Ed. Fletcher,  
Fletcher Building,  
920 Eighth Street,  
San Diego, California

Dear Sir:- Attention Mr. T.H. King, Chief Engineer

It appears that the above numbered application to appropriate water from Boulder Creek in San Diego County for power purposes will be in order for consideration for permit when two minor points in connection therewith have been cleared up.

As indicated to you by our Mr. Baker, the matter of right of access to the point of diversion is not yet cleared up and a possible solution of this problem would be for Mr. Fletcher to make assignment of the application to the Cuyamaca Water Company, which, as a public utility, would have the right of eminent domain, which right would in itself satisfy the requirements of this office in the matter of right of access of the applicant to point of diversion.

It is noted that while in the application the fall in the penstock is stated to be sixteen hundred feet, the figures given on the profile of the penstock would indicate that the fall is 1623.09 feet. It has been assumed that the latter figures are correct and, therefore, the application has been amended to agree therewith.

This amendment on the application causes a re-computation of the theoretical horsepower which becomes 9,222 theoretical horsepower rather than 9,000 theoretical horsepower as stated in the application. Please advise if our assumption in this respect and the amendments are agreeable to you.

When we have heard from you in connection with these two points we shall be in a position to proceed with

consideration of this application for permit and you are advised that if permit is issued prior to April 1st, 1923 it is proposed to set the date for beginning construction as June 1, 1923 and the date for completion of construction and application of water to proposed use as July 1, 1925.

Yours very truly,

H. A. KLUEGEL  
CHIEF OF DIVISION

BY E. Hyatt  
Deputy Chief of Division

ENB:CP



STATE OF CALIFORNIA  
DEPARTMENT OF PUBLIC WORKS  
SACRAMENTO

DIVISION OF WATER RIGHTS  
237 FORUM BUILDING

March 14, 1923.

Application No. 2013

Colonel Ed. Fletcher  
Fletcher Building  
920 - 8th Street  
San Diego  
California

Attention Mr. T. H. King, Chief Engineer

Dear Sir:

Under date of January 15th., this office was advised that the matters taken up in our letter of January 11th. would receive attention immediately upon Mr. Fletcher's return from the East. Nothing further has been heard to date. You are advised that action is being withheld on Application Number 2013 pending solution of the matter of right of access to the point of diversion on Boulder Creek.

As suggested in our letter of January 11th., it would appear that one solution of this problem would be for Mr. Fletcher to make an assignment of the application to Cuyamaca Water Company, which, as a public utility, would have the right of eminent domain, which right would in itself satisfy the requirements of this office with regard to the right of access to the point of diversion.

Your early attention in this regard is requested.

Very truly yours,

H. A. KLUEGEL  
CHIEF OF DIVISION

By   
Deputy Chief of Division.

*Get this file  
from J.H.H.  
and put in my  
office*

March 20, 1923.

110-2

Mr. H. A. Kluegel, Chief of Division,  
Division of Water Rights,  
Department of Public Works,  
Sacramento, California.

Attention Mr. Hyatt, Jr.

Application 2013

My dear Mr. Hyatt:

Answering yours of March 14th, will say this this application is made in the interest of the Cuyamaca Water Company. My associate, Mr. Murray, is dead. His estate is in probate.

The Cuyamaca Water Company is not a corporation but a co-partnership, and by June we will have everything cleaned up so that the transfer can be made to the new owner, probably a corporation. In the meantime the City of San Diego has filed a new suit, claiming the ownership of all the water in the San Diego River "from the tiny rivulets in the mountains to the shimmering sands of the sea", etc. Troubles never cease, but we will keep up the fight.

Yours very truly,

EF:KLM



STATE OF CALIFORNIA  
DEPARTMENT OF PUBLIC WORKS  
SACRAMENTO

DIVISION OF WATER RIGHTS  
707 FORUM BUILDING

October 8, 1923.

Applications Numbers 2695-2989

Mr. Ed Fletcher,  
Fletcher Building,  
San Diego,  
California,

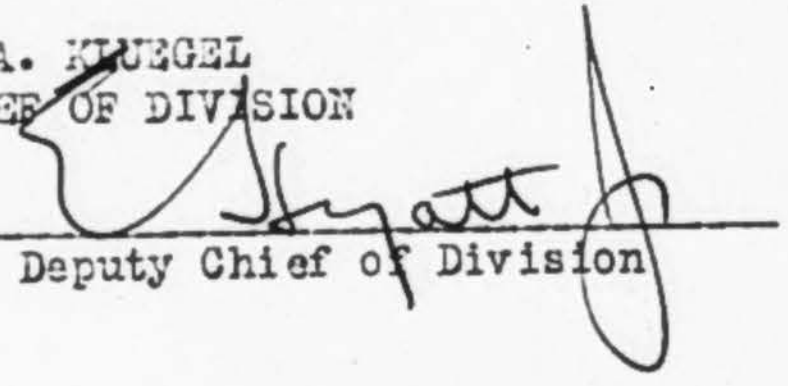
Dear Sir:

Action on the above numbered applications by yourself for the appropriation of 44,225 acre feet per annum from the San Diego River has been withheld until the outcome of the litigation between the City of San Diego and yourself concerning the "Pueblo Rights" of the San Diego River.

We would appreciate very much being apprised of the status of this litigation at the present time.

Very truly yours,

H. A. KLUegel  
CHIEF OF DIVISION

BY   
Deputy Chief of Division

October 18, 1923.

220-6

Mr. H. A. Kluegel, Chief,  
Division of Water Rights,  
Forum Building,  
Sacramento, Calif.

Applications Nos. 2695-2989  
Attention Mr. E. Hyatt, Jr.

Dear Sir:

Answering yours of October 8th, we have spent between \$10,000 and \$15,000 in core drillings, surveys, etc., and are planning to furnish water to the U. S. Naval Base, and recommendations have been made to the government to purchase from us an amount of water up to 3 million gallons a day by the Admiral in charge here, the water to come from Mission Gorge as soon as the dam is completed.

The price made to the government for water is 10¢ a hundred cubic feet delivered at the Marine Barracks, or 10¢ a thousand gallons at our dam, and temporarily from Murray Dam. Inclosed find report of Mr. Sellev, which will be of interest.

The city is simply delaying the game, and has not even gotten its case to trial in the Superior Court - the question of paramount right. It was to come up for demurrer the 23d of this month and the city has asked for a thirty day extension. The case cannot come up for trial in the Superior Court now until sometime early next year even under the most favorable conditions, and three or four years later it will be decided in the Supreme Court.

The plans for the Mission Gorge dam have been submitted to the State Railroad Commission and have been approved by the hydraulic department of the State Railroad Commission. Foundations are perfect as determined by our core drillings.

I suppose everything is still in statu quo, and assume that when the courts have finally knocked out the City's claim of paramount right, that my application will be granted. I own the damsite and a large part of the lands that will be flooded.

Kindly return exhibits herewith attached, at your convenience.

Yours very truly,

EF:AH



STATE OF CALIFORNIA  
DEPARTMENT OF PUBLIC WORKS  
SACRAMENTO

DIVISION OF WATER RIGHTS  
727 FORUM BUILDING

November 23, 1923.

Re Applications Numbers 2695-2989

Mr. Ed Fletcher,  
Fletcher Building,  
San Diego, California.

Dear Sir:

Under separate cover we are returning Mr. Sellow's Report on the San Diego River, and wish to thank you for your courtesy in forwarding it for our use.

Very truly yours,

H. A. KLUEGEL  
CHIEF OF DIVISION.

By   
Deputy Chief of Division.

State of California  
Department of Public Works  
DIVISION OF WATER RIGHTS  
Sacramento

NOTICE OF APPLICATION TO APPROPRIATE WATER

Application No. 4127

NOTICE IS HEREBY GIVEN, That the City of San Diego by J. W. Williams, Consulting Engineer, City Hall, San Diego, California, has under the date of July 31, 1924, applied to the Division of Water Rights, Department of Public Works, State of California, for a permit to appropriate unappropriated water, subject to existing rights, in the County of San Diego.

DESCRIPTION OF PROJECT

Water to be appropriated from Santa Ysabel Creek and Black Canyon Creek, tributary to San Diequito River.

Amount applied for 30 cubic feet per second from either or both sources, direct diversion and 60,000 acre feet per annum from Santa Ysabel Creek.

Diversion season named: Jan. 1 to Dec. 31 of each year.

Water to be used for Municipal purposes.

Point of direct diversion and diversion to storage from Santa Ysabel Creek at the SW $\frac{1}{4}$  corner of Sec. 15; Point of direct diversion from Black Canyon Creek within NE $\frac{1}{4}$  of NE $\frac{1}{4}$  of Sec. 17. All in T 12 S. R 2 E. S. B. M.

Place of use described as follows: In city of San Diego, Calif.

RELATIVE TO PROTESTS

Blanks upon which to submit protests will be supplied free by the Division of Water Rights upon request.

Any person desiring to protest against the granting of such permit shall within 60 days from date hereof, file with the Division of Water Rights, Sacramento, California, a written protest. Such protest shall clearly set forth the protestant's objections to the granting of the application and shall contain the following information:

- (1) Statement of the injury which would result to protestant from such appropriation and use.
- (2) The basis of protestant's water right.
- (3) Protestant's past and present use of water both as to amount used and land irrigated, or use made of water if other than irrigation.
- (4) The approximate location of such land or place of use and of the point of diversion of the water.

A COPY OF THE PROTEST SHOULD BE SENT TO THE APPLICANT AND THIS OFFICE NOTIFIED THAT THE SAME HAS BEEN DONE.

DATED: Sacramento, California,

July 15, 1925.

WEC:GG

EDWARD HYATT, Jr.,  
Chief of Division of Water Rights  
State Department of Public Works



STATE OF CALIFORNIA  
DEPARTMENT OF PUBLIC WORKS  
SACRAMENTO

DIVISION OF WATER RIGHTS  
707 FORUM BUILDING

July 30, 1925.

Re Application Number 2013  
Permit Number 1474

Mr. Ed Fletcher,  
Fletcher Building,  
920 Eighth Street,  
San Diego, California.

Dear Sir:

Based upon the report of Engineer T. R. Simpson of this office, an extension of time has been allowed within which to complete construction work and use of water under the above numbered application and permit, as per the enclosed order.

It is understood that a program of construction under this permit will be submitted on or before January 1, 1926, at which time a request for a further extension will be submitted.

Yours very truly,

*Edward Hyatt, Jr.*  
(Edward Hyatt, Jr.)  
CHIEF OF DIVISION OF WATER RIGHTS

Enc.

*Handwritten notes:*  
2013  
1474

*Handwritten note:*  
Bonanza Creek

State of California  
DEPARTMENT OF PUBLIC WORKS  
Sacramento



July 30, 1925.

Re Application Number 2013  
Permit Number 1474

Mr. Ed Fletcher,  
Fletcher Building,  
920 Eighth Street,  
San Diego, California.

Dear Sir:

Based upon the report of Engineer T. R. Simpson of this office, an extension of time has been allowed within which to complete construction work and use of water under the above numbered application and permit, as per the enclosed order.

It is understood that a program of construction under this permit will be submitted on or before January 1, 1926, at which time a request for a further extension will be submitted.

Yours very truly,

Edward Hyatt, Jr.

CHIEF OF DIVISION OF WATER RIGHTS

Enc.

*Handwritten note:*  
Mr. Matthews





Form 90.

Application Number 2013 - Permit Number 1474

ORDER GRANTING EXTENSION OF TIME WITHIN WHICH TO COMPLETE CONSTRUCTION WORK AND USE OF WATER

WHEREAS good cause has been shown wherefore an extension of time should be allowed for the completion of the construction work and use of water under Application Number 2013, Permit Number 1474, and

WHEREAS it appears to the Division of Water Rights that such an extension of time should be granted,

NOW THEREFORE it is hereby ordered that an extension of time be and the same is hereby granted until December 31, 1925, within which to complete the construction work and use of water

WITNESS the signature of the Chief of the Division of Water Rights, Department of Public Works of the State of California, and the seal of said department this 29th day of July, 1925.

EDWARD HYATT, JR.  
CHIEF OF DIVISION OF WATER RIGHTS

Sacramento, Cal.,  
December 14, 1925.

Division of Water Rights,  
State Department of Public Works,  
Sacramento, Cal.

Attention Mr. Hyatt, Chief of Division.

Dear Sir:

Referring to Application 12-2641 Certificate of Due Diligence for complete application of water of the San Diego River to proposed use, said Certificate having been issued the 6th day of September, 1922, we wish to call your attention to the fact that inadvertently we failed to ask for an extension of time before October 1, 1925, and for the reason that we have sold the system to the La Mesa, Lemon Grove and Spring Valley Irrigation District, who took possession of the Cuyamaca System on September 1, 1925. We expected them to ask for the extension of time, and the District, through an oversight, failed to act for the reason that they were under the impression that owing to the litigation time did not run against the Cuyamaca Water Company and the District in relation thereto.

The Cuyamaca Water Company and the La Mesa, Lemon Grove and Spring Valley Irrigation District, on the one side, and the City of San Diego, on the other, have continuously been in litigation over the waters of the San Diego River since 1923, and to date we have spent approximately \$80,000 or \$90,000 in attorneys' fees and costs.

On April 5, 1924, the District took an option to purchase the Cuyamaca System subject to the approval of the State Engineer and the California Bond Certification Commission. The approval of the State Engineer and the Bond Commission was secured, and by a four to one vote in November, 1924, the District, now comprising 18,300 acres, including the cities of El Cajon and La Mesa, with approximately 8000 residents, voted to purchase the Cuyamaca System and authorized two and a half million dollars of bonds for this purpose. By June, 1925, all the litigation was *effectively* eliminated and a buy and sell contract was entered into between the District and the Cuyamaca Water Company for the purchase of the Cuyamaca System. Under this contract we transferred possession of the Cuyamaca System to the La Mesa, Lemon Grove and Spring Valley District on September 1, 1925, and since that date the District has been paying us monthly 6% net on our total sales price of approximately

*was*



Division of Water Rights--#2

\$1,200,000, awaiting the sale of the bonds so that the purchase price may be paid the Cuyamaca Company. Bids for the bonds were recently opened and \$100,000 of the bonds have been sold to C. W. Anderson at 98.15, and \$1,900,000 of the bonds to Banks, Huntley and Company <sup>at 97.75</sup> for delivery December 21, 1925. As soon as the money is received, the purchase price will be paid to the Cuyamaca Company, the contract and deeds now being in escrow with the Southern Title and Trust Company, San Diego.

It has not been necessary to build the dam at the point of intended use as mentioned in Application 12-2641 for the following reasons:

All demands on the Cuyamaca System for the last five years, both domestic and irrigation, have been taken care of 100 per cent to date. During this period we have enlarged the El Monte pumping plant with the result that we can now pump 6,000,000 gallons per day instead of 3,000,000, the previous capacity of the pumping plant. For four or five months this year we have been steadily pumping approximately 6,000,000 gallons daily from the El Monte pumping plant directly into the flume. This has taken care of all demands, and we have a substantial reserve in Cuyamaca Lake and Murray Dam at the end of our irrigating season.

We refer you to letter of Ed Fletcher of September 15, 1922, and to your answer of September 21, 1922 re extension of time in case of litigation.

The Cuyamaca Water Company, as you know, is a public utility, and having furnished all demands, both irrigation and domestic, 100 per cent to date, has made it unnecessary to build the proposed Fletcher dam up to the present time. The interest sinking fund and operation and maintenance of the Fletcher dam makes the water that is impounded the net safe yield cost approximately 5½ cents per thousand gallons, while by the expenditure of \$35,000 in the enlargement of the El Monte pumping plant, we have pumped all the water we have needed into the flume at a cost of 4 to 4½ cents per thousand gallons. This has not to date necessitated the large investment of building the Fletcher dam, which would have been an extra hardship, both on the Company and the District in financing, and added somewhat to the cost of the water to the consumer through an increase in rates.

I have the authority, on behalf of the District and also on behalf of the Cuyamaca Water Company, to ask that you grant to the La Mesa, Lemon Grove and Spring Valley

Division of Water Rights--#3

Irrigation District or to the Cuyamaca Water Company, composed of Ed Fletcher and Charles E. Stern, a years extension or until October 1, 1926, to commence construction of a dam as specified in application and Certificate of Due Diligence, Application No. 12-2641, and that the Cuyamaca Water Company and the District be given until October 1, 1927, for its completion thereof.

Respectfully,

Cuyamaca Water Company

By Ed Fletcher  
Manager

La Mesa, Lemon Grove and Spring Valley  
Irrigation District

By Ed Fletcher  
Agent



STATE OF CALIFORNIA  
DEPARTMENT OF PUBLIC WORKS  
SACRAMENTO

DIVISION OF WATER RIGHTS  
707 FORUM BUILDING

February 17, 1926

Application Number 2013 - Permit Number 1474

Mr. Ed Fletcher  
Fletcher Bldg.  
#920 - 8th St.  
San Diego, Calif.

Dear Sir:

This office is in receipt of a letter under date of Feb. 11, 1926, from the La Mesa, Lemon Grove & Spring Valley Irrigation Dis't. by C. Harritt, General Manager, in which it is stated that the properties of the Cayamaca Water Co., involving the water right initiated by the filing of the above numbered application, are to be taken over by the La Mesa, Lemon Grove and Spring Valley Irrigation Dis't. The 1925 progress report relative to the above numbered application and permit was also received by this office.

Please be advised that further action on the above numbered application and permit will be withheld by this office, pending receipt of the new construction program of this project, together with satisfactory evidence of the consolidation of the companies as outlined in this letter of Feb. 11, 1926.

Yours very truly,

EDWARD HYATT, JR.  
CHIEF OF DIVISION OF WATER RIGHTS

By Everett N. Bryan  
Deputy Chief

cc:  
La Mesa, Lemon Grove & Spring  
Valley Irrigation District  
#121 So. Spring St.  
La Mesa, Calif

H.B. Copy of this letter given to T.H.King - Feb. 24, 1926.

April 2, 1926

Re Application Number 2013  
Permit Number 1474

La Mesa, Lemon Grove and Spring  
Valley Irrigation District,  
121 So. Spring St.,  
La Mesa, California.

Gentlemen:

Reference is made to our letter of February 17th, a copy of which is enclosed and to which we have had as yet no reply.

We would direct your attention at this time to the fact that the extension heretofore allowed for the completion of construction and use under this application and permit lapsed on December 31st, last. If it is desired to secure an extension of time you should file with this office either the original or the assignment of this application and permit from Mr. Fletcher, a certified copy thereof, or a written statement over Mr. Fletcher's signature to the effect that the application and permit has been assigned to you. You should also favor us with a statement of the estimated length of time which will be required to complete construction and use. These matters are earnestly commended to your attention.

Yours very truly,

EDWARD HYATT, JR.,  
CHIEF OF DIVISION OF WATER RIGHTS

By Everett N. Bryan  
Deputy Chief

ENB:HA  
CO to  
Mr. Ed Fletcher,  
Fletcher Bldg.,  
920 8th St.,  
San Diego, California.



STATE OF CALIFORNIA  
DEPARTMENT OF PUBLIC WORKS  
SACRAMENTO

*To be filed in  
"Water History"*

DIVISION OF ENGINEERING  
AND IRRIGATION

November 27, 1928

Mr. Ed Fletcher  
920 Eighth Street  
San Diego, California

SUBJECT: HODGES DAM

Dear Mr. Fletcher,

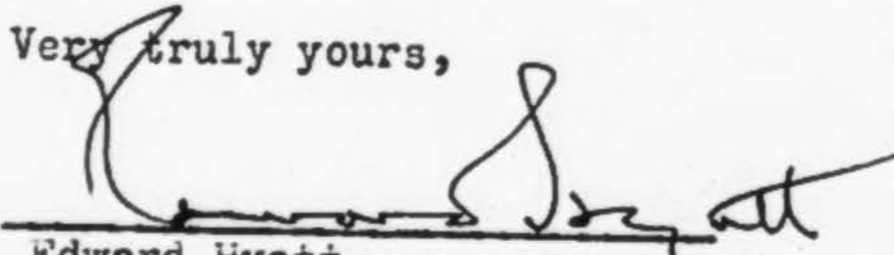
Please accept my apologies for not answering your letter of November 13th earlier. The delay has been due to the fact that I have been out of the office practically all of the time, and have only this morning read your letter.

I have appointed three consulting engineer, Messrs. F. C. Herrmann, B. A. Etcheverry, and A. Kempkey, to review the Hodges situation, and I believe they will be down there within a week. I will make a public announcement of this within the next few days, so would appreciate your not making this public until the announcement comes from this office.

As soon as the stress of official business relaxes even to a slight extent I am going to take you up on your invitation to spend some time at your Eagles Nest Retreat. Mrs. Hyatt is much interested in it, and if we can go up there and disconnect the telephone for a day or so it will certainly be a wonderful outing.

With best personal regards, I am

Very truly yours,

  
Edward Hyatt  
State Engineer

STATE OF CALIFORNIA  
DEPARTMENT OF PUBLIC WORKS  
SACRAMENTO

DIVISION OF ENGINEERING  
AND IRRIGATION

January 7, 1929


Mr. Ed Fletcher  
1020 Ninth Street  
San Diego, California

SUBJECT: CEDAR CREEK DAM

My dear Mr. Fletcher,

With reference to your proposed Cedar Creek Dam, Professor Etcheverry, of the University of California, recently inspected the site at the writer's request, and his report to me is that the site is satisfactory. Please submit plans and specifications for your proposed dam for the approval of this office.

Very truly yours,

  
Edward Hyatt  
State Engineer

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STATE OF CALIFORNIA  
Department of Public Works

SACRAMENTO

DIVISION OF WATER RESOURCES  
401 PUBLIC WORKS BUILDING

January 14, 1931

EDWARD HYATT, STATE ENGINEER  
CHIEF OF DIVISION

Mr. Ed Fletcher  
1020 Ninth Street  
San Diego, California

SUBJECT: MISSION GORGE #3 DAM

Dear Mr. Fletcher:

Your letter of January 9 addressed to Mr. Hyatt has during his absence from the office been referred to me for reply. Upon Mr. Hyatt's return to the office your letter, together with accompanying data, will be brought to his attention and I can assure you that he will not alone give this matter his careful consideration but will appreciate the opportunity of discussing this whole proposition with you as suggested in your letter. There is, however, as you can readily appreciate, a heavy demand on the State Engineer's time during legislative sessions and consequently I am unable to indicate a definite time at which Mr. Hyatt may be able to meet you in the South to discuss the proposed work and the procedure established by law, that is to be adhered to by the State Engineer in exercising jurisdiction of dams whether built or to be built.

It might be of assistance as well as general interest to you to relate briefly, for your information, our status in administering the law governing the supervision of dams. An annotated copy of the law including the rules and regulations established by the department and some general information is enclosed.

The 1929 Legislature effected legislation (Chapter 766 Statutes of 1929), under the police power of the State, empowering and directing the State Engineer to supervise the construction, enlargement, repair, alteration and maintenance and operation of dams in California for the protection of life and property. The law provides that construction of any dam shall not be commenced until the owner has applied for and obtained from the State Engineer written approval of plans and specifications. Application for approval is to be filed upon forms provided by the department and is to be accompanied by a filing fee based upon the estimated cost according to the schedule set forth in the act. The application is to be further accompanied by maps, plans and specifications setting forth all pertinent details, dimensions and information that are necessary and required to competently pass upon the safety of the proposed dam. These data should be in such detail and of sufficient accuracy that competent judgment may be concluded as to the adequacy of the technical features and suitability of the site for the type and height of dam proposed. These data should



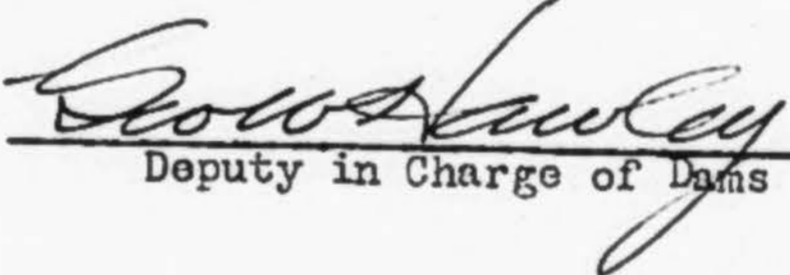
Mr. Ed Fletcher - 2

include the area of drainage basin, complete hydrographic data, exhaustive geologic data relative to abutment foundation and spillway conditions, complete engineering detail and detailed specifications for construction. In practically all instances when a masonry dam is under consideration it has been found advisable and necessary to require that the site be thoroughly explored by test pits, shafts and tunnels, in addition to core drilling to prove up and pass on the adequacy and suitability of the site for the type of dam proposed. Likewise, it is desirable in order to facilitate examination of the site and review of the plans to have the conclusions and reports of the owner's consulting engineers and geologists.

Answer to your question as to whether or not approval can be given to the type of construction shown on the drawing accompanying your letter can best be given by stating that the variable radius type of arch is recognized by engineers as acceptable and has been adopted in many instances, and has, through use, proved satisfactory. It is recognized by engineers as a proper and safe type of dam to be constructed on favorable sites where foundation and abutment conditions are without question adequate and suitable for this type of dam.

If at any time we can be of material assistance in preparing formal application for approval of plans and specifications for construction of any dam which will come under our jurisdiction or if through informal discussion substantial progress can be made in reviewing the technical features attaching to a proposed dam, we would appreciate your communicating with us. Furthermore, I am certain that Mr. Hyatt shall be glad to discuss your immediate problem with you at the earliest possible date.

Very truly yours,

  
Deputy in Charge of Dams

cc-W.H.Holmes  
Encl.



STATE OF CALIFORNIA  
Department of Public Works  
SACRAMENTO

DIVISION OF WATER RESOURCES  
401 PUBLIC WORKS BUILDING

EDWARD HYATT, STATE ENGINEER  
CHIEF OF DIVISION

September 25, 1931

Colonel Ed Fletcher  
1020 Ninth Avenue  
San Diego, California

SUBJECT: MISSION GORGE #3 DAM

Dear Colonel:

Answering your query as to the possibility of state and federal money for flood control in building Mission Gorge #3: It is not impossible that something might be accomplished along this line, although it usually takes a long period of preparation, education, etc. The next time I see you, will explain how state assistance has been secured in the past by other areas and also what I know regarding federal aid. From my knowledge I would not think federal aid would be at all probable, but that the state angle might hold more hope.

With best personal regards, I am

Very truly yours,

  
-----  
State Engineer

STATE OF CALIFORNIA  
DEPARTMENT OF PUBLIC WORKS  
SACRAMENTO

September 25, 1931

Colonel Ed Fletcher  
1020 Ninth Avenue  
San Diego, California.

SUBJECT: MISSION GORGE #3 DAM

Dear Colonel:

Answering your query as to the possibility of state and federal money for flood control in building Mission Gorge #3; It is not impossible that something might be accomplished along this line, although it usually takes a long period of preparation, education, etc. The next time I see you, will explain how state assistance has been secured in the past by other areas and also what I know regarding federal aid. From my knowledge I would not think federal aid would be at all probable, but that the state angle might hold more hope.

With best personal regards, I am

Very truly yours,

EDWARD HYATT  
State Engineer



STATE OF CALIFORNIA  
Department of Public Works

SACRAMENTO

DIVISION OF WATER RESOURCES  
401 PUBLIC WORKS BUILDING

EDWARD HYATT, STATE ENGINEER  
CHIEF OF DIVISION

February 23, 1932

SUBJECT: HODGES DAM  
ALLISON PLAN  
SAN DIEGO RIVER INVESTIGATION

Colonel Ed Fletcher,  
1020 9th Street,  
San Diego, California.

Dear Colonel Fletcher:

Having been out of the office almost continuously for some weeks, I find I have several letters from you awaiting answer relating to the Colorado River aqueduct proposed by Mr. Allison, the San Diego River flood control and conservation investigation, and lastly yours of February 18th, relating to these subjects and to Hodges Dam and enclosing three interesting photographs taken during the last high water.

Taking up first the Colorado River Aqueduct proposed by Mr. Allison, if this is to be considered as a substitute or alternate for the aqueduct proposed by the Metropolitan Water District of Southern California, an exhaustive and comprehensive investigation would, of course, be necessary before a true comparison could be made. I believe the City of Los Angeles and the Metropolitan District have expended between one and two million dollars to date on their investigations, and to obtain results of comparable accuracy on the Allison Aqueduct would take a long time and cost a great deal of money. Whether or not such an expenditure would be justified would seem to depend upon the decision reached on four or five major questions in connection with the southern route, such as water supply, use of Laguna-Salada Reservoir, preliminary cost estimates, and the very important question of locating the aqueduct in a foreign country. These questions were raised by Major A. M. Barton, chief engineer of the State Reclamation Board, to whom this matter was referred by the Governor, in a letter to Mr. King dated November 13, copy of which is enclosed.

It is the judgment of Mr. Barton and myself that a comprehensive investigation which would produce estimates of comparable accuracy with those of the Metropolitan district is hardly justified until these major questions have been passed upon, which could be done, of course, in much less time and at much less expense than would be required for the complete study. While it is difficult indeed to make an accurate estimate of what it would cost to report upon these questions, on the assumption that Mr. Allison has sufficient data so that no field surveys or geological examinations would be necessary a preliminary report on these fundamental questions, of sufficient accuracy to indicate whether or not further work is justified, could probably be made for about ten thousand dollars.

Colonel Ed Fletcher

2

This study could, of course, be made either by the proponents of the project or by the State office. At least I assume it could be made by the State office in the event funds were supplied for such purpose. I can state definitely that there are no funds available in the budget of this office for such work. I assume that it would be possible for the Governor or Director of Finance to contribute to the work from the State Emergency Fund, but in view of the condition of State finances can hardly be optimistic as to this possibility. However, this is a matter outside of my jurisdiction and one for the proponents to take up directly with the Director of Finance if they so desire.

It occurs to me also in this connection that the recent approval by a heavy majority by the Imperial Irrigation District of the All-American Canal contract may have some effect on the proposed aqueduct in that if the All-American Canal is built the Allison Aqueduct would be of no value to this territory.

Regarding the flood control and conservation investigation of the San Diego River, following letters from and conference with Assemblyman Bowers and Senator Harper, a letter was sent the Senator on December 16th, analyzing the situation in detail and I am enclosing copy of this letter also. The status has not changed since this letter was written. The financial situation is just as outlined in connection with the Colorado Aqueduct investigation.

Coming now to yours of February 18th, regarding Lake Hodges, this is a matter in which I am very directly interested inasmuch as I am taking the most aggressive possible action to compel repair of the dam either by the City or the Company. An application for Writ of Mandate was filed in the Supreme Court, which took jurisdiction, but transferred the case to the Appellate Court in order to afford an earlier hearing. Demurrers were filed both by the City and the Company and the matter was heard by the Appellate Court in Fresno about two weeks ago. We have answered the demurrers and in a few days the court will pass on the legal questions raised and if, as I hope and anticipate, the demurrers are overruled the City and the Company will file their answers, and the decision, which we hope will be a direct order from the Court to the City or Company to repair the dam, will issue a few weeks later if the attorneys do not raise further legal technicalities. I am enclosing copy of the petition filed by this office, also copy of the answer to the demurrers



Colonel Ed Feltcher

3

filed by the City and the Company, which it is urged that you read, as they set forth our position in this case rather fully. I hope that after reading these documents you will be convinced that under all of the circumstances Hodges Dam should be repaired, and that you will use your influence to that end. I have no objection whatever to your taking the position that the State should pay for the repairs (except that the law requires the owner to do this), or sending me photos of the water going over the spillway and a letter ending "ha! ha!" because I am delighted that San Diego County is having a good water year and also that Hodges Dam is showing no apparent weakness when full of water. The fact that it is performing satisfactorily, however, does not change the conclusions that it should be repaired, with which I think you will agree after reading the petition and answer filed with the Court.

On reading this long letter it occurs to me that perhaps you would rather have separate letters dealing with the three items in case you wish to use them, and would be glad to send them or a special letter on the Allison Aqueduct if you wish. Better still, I'll come down and discuss them all with you in the pleasant surroundings of Eagles' Nest.

With kindest regards, I am,

Sincerely yours,

  
State Engineer

Encl.

STATE OF CALIFORNIA  
Department of Public Works

SACRAMENTO

DIVISION OF WATER RESOURCES  
401 PUBLIC WORKS BUILDING

EDWARD HYATT, STATE ENGINEER  
CHIEF OF DIVISION

February 29, 1932.

Lake Hodges Dam -  
State Water Plan

Colonel Ed Fletcher,  
1020 Ninth Street,  
San Diego, California.

Dear Colonel:

Thank you for your letter of the 26th on Hodges. Will appreciate a copy of the paper in which you put the pictures. Have not heard from the court action yet, but the briefs are submitted and the ruling on the demurrer should be along in a week or so. Regardless of who pays for it I will force the court procedure to get the repairs made by someone.

I have your other letter regarding assistance to existing irrigation districts, and am sending a copy of the Governor's Water Commission's constitutional amendment draft of February 4th, and one of the Legislative Committee draft of February 6th. The latter contains a provision for underwriting districts and the former does not. The two commissions are not yet together on this matter, but it is hoped they will be able to agree before making a final report. Both of these drafts have been re-amended, but the later copies are not available.

The policy of including some method of extending assistance to existing districts received a great deal of attention in both commissions, and has been competently presented.

As soon as things let up somewhat will arrange to inspect some of the upper water sheds of San Diego County and get in touch with you then.

Sincerely yours,

  
State Engineer



RESOLUTIVELY ADOPTED BY THE CALIFORNIA WATER  
RESOURCES COMMISSION. February 4, 1932.  
DRAFT OF PROPOSED CONSTITUTIONAL AMENDMENT

Section 1. Subject to all other provisions of this Constitution, except as herein otherwise expressly provided, the Legislature shall have power to enact such laws as it deems necessary or proper:

(a) To provide for the acquisition, conservation, development, utilization, control, storage, transportation and distribution by this State, independently of, or in conjunction with any county, city and county, municipality or public district, or with the Government of the United States, or any other state or foreign country, or with any department or agency thereof, or with any person, firm or corporation, of water in this State; and for the doing by this State of any and all things necessary or proper in the making and carrying out of any plans therefor.

(b) To provide for a guarantee by the State of California of payment of the principal of and interest on any bonds that may have been or shall be authorized subsequent to January 1, 1931, by any public district or political subdivision of this State, in aid of or for the purpose of developing and bringing into California for use in that portion of California draining directly into the Pacific Ocean and extending from and including Santa Barbara County on the north to the boundary between the United States and Mexico, a supply of water from the Colorado River. Such legislation shall provide therein the terms and conditions under which said bonds shall be so guaranteed, and must provide for the levy and enforcement by the State of an ad valorem tax upon all property in any such district in an amount sufficient to reimburse

the State for any moneys it may pay out by reason of such guarantee in the event of a default by any such district in the payment of principal or interest of its said bonds. No act or law providing for such underwriting or guarantee shall take effect until, at a general election, it shall have been submitted to the people of the State and shall have received a majority of all the votes cast for and against it at such election. The provisions of Section 31 of Article IV of this Constitution shall not apply to any legislation enacted under this subdivision of this section.

(c) To provide that in actions in eminent domain brought by the State or a State agency, the State or State agency may take immediate possession and use of any property required for public use upon giving such adequate security in money as the court in which the proceeding is pending may direct and in such amount as the court may determine to be reasonably adequate to secure to the owner of the property sought to be taken, immediate payment of just compensation for the taking and any damage incident thereto as soon as the same is ascertained according to law.

(d) To provide that in actions in eminent domain brought by the State or any agency of the State to acquire water or the right to the use of water, any benefits which the owner of such water or right to the use of water may gain, or which may accrue to property of such owner not sought to be taken, through the construction and operation of the public works for the use of which said water or right to the use of water is sought, may be evaluated and offset as against the compensation payable upon such taking.

(e) To provide for contracts between this State and the United States of America or any authorized agency of the



United States of America, whereby the United States of America shall build any works or project for the conservation, distribution and use of water in this State, and advance the cost of such construction, and this State shall maintain and operate such works and receive all revenues therefrom and repay to the United States of America with or without interest thereon as may be agreed, and within such time not exceeding seventy years as may be agreed, all moneys so advanced by the United States of America; provided, that no act or law enacted pursuant to the provisions of this subdivision of this section, whereby the State of California shall become obligated in an amount exceeding Three Hundred Thousand Dollars (\$300,000.00), shall take effect until at a general election it shall have been submitted to the people, and shall have received a majority of all the votes cast for and against it at such election.

Section 2. In carrying out the provisions of this article and any legislation enacted pursuant thereto, it shall be the fixed policy of this State to preserve to and in any watershed or area wherein water originates, and in and to all areas immediately adjacent thereto and which can be conveniently supplied with water therefrom, a supply of water adequate for the needs of such watersheds or areas; and the right of such watersheds or areas or any of the inhabitants or property owners therein to such supply shall never be lost by reason of any transfer by this State of any water therefrom into any other area or watershed; provided that the provisions of this section shall not require this State to furnish any water which it shall have made available by the construction of any works, free of charge to any water user or consumer.

Section 3. In carrying out the provisions of this article and any legislation enacted pursuant thereto, it shall be the fixed policy of this State that no water development or water conservation project shall be constructed by the State of California, nor shall the State finally obligate itself to pay the cost of the construction of any such project, until and unless contracts have been first made with this State for the sale by it of water, the use of water, water storage, electricity or electric power to be made available by such project, which contracts shall, in the judgment of the State agency charged with the duty of investigating the feasibility of such project, be sufficient to provide for the repayment to this State, within not more than seventy years after the completion of such project, of all moneys expended by this State for the construction of such project, together with interest thereon at the rate at which bonds of the State of California are sold at the time that the construction of said project is ordered, and together with all expense of operating and maintaining such project, and making necessary replacements thereto. The State shall have power and it shall be mandatory upon the Legislature to provide for the levy and enforcement by the State of an ad valorem tax upon all the property in any municipality, district or political subdivision of the State contracting to purchase from the State water, the use of water, water storage, electricity and electric power, or any of the same, made available by any project constructed hereunder, to enforce payment to the State of all amounts provided to be paid under any such contract, and to insure that the State shall receive all such payments. Provided that nothing herein shall require the repayment to this State of moneys



expended by it for the construction of any project on account of benefit in flood control or improvement in navigation resulting from the construction of such project. No project shall be constructed hereunder unless and until the act authorizing its construction shall have been submitted to the vote of the people at a general election and shall have received a majority of all the votes cast for and against it at such election.

Section 4. There shall be created and maintained in the State Treasury a fund to be known as the Water Construction Fund, and also a fund to be known as the Water Revenue Fund. All moneys received by the State from the sale of bonds or other indebtedness incurred by the State for the purpose of paying the cost of construction of any project constructed under the provisions of this article shall be paid into said Water Construction Fund. All moneys received by the State from the sale or rental of water, water power, electric power, electricity, water storage or other income to the State derived from any project constructed under the provisions of this article, shall be paid into said Water Revenue Fund. All income of every description received by the State from any project constructed under the provisions of this article, or from any property acquired for the purpose of constructing such project, shall be used, first, in payment of the expense of operating and maintaining said project, and next, for the retirement or payment of the principal of and interest on all indebtedness incurred by the State for the construction of such project, until such indebtedness has been fully paid. Any balance remaining in said Water Revenue Fund to the credit of any project after said expenditures in any fiscal year, shall be kept and maintained as a reserve to pay any

deficiency of revenue which may occur in any subsequent fiscal year for the payment of the operation and maintenance of and necessary replacements to such project and the payment of principal of and interest on any moneys borrowed by the State for the construction of such project.

Section 5. In carrying out the provisions of this article and of any legislation enacted pursuant thereto, no exchange of the water of any watershed or area for any water of any other watershed or area may be made by this State, unless the water requirements of the watershed or area wherein such exchange is made are first and at all times met and satisfied were such exchange not made, and no right to the use of water shall be gained or lost by reason of any exchange thereof.

Section 6. Nothing in this article shall be deemed or construed to enlarge or diminish the power of the State as to the extent or character of property that the State may acquire by eminent domain.



JOINT LEGISLATIVE WATER COMMITTEE

TENTATIVE

PROPOSED CONSTITUTIONAL AMENDMENT DRAFT NO. IX,

as amended and tentatively approved

FEBRUARY 6, 1952.

Section 1. In addition to any and all powers otherwise held by it under this Constitution, and not in limitation or derogation thereof, the Legislature has power to enact such laws as it deems necessary or proper;

(a) To define surplus water and to provide for the determination of and the extent and amount of surplus water in any stream or stream system in this state;

(b) To provide for the acquisition, conservation, development, utilization, control, storage, transportation, and distribution by this state, independently of or in conjunction with any state agency, or with the government of the United States, any other state or foreign country, or with any department or agency of any thereof, or with any person, firm or corporation, of the water and water resources, including electric energy, in or which may be brought into this state, and for the doing by this state of any and all things necessary or proper in the making and carrying out of any plans therefor;

(c) To give or to lend or to authorize the giving or lending of the credit of the state in aid of any state agency for the payment of the indebtedness of any state agency incurred in the acquisition, ownership, and utilization of water or in the construction, acquisition, ownership, and opera-

tion of works for the conservation, development, control, storage, distribution or use of water by such state agency. Such legislation shall provide therein the terms and conditions under which the credit of the state shall be given or loaned or authorized to be given or loaned.

(d) To provide that in actions in eminent domain brought by the state or by a state agency in carrying out any project authorized by this article, or legislation enacted pursuant thereto, the state or state agency may take immediate possession and use of any property required for such project upon giving such adequate security in money as the court in which the proceeding is pending may direct and in such amount as the court may determine to be reasonably adequate to secure to the owner of the property sought to be taken immediate payment of just compensation for the taking and any damage incident thereto as soon as the same can be ascertained according to law;

(e) To provide that in actions in eminent domain brought by the state or any agency of the state to acquire water or the right to the use of water, any benefits which the owner of such water or right to the use of water may gain, or which may accrue to property of such owner not sought to be taken, through the construction and operation of the public works for the use of which said water or right to the use of water is sought, may be evaluated and offset as against the compensation payable upon such taking;

(f) To provide the place, method and manner of trial, and the manner of review of the decision therein, of an action or actions, brought by the state or a state agency for the determination or acquisition of water rights in a stream or



stream system;

Sec. 2. In carrying out the provisions of this article and any legislation enacted pursuant thereto, it shall be the fixed policy of this state to preserve to and in any watershed or area wherein water originates, and in and to all areas immediately adjacent thereto and which can be conveniently supplied with water therefrom, a supply of water adequate for the needs of such watersheds or areas; and the right of such watersheds or areas or any of the inhabitants or property owners therein to such supply shall never be lost by reason of any transfer by this state of any water therefrom into any other area or watershed; provided that the provisions of this section shall not require this state to furnish any water which it shall have made available by the construction of any works, free of charge to any water user or consumer.

In carrying out such provisions, no exchange of the waters of any watershed or area for the waters of any other watershed or area may be made by the state unless the water requirements of the watershed or area wherein such exchange is made are first and at all times met and satisfied to the extent that such requirements would have been met were the exchange not made and no right to the use of water shall be gained or lost by reason of any exchange thereof.

Sec. 3. In carrying out the provisions of this article and any legislation enacted pursuant thereto, no water development or water conservation project shall be constructed by the state of California, nor shall the state finally obligate itself to pay the cost of the construction of any such project, until and unless contracts have been first made with this state for the sale by it of water, the use of water, water

storage, electricity or electric power to be made available by such project, which contracts shall, in the judgment of the governmental agency of the state charged with the duty of investigating the feasibility of such project, be sufficient to provide for the repayment to this state, within not more than seventy years after the completion of such project, of all moneys expended by this state, or for which this state has obligated itself for the construction of such project, together with interest thereon at the rate at which bonds of the State of California are sold at the time that the construction of said project is ordered, and together with all expense of operating and maintaining such project, and making necessary replacements thereto. Nothing herein requires the repayment to this state of moneys expended by or for it for flood control or improvement of navigation.

Sec. 4. The state has power and it is mandatory upon the Legislature to provide for the levy and collection of an ad valorem tax upon all the property in any state agency in the event of a default by such state agency in the payment of any indebtedness for which it is liable and for which the credit of the state has been given or loaned, or in the payment of any amounts provided to be paid to the state under any contract for the purchase, use or storage of water or the purchase or use of electricity or electric power.

Sec. 5. Nothing in this article authorizes the creation of debts or liabilities of the state, contingent or otherwise, contrary to the provisions of section 1 of Article XVI of this Constitution, except that the Legislature may include such projects as it may deem necessary in one act.

Sec. 6. For the purposes of this article, the phrase "state agency" means and includes any county, city and county, incorporated city or town, or other public corporation or public district.



STATE OF CALIFORNIA  
Department of Public Works  
SACRAMENTO

DIVISION OF WATER RESOURCES  
401 PUBLIC WORKS BUILDING

EDWARD HYATT, STATE ENGINEER  
CHIEF OF DIVISION

February 16, 1933

EL CAPITAN DAM 8-3

Colonel Ed Fletcher  
1020 Ninth Avenue  
San Diego, California

Dear Colonel:


I assume your inquire of February 8th, refers to the El Capitan Dam. It is not correct that dump fill was placed in the dam which was subsequently removed by direction from this office. There was a question relating to the placement of fill materials in the dam, which was that a formal request was made by the City of San Diego, through Mr. Savage, for permission to construct a roll fill embankment at the base of the dam, adjacent to the concrete core wall, which would underlie the hydraulic fill portion. This request was, after careful consideration by this office, disapproved. In other words, permission was denied the City to place the roll fill as proposed within the confines of the dam.

Also, we required the excavation and removal of a considerable amount of material in the channel section as preparation of foundation for the dam itself. However, these materials were naturally in place and had not been deposited as a fill, this being simply foundation excavation.

Both of these matters were regularly handled in accordance with established procedure for exercising supervision of construction, and are all of record.

I discussed the water reports briefly with General Webb and believe they are coming along satisfactorily. I am,

Very truly yours,

  
State Engineer

STATE OF CALIFORNIA  
Department of Public Works  
SACRAMENTO

DIVISION OF WATER RESOURCES  
401 PUBLIC WORKS BUILDING

EDWARD HYATT, STATE ENGINEER  
CHIEF OF DIVISION

September 26, 1933

Grossmont Park Company  
c/o Mr. Ed Fletcher  
1020 Ninth Street  
San Diego, California

SUBJECT: EAGLE NEST DAM #832

Gentlemen:

There was adopted at the recent session of the State Legislature and approved by the Governor an amendment (Chapter 808, Statutes of 1933) to Section 2 of the Act Governing the Supervision of Dams (Chapter 766, Statutes of 1929) as follows: "The word 'dam' whenever used in this act shall mean any artificial barrier, whether heretofore or hereafter constructed, together with appurtenant works, if any, across a stream channel, water course or natural drainage area, which does or may impound or divert water, which is or will be either twenty-five feet or more in height from natural streambed to crest of spillway, or which has or will have an impounding capacity of fifty acre feet or more; provided, however, that any such barrier which is or will be not in excess of six feet in height, regardless of storage capacity, or which has or will have a storage capacity not in excess of fifteen acre feet, regardless of height, shall not be considered a dam within the meaning of this act; and provided further, that no obstruction in a canal used to raise or lower water therein or divert water therefrom shall be considered a dam within the meaning of this act."

In accordance with the terms of this Act as amended and the information of record in this office the department will no longer have jurisdiction over the above dam after the effective date of this amendment (August 21, 1933). Any orders or approvals previously issued will, on that date, be of no further effect and thereafter no action concerning this dam will be taken by the State Engineer nor be required of you by the State Engineer unless the dam is altered or operated in such a manner as to again bring it under jurisdiction within the terms of the Act as amended.

Very truly yours,

  
STATE ENGINEER

cc-W.H.Holmes



STATE OF CALIFORNIA  
Department of Public Works  
SACRAMENTO

13-20

EDWARD HYATT, STATE ENGINEER  
CHIEF OF DIVISION

November 20, 1933

Colonel Ed Fletcher  
1020 Ninth Avenue  
San Diego, California

Dear Colonel:

Answering your letter of November 11th, concerning letter from Col. Copley to you, I am enclosing a copy of letter I have just written this morning to Mr. W. G. Irving at Riverside. Mr. Irving is a close friend of mine, and this letter is in a personal vein, but covers the subject.


It is clear that the project cannot be a State liability, and that so far as repayment is concerned is a matter between the holders of the bonds (Federal Government) and those who have contracted to buy water or power. Southern California can in no way be taxed or be connected with the financial phase of the matter. On the other hand as pointed out in the letter, Southern California itself stands to benefit greatly.


I believe you have the Act, application and other pertinent data. I am enclosing copies of a small map showing the part of the state affected by this project. It is nearly half of the area of California, and contains two thirds of the lands now irrigated. The Valley is five hundred miles long and forty miles wide, so that it is not by any means a local project, but one that affects the entire state.

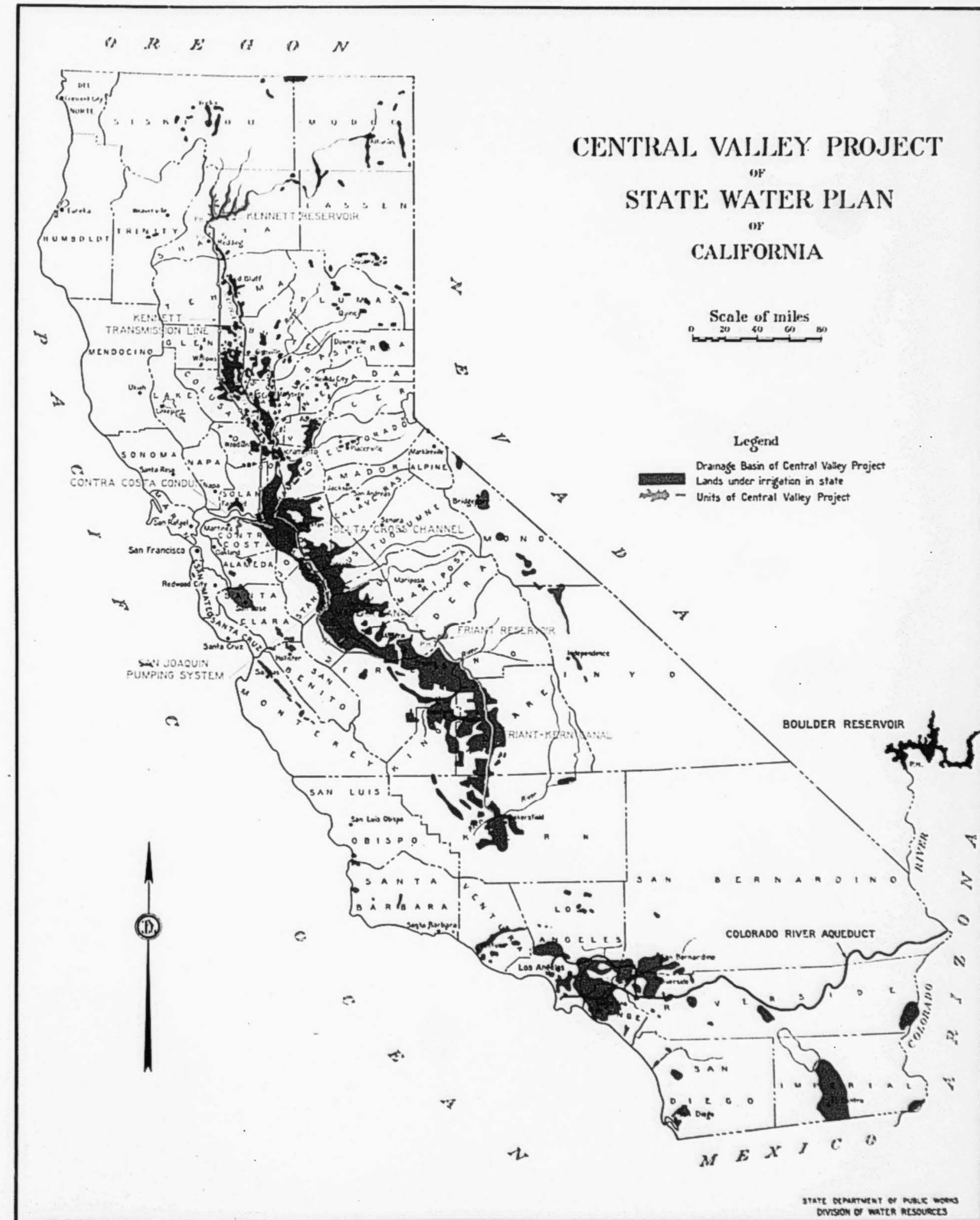
Hoping you can use this to good purpose, and with best regards,

I am,

Very truly yours,

  
State Engineer

Encl. 





STATE OF CALIFORNIA  
DEPARTMENT OF PUBLIC WORKS  
SACRAMENTO

DIVISION OF WATER RESOURCES  
401 PUBLIC WORKS BUILDING

EDWARD HYATT, STATE ENGINEER  
CHIEF OF DIVISION

November 20, 1935

Mr. W. G. Irving  
3616 Main,  
Riverside, California

Dear Mr. Irving:

I have your letter of November 16th, stating that you are opposed to the Central Valley Project of the Statewide Water Plan in the forthcoming election, and asking advice on various points. Since this is to be a personal letter which you will not directly quote, I shall start out by saying I think you are a hundred per cent wrong on this matter, and that it is one which everyone should support as being in the interest of the whole state, and will attempt to bring out briefly the argument in favor.

Answering your specific questions; first, the State of California as a whole is not responsible for the cost of the project. I am enclosing copy of the Act which provides in Sections 18 and 19 that the project is to be financed from the sale of revenue bonds. If you will refer to section 19 you will find the following statements, among others:

"Neither the payment of the principal or any part thereof nor any interest thereon constitutes a debt, liability or obligation of the State of California. Bonds issued under the provisions of this act shall not constitute or be a debt, liability or obligation of the State."

Am also sending copy of the application made to the Public Works Administration by the Governor, which contains as Exhibit "A" an opinion by the Attorney General. Quoting from this opinion (page 7, Appendix "A"):

"Bonds authorized by the act are the type generally known as Revenue Bonds, payable only from the revenues to be derived from the operation of the project, the holder having no recourse for payment to the general taxing power of the State."

The Attorney General also states in this opinion:

"The bond provisions of this act were drafted after and followed closely provisions for bonds in the California Toll Bridge Authority Act."

Mr. W. G. Irving

2

This is of interest in that the Toll Bridge Act has been twice upheld by our Supreme Court with reference to its bond provisions, and in the second case, decided on April 20, 1933 Chief Justice Waste wrote the following, which was concurred in by all of the other Supreme Court justices:

"We must not lose sight of the fact that these bonds are not, and cannot be, bonds of the State creating a general liability against it. So far as payment of principal and interest is concerned, no funds of the State, general or special, can be resorted to."

Thus, so far as bond provisions are concerned it seems very clear that the State cannot be liable as there is available, first the language of the law itself; second the opinion of the Attorney General of the State; and third, the decision of the Supreme Court of the State on a closely similar statute. As to what would happen should the revenue be less than that required to pay operating charges of the Project, one thing is clear--it could not be made up by statewide taxation or by the state under the above quotations, and presumably the same thing would happen as has resulted in the case of other districts which cannot meet their obligations, namely the holders of the securities (in this case the Government) would not receive the full amount due. It is, of course, not anticipated that this will happen.

Referring to Section 16, which purports to provide that the State may loan or donate money to the project, I am enclosing copy of the opinion of the Attorney General on this section, which is clear and conclusive to the effect that it does not legally authorize such contributions.

The above seems to me to completely cover your first question, in that under no circumstances can the tax payers of the State be called upon to defray the cost of the project or the makeup of possible deficiencies. You understand, of course, that the method of financing proposed, as set forth in the application, is to apply for a grant of 30 per cent of the cost of labor and materials, and to ask the Public Works Administration to purchase the revenue bonds for the remainder of the amount required at an interest rate of 4%, which is an extremely favorable method of financing, and under which, according to the application, the Project will be completely self-supporting.

Question 2: Naturally the land to be served by the water is agricultural land, and production on this land will be somewhat increased over what it now is. However, it is not designed to bring new land into cultivation; that is, land which is not now irrigated or has not been irrigated within the last few years. It is designed only to save lands now under cultivation and irrigation, which maintain a high degree of civilization, particularly in Tulare County, with which you are quite familiar. The areas around Navalencia, Orange Cove, Terra Bella, and to a lesser degree Lindsay-Strathmore, are examples. It is to save these communities from partial or total extinction, which will be of benefit not only to the farmers and the immediate community, but to the entire state. In the five counties of Madera, Fresno, Kings, Tulare and Kern counties there are about 400,000 acres short of water of which about 200,000 will have to be abandoned



ultimately if no new water is obtained, and about an equal amount in the Sacramento-San Joaquin Delta going backward on account of salt water intrusion. I think it far better to maintain irrigation and civilization on this half million acres of highly developed California lands than to allow them to be deserted and to bring in a half million acres of entirely raw land under irrigation in other states, which is just what will happen. The theory of not increasing crop production does not go so far as to say that whole sections of a State should be allowed to go to ruin in order that new sections should be brought in; if so, why is the United States committed to the expenditure of several hundred millions of dollars in the Mississippi Valley, the Columbia River Basin, etc. From a selfish standpoint, the federal funds are going to be expended in any event, and is it not far better to maintain a high order of civilization in California than to permit a tragedy to occur here and bring in entirely new production in other places? The increase in production by maintaining these now developed lands will not be much; furthermore, will consist to a very large extent of non-competitive crops.

Third: Your third question is rather difficult to answer. Perhaps I do not fully understand it. It is true that much agricultural land in the state is mortgaged or bonded to an extent beyond its ability to pay under present conditions which is true of many other lines of business also. The main reason that this 800,000 acres has trouble in paying, is deficient water supply or salt water conditions, and with the solution of these problems they will have far more ability to pay than they now have, with resulting benefit to land owner and bond holder both. The prices to be charged for the water are \$1.00 an acre-foot in the Sacramento Valley and Delta, and \$3.00 an acre-foot in the San Joaquin Valley, which is a very small percentage of the farmer's total operating cost. You fully understand that no one can farm successfully in the San Joaquin Valley without water. With a sufficient water supply at this reasonable cost the whole financial picture in my opinion will be tremendously improved.

As you doubtless know, this general plan of regulating the water supply of the Sacramento-San Joaquin drainage by transferring surplus waters of the Sacramento into the deficient San Joaquin has been the hope and the dream of Central California for more than fifty years. If accomplished, it will assure the future of this great inland empire, five hundred miles long and forty miles wide, an agricultural area probably not surpassed in possibilities anywhere in the world. With the water future assured, the population of this Central Valley might in fifty years be as great as the entire State of California is now. Extending over five hundred miles north and south, including almost half the area of California, and two-thirds of the land now irrigated, you can see that this is indeed a State and not a local problem. Whether this Valley goes ahead or goes back is a matter of concern for the entire State. Tulare and Kern counties particularly are directly tributary to southern California, buying their supplies therefrom and sending their products thereto. If there is abandonment of large sections in this area it will be a direct loss to southern California, whereas if it grows in the future it is a direct gain, and a very large gain, to southern California. There is also the question of taxes. If fifty or one hundred million dollars worth of taxable values disappear the remainder of the State will be called upon to make up the resulting tax deficit, whereas if the Great Valley produces additional taxable wealth this is a benefit to the entire State.

The reason that the State has to vote on this matter is that a State agency rather than a district has been set up to handle the project, exactly as was done in the case of the California Toll Bridge Authority, which is building the San Francisco-Oakland Bay bridge. It would not be up for a vote of the people except that the legislative act setting up the operating authority was held up by referendum petition, which can only be finally decided by vote of the electorate. The Toll Bridge Act or the Metropolitan District Act for that matter, could have been held up the same way, but no referendum petitions were filed against those statutes. It is pointed out that both the Boulder Canyon Project and the Metropolitan District required repeated State legislation, and for the last ten years in the Legislature northern California has whole-heartedly supported the legislation to get these two projects going. For southern California to reciprocate now in a matter which can cost them nothing, is only fair. Southern California has far more to gain from the Central Valley Project than Northern California did from Boulder Canyon, Metropolitan District, or the All American Canal. Yet northern California has supported all of these things many years and southern California will be not only serving its own interests, but giving fair treatment if it supports this project.

Summing up, this great project, embracing most of the agricultural land of the state, both for the present and the future, is of the greatest importance to the entire state, and materially affects the future of California. Under present conditions through Federal aid the opportunity exists to have it built without State liability of any kind, an opportunity that has not existed before and will probably not exist again. If it is ever to be built now is the time. If not undertaken now it will probably be delayed a generation, when it will cost a great deal more and will have to be paid for by the State as the federal opportunity probably will not again be available.

I shall not take space to dwell on the unemployment relief advantages-- it is estimated that there will be at least 25,000 men employed for three years. The opposition is coming mainly from the great power companies of the state, on account of the power production involved and the possibility of municipal purchase of said power. I think the power companies are very short sighted indeed as the growth and prosperity which will follow water security will mean increase of power market for all, including the power companies, whereas failing water supplies mean bankruptcy, less power consumption and less income for all.

You doubtless gather from this letter that I think this is a wonderful opportunity to stabilize water conditions in the Central Valley without state obligation, and that the project will be a benefit to all California and a detriment to none, which I can assure you is my honest belief. You are free to use these expressions as you see fit except that I do not wish to be quoted as regards the opposition of the power companies. I shall be pleased to hear from you further on any questions you may have.

With best personal regards, I am,

Very truly yours,

**EDWARD HYATT**

State Engineer



*San Pasqual*

March 17, 1955.

Mr. Ed Hyatt,  
State Engineer,  
Sacramento, California.

My dear Ed:

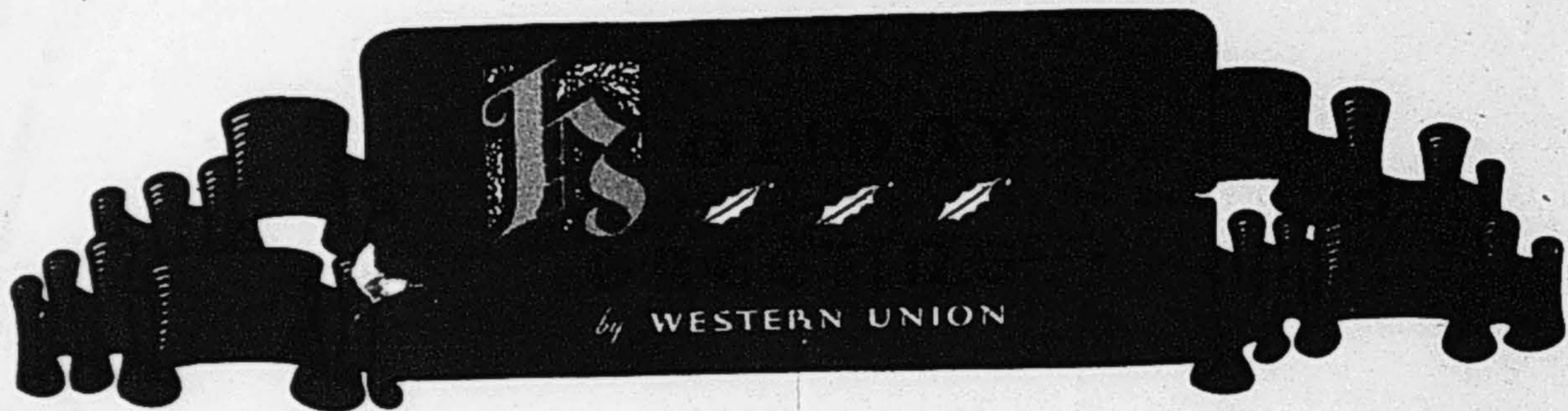
How soon will the report be out officially.  
I am referring particularly to the amount of water available  
in San Diego County.

My understanding is there is only enough water  
for domestic supply for 525,000 people, including Santa  
Margarita, San Luis Rey, San Dieguito, San Diego River,  
Sweetwater, the Spreckels system, and part of the Tijuana,  
and that we are using about half of that water now. Is this  
correct?

Can you give me a letter on this subject, what  
Van Etten's report is, and let me know whether it can be  
published or not, but I want the facts.

Very sincerely yours,

EJRC



FA359 51 = SACRAMENTO CALIF 20 558P

COL ED FLETCHER=

SANDIEGO CALIF=

HAVE WON WATER PLAN ELECTION BEYOND REASONABLE DOUBT STOP  
CLOSE VOTE IN SANDIEGO COUNTY HAD A GREAT DEAL TO DO WITH  
SUCCESSFUL OUTCOME AND I KNOW YOUR EFFORTS HAD A LOT TO DO  
WITH RESULT STOP PLEASE ACCEPT WARMEST REGARDS APPRECIATION  
FOR WHAT YOU HAVE DONE STOP MERRY CHRISTMAS TO ALL=

EDWARD HYATT.

*20 90*



1933 DEC 20 PM 6 10



STATE OF CALIFORNIA  
Department of Public Works  
SACRAMENTO

DIVISION OF WATER RESOURCES  
401 PUBLIC WORKS BUILDING

EDWARD HYATT, STATE ENGINEER  
CHIEF OF DIVISION

April 1, 1935

*100 copies*


Honorable Ed Fletcher,  
Senator 40th District,  
State Capitol,  
Sacramento, California.

Dear Senator Fletcher:

Answering your recent request regarding the effect of decision of the Supreme Court of California in the Vallejo case, there are enclosed copies of the text of the court decision and memorandum prepared by Mr. Burroughs, attorney for this division, which reviews the decision and comments on it. I think this will give you the information you want.

There is also enclosed a review of the decision prepared by Attorney General U. S. Webb, which appeared in the February 1, 1935 issue of "The Recorder," a legal newspaper of San Francisco. I am,

Very truly yours,

  
State Engineer

Encl.



PEABODY V. CITY OF VALLEJO  
SAC. NO. 4526

February 6, 1935

By Spencer Burroughs

By opinion rendered October 2, 1933, the Supreme Court affirmed a judgment in favor of plaintiffs. This opinion was written by the court "Per Curiam" and is reported in 25 Pac. (2d) 454. A rehearing was granted October 30, 1933. Briefs upon the rehearing were filed and oral argument upon the rehearing was heard by the Supreme Court in Sacramento during May of 1934. Thereafter the State of California filed a brief, amicus curiae, by Attorney General Webb and a separate brief, amici curiae, was filed by the Department of Public Works, C. C. Carleton, Attorney, and the Division of Water Resources, Spencer Burroughs and Henry Holsinger, Attorneys. Also other briefs were permitted to be filed by amici curiae and on January 31, 1935 the Supreme Court rendered its final opinion reversing the judgment in favor of Plaintiffs. This opinion was written by Justice Shenk and concurred in by Waste, C. J.; Thompson, J.; Seawell, J.; Curtis, J.; Langdon, J.; and Plummer, J., pro tem. Justice Plummer of the Third District Court of Appeal sat in place of Justice Preston who deemed himself disqualified.

This opinion upon rehearing is final. It gives full force, effect and practical application to the principles of Sec. 3 of Art. XIV of the Constitution of California which was enacted by vote of the people on November 6, 1928, 913,000 to 270,000. Said the court:

(1)

"Epitomized, the amendment declares:

1. The right to the use of water is limited to such water as shall be reasonably required for the beneficial use to be served.
2. Such right does not extend to the waste of water.
3. Such right does not extend to unreasonable use or unreasonable method of use or unreasonable method of diversion of water.
4. Riparian rights attached to, but to no more than so much of the flow as may be required or used consistently with this section of the Constitution.



"The foregoing mandates are plain, they are positive and admit of no exception. They apply to the use of all water, under whatever right the use may be enjoyed."

Further said the court:

- (2) "The right to the waste of water is not now included in the riparian right. . . . Under the new policy the vested right theory, that is, the right of the riparian owner to all of the waters of the stream, as it is wont to flow in the state of nature, and without regard to the reasonableness of such use as against an appropriator, has been subjected to such limitations that the old doctrine declared in Miller & Lux v. Madera Canal etc. Co., 155 Cal. 59, is no longer the law of this state.

" . . . After excluding all of the reasonable beneficial uses present and prospective (considering in connection therewith reasonable methods of use and reasonable methods of diversion), to which the waters of the stream are put, either under the riparian right or by prior appropriation, is there then water wasted or unused or not put to any beneficial use? If so, the supply or product of the stream may be said to be ample for all, a surplus or excess exists, no injunction may issued against the taking of such surplus or excess (San Bernardino v. Riverside, 186 Ca. 7, 20), and the appropriator may take the surplus or excess without compensation."

Further said the court:

- (3) " . . . The constitutional amendment, from its effective date, and as interpreted in the Gin Chow case, has enjoined the doctrine of reasonable use as between the riparian owner and an appropriator. The limitations and prohibitions of the constitutional amendment now apply to every water right and every method of diversion."

Further said the court:

- (4) "As the subject is approached, it is readily apparent that it is for this court, which has largely created the water law of this state without constitutional direction, to cause the law to conform to the state policy now commanded by our fundamental law.

"In adopting a policy modifying the long standing riparian doctrine of this state, California has done by constitutional amendment what many of the western states have done by statute or court decisions.....

"In further clarifying the new state policy we have no hesitancy in doing so without fear of infringing upon any provision of the Federal constitution. The attitude of the Supreme Court of the United States has been consistent in leaving the question of private



water rights, which do not involve federal or interstate interests, to the control of local state policies (citing cases)."

As to the contentions of the plaintiffs as owners overlying underground percolations from the stream the court said:

- (5) ". . . Since the riparian right as against an appropriator has by the new state policy been subjected to the doctrine of reasonable use, no good reason has been advanced why the asserted underground and percolating water right should not be subjected to the same regulation as against an appropriator. In whatever respects the Miller case, or any other case, may be said to hold otherwise, they must be deemed to yield to the new constitutional policy with reference to the use of the waters of the state.

It is thus apparent that the purpose of the constitutional amendment of 1928 to prevent waste of water and restrict and limit the riparian owner to a quantity required by a reasonable beneficial use and a reasonable method of use has been emphatically upheld and the Miller case and Herminghaus case in so far as inconsistent have been overruled and are no longer the law of California. The riparian owner is now subjected to the rule of reasonableness as against an appropriator as is also the owner of overlying lands whose wells are fed by underground stream flow percolations. The doctrine of Judge Shenk's dissenting opinion in the Herminghaus case is now the law of California.

The following quotations are especially in point upon different phases of the case:

1. As to the application of the rule of reasonableness said the court:
- (6) "The problem in any case is to ascertain what portion of the product of the stream is subject to appropriation after all reasonable beneficial uses on the part of those having paramount rights have been enjoyed or safeguarded. It is suggested that the application of the doctrine of reasonable use of water lays the matter open to too much uncertainty. Conceding that the ascertainment of reasonable use is difficult it does not follow that it cannot be done. The requirements of public welfare demand that it be done, and the uncertainty ends when a definite application of the rule has been made to the facts in each case."



2. As to plaintiffs' claim of right to the full flow to press water underground and maintain their water level for pumping from wells. Said the court:

(7)

"Some of the plaintiffs assert the right to the full flood and freshet flow of the stream to press water into their riparian lands as an aid in maintaining the level of the underground water supply. This is not strictly a riparian right at common law, but it cannot be said that under some circumstances such right is not a substantial right conferred by nature, to be enjoyed subject to the test of reasonable use. It would seem to be obvious that the use of an entire flood and freshet flow of a stream to press a small amount of water into adjoining lands would be an unreasonable use of the waters of the stream, especially when otherwise there is no appreciable lowering of the water table due to nature's processes or to artificial regulation of the stream flow. There is evidence in the present case that, because of the geological formation in the valley, Suisun creek is not only a surface but a subsurface stream as well, the latter extending a considerable distance on either side of the trough through which the surface stream flows. In such a situation the riparian land owners and the overlying land owners may be said to possess a right to the stream, surface, and subsurface, analogous to the riparian right, which should be protected against an unreasonable depletion by an appropriator. There is now no room for a distinction between the so-called pressure right and the overlying land owner's right, whether the latter be founded on a strictly percolating water right or a right in an underground stream. Each, however, is a paramount right subject to the test of reasonable use. It was in evidence in this case that the flashy flows which pass below the Scarlett place serve no useful purpose for ground water replenishment. In such a situation only a technical interference with the asserted right is shown, and this would not support an injunction without conditions. . . ."

3. As to mere inconvenience or extra expense occasioned by subsequent users, said the court:

(8)

"Relying further on the Antioch case the defendant contends that mere inconvenience or extra expense suffered by the overlying land owner would not justify an absolute injunction, nor require that damages for the interference with the right be paid. The claim is too broad. The correct rule is stated with its appropriate limitations in the italicized words in the following language of the District Court of Appeal in Waterford I. Dist. v. Turlock I. Dist., 50 Cal. App. 213, at page 221: 'The mere inconvenience, or even the matter of extra expense, within limits which are not unreasonable, to which a prior user may be subjected, will not avail to prevent a subsequent appropriator from utilizing his right.' . . . Here again we state that any interference with the prior right which would cause substantial damage is actionable."



4. As to the true basis for the doctrine of intervention of public use as a bar to an injunction, said the court:

( 9 )

"There is much argument and citation of authority on both sides as to the foundation for the doctrine that intervention of public use will foreclose the right to an injunction, the plaintiffs insisting that it rests solely in waiver and estoppel which must be pleaded and proved in the trial court, and the defendant contending that it is grounded in public policy of which the court even on appeal may take cognizance when the fact appears. This court has referred to both as a foundation for the doctrine. . . There is little doubt that the application of the doctrine may be invoked on either ground when public use has attached prior to the commencement of the action and depending on the circumstances of the case."

5. As to a physical solution to minimize or eliminate damage, said the court:

(10)

"The suggestion of the plaintiffs that in the event the trial court should find a physical solution which would minimize or eliminate any damages otherwise recoverable, it should do so by appropriate order, is helpful. It is also apparent that if the court find such a physical solution appropriate it should by its judgment preserve its continuing jurisdiction to change or modify its orders and decree as occasion may require. Therein may lie a solution of many of the difficulties and uncertainties in safeguarding the rights of the parties."

6. As to costs, said the court:

(11)

"As to the question of costs, other than costs on this appeal, the Collier case affords the answer to the extent here justified. It was there held that the cause having been converted practically into a condemnation proceeding, the law seems to be sufficient to vouchsafe the award to the plaintiffs free from costs of the defendant and with the plaintiffs' costs as well. (Collier v. Merced Irr. Dist., 213 Cal. 554, 572.) Under this ruling the plaintiffs herein would be entitled to their costs taxed by the trial court the same as in an ordinary action in condemnation and from the inception of the present action."

7. As to burden of proof, said the court:

(12)

"The general rule in this state as to the burden of proof is laid down in section 1981 of the Code of Civil Procedure as follows: 'The party holding the affirmative of the issue must produce the evidence to prove it; therefore, the burden of proof lies on the party who would be defeated if no evidence was given on either side.' However, when one enters a field of water supply and seeks by appropriation to take water from such supply on the claim that there is more than sufficient for all reasonable beneficial uses by those who have the prior and preferential right, it would seem to comport with the principles of fairness and justice that the appropriator, in whatever way the issue may arise, should have the burden of proving that such excess exists. We therefore reaffirm the rule to that effect in the Miller case."



8. As an aid to the court in securing unbiased and necessary evidence,  
said the court:

(13)

"If the attitude of the parties in a particular case be such as to embarrass the court in the proper determination of the case in view of a larger public interest involved and for the protection of all concerned, or for other sufficient reasons, the court might well invoke the aid of the division of water rights of the board of public works under section 24 of the Water Commission Act (Stats. 1931, p. 2421; Deering's General Laws, vol. 3, p. 5017) in the determination of the rights to water and the use of water in accordance with the constitutional policy. (See Wood v. Pendola, 88 Cal. Dec. 203.) The purpose of that state authority to safeguard rights in the use of water for domestic and agricultural purposes against a subsequent appropriator was evidenced in the case of East Bay Municipal Utility District v. Department of Public Works, 88 Cal. Dec. 233.



Finally, the six conclusions with which the Court ends this opinion are of especial interest. They are as follows:

(14)

"We therefore conclude: 1. That the rule of reasonable use as enjoined by section 3 of article XIV of the Constitution applies to all water rights enjoyed or asserted in this state, whether the same be grounded on the riparian right or the right, analogous to the riparian right, of the overlying landowner, or the percolating water right, or the appropriative right.

"2. That the test of reasonable use as so enjoined was not applied to the facts in the present action and the judgment should be reversed, and the cause remanded for trial as a condemnation action.

"3. That upon a retrial the rights of the parties should be determined in harmony with the new constitutional policy of conservation of waters and in accordance with the views expressed in this opinion.

"4. That if, as to any plaintiff, no substantial damages be proved but a paramount or preferential right be shown, he is entitled to a judgment declaring such right and an injunction against the assertion of an adverse right based on user or lapse of time, or to compensation for the extinguishment of the paramount right, if such course be preferred; that if substantial damages result to the plaintiffs or any of them by reason of the continuance of the defendant's enterprise, taking into consideration the tests to be applied in the conservation and reasonable use of water now required by the law, such plaintiffs are entitled to the ascertainment of such damages and to an injunction in aid of securing timely payment thereof.

"5. That if a physical solution be ascertainable, the court has the power to make and should make reasonable regulations for the use of the water by the respective parties, provided they be adequate to protect the one having the paramount right in the substantial enjoyment thereof and to prevent its ultimate destruction, and in this connection the court has the power to and should reserve unto itself the right to change and modify its orders and decree as occasion may demand, either on its own motion or on motion of any party. (See *San Bernardino v. Riverside*, supra, and other cases cited to like effect.)

"6. That under the circumstances appearing in this case the plaintiffs should recover their costs in the trial court and on appeal.

"The judgment is reversed."



From "The Recorder," San Francisco  
February 1, 1925

STATE SUPREME COURT UNANIMOUS IN "BENEFICIAL USE" WATER DOCTRINE

Following yesterday's decision of the Supreme Court in the case of Peabody et al. v. City of Vallejo, Attorney General U. S. Webb prepared the following review, clarifying the importance of the court's action:

The decision of the Supreme Court in Peabody et al. v. City of Vallejo was handed down by the Supreme Court yesterday. That case involved flood waters, riparian waters, appropriated waters and underground flow and storage waters; in short, every character of water which is capable of use, and as a result it involved every question of water law that has been the subject of water litigation in this State, and the decision appears to put at rest and to establish the law definitely in relation to all of these questions. As it concerns directly the public welfare, it may be regarded as one of the most forward-looking and important decisions ever rendered by the Supreme Court of this State.

For more than eighty years following the admission of California into the Union, through an almost unbroken line of decisions, the doctrine of riparian rights had been held to be the law of California.

Under the riparian doctrine it was held to be the right of the riparian owner to have all the waters of a stream, flood and otherwise, undiminished in quantity to flow to, through and over his land, without regard to their use and without regard to the method or manner of such use, and waters unused were thus permitted to waste into the sea.

This doctrine became first firmly fixed in the decision of the courts in Lux v. Maggin, decided by the Supreme Court in 1886. In hundreds of conflicts involving the use of waters following that decision it was sought by those seeking to put to beneficial use the waters that wasted into the sea to secure modification or abandonment of the rule in that case declared. These efforts were unavailing.

The next outstanding decision on this subject was the Herringhaus case, decided in 1926. The decision in this case affirmed the doctrine of Lux v. Maggin, and even extended the severity of the doctrine. It was realized that if the doctrine in the Herringhaus case was to continue the law of California, industrial and agricultural development had reached its maximum, and that the larger portion of the waters that makes within the limits of the State would continue to flow uninterrupted and unused until they wasted into the sea.

Appreciating that under this doctrine California industrial and agricultural development had no future, at its first session after the decision in the Herringhaus case the Legislature passed, and thereafter at the election in 1928, the people approved a constitutional amendment whereby it was sought to break the force of these decisions and to relieve the State from the riparian doctrine.

The first decision involving a construction of this constitutional amendment was Bin Chow v. The City of Santa Barbara, decided by the Supreme Court in 1933, and in that decision the constitutional amendment was recognized and to a considerable degree applied.

In the case just decided the various cases dealing with the subject, including Lux v. Maggin, the Herringhaus case and the Santa Barbara case were reviewed, and the constitutional amendment given further analysis and application.

The constitutional amendment declares that:

"The general welfare requires that the water resources of the State be put to beneficial use to the fullest extent of which they are capable."

Also,

"That the waste or unreasonable use, or unreasonable method of use, of water be prevented."

And further,

"That the conservation of such waters is to be exercised with a view to the reasonable and beneficial use thereof in the interests of the people for the public



welfare."

Acquired rights to the use of water was recognized by the constitutional provision, but it was declared that "such right does not and shall not extend to the waste" of water, or to an "unreasonable use or unreasonable method of use" and the amendment prohibited a resort to an "unreasonable method of diversion."

The constitutional amendment, addressing itself directly to riparian rights, declared that "riparian rights in a stream or water course attach to, but to no more than so much of the flow thereof as may be required or used consistently with this section; etc."

The decision just rendered, addressing itself to this constitutional provision, analyzes and applies the same, and declares that all of the waters of this State may be used only in accordance with the principles declared in such amendment. It subjects all of the waters of the State, riparian and otherwise, to the conditions prescribed, and under it the right to water, however acquired, must be exercised and used subject to the constitutional principles thus established. It, in effect, declares that Miller & Lux, the Heringhaus case and other cases consistent with them, no longer continue the rule governing the use of waters in this State.

Flood waters, waters heretofore wasted, are freed and may now be appropriated and put to beneficial use. The prohibitive price heretofore demanded by riparian owners may no longer be demanded. Industry and agriculture are thus freed from the payment for waters heretofore wasted.

It has been recognized that one of the outstanding barriers in the way of the completion of the Central Valley Water Project was this riparian doctrine. With that doctrine out of the way, that project may now go forward without the payment for waters which riparian owners cannot use, but the right to control which the old doctrine recognized. Waters in this State now may be impounded and the flow controlled as domestic need, industry and agriculture may require.

The waters of the State are freed from the bondage heretofore existing; an emancipation proclamation has been pronounced, and the benefits flowing from it to California and her people cannot be over-estimated.

Henceforth the rule of reasonable use of water will be the measure of the right. As expressed in the opinion of the Court:

"The rule of reasonable use as enjoined by Section 3 of Article XIV of the Constitution applies to all water rights enjoyed or asserted in this State, whether the same be grounded on the riparian right or the right analogous to the riparian right, of the overlying land owner, or the percolating water right, or the appropriative right."

It is interesting to note that Justice Shenk alone dissented from the decision in the Heringhaus case and wrote a dissenting opinion, which was in accord with the doctrine announced in the recent decision. Justice Shenk also wrote the prevailing opinion in the Santa Barbara case and the opinion of the Court just handed down, in which all of his associates concurred. Justice Preston being disqualified, Justice Plummer sat in his stead.

A doctrine under which California can utilize all of the waters that makes within her boundaries has at last been established. For this new freedom and this new opportunity the people of the State may be thankful, and some thanks might be returned that the establishment of this beneficent doctrine was no longer delayed.

In the Peabody case, certain riparian owners along Suisun creek, in Solano county, sought to enjoin the City of Vallejo from impounding the waters of Gordon Valley creek, a tributary of Suisun Creek. The city desired to impound the waters to create a municipal water supply and claimed it could impound such waters without materially injuring the riparian owners. The riparian owners claimed the right to the full flow of the stream, even while conceding that the larger portion of the waters flowed ultimately into San Francisco Bay. They sought to show that the weight of the full flow of the stream pressed small quantities of water into the strata underlying their lands.



C O P Y

Some of the riparian owners claimed the right to the full flow of the stream for the purpose of flooding their lands and depositing silt thereon. Others desired to use the full flow of the stream to flood their lands to wash out the salt content in the soil. In no uncertain language the high court held that such a wasteful use of water could not longer be countenanced in this State.

WORKS PROGRESS ADMINISTRATION  
CALIFORNIA

Frank Y. McLaughlin  
Administrator

DISTRICT NO. 12  
Broadway Pier Building  
San Diego, California

Dec. 31, 1935.

Mr. Edward Hyatt,  
State Engineer,  
Sacramento, California

Dear Sir:

Rather than answer your telegram dated December 30th, by telegraph, I feel the matter can be more thoroughly explained by letter.

The reason for lack of haste in the matter may easily be discerned when I explain that at the present time we have a dearth of engineers and related employees on our list. The project has been officially approved and the money carried on has been allocated. It would be possible to employ a so-called non-relief engineer and this man could undoubtedly be obtained through local channels. However, when it comes to chainmen with experience and ability, draftsmen and instrumentmen, we do not have these people on the relief list. There is a definite limit of 10% non-relief to relief and the crew would not be of sufficient size to employ more than 2 non-relief men.

We are extremely anxious to commence operations on the project but with the above facts staring us in the face it does not seem possible at the present time. If the state had sufficient funds to furnish some of the technical employees we can easily furnish the rest.

Please let us know your reaction.

Yours very truly,

(Signed) R. M. Gregory

R. M. GREGORY, Asst. Director,  
Chief Engineer, WPA District #12

RMG:MB



Frank Y. McLaughlin  
Administrator

WORKS PROGRESS ADMINISTRATION  
California

DISTRICT #12

Broadway Pier Building  
San Diego, California.

January 21, 1936

Mr. Ed. Hyatt  
State Engineer  
Sacramento, California

Attention Mr. Van Etten

Dear Mr. Hyatt:

I feel sure that we are perfectly safe in stating that we can start your San Luis Rey Flood Control survey on or about February first.

The only fly in the ointment that we can see would be the well drilling rig. The last time I saw Mr. Van Etten he and Senator Fletcher were going to make some arrangement with Supervisor Richards for same. No doubt Mr. Van Etten will understand all about this angle.

I am enclosing copy of letter from Mr. E. L. Freeland, Supervisor of Projects & Planning, also a list of available men.

Very truly yours,

(signed) Geo. B. White  
George B. White, Director  
District #12, WPA

WORKS PROGRESS ADMINISTRATION  
California

To: GEORGE B. WHITE, District Director  
District #12

January 20, 1936

From: E. L. FREELAND, Supervisor of Projects  
and Planning

Subject: W.P.A. PROJECT #1895 Survey Flood  
Channels and Flows, San Luis Rey  
River. - Prospective Personnel.

Attached hereto is a list of the prospective Engineers, Miners, Well Drillers, Chainmen and Clerks for the above numbered project. Mr. Van Etten can now be notified that we have six prospective Engineers, ten prospective Miners, two prospective Chainmen and that the other classifications can be easily obtained.

There still remains the Well Drilling rig. I am not familiar with the conditions concerning the renting of the rig belonging to Mr. West. You should state in your letter to Mr. Van Etten that it will be up to him to make the arrangements for its rental or the rental of some other rig.

E. L. FREELAND (sgd.)  
E. L. Freeland  
Supervisor  
Projects & Planning

ELF:WF  
enc.



PROSPECTIVE PERSONNEL FOR PROJECT W.P.A. #1895  
CHANNELS AND FLOWS, SAN LUIS REY RIVER

ENGINEERS

Byron, Johnson - Case #6057 - Age 43  
Buena Vista & Highland Ave.  
Carlsbad, Calif.  
(Assigned as Carpenter Foreman  
Rate #94.00 W.P.A. Proj. #1513  
12-21-35)

4 year High School  
completed chemistry  
course, Foreman Bldg.  
Construction - Land  
Surveyor

Leigh Arbuckle - Case #8798 - Age 47  
4th and Pine Sts.,  
Carlsbad, Calif.  
(Assigned to W.P.A. Proj. #1513  
11-25-35)

2 years High School  
Builder & Contractor  
Miner

Phillip S. Barker - Case #23863 - Age 47  
745 E. Grand St.  
Escondido, Calif. Phone 457-R  
(Assigned to W.P.A. Proj. #1028 as  
Laborer - 1-6-36)

4 years College  
B.S. Degree Civil  
Engineer, Draftsman

Rolland Curran - Case #8309 - Age 30  
5th Street,  
Carlsbad, Calif.  
(Assigned to W.P.A. Proj. #1717 as  
Project Clerk - 12-19-35)

Univ. of Calif. Engr.  
Course. Surveyor  
Laborer Road Construction

Chandler W. Watson - Case #10509 - Age 51  
704 N. Paseo del Mar  
Oceanside, Calif. Phone Del Mar  
0474  
(Assigned to W.P.A. Proj. #691  
11-6-35)

2 Yrs. College  
Registered C.E.  
Civil Engineer  
Journalist

Partridge, J. A. - Case #7895  
1231 - 13th Street (Phone across  
San Diego Street M-6604)

Instrument Man

Thomas Hye - Mining Engineer  
(Recommended to be General Foreman)

PROSPECTIVE PERSONNEL FOR PROJECT W.P.A. #1895  
CHANNELS AND FLOWS, SAN LUIS REY RIVER

MINERS

Pedro Castanada - Case #13500 - Age 39 (Alien)  
P. O. Box 321  
Vista, Calif.  
(Assigned to W.P.A. Project #1027  
as Laborer - 11-12-35)

Road Laborer

Frank Soya - Case #13484 - Age 47  
Vista, California  
(Assigned to W.P.A. Project #1027  
11-12-35)

Laborer Truck Farm  
General Laborer

Thomas, Bratzman - Case #8046 - Age 47  
Box 157  
Vista, California  
(Assigned to W.P.A. Project #1578)

Machinist or Mechanic

Hugh Carruthers - Case #12391 - Age 63  
Carlsbad, Calif.  
(Assigned to W.P.A. Project #1578  
11-25-35)

Road Laborer

George Pilg - Case #15312 - Age 39  
Route 2, San Marcos, Calif.  
(Assigned to W.P.A. Project #1578  
11-25-35)

Plumbers Helper  
Miner

Jim Ferrero - Case #22318 - Age 49  
Route 2, San Marcos, Calif.  
(Assigned to W.P.A. Project #1578  
11-21-35)

Laborer - Construction  
or Farm

W. J. Harwick - Case #4375 - Age 55  
Oceanside, Calif. - Phoe 5777  
(Assigned to W.P.A. Project #1717  
11-25-35) - Failed to Report)

Carpenter  
Foreman

Lester Patterson - Case #15075 - Age 55  
116 Freeman St.  
Oceanside, Calif.  
(No Assignment)

Candymaker  
Fry Cook

Charles McNaught - Case #16873 - Age 60  
Oceanside, Calif.  
(Assigned to Project #1717 - 11-25-35)

Painter  
Blacksmith

Logan Buchart - Case #20970 - Age 45  
Carlsbad, Calif.  
(Assigned to W.P.A. Project #1717 11-25-35)

Farmer & Laborer



PROSPECTIVE PERSONNEL FOR PROJECT W.P.A. #1895  
CHANNELS AND FLOWS, SAN LUIS REY RIVER

CHAIRMAN

A. W. Stromberg - Case #11355 - Age 57  
Route 1, Box 136  
Carlsbad, Calif.  
(Assigned to W.P.A. Project #1513 1-2-36)

Fred Johnson - Case #6058  
Box 41  
San Luis Rey, Calif.  
(Assigned to W.P.A. Project #1578 11-21-35)

CLERK

Jack, Charles D. - Case #7753  
Carlsbad, Calif.  
(Assigned to W.P.A. Project #1513 11-22-35)

Hardware Salesman

STATE OF CALIFORNIA  
Department of Public Works  
SACRAMENTO

DIVISION OF WATER RESOURCES  
401 PUBLIC WORKS BUILDING

EDWARD HYATT, STATE ENGINEER  
CHIEF OF DIVISION

January 29, 1936

*10000*

Honorable Ed Fletcher, Senator  
40th Senatorial District  
1020 - 9th Avenue  
San Diego, California


Dear Colonel Fletcher:

In regard to the WPA project for the San Luis Rey River Investigation, I am still unconvinced that it can be carried to a successful conclusion under conditions now existant. In view of the fact that this office is sponsor for the project and therefore responsible for the expenditures of not only the State funds but also those of the contributing agencies, I have addressed letters to these agencies requesting expression from them whether or not the project should be undertaken. A copy of one of the letters is enclosed. A letter has also been sent to Mr. White asking for some additional information, a copy of which is enclosed herewith.

I would also appreciate an expression of your good judgment on the matter.

With kindest personal regards, I am

Very truly yours,

  
State Engineer.

Encl.



FRANK F. MERRIAM  
GOVERNOR OF CALIFORNIA

EARL LEE KELLY  
DIRECTOR

STATE OF CALIFORNIA  
Department of Public Works  
SACRAMENTO

DIVISION OF WATER RESOURCES  
401 PUBLIC WORKS BUILDING

EDWARD HYATT, STATE ENGINEER  
CHIEF OF DIVISION

September 30, 1936

San Luis Rey River

Senator Ed Fletcher,  
1020 Ninth Avenue,  
San Diego, California

Dear Colonel:

An enclosing copy of letter from Mr. Maurice M. Myers, City Attorney of Oceanside, and answer thereto. As expressed in the letter to Mr. Myers, I think the hearing before Major Wyman and the War Department should be aggressively presented. I am wondering if you will find it possible to attend to urge the War Department to go ahead with its investigation looking to the construction of flood control and conservation works.

The general policy of the War Department on this class of work is to require the local agencies to provide rights of way without cost, a responsible agency to guarantee operation and maintenance and that the United States be saved harmless from any damages, an extremely favorable financial setup. I have no idea, of course, whether the United States can be interested in going ahead with the work on the San Luis Rey, but it is an attractive opportunity.

With best regards, I am

Very truly yours,

  
State Engineer

MAURICE M. MYERS  
LAWYER  
Third and Hill Streets  
Oceanside, California.

Sept. 24  
1936

C  
O  
P  
Y

Mr. Edward Hyatt  
State Engineer  
Sacramento, California.

Dear Mr. Hyatt:

The City Council of the City of Oceanside has instructed me as the City Attorney of Oceanside to communicate with you in relation to the San Luis Rey flood control hearing that is to be held by the War Department in Oceanside on October 5, requesting you, if at all possible, to send to such hearing your Mr. P. H. Van Etten, Senior Hydraulic Engineer, or some other person from your office, to bring with him and introduce all data that may be available in your office and pertinent to this hearing.

You no doubt already have before you from the War Department a statement of the information it desires and of the points to be covered.

The flood situation is no doubt quite fully depicted in published bulletins issued by your office, but it occurred to us that the transcript and exhibits in the recent Fallbrook Irrigation District application for permit contest hearing might contain considerable additional data to that contained in your published reports.

Furthermore, no doubt the result of the recent survey of dam sites and other matters on the San Luis Rey River will be most enlightening.

The City of Oceanside is inclined to and desires if possible that your office carry the burden of the presentation at such hearing.

If I might have a word as to the scope of your plan for appearance and presentation of data at such hearing, it would indeed be appreciated.

Yours very truly,

Maurice M. Myers,  
Oceanside City Attorney.

MMM/s



STATE OF CALIFORNIA  
Department of Public Works

SACRAMENTO

DIVISION OF WATER RESOURCES  
PUBLIC WORKS BUILDING

September 30, 1936

San Luis Rey River

Mr. Maurice M. Myers,  
City Attorney,  
Oceanside, California.

Dear Mr. Myers:

Yours of September 24, regarding the War Department hearing at Oceanside on October 5, has just been received. I did not receive a copy of the notice of hearing, and did not realize it was coming up so soon, but have gone over the situation with Mr. Wing, who had previously discussed it with Oceanside city officials.

Mr. Wing is now working on the report to be made on the San Luis Rey investigation, but it will be some time before it will be in final shape, therefore this report will not be available for the hearing. It will not be possible for Mr. Van Etten to attend as you request for the reason that he is absent on other assignments, and while it will be difficult and expensive for Mr. Wing to be present in view of the importance of the hearing to all concerned arrangements are being made for him to attend to participate in the hearing. He will probably arrive Sunday afternoon, October 4, and will wish to get in touch with you that afternoon if possible to go over with you and possibly others what is to be presented.

Mr. Wing is now preparing a statement to be filed in quadruplicate with Major Wyman, which will cover basic data available, statement of investigation made, and conclusions so far as they are available, and it is hoped will be of some assistance in putting the situation before the War Department officials. It will be possible for Mr. Wing to have with him pertinent data from the files in connection with the Fallbrook Irrigation District.

It seems to me that this hearing should be a matter of importance to all of the interests on the River, and there should be attendance of all interests and a strong presentation to impress the necessities of the situation on the United States. Under present federal policy as established in the Flood Control Act, there is a possibility of obtaining financial assistance from the United States on a favorable basis. It is my opinion this should be vigorously followed up. If Mr. Wing can meet with you and possibly others Sunday afternoon arrangements for an effective presentation could be worked out to best advantage on the basis of all data at hand.

I am not in touch with the representatives of the other interests on the River, but assume that you are or will be and that you can arrange a good attendance of responsible interests including the County.

Mr. Maurice M. Myers

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Mr. Wing states that he advised Mr. Deuhren and Mr. Landes that it would be well to have prepared a map of the Mission Basin, showing cultivated lands subject to flood damage, also lands which might be cultivated if the river were controlled; have property values set by a local realtor or board of realtors, to put in definite shape before the War Department values involved. Data as to stream flow, floods, etc., will be furnished from here.

As to plan of appearance at the hearing we have none as yet, but will try to get our material in shape for use and trust that when Mr. Wing arrives he can meet with you to formulate the plan. I am

Very truly yours,

EDWARD HYATT  
State Engineer



EDWARD HYATT, STATE ENGINEER  
CHIEF OF DIVISION

FRANK F. MERRIAM  
GOVERNOR OF CALIFORNIA

EARL LEE KELLY  
DIRECTOR

STATE OF CALIFORNIA  
Department of Public Works

DIVISION OF WATER RESOURCES  
PUBLIC WORKS BUILDING

SACRAMENTO

May 15, 1937

Honorable Ed Fletcher  
Senator, 40th District  
Capitol Building  
Sacramento, California


Dear Senator Fletcher:

A copy of Bulletin No. 48-A, "San Luis Rey River Investigation" is appended herewith. It is the report of the investigation of the San Luis Rey River by the Works Progress Administration under the supervision of the Division of Water Resources during the summer of 1936.

It should be noted that the report covers the water supply; present draft and possible safe yields; the geological characteristics of the Bonsall and Monserate dam sites; the capacities of the two reservoir basins; and costs of the Bonsall reservoir. It should also be noted that owing to limitations of personnel many studies which might have been made have been omitted.

At this time I wish to thank you personally for your gracious assistance and to express my appreciation for your personal interest and unselfish cooperation in this work.

Very truly yours,

  
State Engineer

STATE OF CALIFORNIA  
DEPARTMENT OF PUBLIC WORKS

FRANK F. MERRIAM, Governor  
EARL LEE KELLY, Director of Public Works

DIVISION OF WATER RESOURCES

BULLETIN No. 48-A

SAN LUIS REY RIVER  
INVESTIGATION

1936



Sacramento, 1937



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STATE OF CALIFORNIA  
DEPARTMENT OF PUBLIC WORKS

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FRANK F. MERRIAM, Governor  
EARL LEE KELLY, Director of Public Works

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DIVISION OF WATER RESOURCES

BULLETIN NO. 48-A

SAN LUIS REY RIVER  
INVESTIGATION

1936

Department  
seal

Sacramento, 1937

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## TABLE OF CONTENTS

	Page
ACKNOWLEDGMENT - - - - -	viii
ORGANIZATION - - - - -	ix
FOREWORD - - - - -	x
CHAPTER I	
INTRODUCTION, SUMMARY AND CONCLUSIONS - - - - -	1
SUMMARY - - - - -	2
Water supply - - - - -	2
Yield of reservoirs - - - - -	3
Storage reservoirs - - - - -	4
Bonsall dam and reservoir - - - - -	4
Costs of Bonsall reservoirs - - - - -	5
Monserate dam and reservoir - - - - -	6
Flood control - - - - -	7
CONCLUSIONS - - - - -	7
CHAPTER II	
HYDROGRAPHY - - - - -	9
Full natural flow - - - - -	9
Available flow - - - - -	11
Flood flows - - - - -	17
CHAPTER III	
CONSERVATION AND FLOOD CONTROL - - - - -	18
Present development - - - - -	18
Reservoir sites - - - - -	20



TABLE OF CONTENTS, Continued.

	Page
Evaporation - - - - -	28
Yields - - - - -	28
Flood Control - - - - -	31

CHAPTER IV

BONSALL DAM AND RESERVOIR - - - - -	33
Geology - - - - -	33
Excavation - - - - -	34
Materials for construction - - - - -	39
Dam and reservoir - - - - -	39

CHAPTER V

MONSERATE DAM AND RESERVOIR - - - - -	46
Geology - - - - -	46
Excavation - - - - -	47
Comparison of Monserate and Bonsall dam sites - -	47

APPENDIX A

TOPOGRAPHY OF BONSALE DAM SITE AND RESERVOIR

Appendix A consists of eight tracings twenty-eight inches by forty inches in size. Two show the topography of the Bonsall dam site at a scale of one inch equals one hundred feet with five foot contours and the location of the various exploratory workings. One shows profiles of the various explorations and the classifications of the materials encountered. Five show the topography of the Bonsall reservoir at a scale of one inch equals four hundred feet with a contour interval of ten feet.



Since those tracings were so large and since their value depends to a large extent on the size of the scale, they have not been reproduced for general distribution. Black line tracings from which reproductions can be made have been filed with each of the cooperative agencies; the Works Progress Administration in San Diego, the County of San Diego, the City of Oceanside, and the Carlsbad Mutual Water Company.

APPENDIX B.

TOPOGRAPHY OF MONSERATE DAM SITE AND RESERVOIR

Appendix B consists of four tracings twenty-eight inches by forty inches in size. One shows the topography of the Monserate dam site at a scale of one inch equals one hundred feet with five foot contours and the profiles of the explorations with a classification of the materials encountered. Three show the topography of the Monserate reservoir at a scale of one inch equals four hundred feet with a contour interval of ten feet.

Since these tracings were so large and since their value depends to a large extent on the size of the scale, they have not been reproduced for general distribution. Black line tracings from which reproductions can be made have been filed with each of the cooperative agencies; the Works Progress Administration in San Diego, the County of San Diego, the City of Oceanside, and the Carlsbad Mutual Water Company.



LIST OF TABLES

Table	Chapter II - Hydrography	Page
1.	Full natural flow of San Luis Rey River, originating between Henshaw Dam and gaging station near Bonsall - - - - -	12
2.	Estimated runoff of San Luis Rey River at gaging station near Bonsall had present diversions been made in the past. - - - - -	14
3.	Probable size and frequency of flood flows on the San Luis Rey River at Oceanside from the drainage basin below Henshaw Dam - - - - -	17
Chapter III - Conservation and flood control		
4.	Areas and capacities of Bonsall reservoir - - - - -	23
5.	Areas and capacities of Monserate reservoir - - - - -	24
6.	Comparison of flooded areas and capacities of Bonsall and Monserate reservoirs - - - - -	25
7.	Yields of Bonsall reservoir - - - - -	28
Chapter IV - Bonsall dam and reservoir		
8.	Logs of wells drilled at Bonsall dam site - - - - -	35
9.	Costs of Bonsall reservoir - 100 foot dam - - - - -	41
10.	Costs of Bonsall reservoir - 140 foot dam - - - - -	43
Chapter V - Monserate dam and reservoir		
11.	Logs of wells drilled at Monserate dam site - - - - -	48



LIST OF PLATES

Plate		Page
<b>Chapter II - Hydrography</b>		
I	Drainage basin of the San Luis Rey River in San Diego County - - - - -	10
<b>Chapter III - Conservation and flood control</b>		
II	Areas and capacities of Bonsall reservoir - - - - -	21
III	Areas and capacities of Manserate reservoir - - - - -	22
IV	Operation of Bonsall reservoir on San Luis Rey River - - - - -	30
V	Effect of Bonsall reservoir on flood discharge - - - - -	32
<b>Chapter IV - Bonsall dam and reservoir</b>		
VI	Bonsall dam on San Luis Rey River - - - - -	41
Appendix A - Topography of Bonsall damsite and reservoir. 23 inch by 40 inch tracings filed with sponsoring agencies		
I-A	Topography of Bonsall dam site - sheet 1	
II-A	Topography of Bonsall dam site - sheet 2	
III-A	Exploration of Bonsall reservoir	
IV-A	Topography of Bonsall reservoir - sheet 1	
V-A	Topography of Bonsall reservoir - sheet 2	
VI-A	Topography of Bonsall reservoir - sheet 3	
VII-A	Topography of Bonsall reservoir - sheet 4	
VIII-A	Topography of Bonsall reservoir - sheet 5	
Appendix B - Topography of Manserate dam site and reservoir. 23 inch by 40 inch tracings filed with sponsoring agencies		
I-B	Topography and Exploration of Manserate dam site.	



LIST OF PLATES, Continued

Plate

- III-B Topography of Monserate reservoir - sheet 1
- III-B Topography of Monserate reservoir - sheet 2
- IV-B Topography of Monserate reservoir - sheet 3

Plate

- I
- II
- III
- IV
- V
- VI
- VI-A
- VI-B
- VI-C
- VI-D
- VI-E
- VI-F
- VI-G
- VI-H
- VI-I
- VI-J
- VI-K
- VI-L
- VI-M
- VI-N
- VI-O
- VI-P
- VI-Q
- VI-R
- VI-S
- VI-T
- VI-U
- VI-V
- VI-W
- VI-X
- VI-Y
- VI-Z



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FOREWORD

In 1935, the Division of Water Resources, Department of Public Works, State of California, published Bulletin No. 48, "San Diego County Investigation". In that Bulletin were presented "detailed data and information on the water supplies and agricultural lands of San Diego County; the present status of irrigation and domestic and municipal water supply developments; the utilization of water supplies from surface and underground sources; the irrigable lands and water requirements and the domestic and municipal water requirements of the metropolitan area; the flood flows of the principal streams and probable frequency of occurrence". The San Luis Rey River was included with the other San Diego County streams, in that bulletin. The data and information presented, however, was general in character and no detailed plans of development or estimates of cost were made.

This report presents the data and information obtained from an investigation of the San Luis Rey River Basin which covered a revision of the estimates of runoff given in Bulletin No. 48; the amount of storage available in reservoir sites at Bonsall and above Monserate Narrows; the probable yields available from the San Luis Rey River; the results of geologic investigations of the dam sites including surface explorations, tunnels and wells; and the probable costs of developing the reservoirs.



CHAPTER I

INTRODUCTION, SUMMARY AND CONCLUSIONS

In 1933-34 the Division of Water Resources made a study of the hydrology of San Diego County. The results of this study were presented to the public in Bulletin No. 48, "San Diego County Investigation". Analyses of the probable full natural flows of the various streams, the probable sizes and frequencies of the floods which might be expected to occur on these streams, the need of the county for additional water supplies, and a plan for the full development of the San Diego River for conservation and flood control purposes were presented in that bulletin.

In 1935 the City of Oceanside, the Carlsbad Mutual Water Company, and the County of San Diego, realizing that the present draft on the San Luis Rey River, the source of water supply of the City and the Water Company, was approaching the maximum safe yield of that stream without additional development, requested the State Division of Water Resources to sponsor an investigation of the San Luis Rey River by the Works Progress Administration of the Federal Government. Accordingly, the Division filed an application for such an investigation with the Works Progress Administration on September 3, 1935. This application was approved by the Federal officials December 18, 1935 and work was commenced March 11, 1936. The Division of Water Resources, acting for the sponsoring agencies, agreed to furnish technical supervision, the well drilling rig, and office supplies. The Works Progress Administration agreed to supply all labor, both common and technical, and the materials to be used in the field. However, the Works Progress Administration had difficulty in finding qualified technical workers both in the field and in the office and consequently it became necessary to modify the original plan of operation. More money



was spent on the geological exploration of the dam sites and on topographic surveying and less on analyses of the data obtained than would have been the case had adequate technical help been available. All the analyses have been made by the employes of the Division of Water Resources.

SUMMARY

The field work of this investigation included geological explorations of two dam sites on the San Luis Rey River; one, two miles west of Bonsall at the State Highway crossing, the other, at the Monserate Narrows four miles west of Pala; and topographic surveys of both dam sites and of the corresponding reservoir basins. The office analyses consisted of estimating the runoff available for conservation, the capacities of the reservoirs, the probable yield for consumptive use, and the costs of such a water supply.

Water Supply

The San Luis Rey River drains a basin of some 565 square miles in extent. The Henshaw Dam at the lower end of the Warner Valley controls the flow from the upper 206 square miles of this basin. The Escondido Mutual Water Company diverts water out of the basin. The Rincon and Pala Indians and numerous other private owners pump water from the river bed for the irrigation of the overlying river bottoms.

Had the present upstream diversions been in effect during the 48-year period from 1887 to 1935, the mean seasonal flow past the Bonsall dam site would have been 23,170 acre-feet. This flow, as shown in the following table, varied from season to season, between wide limits.



SEASONAL RUNOFF  
OF  
SAN LUIS REY RIVER AT BONSALL DAM SITE  
WITH EXISTING UPSTREAM DIVERSIONS

Season	Runoff, in Acre-foot	Season	Runoff, in Acre-foot	Season	Runoff, in Acre-foot
1887-88	13,690	1903-04	2,670	1919-20	9,400
1888-89	27,340	1904-05	22,390	1920-21	2,240
1889-90	43,930	1905-06	56,120	1921-22	56,530
1890-91	38,890	1906-07	43,330	1922-23	14,580
1891-92	17,750	1907-08	13,750	1923-24	8,520
1892-93	21,500	1908-09	25,750	1924-25	4,150
1893-94	17,410	1909-10	25,460	1925-26	16,060
1894-95	88,260	1910-11	18,020	1926-27	75,680
1895-96	5,020	1911-12	6,530	1927-28	7,100
1896-97	14,200	1912-13	3,180	1928-29	7,230
1897-98	2,920	1913-14	19,740	1929-30	10,980
1898-99	1,350	1914-15	76,120	1930-31	4,610
1899-00	1,550	1915-16	160,970	1931-32	47,100
1900-01	8,520	1916-17	21,940	1932-33	9,410
1901-02	5,630	1917-18	15,250	1933-34	3,410
1902-03	7,450	1918-19	8,340	1934-35	10,190
48-year (1887-1935) mean seasonal runoff					23,170

In the season 1898-1899 only 1,350 acre-feet of water would have passed the dam site while in the season 1915-16 there would have been a flow of 160,970 acre-feet. This variation is periodic as well as seasonal, as is shown by a comparison of the seven-year means for the periods 1897-1904, 4,300 acre-feet and 1913-1920, 44,540 acre-feet, which shows that the wet period produced over 10 times as much runoff as the dry period.

#### Yield of Reservoirs

A large amount of storage space is needed to conserve surplus water from wet periods for use in dry periods. Studies of the operation of the Bonsall reservoir for conservation show that a reservoir capable of storing 49,170 acre-feet of water in the Bonsall basin, would produce a net safe yield of 6,020 acre-feet; that with a reservoir of 95,780 acre-foot capacity the net safe yield can be increased to 8,530 acre-feet; and that 162,610 acre-feet of storage will provide a net safe yield of 12,730



Year	Yield (acre-feet)	Deficiency (acre-feet)	Total (acre-feet)
1895	14,180		14,180
1896			
1897			
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1900			
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acre-foot per season or, accepting a 25 per cent deficiency during the last four years of the exceptionally dry period 1895-1905, a seasonal yield of 14,180 acre-foot. In addition to the storage space provided by a reservoir in the Bonsall basin, there is also available some 12,300 acre-foot of underground storage space in the Mission basin between the Bonsall dam site and Oceanside which should yield an additional 2,000 acre-foot of water per season.

Storage Reservoirs

A reconnaissance survey of the San Luis Rey River basin from Oceanside to Rincon was made in search of possible reservoir and dam sites. This survey indicated that the most favorable dam sites were in the Bonsall Narrows at the State Highway crossing, storing water in the Bonsall basin and at the Menserate Narrows, storing water in the Pala Basin. Both of these sites have been explored and the topography mapped.

Bonsall Dam and Reservoir

The exploration and geological investigation of the Bonsall dam site show that an adequate foundation for an earth fill dam could be prepared with only a few feet of excavation on the abutments and with a maximum excavation of about 55 feet in the river bed.

The topographic surveys of the reservoir site show that a dam providing an 80 foot depth of water would store 49,170 acre-foot, a 100 foot depth would store 95,780 acre-foot, and a 120 foot depth would store 162,610 acre-foot.

The preliminary design of an earth fill dam for this location provided for a twenty-foot free board between the spillway lip and the crest of the dam; an upstream slope of 2.5:1; a crest width of 50 feet; a down stream slope of 2.5:1 for the top 40 feet of height and of 3:1 for the remaining distance; an upstream impervious section with a ten foot crest



width, a down stream slope of 1:1, and an upstream slope of 2.5:1 faced with a concrete paving. Excavation in the river bed extended to bedrock under the impervious section but only through about two feet of stripping under the pervious section. The capital and annual costs of such a dam for heights of 100 and 140 feet are shown in the following table:

COSTS OF BONSALL RESERVOIRS

Storage Capacity, in acre-feet	49,170	162,610
Height of dam, in feet	100	140
*Seasonal yield with no deficiency, in acre-feet	6,020	12,730
*Seasonal yield with 25 per cent deficiency, in acre-feet		14,180
*Seasonal yield including Mission Basin with no deficiency, in acre-feet	8,020	14,730
*Seasonal yield including Mission Basin with 25 per cent deficiency, in acre-feet		16,180
*Increase in seasonal yield including Mission Basin with no deficiency over present yield of 5,900 acre-feet, in acre-feet	2,180	8,830
*Increase in seasonal yield including Mission Basin with 25 per cent deficiency over present yield of 5,900 acre-feet, in acre-feet		10,280
<b>CAPITAL COSTS - TOTALS</b>	<b>\$3,759,000</b>	<b>\$5,316,000</b>
Per acre-foot of storage	76.40	32.70
Per acre-foot of seasonal yield with no deficiency	624.00	418.00
Per acre-foot of seasonal yield with 25 per cent deficiency		375.00
Per acre-foot of seasonal yield including Mission Basin with no deficiency	469.00	361.00
Per acre-foot of seasonal yield including Mission Basin with 25 per cent deficiency		329.00

\*The small safe yields as compared with reservoir capacities are caused by the extremely dry period 1897-1904 in which the average runoff was only 4,300 acre-feet. They do not include any possible savings of present natural losses by transpiration from the vegetation which would be cleared from the reservoir basin.



Per acre-foot of increase in seasonal yield including Mission Basin with no deficiency	1,640.00	602.00
Per acre-foot of increase in seasonal yield including Mission Basin with 25 per cent deficiency		517.00

ANNUAL COSTS - TOTALS \$233,000.00 \$331,000.00

Per acre-foot of storage	4.74	2.04
Per acre-foot of seasonal yield with no deficiency	38.70	26.00
Per acre-foot of seasonal yield with 25 per cent deficiency		23.30
Per acre-foot of seasonal yield including Mission Basin with no deficiency	29.10	22.50
Per acre-foot of seasonal yield including Mission Basin with 25 per cent deficiency		20.50
Per acre-foot of increase in seasonal yield including Mission Basin with no deficiency	109.90	37.50
Per acre-foot of increase in seasonal yield including Mission Basin with 25 per cent deficiency		32.20

The annual costs per acre-foot of yield listed in the above table are based on the assumption that the water users would pay the full costs of the dam and reservoir with interest charges at five per cent per annum and a forty year amortization period. Any grants from the Federal government for the flood control provided or any reduction in the interest rate through Federal financing may reduce these costs materially.

Monserate Dam and Reservoir

The exploration of the Monserate dam site showed that an excavation of about 100 feet in depth would be necessary over several hundred feet of stream bed and that the right abutment was so fractured and disintegrated that a water tight facing would be required over the reservoir face of the ridge. A preliminary comparison of the costs of the Bonsall and Monserate

*[Faint, mirrored text from the reverse side of the page, including phrases like 'The annual costs per acre-foot of yield listed in the above table are based on the assumption that the water users would pay the full costs of the dam and reservoir with interest charges at five per cent per annum and a forty year amortization period. Any grants from the Federal government for the flood control provided or any reduction in the interest rate through Federal financing may reduce these costs materially.']*



dams was made. This showed that the Bonsall dam would probably be much less costly than the Monserate dam. Consequently, no detailed studies have been made of the costs of storage or of seasonal yields from the Monserate site.

Flood Control

The operation of the 162,610 acre-foot reservoir at Bonsall for a seasonal yield of 14,180 acre-feet would so regiment the flow of the river that uncontrolled flows would pass the dam only in seasons of major floods. The crest flows of these floods would be very materially reduced in passing through the spillway. An analysis of the estimated once-in-250 year flood shows that the passage of that flood through the spillway would have reduced its crest flow from 80,500 second-foot to 53,100 second-foot, or about 34 per cent. The reductions in the crest flows of more frequent floods would be even greater.

CONCLUSIONS

The principal conclusions of this investigation may be summarized as follows:

1. Based on the period 1887-1935, the mean seasonal runoff from the area between Henshaw Dam and the Bonsall dam site is 23,170 acre-feet. The runoff from the drainage basin between the dam site and Oceanside is given in Bulletin No. 48 as 3,370 acre-feet. The total mean seasonal runoff available at Oceanside is 26,540 acre-feet.
2. The present draft of approximately 5,900 acre-foot is approaching the maximum yield which may be obtained with reasonable safety.
3. A reservoir storing 162,610 acre-foot of water in the Bonsall basin could have been operated during the period 1887-1935 to produce a seasonal yield of 14,180 acre-foot by taking a twenty-five per cent deficiency in the driest years. Probably 2,000 acre-foot per season of the inflow below



the reservoir could have been conserved by underground storage in the Mission Basin. The total yield from the stream for the period would have been about 16,180 acre-feet per season. This would have provided a reasonably safe yield of 10,280 acre-feet in addition to the present draft.

4. Satisfactory foundations may be prepared at the Bonsall dam site with only a few feet of excavation on the abutments and a maximum of about 55 feet of excavation in the stream bed.

5. A reservoir storing 162,610 acre-feet of water in the Bonsall basin could be formed by the construction of a dam 120 feet in height from stream bed to spillway lip. Under present conditions an earth dam with a freeboard of twenty feet above the spillway lip and the necessary reservoir lands would cost about \$5,316,000. The annual cost would be about \$331,000 or \$20.50 per acre-foot of reasonably safe yield or \$32.20 per acre-foot of increase in yield over present draft.

6. The spillway of the Bonsall dam can be so designed that the smaller floods may be reduced to purely nominal flows and that a major flood such as might be expected to occur at an interval once in 250 years could be reduced more than one-third.

7. The Monserate dam site is unsatisfactory because of the excessive depth of river fill in the stream bed and of the permeable nature of the ridge forming the right abutment which would require an expensive impervious blanket on the reservoir side.

The preliminary analyses of this investigation have established the suitability of the Bonsall site for the construction of an earth dam and have determined within reasonable limits of error the probable runoff which would have been available for conservation during the period 1889-1935. However, the lack of sufficient technical help prevented the necessary additional analyses of reservoir operation and detailed estimates of costs which if made might show increased yields and



reduced costs per acre-foot of additional yield. Further analyses could include, among others, the following:

1. Estimate of the present losses from the underground basins through transpiration by natural vegetation in the river bed and the increase in yield which could be obtained by the elimination or reduction of these losses.
2. Estimate of the increase in yield which might be obtained by the reduction of the estimated evaporation losses through utilization of storage in the Bonsall and Pala underground basins.
3. Estimate of the costs of spreading works designed to increase percolation into the underground basins and of pumping plants strategically located to utilize more nearly the full capacities of the underground basins.



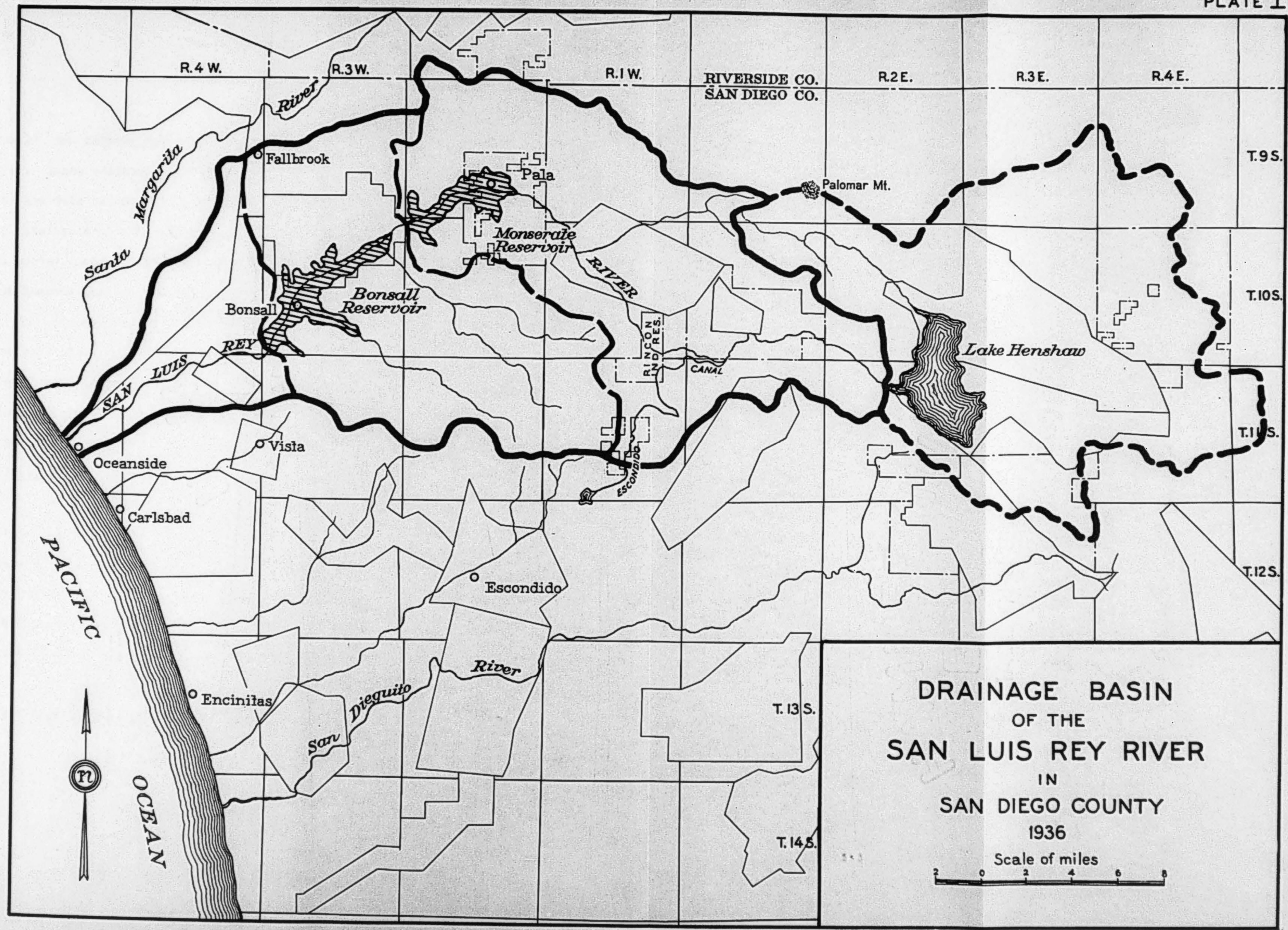
The San Luis Rey River is the most northerly of the San Diego County streams whose drainage basins lie almost wholly within the boundaries of San Diego County. Rising in the Warner Mountains at an elevation of about 5,000 feet above sea level, the river flows in a southwesterly direction across the Warner Valley, skirts the southerly base of Palomar Mountain in a deep, narrow gorge and thence flows in a general westerly direction, through a series of valleys and narrows, to its point of discharge into the Pacific Ocean at Oceanside. Its major tributaries are Pauma Creek, which drains the western slope of Palomar Mountain and enters the river several miles east of Pala, and Keys and Moosa Canyons, which drain the mesa lands south of the river and enter from the south between Monserate Mountain and Bonsall. The drainage basin above Oceanside, shown on Plate I, "Drainage Basin of San Luis Rey River", has an area of 565 square miles, is about 56 miles long and has an average width of 10 miles.

The construction of Henshaw Dam, which has created a reservoir of 203,600 acre-feet capacity at the lower end of the Warner Valley, has effectively controlled the flow from the upper 206 square miles of the San Luis Rey River drainage basin. Only in the wettest years will any uncontrolled flows pass the Henshaw Dam. The lower 359 square miles of drainage basin, including the western slope of Palomar Mountain which rises to an elevation of over 6,000 feet above sea level comprise one of the largest sources of undeveloped water in San Diego County.

#### Full Natural Flow

Estimates of the full natural flows of the San Luis Rey River from the drainage basins above Henshaw Dam, between Henshaw Dam and "near





DRAINAGE BASIN  
OF THE  
SAN LUIS REY RIVER  
IN  
SAN DIEGO COUNTY  
1936

Scale of miles  
0 2 4 6 8



Bonsall", and between "near Bonsall" and Oceanside were presented in Bulletin No. 48. These estimates were based on all the available stream flow measurements and data on the use of water for irrigation and other purposes which were obtainable at the time those estimates were made. However, an irrigated area survey, made in 1934-35, indicated that the irrigation uses in the area below Henshaw Dam had been underestimated in the preparation of Bulletin No. 48. For this reason, it has been necessary to revise the estimates therein presented. The revised estimates of full natural flow are presented in Table 1, "Full Natural Flow of San Luis Rey River". A comparison with the estimates presented in Bulletin No. 48 shows that this revision increased the estimated mean seasonal full natural runoff by 2,460 acre-feet.

#### Available Flow

All of the full natural flow, however, is not available for conservation at downstream points. The Escondido Mutual Water Company, the Rincon and Pala Indian Reservations and numerous private irrigators have prior rights to the flow in the stream. The Rincon Indians also have a prior right to water from above the Henshaw Dam, which, when exercised, increases the downstream flow by the amount of the return flows from their irrigation.

The Rincon Indians right, conceded by the upstream divertors, is to the first three second feet originating above their reservation.





TABLE 1

FULL NATURAL FLOW OF SAN LUIS REY RIVER  
 ORIGINATING BETWEEN  
 HENSHAW DAM AND GAGING STATION NEAR BONSALL  
 Area of Drainage Basin - 312 Square Miles

Season	Full natural flow, in acre-feet	Season	Full natural flow, in acre-feet	Season	Full natural flow, in acre-feet
: 1887-88	: 16,720	: 1903-04	: 6,380	: 1919-20	: 14,600
: 1888-89	: 35,550	: 1904-05	: 28,390	: 1920-21	: 4,510
: 1889-90	: 51,200	: 1905-06	: 65,790	: 1921-22	: 72,950
: 1890-91	: 47,750	: 1906-07	: 51,460	: 1922-23	: 18,890
: 1891-92	: 22,820	: 1907-08	: 18,310	: 1923-24	: 11,430
: 1892-93	: 25,210	: 1908-09	: 32,640	: 1924-25	: 6,120
: 1893-94	: 10,620	: 1909-10	: 31,040	: 1925-26	: 20,170
: 1894-95	: 100,000	: 1910-11	: 23,090	: 1926-27	: 82,490
: 1895-96	: 7,180	: 1911-12	: 9,320	: 1927-28	: 10,280
: 1896-97	: 19,380	: 1912-13	: 5,540	: 1928-29	: 10,580
: 1897-98	: 5,850	: 1913-14	: 24,840	: 1929-30	: 15,410
: 1898-99	: 4,790	: 1914-15	: 88,250	: 1930-31	: 6,430
: 1899-00	: 4,520	: 1915-16	: 172,660	: 1931-32	: 50,430
: 1900-01	: 12,750	: 1916-17	: 28,570	: 1932-33	: 12,760
: 1901-02	: 8,500	: 1917-18	: 19,060	: 1933-34	: 4,910
: 1902-03	: 11,680	: 1918-19	: 10,290	: 1934-35	: 14,830
:	:	:	:	:	:
:	:	:	:	:	:
: 48-year (1887-1935) mean seasonal full natural runoff -				:	: 28,100



In addition to its rights to water from above Henshaw Dam, the Escondido Mutual Water Company also may divert the full capacity of its canal, 70 second feet, when available, from the water originating between Henshaw Dam and the Escondido Intake.

Based on the irrigated areas found in the 1934-35 census and a consumptive use of 1.5 acre-feet per acre, private diversions from the river above the head of the proposed Bonsall reservoir probably amount to about 4,000 acre-feet per season. This estimate includes the lands irrigated by the Rincon Indians under their 3 second-foot right.

The releases from Henshaw to the Rincon Indians and the diversions by the Escondido Mutual Water Company are dependent on the surface runoff of the river and vary therewith. Practically all the diversions by private irrigators, however, are made by pumping from the river sands and gravels and consequently may draw on the storage therein during dry seasons.

In estimating the probable yield from a reservoir at Bonsall under present conditions all these factors must be considered. Consequently, the full natural flows presented in Table 1 have been adjusted to conform to these conditions. The adjustments for the Rincon releases and Escondido diversions were based on the available records of daily flows at the Henshaw dam site. The adjustments for diversions by private irrigators were based on a full diversion of 4,000 acre-feet every season. The adjusted flows at the gaging station near Bonsall are presented in Table 2, "Estimated Run Off of San Luis Roy River near Bonsall". These values represent the flows which would have occurred had the present upstream diversions been made during the period for which values are presented. Any additional development increasing upstream diversions from the river will decrease the amounts available for use downstream.



TABLE 2

ESTIMATED RUNOFF OF SAN LUIS REY RIVER  
at  
BONSALL DAM SITE

Had present diversions been made in the past.

Area of drainage basin - 312 square miles

Month	Runoff, in acre-feet						
	1887-88	1888-89	1889-90	1890-91	1891-92	1892-93	1893-94
Oct.	30	0	0	0	0	0	0
Nov.	390	0	240	0	190	20	0
Dec.	2,320	1,090	25,170	0	590	420	1,730
Jan.	3,390	2,270	9,000	280	680	1,330	1,050
Feb.	2,820	2,580	6,730	28,430	5,510	1,170	2,550
Mar.	4,370	14,980	2,300	6,400	2,570	16,440	1,620
Apr.	370	4,760	490	2,370	3,940	2,060	460
May	0	1,140	0	990	3,360	60	0
Jun.	0	470	0	420	830	0	0
Jul.	0	50	0	0	80	0	0
Aug.	0	0	0	0	0	0	0
Sep.	0	0	0	8	0	0	0
<b>Total</b>	<b>13,690</b>	<b>27,340</b>	<b>43,930</b>	<b>38,890</b>	<b>17,760</b>	<b>21,500</b>	<b>7,410</b>
Month	1894-95	1895-96	1896-97	1897-98	1898-99	1899-00	1900-01
Oct.	0	0	0	0	0	0	0
Nov.	0	0	0	0	0	0	0
Dec.	2,420	0	0	0	0	0	0
Jan.	68,430	2,010	0	0	0	0	0
Feb.	8,790	840	4,200	1,600	0	0	6,180
Mar.	5,560	2,000	9,270	1,090	570	0	1,240
Apr.	2,720	170	730	230	770	770	730
May	280	0	0	0	10	780	370
Jun.	60	0	0	0	0	0	0
Jul.	0	0	0	0	0	0	0
Aug.	0	0	0	0	0	0	0
Sep.	0	0	0	0	0	0	0
<b>Total</b>	<b>88,260</b>	<b>5,020</b>	<b>14,200</b>	<b>2,920</b>	<b>1,350</b>	<b>1,550</b>	<b>8,520</b>



TABLE 2  
(Continued)

Month	Runoff, in acre-feet						
	1901-02	1902-03	1903-04	1904-05	1905-06	1906-07	1907-08
Oct.	0	0	0	0	0	0	0
Nov.	0	0	0	0	0	100	300
Dec.	0	0	0	0	390	2,650	720
Jan.	0	0	0	0	350	15,530	2,460
Feb.	70	330	0	4,300	1,000	4,320	6,410
Mar.	4,420	2,790	300	12,310	38,920	10,370	2,300
Apr.	1,070	3,930	1,710	2,030	3,670	4,820	790
May	70	400	470	2,730	4,380	1,610	270
Jun.	0	0	190	520	1,560	430	0
Jul.	0	0	0	0	300	0	0
Aug.	0	0	0	0	50	0	0
Sep.	0	0	0	0	0	0	0
<b>Total</b>	<b>5,630</b>	<b>7,450</b>	<b>2,670</b>	<b>22,390</b>	<b>56,120</b>	<b>43,330</b>	<b>13,750</b>
Month	1908-09	1909-10	1910-11	1911-12	1912-13	1913-14	1914-15
Oct.	0	0	0	0	0	0	0
Nov.	0	0	210	0	0	0	0
Dec.	0	3,650	720	0	0	0	0
Jan.	6,790	15,550	1,840	0	0	960	12,370
Feb.	10,910	2,100	6,140	50	650	9,350	35,310
Mar.	4,550	2,450	6,570	2,970	1,740	5,530	10,300
Apr.	2,300	1,530	2,380	1,070	790	1,700	3,960
May	700	100	160	2,440	0	1,570	9,350
Jun.	0	0	0	0	0	30	3,130
Jul.	0	0	0	0	0	0	700
Aug.	0	0	0	0	0	0	0
Sep.	0	0	0	0	0	0	0
<b>Total</b>	<b>25,750</b>	<b>25,460</b>	<b>18,020</b>	<b>6,530</b>	<b>3,130</b>	<b>19,740</b>	<b>76,120</b>
Month	1915-16	1916-17	1917-18	1918-19	1919-20	1920-21	1921-22
Oct.	0	1,370	0	0	0	0	0
Nov.	0	1,320	390	1,290	0	0	0
Dec.	910	1,370	1,130	1,990	0	0	15,310
Jan.	131,210	4,250	1,630	1,300	1,160	0	8,740
Feb.	14,540	6,750	590	1,650	1,740	800	6,000
Mar.	6,990	2,810	9,310	1,270	1,130	560	15,300
Apr.	2,510	1,150	670	660	2,920	640	7,020
May	1,240	1,630	670	150	2,390	240	1,700
Jun.	1,350	1,100	310	0	10	0	1,140
Jul.	1,130	140	0	0	0	0	320
Aug.	590	0	0	0	0	0	0
Sep.	500	0	0	0	0	0	0
<b>Total</b>	<b>160,970</b>	<b>21,940</b>	<b>15,250</b>	<b>6,340</b>	<b>9,400</b>	<b>2,240</b>	<b>56,530</b>



Year	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	Mean
Oct.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nov.	520	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dec.	3,120	1,350	1,050	880	210	640	0	0	0	0	2,420	1,030	480	30	0
Jan.	2,180	1,340	1,090	910	780	1,640	850	1,460	1,250	1,980	2,790	750	2,720	2,720	1,460
Feb.	3,980	710	730	1,500	70,450	2,510	1,620	1,090	2,050	33,990	2,010	940	4,070	4,070	1,090
Mar.	2,240	2,320	660	870	2,650	1,350	2,010	2,210	640	5,750	1,250	760	1,360	1,360	2,210
Apr.	2,030	2,140	620	11,350	1,130	590	2,100	880	380	1,840	920	320	1,110	1,110	880
May	450	350	0	470	390	370	350	4,880	230	830	1,250	160	330	330	4,880
June	60	10	0	80	70	0	0	390	30	290	160	0	0	0	390
July	0	0	0	0	0	0	0	30	0	0	0	0	10	10	30
Aug.	0	0	0	0	0	0	0	40	0	0	0	0	60	60	40
Sep.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	14,580	8,520	4,150	16,060	75,680	7,100	7,230	10,980	4,610	47,100	9,410	3,410	10,190	23,170	10,980

TABLE 2  
(Continued)

Month	Runoff, in acre-feet						
	1922-23	1923-24	1924-25	1925-26	1926-27	1927-28	1928-29
Oct.	0	0	0	0	0	0	0
Nov.	520	0	0	0	0	0	0
Dec.	3,120	1,350	1,050	880	210	640	0
Jan.	2,180	1,340	1,090	910	780	1,640	850
Feb.	3,980	710	730	1,500	70,450	2,510	1,620
Mar.	2,240	2,320	660	870	2,650	1,350	2,010
Apr.	2,030	2,140	620	11,350	1,130	590	2,100
May	450	350	0	470	390	370	350
June	60	10	0	80	70	0	0
July	0	0	0	0	0	0	0
Aug.	0	0	0	0	0	0	0
Sep.	0	0	0	0	0	0	0
Total	14,580	8,520	4,150	16,060	75,680	7,100	7,230

Month	1929-30	1930-31	1931-32	1932-33	1933-34	1934-35	Mean
Oct.	0	0	0	0	0	0	0
Nov.	0	0	0	0	0	0	0
Dec.	0	0	2,420	1,030	480	30	0
Jan.	1,460	1,250	1,980	2,790	750	2,720	1,460
Feb.	1,090	2,050	33,990	2,010	940	4,070	1,090
Mar.	2,210	640	5,750	1,250	760	1,360	2,210
Apr.	880	380	1,840	920	320	1,110	880
May	4,880	230	830	1,250	160	330	4,880
June	390	30	290	160	0	0	390
July	30	0	0	0	0	10	30
Aug.	40	0	0	0	0	60	40
Sep.	0	0	0	0	0	0	0
Total	10,980	4,610	47,100	9,410	3,410	10,190	23,170



Flood Flows

An analysis of the probable flood flows on San Diego County streams was presented in Bulletin No. 48. This analysis included the San Luis Rey River and indicated probable flood flows as listed in Table 3, "Probable Size and Frequency of Flood Flows on the San Luis Rey River at Oceanside."

TABLE 3  
PROBABLE SIZE AND FREQUENCY OF FLOOD FLOWS  
ON THE  
SAN LUIS REY RIVER AT OCEANSIDE  
FROM THE  
DRAINAGE BASIN BELOW HENSHAW DAM.

Area of drainage basin - 359 square miles

Frequency with which floods may be expected to occur	Mean daily flow, in second feet	Crest flow, in second-feet
Once in 25 years	17,000	23,600
Once in 50 years	24,900	41,800
Once in 100 years	34,500	58,000
Once in 250 years	47,900	80,500



CHAPTER III  
CONSERVATION AND FLOOD CONTROL

Present Development

The San Luis Rey River in its course from Rincon to the ocean passes through a series of basins which have been filled with sand and gravel to depths ranging from 50 to over 100 feet. These basins all provide underground storage which may be utilized to supplement the natural flow of the stream during dry periods. There are three major basins: the Pala Basin from Rincon to Monserate Narrows; the Bonsall Basin from Monserate Narrows to Bonsall Narrows and the Mission Basin from Bonsall Narrows to Oceanside. An independent study of the available underground storage in these basins was not made in this investigation. However, the United States Geological Survey made such a study \* in 1914 and 1915 and a reconnaissance survey was made by the Division of Water Resources during the San Diego County Investigation reported in Bulletin No. 48. From these studies it seems probable that the underground storage in the Pala Basin is at least 20,000 acre-feet, in the Bonsall Basin 21,000 acre-feet, and in the Mission Basin 12,300 acre-feet.

The 1934-35 crop survey published in Bulletin No. 48 shows that at that time 1360 acres were irrigated from the Pala Basin. With a consumptive use of 1.5 acre-feet per acre the present draft on the Pala Basin would be 2,040 acre-feet per season. 1,233 acres of orchard, vineyard, truck crops and alfalfa and 1,580 acres of field crops were irrigated in the Bonsall Basin. With consumptive uses of 1.6 acre-feet for the former and 0.5 acre-feet per acre for the latter, the seasonal draft on the Bonsall Basin would be 2,763 acre-feet. 1,499 acres were irrigated from the Mission Basin. With a consumptive use of 1.6 acre-feet per acre the irrigation

\*1. United States Geological Survey, Water-Supply Paper 446, Geology and Ground waters of the Western Part of San Diego County, California by Arthur J. Ellis and Charles H. Lee, 1919.



draft at present would be 2400 acre feet per season. There are also the drafts of the City of Oceanside and the Carlsbad Mutual Water Company which in their maximum years have amounted to 1200 and 2300 acre-feet respectively. The present seasonal draft on the Mission Basin therefore would be about 5,900 acre-feet. This draft, 5,900 acre-feet, from the Mission Basin, is about the safe yield from the 12,300 acre-feet of storage in that basin. The total flow past Bonsall during the dry period, 1897-1900, is given in Table 2 as 5,820 acre-feet. The corresponding flow from local drainage is given in Bulletin No. 48 as 1,200 acre-feet. Assuming the basin full at the start of the period the total water available would have been 19,320 acre-feet. Under present conditions the draft during the three year period would have been 17,700 acre-feet, leaving a surplus of only 1,620 acre-feet to flow into the ocean and prevent salt water intrusion in the gravel beds.

The total underground storage in the three basins is estimated as about 53,300 acre-feet. During the dry period 1895-1904 the total runoff at Bonsall is given in Table 2 as 49,300 acre-feet. The runoff from the area below Bonsall is given in Bulletin No. 48 as 7,400 acre-feet. Under present conditions, assuming the basins full at the start of the period it is estimated that an average seasonal flow of 12,200 acre-feet would have been available. The mean seasonal flow at the Bonsall dam site as shown in Table 2, based on the 48 year period 1887-1935 is 23,170 acre-feet. Therefore, it is apparent that full conservation of the flood flows will require the provision of additional storage space.

Under present conditions each user pumps from the underground basins whenever he wishes and locates his pumps where over it may be most convenient. At present, replenishment is from the uncontrolled flow of the stream and



even in dry years much water is wasted into the ocean. The full utilization of the underground storage will require adequate spreading works to obtain the maximum possible recharge from the flow of the stream and an orderly distribution of pumping plants so that all portions of the underground reservoir may be used.

Reservoir Sites

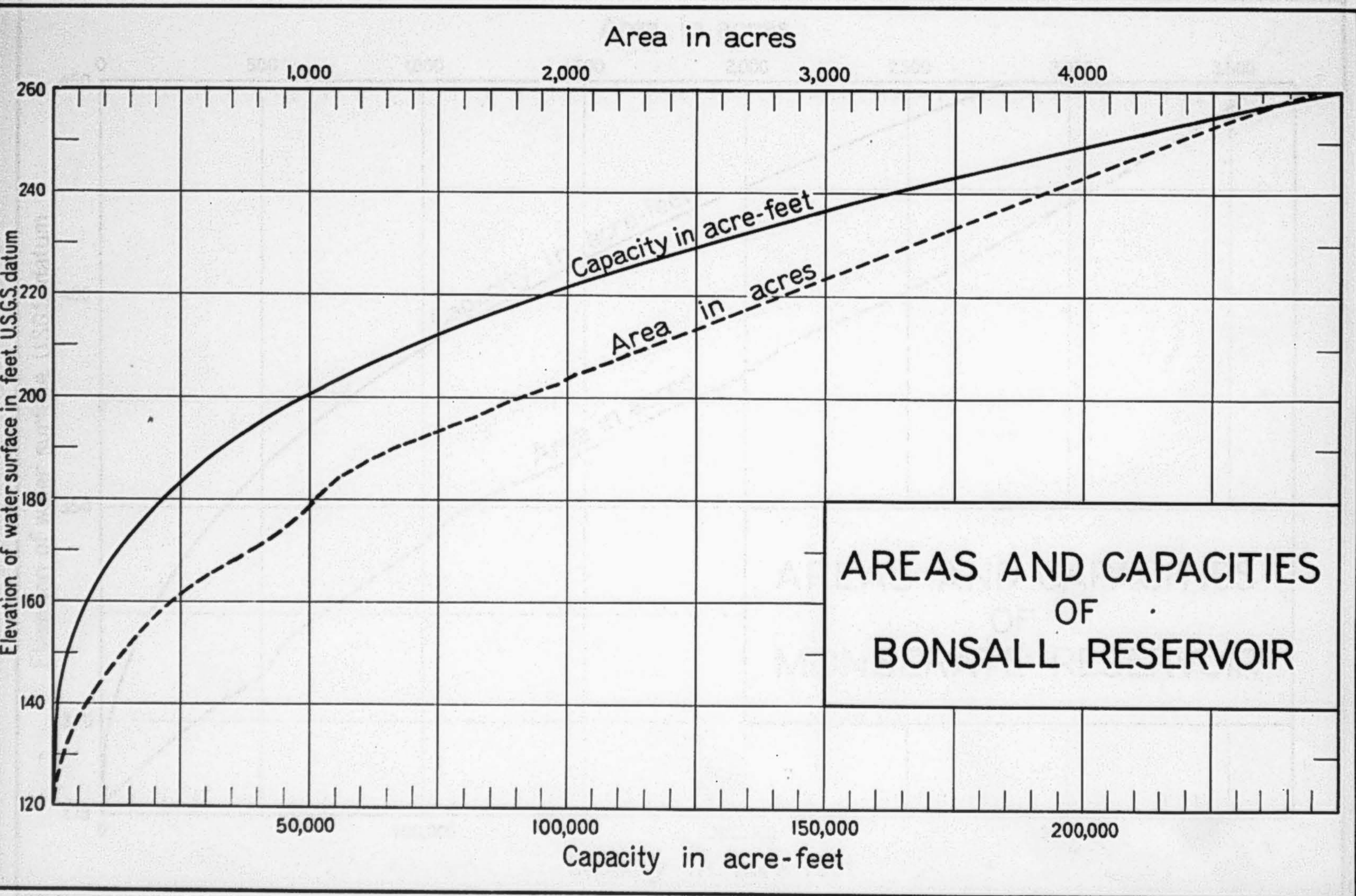
The analyses presented in Bulletin No. 48, Table 20, indicated that approximately 183,000 acre-feet of storage capacity would be needed to conserve the flow of the San Luis Rey River below Henshaw Dam. A reconnaissance of the drainage basin showed that this amount of storage could probably be most easily obtained by reservoirs either in the Bonsall basin, above a dam built near the present State highway crossing, or in the Pala Basin above a dam built in the Monserate Narrows above the San Luis Rey Ranch. Other dam and reservoir sites were found on Pauma Creek and on Mcosa Canyon.

This investigation provided for surveys of both the Bonsall and Monserate Reservoirs. These surveys were made by plane table at a scale of one inch equal to 400 feet with 10 foot contours being drawn in. The resultant topographical maps are shown in Appendix A, "Topography of Bonsall Damsite and Reservoir" and in Appendix B, "Topography of Monserate Damsite and Reservoir". Area and capacity curves for the Bonsall reservoir are shown on Plate II, "Areas and Capacities of Bonsall Reservoir" and for the Monserate Reservoir on Plate III, "Areas and Capacities of Monserate Reservoir". The areas and capacities at 10 foot intervals for each reservoir are listed in Table 4, "Areas and Capacities of Bonsall Reservoir" and Table 5, "Areas and Capacities of Monserate Reservoir". A comparison of the data in Tables 4 and 5 is presented in Table 6, "Comparison of Flooded Areas and Capacities of Bonsall and Monserate Reservoirs". This comparison shows that any given amount of storage in excess of 48,000 acre-feet may be obtained at Bonsall with a lower dam than would be required for the same amount of storage at Monserate.

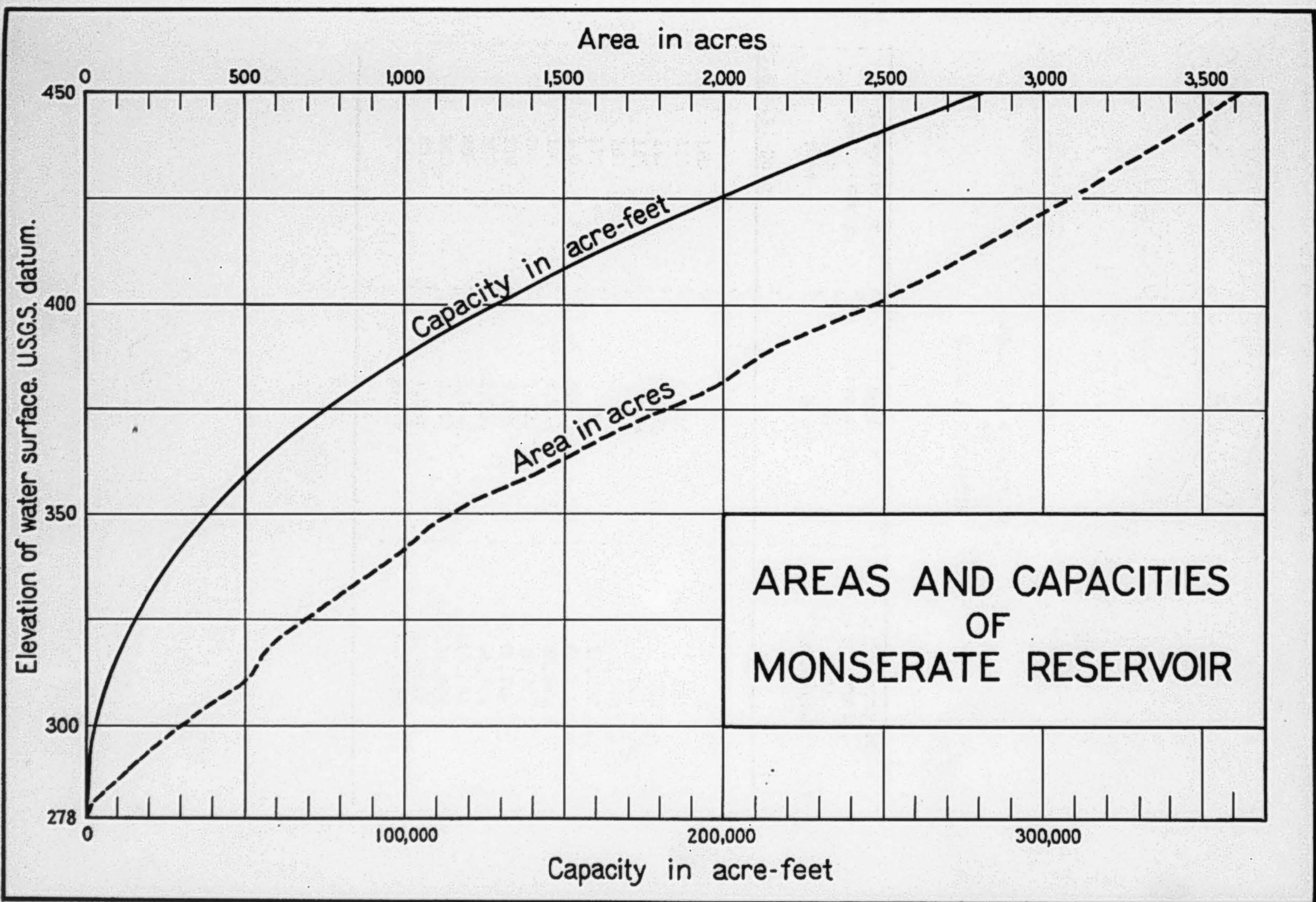
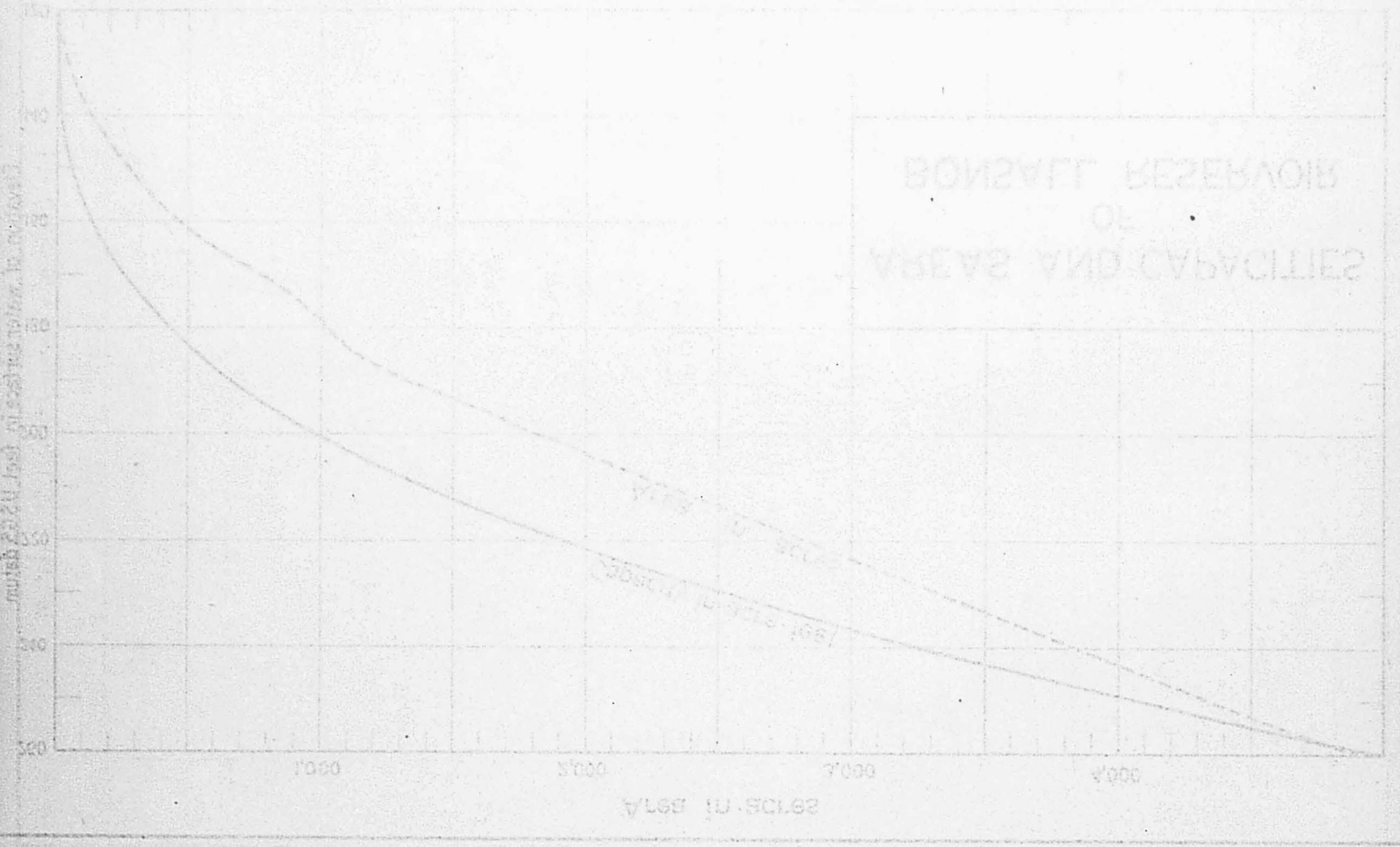


The following table shows the relation between the elevation of the water surface and the area and capacity of the reservoir. The area is given in acres and the capacity in acre-feet. The elevation is given in feet above U.S.G.S. datum.

Elevation of water surface in feet U.S.G.S. datum	Area in acres	Capacity in acre-feet
120	0	0
140	10,000	10,000
160	20,000	20,000
180	35,000	35,000
200	50,000	50,000
220	70,000	70,000
240	100,000	100,000
260	150,000	150,000









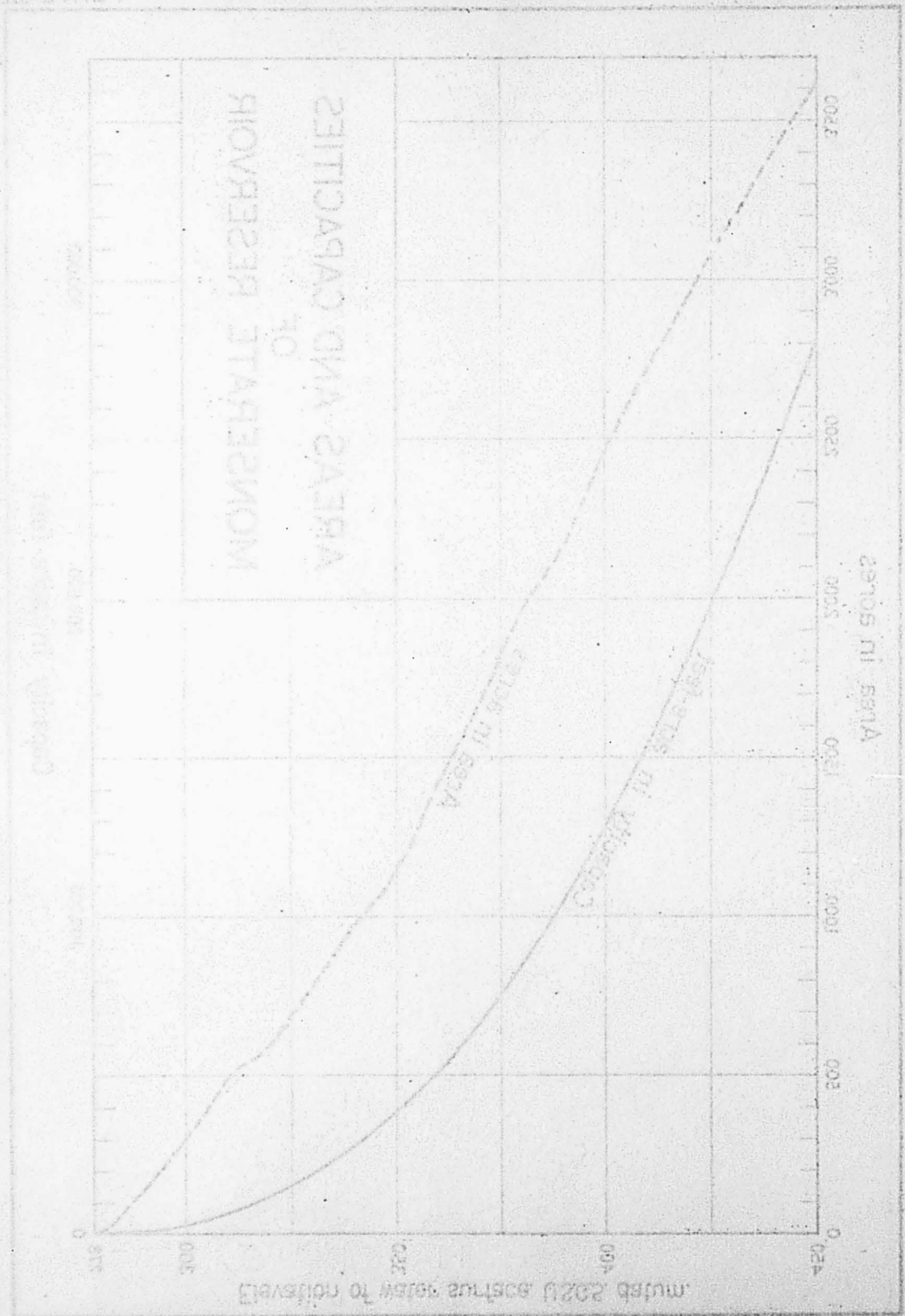


TABLE 4  
AREAS AND CAPACITIES  
OF  
BONSALL RESERVOIR

Elevation of water surface, in feet	Area of water surface, in acres	Capacity of reservoir, in acre-feet
U.S.G.S. Datum		
120	0	0
130	35	151
140	133	923
150	278	2,951
160	458	6,592
170	771	12,612
180	1,026	21,703
190	1,341	33,340
200	1,830	49,170
210	2,329	69,057
220	2,830	95,784
230	3,342	126,691
240	3,840	162,605
250	4,346	203,515
260	4,879	249,636



AREAS AND CAPACITIES  
OF  
MONSERATE RESERVOIR

Elevation of water surface, in feet	Area of water surface, in acres	Capacity of reservoir, in acre-feet
278	0	0
280	6	6
290	144	737
300	305	2,960
310	491	6,919
320	603	12,397
330	785	19,294
340	972	23,108
350	1,139	33,630
360	1,418	51,379
370	1,676	66,365
380	1,966	85,069
390	2,179	105,793
400	2,473	129,058
410	2,723	155,046
420	2,962	183,433
430	3,192	214,263
440	3,414	247,294
450	3,621	282,437

TABLE 5

AREAS AND CAPACITIES  
OF  
MONSERATE RESERVOIR

Elevation of water surface, in feet	Area of water surface, in acres	Capacity of reservoir, in acre-feet
278	0	0
280	6	6
290	144	737
300	305	2,960
310	491	6,919
320	603	12,397
330	785	19,294
340	972	23,108
350	1,139	33,630
360	1,418	51,379
370	1,676	66,365
380	1,966	85,069
390	2,179	105,793
400	2,473	129,058
410	2,723	155,046
420	2,962	183,433
430	3,192	214,263
440	3,414	247,294
450	3,621	282,437



TABLE 6  
 COMPARISON OF FLOODED AREAS AND CAPACITIES  
 OF  
 BONSALL AND MONSERATE RESERVOIRS

Depth of water in feet	Flooded area, in acres	Capacity, in acre-feet
0	0	0
10	35	479
20	133	2,385
30	278	5,976
40	453	11,212
50	771	17,763
60	1,026	26,198
70	1,341	36,393
80	1,830	48,600
90	2,329	63,566
100	2,838	81,194
110	3,342	101,485
120	3,840	124,166
130	4,340	149,652
140	4,879	177,605

TABLE 6  
 COMPARISON OF FLOODED AREAS AND CAPACITIES  
 OF  
 BONSALL AND MONSERATE RESERVOIRS

Depth of water in feet	Flooded area, in acres		Capacity, in acre-feet	
	Bonsall reservoir	Monserate reservoir	Bonsall reservoir	Monserate reservoir
10	35	114	131	479
20	133	270	923	2,385
30	278	452	2,951	5,976
40	453	573	6,592	11,212
50	771	746	12,612	17,763
60	1,026	933	21,708	26,198
70	1,341	1,099	33,340	36,393
80	1,830	1,361	49,170	48,600
90	2,329	1,624	69,957	63,566
100	2,838	1,910	95,784	81,194
110	3,342	2,129	126,691	101,485
120	3,840	2,418	162,605	124,166
130	4,340	2,674	203,515	149,652
140	4,879	2,915	249,635	177,605







THE MONSIEUR MOUNTAIN RESERVOIR BASIN  
ALSO KNOWN AS MONSIEUR MOUNTAIN RESERVOIR BASIN

ON  
SAN LUIS REY RIVER



MONSIEUR MOUNTAIN RESERVOIR BASIN  
ON  
SAN LUIS REY RIVER

View across lower portion of reservoir basin  
from right abutment. The main canyon extends  
upstream to the left of the picture.



Evaporation

In determining the probable safe yield which may be obtained by storage of excess water in surface reservoirs one of the major factors is the probable loss by evaporation from the water surface. This subject was discussed quite fully in Bulletin 48 and consequently will not be re-discussed here. In estimating the evaporation from the water surface of the Bonsall reservoir, the same rate of gross evaporation, 60 inches per season, was used as was used in Bulletin 48 for the Mission Gorge Reservoir on the San Diego River. Both reservoirs lie in much the same position in relation to the ocean and the mountains. The rainfall was based on analyses of the records at Oceanside, Vista, and Fallbrook.

Yields

Analyses of the probable safe yields which might have been obtained from the San Luis Rey River during the 48-year period 1887-1935 under present conditions of upstream development by the construction of reservoirs in the Bonsall basin storing 49,170, 95,780, and 162,610 acre-feet have been made. These analyses were made on a monthly basis by the methods described in Bulletin No. 48. The results of these studies are shown in Table 7, "Yields of Bonsall Reservoir on San Luis Rey River".

TABLE 7  
 YIELDS OF BONSCALL RESERVOIR  
 ON  
 SAN LUIS REY RIVER

Capacity of Reservoir, in acre-feet	Safe Yield, in acre-feet	Yield with 25% Deficiency in acre-feet
49,170	6,020	
95,780	8,530	
162,610	12,730	14,180



An analysis was also made of the yield which could be obtained from the 162,610 acre-foot reservoir by taking a deficiency of 25 per cent in the seasonal draft whenever the storage in the reservoir was less than 30,000 acre-foot on May 1st. The yield indicated by this analysis, also shown in Table 7, and the operation of the reservoir during the 41-year period, 1894-1935, is shown graphically on Plate IV, "Operation of Bonsall Reservoir on San Luis Rey River". Of the total inflow during the period analyzed, 941,650 acre-foot, only 94,180 acre-foot or 10.0 per cent, were wasted through the spillway; 361,500 acre-foot, 38.4 per cent, were lost by evaporation and 485,970 acre-foot, 51.6 per cent, were conserved for beneficial use.

At present the entire draft, 5,900 acre-foot, from the San Luis Rey River below the Bonsall dam is made by wells in the Mission basin. Should the Bonsall dam be constructed, the City of Oceanside and the Carlsbad Mutual Water Co. might connect their distribution systems directly to the reservoir thus utilizing the head provided to reduce their pumping lifts. Or the Bonsall reservoir might be used as an equalizing reservoir releasing water to replace that pumped from the Mission Basin. Under the latter method of operation water levels in the Mission Basin could be held comparatively low during the winter season, thus providing space for the conservation of the runoff from the area below the Bonsall dam. In Bulletin No. 48 this is estimated to amount to some 3,370 acre-foot per season on the average with a seasonal variation of from 0 to over 19,000 acre-foot. By utilizing the 12,300 acre-foot of space in the Mission Basin for the storage of this flow an additional yield of about 2,000 acre-foot could probably be obtained. The Mission basin would be filled from the Bonsall

In determining the probable yield which may be obtained from the reservoir it was assumed that the storage in the reservoir at the beginning of the season would be 30,000 acre-foot. The probable loss by evaporation from the water surface of the reservoir during the season was estimated to be 361,500 acre-foot. The probable loss through the spillway was estimated to be 94,180 acre-foot. The probable yield from the reservoir was estimated to be 162,610 acre-foot. The probable yield from the reservoir during the season was estimated to be 162,610 acre-foot. The probable yield from the reservoir during the season was estimated to be 162,610 acre-foot.

TABLE 7

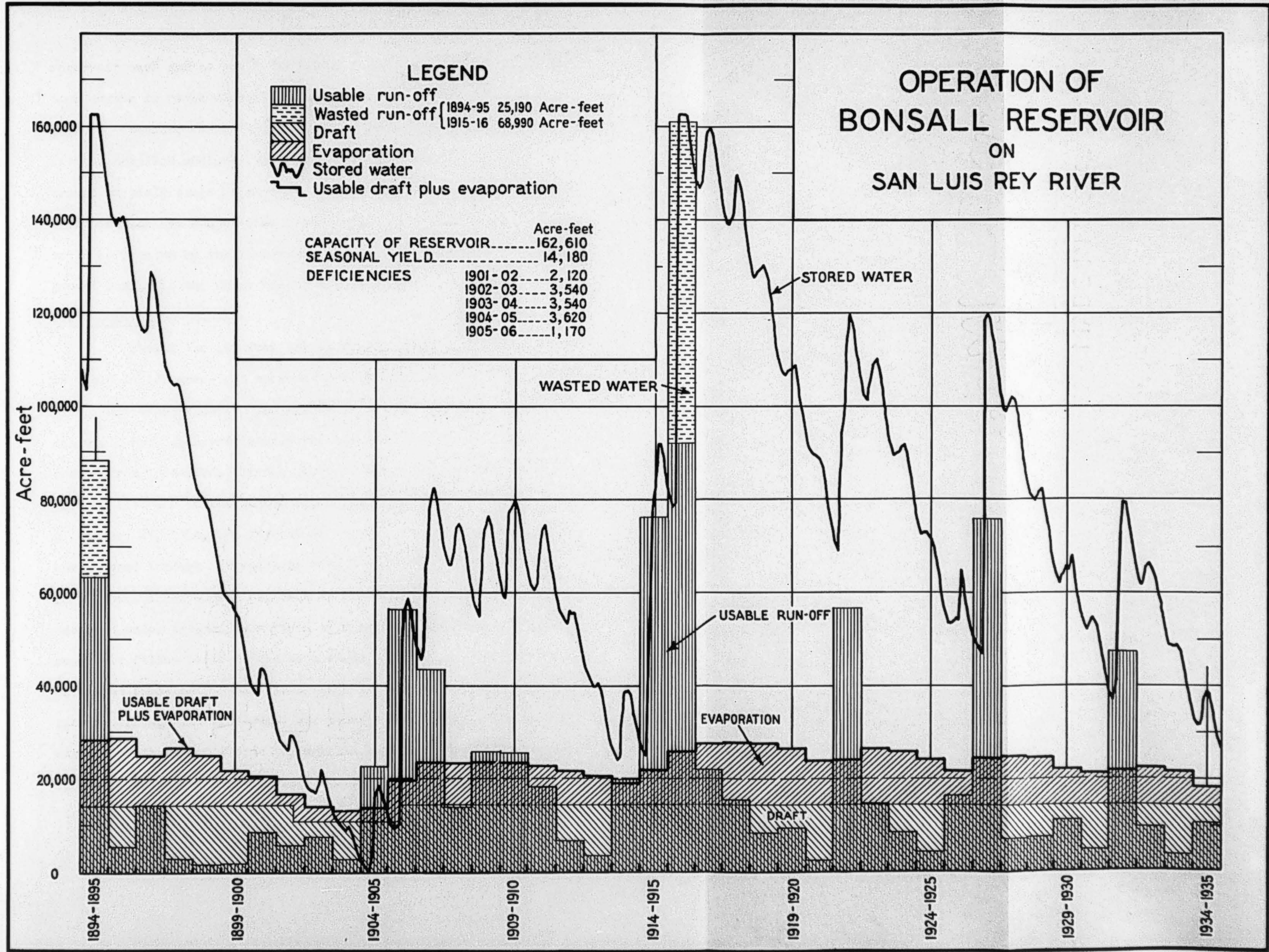
Analysis of the probable yield which may be obtained from the reservoir during the season. The probable yield from the reservoir during the season was estimated to be 162,610 acre-foot. The probable yield from the reservoir during the season was estimated to be 162,610 acre-foot. The probable yield from the reservoir during the season was estimated to be 162,610 acre-foot.

TABLE 7

OPERATION OF BONSAII RESERVOIR

Year	Inflow (acre-foot)	Wasted (acre-foot)	Evaporation (acre-foot)	Conserved (acre-foot)
1894	100,000	10,000	20,000	70,000
1895	120,000	12,000	24,000	84,000
1896	140,000	14,000	28,000	108,000
1897	160,000	16,000	32,000	132,000
1898	180,000	18,000	36,000	156,000
1899	200,000	20,000	40,000	180,000
1900	220,000	22,000	44,000	204,000
1901	240,000	24,000	48,000	228,000
1902	260,000	26,000	52,000	252,000
1903	280,000	28,000	56,000	276,000
1904	300,000	30,000	60,000	310,000
1905	320,000	32,000	64,000	344,000
1906	340,000	34,000	68,000	378,000
1907	360,000	36,000	72,000	412,000
1908	380,000	38,000	76,000	446,000
1909	400,000	40,000	80,000	480,000
1910	420,000	42,000	84,000	514,000
1911	440,000	44,000	88,000	548,000
1912	460,000	46,000	92,000	582,000
1913	480,000	48,000	96,000	616,000
1914	500,000	50,000	100,000	650,000
1915	520,000	52,000	104,000	684,000
1916	540,000	54,000	108,000	718,000
1917	560,000	56,000	112,000	752,000
1918	580,000	58,000	116,000	786,000
1919	600,000	60,000	120,000	820,000
1920	620,000	62,000	124,000	854,000
1921	640,000	64,000	128,000	888,000
1922	660,000	66,000	132,000	922,000
1923	680,000	68,000	136,000	956,000
1924	700,000	70,000	140,000	990,000
1925	720,000	72,000	144,000	1,024,000
1926	740,000	74,000	148,000	1,058,000
1927	760,000	76,000	152,000	1,092,000
1928	780,000	78,000	156,000	1,126,000
1929	800,000	80,000	160,000	1,160,000
1930	820,000	82,000	164,000	1,194,000
1931	840,000	84,000	168,000	1,228,000
1932	860,000	86,000	172,000	1,262,000
1933	880,000	88,000	176,000	1,296,000
1934	900,000	90,000	180,000	1,330,000
1935	920,000	92,000	184,000	1,364,000
Total	941,650	94,180	361,500	485,970







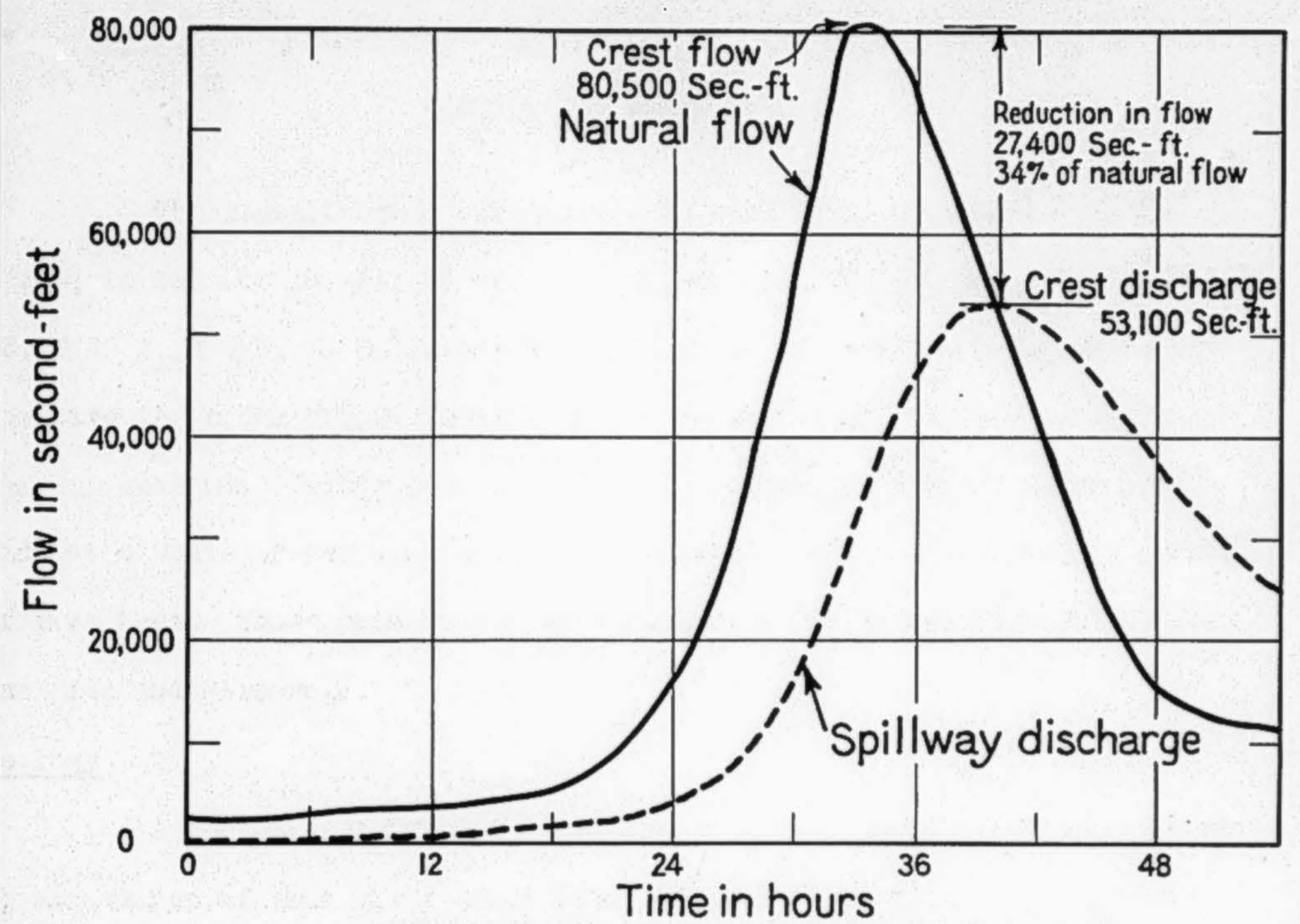
reservoir each spring after the winter runoff had occurred thus making some saving in evaporation losses.

Because of the lack of sufficient technically trained help, no further detailed analyses have been made. It is probable that an increase in yield could be shown by determining the savings in present transpiration and evaporation losses from the reservoir areas which would be flooded by the reservoir and from the surface areas of the underground basins if the water tables therein should be lowered.

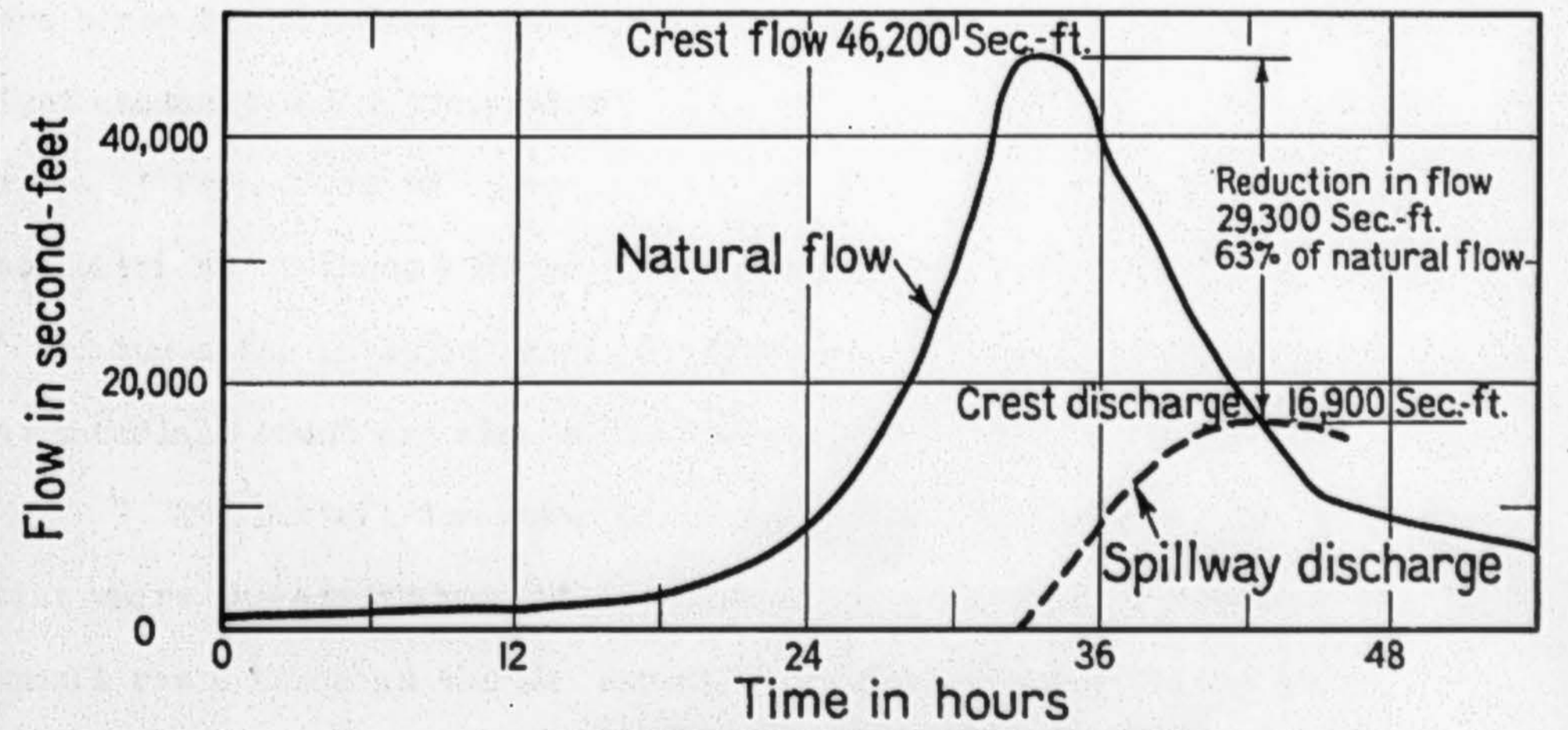
#### Flood Control

Should the 140 foot dam be built, the operation of the reservoir to yield 14,180 acre-feet seasonally would automatically store the waters of all but major floods. The operation studies show that spill past the dam would have occurred in only two seasons, 1894-95 and 1915-16, in the period from 1894-1935. In the first of these seasons only 25,000 acre-feet were spilled and in the second 69,000 acre-feet were spilled. The flood of January 27, 1916, the largest of which flow records are available, would have passed through the spillway with a maximum flow of only 16,900 second-feet, about thirty-seven per cent of the maximum flow which would have occurred under present conditions of upstream development. Assuming the reservoir filled prior to the occurrence of the flood the crest of the estimated once-in-250-year flood would be reduced more than one-third in passing through the spillway. The reductions in crest flow caused by the passage of these two floods through the spillway are shown graphically on Plate V, "Effect of Bonsall Reservoir on Flood Discharge".





ESTIMATED ONCE IN 250 YEAR FLOOD  
Reservoir full at start of flood



FLOOD OF JANUARY 27, 1916  
With deductions for present diversions,  
Operated for conservation of 14,180 acre-feet per season

**EFFECT OF BONSALE RESERVOIR  
ON FLOOD DISCHARGE**  
STORAGE 162,610 ACRE-FEET



CHAPTER IV

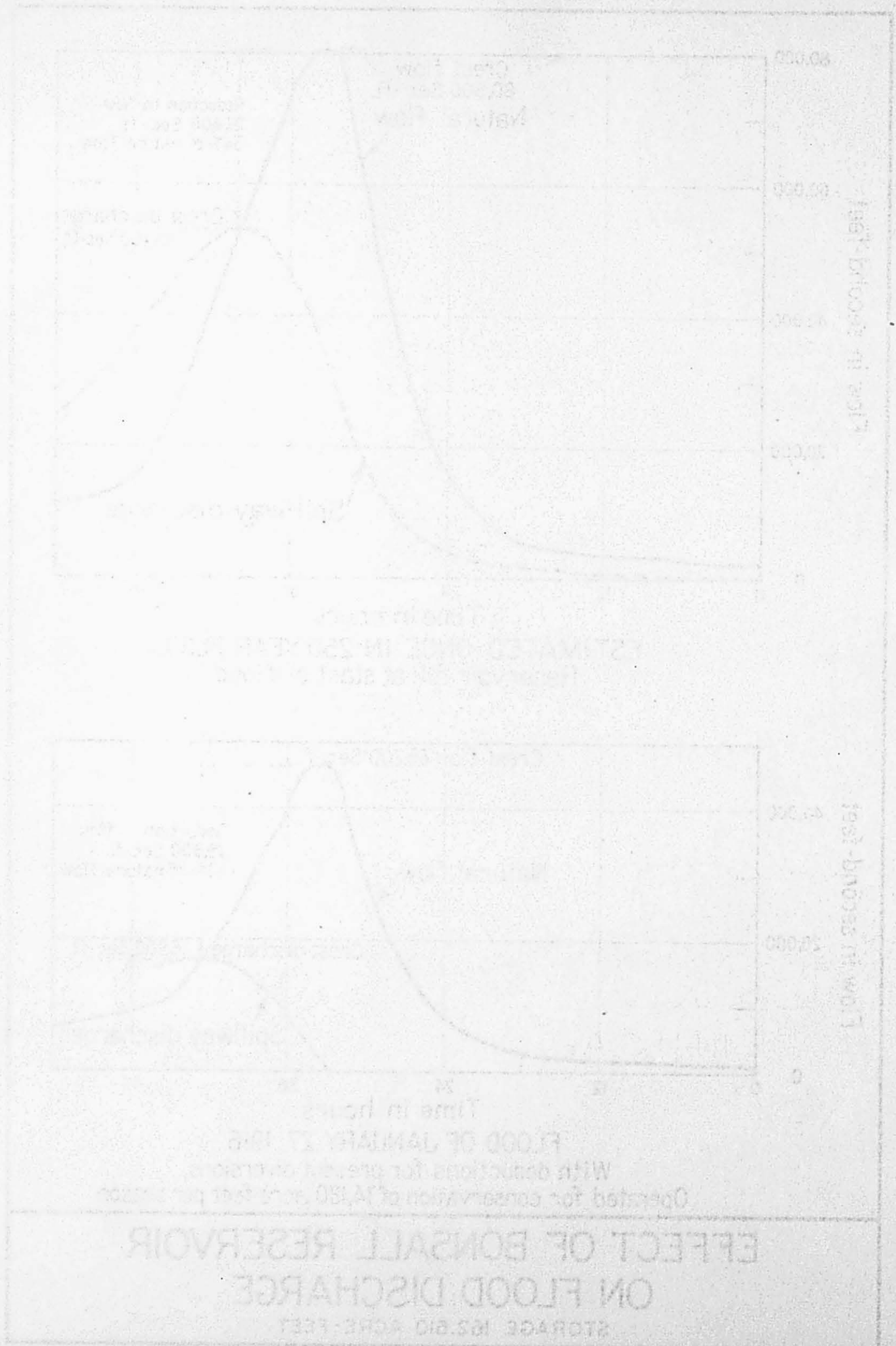
BONSALL DAM AND RESERVOIR

The Bonsall Reservoir site is located in Section 4 and 5, T 11 S, R 3 W; in Section 12, 14, 15, 18, 19, 20, 21, 26, 27, 23, 29, 30, 31, 32 and 33, T 10 S, R 3 W, S. B. B. and M.; and in the Monserate Grant. The main dam site is in the SW $\frac{1}{4}$  of Section 31 and an auxiliary dam is in the NW $\frac{1}{4}$  of the same section. Topographic surveys and maps of the dam sites have been made at a scale of one inch equals one hundred feet with a contour interval of five feet. These maps are shown in Appendix "A" Topography of Bonsall Dam Site and Reservoir.

Geology

A geologic study of the dam site was made during this investigation. In the course of this study about 1553 lineal feet of trenches 2.5 feet wide by from five to fifteen feet in depth and 8 test pits six by six by from 10 to 12 feet deep were dug; 298 lineal feet of three inch augur holes were bored in 13 holes; a six by six foot tunnel 36 feet long was dug in the right abutment and 4 twelve-inch wells were drilled in the river bed to depths of from 27 to 58 feet. A total of 177.5 feet of well were drilled. The locations of these various workings are shown on the topographic map of the dam sites in Appendix A. Profiles showing the classifications of the materials found are also shown in Appendix A.

The Bonsall dam site is located on the San Luis Rey River at a point where the stream has cut its channel through the northwestern end of a small range known as the San Marcos Mountains. Gopher Canyon which drains the northeasterly slopes of these mountains and enters the reservoir basin about one half mile upstream from the dam site is the only depression of any size between the dam site and Bonsall two miles upstream. Active faulting has not been recorded in this area but shocks from distant





VI. SUMMARY

BENSALL DAM PROJECT

The Bensall Dam project is located in San Diego County, California, on the San Marcos River. The project consists of a concrete dam, a spillway, and a powerhouse. The dam is to be built on a site where the river is about 100 feet wide and 10 feet deep. The spillway is to be built on the right side of the river, and the powerhouse is to be built on the left side. The project is owned by the San Diego Electric Utility Company.

The site is in a valley between rolling hills. The hills are covered with brush and some small trees. The river is a seasonal stream, and it is dry most of the year. The water is clear and cold. The site is a good location for a dam because of the narrow channel and the high hills on either side.

The dam will be about 100 feet long and 10 feet high. It will have a spillway on the right side and a powerhouse on the left side. The spillway will be a concrete structure with a slope of 1:1. The powerhouse will be a concrete structure with a capacity of 10,000 horsepower. The dam will be built on a foundation of granite and sandstone.

The project will cost about \$1,000,000 to build. It will provide a source of water for irrigation and a source of electricity for the local area. The dam will also provide a source of water for the city of San Diego.

The project is a good example of a small-scale dam project. It shows that a dam can be built in a valley with rolling hills and a seasonal stream. The dam will provide a source of water for irrigation and a source of electricity for the local area. The dam will also provide a source of water for the city of San Diego.

faulting are often felt throughout northern San Diego County. The courses of Gopher Canyon and the smaller canyon opposite may have been determined by a local fault. Another may run down the left side of the river through the spillway site.

The San Marcos Range is granitic in character, quite worn down, and exhibits a rolling topography. There are a few rocky outcrops in the vicinity of the dam site but most of the area is covered with about a foot of soil and supports a vigorous growth of brush. Away from the steeper sides of the river canyon, the rolling hills along both sides of the river bank are cultivated. The granite is rather poor in quality and on the surface it often exhibits spheroidal weathering. In this type of weathering there is much disintegration around hard nodules of rock of varying size. The right side of the river in the vicinity of the dam site shows numerous weathered rock outcrops, and at the axis of the dam site there are some hard bouldery masses strewn along the hillsides. The left side of the river in the vicinity of the dam site shows but few hard rock outcrops along its upper portion, but there is quite a continuous outcrop of hard rock extending beyond the limits of the dam site below the elevation of the present highway.

Excavation

At the dam site the river bed is about five hundred feet wide, a comparatively level bed of sand and, except for a narrow low water channel, overgrown with willows. The line of junction of hillside and river bed is well marked both by topography and by vegetal cover. Four wells were drilled in the river bed. The logs of these wells are given in Table 8, "Logs of Wells Drilled at Bensall Dam Site". These logs indicate that hard granite should be encountered at an elevation of about 70 feet above sea level, about 50 feet below the low point in the present river channel and that the old channel is probably gently rounded rather than a sharp "V" shaped gorge.



TABLE NO. 8

LOGS OF WELLS DRILLED AT BONSALL DAM SITE

Well No. 1	Well No. 2	Well No. 3	Well No. 4
Depth, in feet	Depth, in feet	Depth, in feet	Depth, in feet
0. Elev. 124	0. Elev. 120	0. Elev. 124	0. Elev. 126
River sand	River sand	River sand	River sand
20.6	31.0	40.	21.
Water gravel	Water gravel	River sand &	Small gravel
23.2	50.5	Cobbles	23.5
Decomposed granite	Hard granite	Decomposed granite	Clay & granite
23.8	55.8	55.6	27.
Boulders		Hard granite	Decomposed granite
26.4		58.3	35.5
Hard granite			Hard granite
27.4			



The estimated bed rock line is shown on the profile in Appendix A. The materials of the valley fill are largely river sands and gravels which could be easily excavated.

The right abutment of the dam is located on a small hill rising to an elevation of 250 feet above sea level which is slightly higher than the rest of the low ridge which forms the right bank of the reservoir. The topography is rounded and the slopes are even with no sudden breaks. The surface shows numerous granite boulders, the product of spheroidal weathering. The trenches, test pits, and tunnel which were dug in this abutment show an average of about one foot of soil rapidly changing to a coarse disintegrated granite in place. The disintegration is rather deep. Spheroidal boulders in place were encountered in the right abutment tunnel but very little hard rock was found in the right abutment exploratory trench. The disintegrated bed rock, however, consolidates quite rapidly and at depths of about four feet the original structure of the rock is quite apparent. This hill provides a satisfactory abutment for an earth dam. The top foot of soil which supports a moderately heavy growth of brush should be stripped and wasted. Under the impervious section of the dam excavation should extend through an additional three feet. The material which will be excavated is suitable for use in the down stream section of the dam and may be suitable for use in the impervious section.

The left abutment is a small rounded hill standing out alone as a topographic feature. It is uniformly rounded on all sides with no sudden breaks in the slopes. The foot of this hill shows an almost continuous outcropping of hard granite which appears in the left bank of the river bed upstream from the dam as a gently sloping shelf covered with a shallow layer of soil. The upper part of the hill is deeply weathered and shows no outcrops or boulders on the surface. Bedrock is exposed along the entire length



of the present highway cut on the left abutment. Most of the bed rock is soft and decomposed but there is one zone of hard dark colored granite crossing the road cut which seems to line up with the hard rock found in the exploratory tunnel on the right abutment of the dam site. On the left abutment stripping should be carried to a depth of one foot and the excavation under the impervious section of the dam should be carried about three feet deeper.

The spillway for the dam may pass through the gap which separates this hill from the main body of the range. This pass crests at an elevation of about 225 feet above sea level. Test Pit No. 7 which was dug in the low portion of the gap showed a soil depth of about eight feet. Trench No. 5, however, showed that a relatively narrow depression in the bed rock separated the left abutment knoll from the main hills. At this point the soil depth reached a maximum of 16 feet. The alluvium in this depression contained some water worn material indicating that an old stream channel may have been eroded along this possible fault line which was previously suggested as having passed through the spillway site. At the bottom of the trench the rock was fairly hard and seemed to be continuous. From the evidence exposed in the trench, it is believed that a satisfactory foundation for an Ogee spillway will be found at a depth of from ten to fifteen feet below the present surface.

For a distance of approximately three-quarters of a mile upstream from the main dam site the right bank of the reservoir is formed by a low chain of hills varying in elevation from 250 to 275 feet above sea level. Opposite Gopher Canyon this low range turns away from the river and forms the western bank of a small canyon, the course of which may have been determined by the local fault previously suggested. Along this canyon the ridge crops in two places to elevations of about 210 feet above sea level. Any reservoir which takes advantage of the full height of the abutments at the



main dam site will require auxiliary dams along this ridge. The ridge is uniformly rounded and relatively steep on the river side but slopes gently away on the side opposite the river. The crest and gently rolling slopes have been cleared and a large part of the cleared area is piped for irrigation.

The character of the materials in the ridge and on the abutments of the auxiliary dam sites has been explored with 13 augur holes and one test pit. The locations of these borings, shown on the topographic map of the dam site, and a profile of the ridge showing the materials encountered in the augur borings and Test Pit No. 3 are shown in Appendix A. The soil depths along the crest of the ridge average from three to five feet and overlay a deposition of residual material comprised mostly of micaceous sand approximately ten feet in depth. Decomposed granite is encountered at depths of from fifteen to twenty-five feet. Stripping for the auxiliary dams along this ridge should average about two feet in depth and the excavation under the impervious sections of the fills should average ten feet deeper. The excavated materials, however, can be reworked and embodied in the pervious portions of the fills.

One of the proposed auxiliary dams cuts across a depression to meet the hills on the north rather than to meander up the long extension of the ridge. The bed of this depression is about 200 feet wide and is filled with deposits of water worn gravel, sand, and silt. Stripping across the bottom should reach two feet below the surface, and decomposed granite should be found about twenty feet deeper. Along the sides of the depression bed rock should be encountered at a much shallower depth.

Under all dams a concrete cutoff along the impervious portion of the fill should extend below the excavation to scum granite or into material that will safely resist underground percolation.



Materials for Construction

The necessary excavation in the bed of the San Luis Rey River will provide sufficient sand and gravel of suitable quality for concrete.

Sufficient material with which to construct the impervious sections of the main earth fill and the auxiliary structures was found about one-half mile upstream in the SE $\frac{1}{4}$  of the NW $\frac{1}{4}$  of Section 31 where the erosion of small channels to depths of ten to fifteen feet has exposed a deposit of red clay alluvium which is believed to be satisfactory.

The pervious downstream portion of the fill may be made from the excavations in the river bed and the spillway channel and from the disintegrated granite of the surrounding hills.

Dam and Reservoir

It is probable that either an earth fill, rock fill or concrete dam could be built at this point. However since there are no extensive outcrops of rock close by which would be suitable for a rock fill and since a concrete structure would require extensive excavation in both abutments, an earth fill type of dam has been designed for this structure.

Estimates have been made of the costs of reservoirs with rolled earth fill dams with crests at elevations 220 and 260 feet above sea level. In making these estimates both rain dams were designed with an impervious section with a crest width of ten feet and slopes of 2.5:1 upstream and 1:1 downstream, faced with a concrete paving 12 inches thick, normal to the slope. The downstream pervious section was given a crest width of 40 feet and a downstream slope of 2.5:1 to a point 40 feet below the crest where it was flattened to 3:1. The impervious section was extended to bed rock but the pervious section ended at the stripping line. A concrete cutoff 2.5 feet wide was placed at the upstream toe and extended 15 feet below the line of excavation. The spillway consisted of a concrete Ogee section without gates and with crest 20 feet below



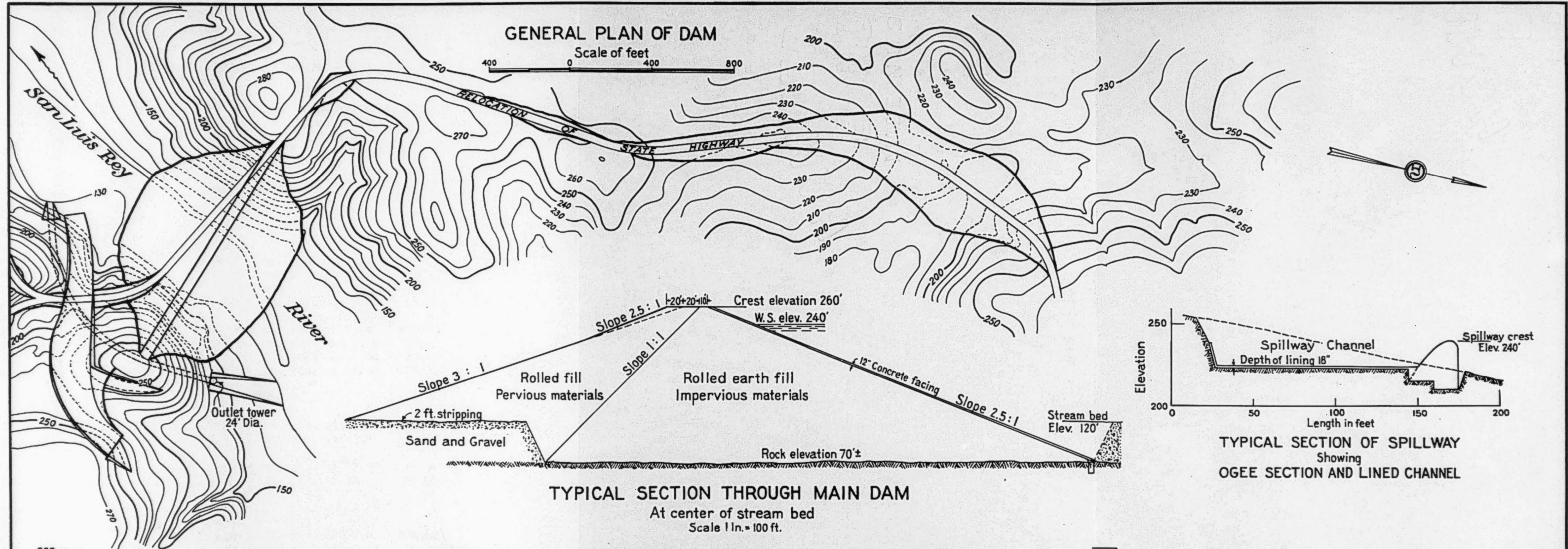
the top of the dam. It was 440 feet long and would discharge 30,500 cubic feet per second, the crest flow of a once-in-250-year flood, with the water surface 5.5 feet below the crest of the main dam. The channel passing through the gap between the left abutment and the main range of hills was concrete lined throughout. During the construction of the dam the stream flow would be by-passed through a 30' tunnel under the left abutment. This tunnel would be concrete lined throughout and after construction would be plugged at the upper end and used as a conduit for the outlet pipe. Water would enter the pipe through a circular concrete tower with gate valves controlled from a gate house on the top of the tower. The flow through the outlet pipe would be controlled by a needle valve at the downstream end of the tunnel and an emergency slide gate would be placed immediately below the tunnel plug.

The auxiliary dams were designed similarly to the main dam except that the total crest widths were only 40 feet.

The valuation of the reservoir lands, all in private ownership, which it would be necessary to acquire has been based on the 1936 tax rolls of San Diego County. The assessed values are said to be about fifty per cent of the true value. In estimating the cost of acquiring these lands, however, a figure three times the assessed valuation has been used.

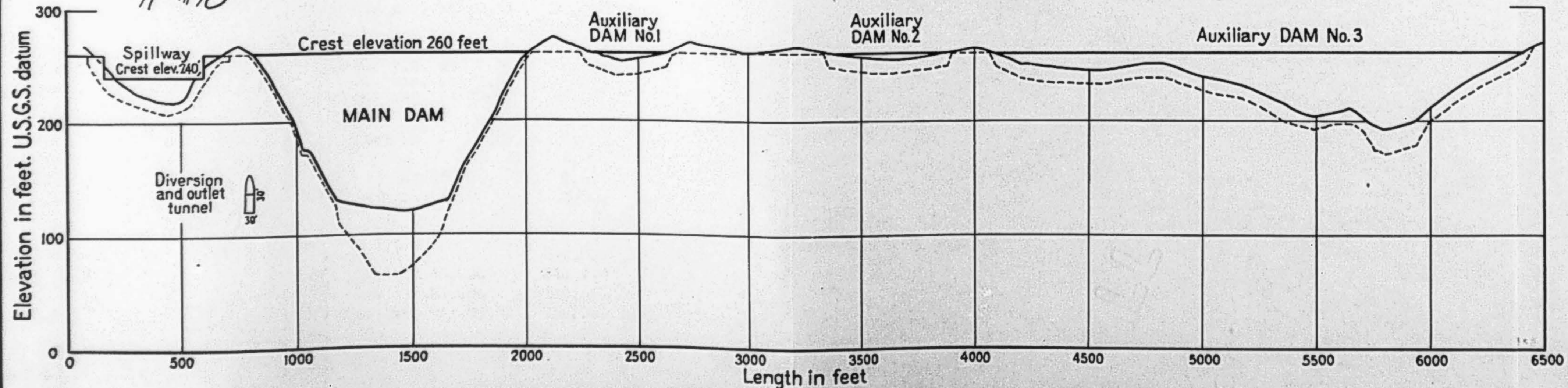
As previously stated estimates of cost were made for reservoirs created by dams with crests at elevations 220 and 260 feet above sea level. Somewhat detailed estimates of the capital and annual costs of the two dams are given in Tables 9 and 10 respectively. The layout and cross sections of the main dam and spillway for the larger reservoir are shown on Plate VI "Bensall Dam on San Luis Rey River."





**TYPICAL SECTION THROUGH MAIN DAM**  
At center of stream bed  
Scale 1 in. = 100 ft.

**TYPICAL SECTION OF SPILLWAY**  
Showing  
OGEE SECTION AND LINED CHANNEL



**PROFILE OF OGEE SPILLWAY, MAIN AND AUXILIARY DAMS**

**BONSALL DAM**  
ON  
**SAN LUIS REY RIVER**  
IN  
**SAN DIEGO COUNTY**  
1936



TABLE 9  
COST OF BONSALL RESERVOIR

Crest of Dam Elevation - 220 feet U.S.G.S. Datum	Capacity of Reservoir to spillway lip 49,170 acre-feet
Crest of Spillway - Elevation 200 feet	Capacity of Spillway
Height of Dam - 100 feet	50,500 second-feet

## CAPITAL COST

## Dams (Main and Auxiliary)

## Excavation

Sand and gravel	295,700 cu. yds. at 0.50	\$147,850
Earth and soft rock	63,700 cu. yds. at 1.00	63,700
Stripping	36,000 cu. yds. at 2.00	72,000
Cut off trench	3,050 cu. yds. at 2.00	6,100

## Fill

Impervious	679,200 cu. yds. at 0.40	271,700
Pervious, excavation used	243,700 cu. yds. at 0.05	12,200
borrow	100,000 cu. yds. at 0.35	35,000
Concrete facing & cut off	13,920 cu. yds. at 12.00	167,000
		\$775,500

## Spillway

## Excavation

Soft rock	226,300 cu. yds. at 0.50	113,150
Hard rock	114,000 cu. yds. at 0.70	79,800

## Concrete

Ogee section	9,200 cu. yds. at 7.50	69,000
Lining	14,900 cu. yds. at 12.00	178,800
		441,000

## By Pass and Outlets

## Excavation

Hard rock	45,300 cu. yds. at 7.50	343,500
Soft rock	26,300 cu. yds. at 0.70	18,400

## Concrete

Tunnel lining	10,100 cu. yds. at 20.00	203,600
Tunnel plug	950 cu. yds. at 7.50	7,100
Outlet tower	60 cu. yds. at 7.50	500
	140 cu. yds. at 25.00	3,500

## Steel

Pipe 30"	11,100 feet at 4.50	5,300
Gates including trashracks etc.	5	2,000
Needle valve 30"	1 at 6,000.	6,000
Slide Gate 2.5 ft. x 2.5 ft.	1 at 3,000	3,000
		594,100

## Reservoir

Lands & improvements		542,500
Relocation of roads	6 miles at 36,000	216,000
	7 miles at 20,000	140,000
Clearing land	7,600 acres at 20.00	152,000
		1,050,500

sub-total

2,361,100



TABLE 9 (Continued)

Administration and Engineering	10% of sub total	236,100
Contingencies	15% of sub total	429,200
Interest during construction	5% rate 18 months	132,400
<b>TOTAL CAPITAL COST</b>		<b>3,753,300</b>

ANNUAL COST

Interest	5 per cent per annum	137,900
Depreciation	0.35 per cent on dam only	3,300
Amortization-sinking fund	40 year 5 per cent annual payments	31,100
Operation & maintenance.	0.15 per cent per annum	5,600
<b>TOTAL ANNUAL COST</b>		<b>232,900</b>



TABLE 10

COST OF BONSALL RESERVOIR

Crest of Dam, Elevation 260 feet U.S.G.S. Datum	Capacity of Reservoir to spillway lip 162,610 acre-feet
Crest of Spillway, Elevation 240 feet	Capacity of Spillway 30,500 second-foot
Height of Dam, 140 feet	

CAPITAL COST

Dams (Main and Auxiliary)				
Excavation				
Sand and gravel	507,100 cu. yds.	at 0.50	\$ 253,600	
Earth and soft rock	40,000 cu. yds.	at 1.00	40,000	
	272,500 cu. yds.	at 0.50	136,300	
Stripping	99,100 cu. yds.	at 2.00	198,200	
Cut off trench	5,500 cu. yds.	at 2.00	11,000	
Fill				
Impervious	1,647,600 cu. yds.	at 0.40	739,000	
Pervious, Excavation used	726,200 cu. yds.	at 0.35	36,300	
borrow	100,000 cu. yds.	at 0.35	35,000	
Concrete facing and cutoff	33,500 cu. yds.	at 12.00	402,000	1,351,400
Spillway				
Excavation				
Hard rock	46,000 cu. yds.	at 0.70	33,600	
Soft rock	143,400 cu. yds.	at 0.50	71,700	
Concrete				
Ogee section	10,540 cu. yds.	at 7.50	79,000	
Lining	12,100 cu. yds.	at 12.00	145,200	329,500
By Pass and Outlets				
Excavation				
Soft rock	26,300 cu. yds.	at 0.70	18,300	
Hard rock	45,000 cu. yds.	at 7.50	343,500	
Concrete				
Tunnel lining	10,100 cu. yds.	at 20.00	203,600	
Tunnel plug	( 950 cu. yds.	at 7.50	7,100	
Outlet tower	( 60 cu. yds.	at 7.50	500	
	( 220 cu. yds.	at 25.00	5,500	
Steel				
Steel pipe 42"	1,200 feet	at 6.00	7,200	
Gate valves incl. trashracks, etc.	7		4,300	
42" needle valve	1	at 7,500.	7,500	
3.5 ft. x 3.5 ft. slide gate	1	at 5,600.	5,600	604,100
Reservoir				
Land & improvements				
Relocation of roads	6 mi.	at 36,000.	216,000	
	3 mi.	at 20,000.	160,000	
Clearing land	9,700 acres	at 20.	194,000	1,261,200
sub-total				4,046,200







## CHAPTER V

## MONSERATE DAM AND RESERVOIR

The Monserate reservoir site is located in Sections 21, 22, 26, 27, 28, 29, 30, 31, 32, 33, 34 and 35, T. 9 S., R. 2 W. and in Sections 5, 6, 7 and 8, T. 10 S., R. 2 W., S. B. B. & M. The dam site is located in the North-west one-quarter of Section 6. A topographic survey and map of the dam site, shown in Appendix "B", has been made at a scale of one inch equals one hundred feet with a contour interval of five feet.

Geology

A geologic study of the dam site was made during this investigation. In the course of this study 139 lineal feet of trench 2.5 feet wide by about 5 feet deep, 4 test pits 6 feet by 6 feet by about 10 feet deep, and about 27 surface pits and benches from 3 to 5 feet deep were dug; a six by six feet tunnel 14 feet long was dug in the right abutment; and three wells totaling 270 feet in depth were drilled in the river bed. The locations of the various workings are shown on the topographic map of the dam site in Appendix "B". Profiles showing the classification of the materials encountered are also shown on this map.

The Monserate dam site is located on the San Luis Rey River at a point where the river has cut a comparatively narrow gorge between Monserate and Lancaster Mountains. Two canyons which drain the easterly slopes of the two mountains join the river from the North and South immediately above the dam site. The left abutment is formed by a hard granite dome rising abruptly from the river bed which forms the northern spur of Lancaster mountain. The right abutment is formed by a lower ridge jutting out to the southeast from Monserate Mountain. The granites in the right abutment ridge are deeply weathered and extremely variable in type. There are a few outcroppings of hard granite but much of the material is disintegrated and badly fractured. It is probable that a fault runs down the canyon through the dam site. The



river bed between the two abutments is a level sandy plain about 800 feet wide supporting a growth of grass and Cottonwoods along the bank of the narrow surface channel which lies under the steep bluff of the left abutment.

#### Excavation

The left abutment dome will require only shallow surface stripping under the down stream portion of the dam. Under the upstream portion, however, doming cracks will probably require the removal of considerable hard blocky material in the preparation of a foundation for the impervious section of the dam.

The three wells drilled in the stream bed indicated that over 400 feet of this channel would have to be excavated to depths of from 80 to 100 feet below the present surface.

The explorations on the right abutment indicated that it would be necessary to excavate about 8 feet of material under the upstream portion of the dam with a further depth of 20 feet for a corewall and that, to insure the water tightness of this abutment, it would be advisable to cover a large area on its upstream face either with gunite or with an impervious clay blanket.

#### Comparison of Monserate and Bonsall Dam Sites

The left abutment at Monserate will require about 5 feet of excavation while that at Bonsall requires about 1 foot of stripping and 3 feet of excavation, a total of 4 feet.

The river bed at Bonsall is about 500 feet wide and requires a maximum excavation of about 55 feet in depth over a width of 130 feet while the river bed at Monserate is about 800 feet wide and will require a maximum excavation of from 80 to 100 feet in depth over a width of about 400 feet.

The right abutment at Bonsall will require a total depth of 4 feet in excavation with a 15 foot corewall while the right abutment at Monserate will require not only an 8 foot excavation with a 20 foot corewall but also a



TABLE 11

LOGS OF WELLS DRILLED AT MONSERATE DAM SITE

Well No. 5		Well No. 6		Well No. 7	
Depth, in feet		Depth, in feet		Depth, in feet	
0	Elev. 283 Sand and silt	0	Elev. 283 Sand and silt	0	Elev. 280 Sand and silt
10	Clay	18	Sand and water gravel	9	River sand & gravel
14	Water gravel	70	Blue clay	45	River gravel
16	Clay with hard streaks growing harder	74	Boulders and clay	60	Black river silt
40	Very hard decomposed granite	78	Seemed to be cemented sand wash gravel and clay.	61	Water gravel
43.5	Hard granite	104	Same with more clay	75	Boulders then into cemented sand, gravel and clay carrying wash gravel, which seemed to be in water bear- ing strata
45.5	Extra hard granite	106	Hard but still carry- ing wash gravel which seemed to be in water bearing strata	102	
46.2		122			







STATE OF CALIFORNIA  
Department of Public Works

SACRAMENTO

March 15, 1937

DIVISION OF WATER RESOURCES  
PUBLIC WORKS BUILDING

Copy - Fred Pyle 3/18  
Dan Stewart  
Col O'Rourke  
Fred B. Lodes  
Rufus Choate  
Jane Jorgensen 3/24  
A. W. Black 4/16  
Robt. Hamilton 4/26

Senator Ed Fletcher  
State Capitol  
Sacramento, California


My dear Senator:

Answering your letter of March 8th regarding the dam at Mission Gorge #3, this department, in exercising supervision over dams in the interest of safety, does not dictate the type of dam to be selected by the owner for construction at a particular site, but the plans for the proposed dam and its construction must conform with the Act Governing the Supervision of Dams and meet with the approval of the department in so far as safety is concerned.

The department offers no objection to consideration of the single arch type dam as a type because of its successful construction and use in many instances. With particular reference to the use of this type at Mission Gorge #3, no reason is known in the light of present limited data regarding foundation conditions, why such a dam, if properly designed and well constructed, cannot be considered a safe structure.

The direct answer to your question is that if an application and plans for a single arch dam at this site are submitted which meet the requirements of the Act, the application can be approved.

Very truly yours,

  
State Engineer

March 22, 1937

Mr. Edward Hyatt  
State Engineer  
Sacramento, California

My dear Mr. Hyatt:

Engineer Pyle gave a talk before the La Mesa Chamber of Commerce recently and he stated that the Engineers who compiled the report suggested Mission Gorge #2 because it was the pet of State Engineer Hyatt. I would like to know if this is true.

Also, if it could be shown that the water would cost less per thousand gallons at Mission Gorge #3 to develop, and without destroying the Valley lands of El Cajon and the town of Santee, would you not favor this change, even though the present report shows a preference for #2?

This letter is not for publication, but I have it on authority of Rufus Choate, President of the State Harbor Commission that Mr. Pyle has made that statement.

With kind regards,

Sincerely yours,

RF/jv

CC-Rufus Choate



EDWARD HYATT, STATE ENGINEER  
CHIEF OF DIVISION

FRANK F. MERRIAM  
GOVERNOR OF CALIFORNIA

EARL LEE KELLY  
DIRECTOR

STATE OF CALIFORNIA  
Department of Public Works

DIVISION OF WATER RESOURCES  
PUBLIC WORKS BUILDING

SACRAMENTO

March 24, 1937

Mr. Ed Hatt  
State Engineer  
Sacramento, California

My dear Ed:

Enclosed find copy of letter dated March 19th from Lars Jorgensen. Also map relative to a single arch type dam for Mission Gorge #5.

Please go as strong in the matter as you can, and say that this type of dam is satisfactory in principle and suited for the site if it is decided to build that type dam at Mission #5.

Sincerely yours,

EF/jv

March 30, 1937

Honorable Ed Fletcher  
Senator, 40th Senatorial District  
Capitol Building  
Sacramento, California

My dear Mr. Fletcher:

This to acknowledge in the absence of Mr. Hyatt receipt of your favor of March 22d advising that Mr. Pyle at a talk recently given before the La Mesa Chamber of Commerce stated that the engineers who compiled the report suggested Mission Gorge No. 2 because it was the pet of State Engineer Hyatt. Mr. Hyatt is at present in Washington, D.C. and is not expected to return until the middle or latter part of April at which time your communication will be called promptly to his attention.

It is noted that your letter is intended as a confidential communication and will be recognized as such until it is placed in the hands of Mr. Hyatt upon his return.

Very truly yours,

  
Administrative Assistant



STATE OF CALIFORNIA  
Department of Public Works

DIVISION OF WATER RESOURCES  
PUBLIC WORKS BUILDING

SACRAMENTO

Copy sent 5/11  
Jergensen "

April 28, 1937


Honorable Ed Fletcher,  
Senator 40th District,  
State Capitol,  
Sacramento, California.

Dear Colonel:

This will acknowledge your letter of April 14, regarding the Constant Angle Arch type of dam for the Mission Gorge No. 3 site. On a review of the correspondence in this connection, it appears that the situation had been fully covered in the letter to you on March 15, 1937, copy of which is enclosed. I now understand that the letter of March 15th is satisfactory except that it does not mention the constant angle arch or variable radius type of dam, but deals with single arch type only.

So far as terminology is concerned it is considered that a constant angle arch type is within the definition of a single arch type, therefore the statements in the letter of March 15th last apply to the constant angle arch type of dam and that if an application and plans for a constant angle arch dam at Mission Gorge No. 3 site are submitted which meet the requirements of the Act, the application will be approved. I am

Very truly yours,

  
State Engineer

THIS CORRESPONDENCE  
+ OTHER 1937 CORRES.  
BETWEEN ED FLETCHER  
+ P. DEWARS, ORIGINALLY  
FILED UNDER

"DOANE VALLEY DAM AT  
PALA"

esm

SEE ALSO (1938)

① COVINGTON, J.H.  
EXEC SEC,  
ST. PARK COMMISSION

② RABER, W.F.

③ HENNING, A.E.

④ WEBB, U.S.

⑤ KRAIBER, L.M.



March 16, 1938

Mr. Edward Hyatt,  
State Engineer  
Sacramento, California

My dear Ed:

Enclosed find letter from my friend P. Dewars of  
Pala that is explanatory.

Won't you please write him full particulars giving  
the reasons why, and how you can help. They are entitled  
to it and I am going the limit for them.

With kindest regards,

Sincerely yours,

EF/jv  
Encl.

cc-Mr. Dewars

EDWARD HYATT, STATE ENGINEER  
CHIEF OF DIVISION

FRANK F. MERRIAM  
GOVERNOR OF CALIFORNIA

EARL LEE KELLY  
DIRECTOR

STATE OF CALIFORNIA  
Department of Public Works

SACRAMENTO

DIVISION OF WATER RESOURCES  
401 PUBLIC WORKS BUILDING

March 24, 1938

Mr. P. Dewares  
Pala  
San Diego County  
California

Dear Mr. Dewares:

Acknowledgment is made of your letter,  
dated March 8, 1938, relative to a plan for water  
conservation in Pauma Valley.

I am writing to Mr. George B. Gleason,  
my representative in Los Angeles to call upon you  
in the near future and discuss this matter with you.

Sincerely yours,

EDWARD HYATT

State Engineer.

ADE:NH

cc: Senator Ed Fletcher  
cc: George B. Gleason



EDWARD HYATT, STATE ENGINEER  
CHIEF OF DIVISION

FRANK F. MERRIAM  
GOVERNOR OF CALIFORNIA

EARL LEE KELLY  
DIRECTOR

STATE OF CALIFORNIA  
Department of Public Works

SACRAMENTO

DIVISION OF WATER RESOURCES  
PUBLIC WORKS BUILDING

March 25, 1938

Senator Ed Fletcher,  
1020 Ninth Avenue,  
San Diego, California.

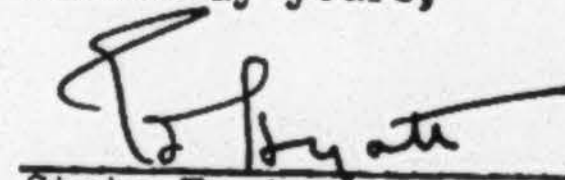
Dear Colonel:

Acknowledging yours of March 16, enclosing letter from Mr. Dewars of Pala, have asked George Gleason, of our Los Angeles office to go down to see if he can be of any help as per copy of letter enclosed.

Regret exceedingly having missed you all the way around when you were here during the session. Understand you inspected the air depot north of town with Mr. Gardiner. Am struggling with the flood control and flood relief situation at the present time.

With best regards, I am

Sincerely yours,

  
State Engineer

Encl.

EDWARD HYATT, STATE ENGINEER  
CHIEF OF DIVISION

FRANK F. MERRIAM  
GOVERNOR OF CALIFORNIA

EARL LEE KELLY  
DIRECTOR

STATE OF CALIFORNIA  
Department of Public Works

SACRAMENTO

DIVISION OF WATER RESOURCES  
401 PUBLIC WORKS BUILDING

June 22, 1938

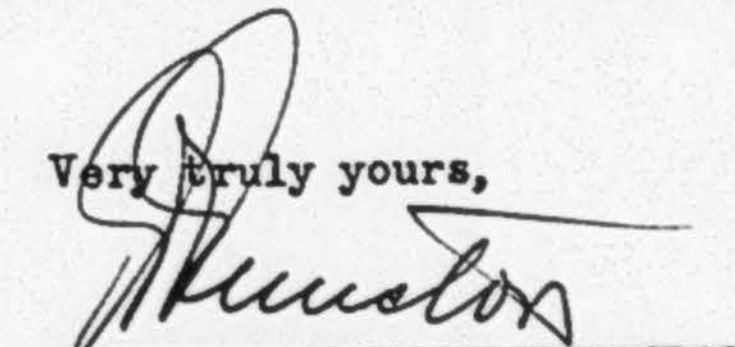
Senator Ed Fletcher,  
1020 Ninth Avenue,  
San Diego, California.

Dear Senator Fletcher:

This will acknowledge your letter of June 20, in reference to Mr. Hyatt's coming to San Diego.

Mr. Hyatt is out of the State for a short time, but will return the latter part of this week. Immediately on his return your request will be referred to him for his further attention and reply.

Very truly yours,

  
G. T. Gunston  
Administrative Assistant



October 27, 1938

AIR MAIL

Mr. Edward Hyatt  
State Engineer  
Sacramento, California

Re:-PWA Docket Calif. #1868  
Fallbrook Public Utility District

My dear Ed:

On receipt of this won't you please wire H.H.Gray, Assistant Administrator, WPA, Washington, D.C. urging him to approve the above project, and go the limit in this matter. You have all the facts. I have taken the matter up today with Senator Johnson also.

Let me know what the results are, and with kindest regards, I am

Sincerely yours,

EF/jv

cc-Mr.C.E.Lamb

FEDERAL EMERGENCY ADMINISTRATION  
OF PUBLIC WORKS

Washington, D.C.

November 2, 1938

C  
O  
P  
Y

In reply please refer to  
Projects and  
Statistics-WWS:gfb  
Docket No. Calif. 1868

Mr. Edward Hyatt,  
State Engineer of California,  
Sacramento, California.

My dear Mr. Hyatt:

This will acknowledge your day letter of October 29, urging that the application submitted by the Fallbrook Public Utility District be reconsidered in the light of additional representations made by the District, and approved if facts warrant. The application for this project, identified by our Docket No. Calif. 1868, was disapproved on October 21.

If the applicant can assure us of the availability of its share of the cost of the project, it may request reinstatement of this application, submitting such a request to our Regional Director at San Francisco. However, we can offer you no encouragement at the present time regarding an allotment for this project, as applications were submitted to the Public Works Administration under the authority of the Public Works Administration Appropriation Act of 1938, requesting funds much in excess of the amount made available for allocation under the appropriation, and accordingly it has not been possible to make allotments to all of them.

In accordance with the purpose of the Act, namely, to create employment quickly, allotments were made for projects as early as favorable conclusions could be reached on the applications in order that construction could be started and employment furnished with the least possible delay. Consequently, substantially all of the money appropriated by the 1938 Act has now been allotted.

I regret that I am unable to write you more favorably.

Sincerely yours,

(Signed) H. A. Gray

H. A. GRAY  
Assistant Administrator.

C  
O  
P  
Y



STATE OF CALIFORNIA  
**Department of Public Works**  
SACRAMENTO

DIVISION OF WATER RESOURCES  
PUBLIC WORKS BUILDING

November 10, 1938

P.W.A. Application  
Fallbrook Public Utility District

Mr. John H. Chase, Engineer  
Fallbrook Public Utility District  
Fallbrook, California

Dear Mr. Chase:

This will acknowledge receipt of your telegram sent me from San Francisco today in reference to the District's P.W.A. application. On October 29, I wired the Assistant Administrator at Washington, urging reconsideration of this application, and have just received a letter from Mr. H. A. Gray, dated November 2, which states:

"If the applicant can assure us of the availability of its share of the cost of the project, it may request reinstatement of this application, submitting such a request to our Regional Director at San Francisco."

Copy of the letter from Mr. Gray is enclosed. It may be that this information will be of assistance.

Very truly yours,

EDWARD HYATT

State Engineer

✓  
cc - Senator Fletcher

EH:P

STATE OF CALIFORNIA  
**Department of Public Works**  
SACRAMENTO

DIVISION OF WATER RESOURCES  
PUBLIC WORKS BUILDING

November 10, 1938

P.W.A. Application  
Fallbrook Public Utility District

Mr. Richard Sachse,  
Consulting Engineer,  
215 West Sixth Street,  
Los Angeles, California.

Dear Mr. Sachse:

This refers to your letter of October 28, and previous correspondence in connection with the Fallbrook Public Utility District's P.W.A. application. On October 29 I wired the Assistant Administrator at Washington, urging reconsideration of this application, and have just received a letter from Mr. H. A. Gray, dated November 2, which states:

"If the applicant can assure us of the availability of its share of the cost of the project, it may request reinstatement of this application, submitting such a request to our Regional Director at San Francisco."

A copy of the letter from Mr. Gray is enclosed. It may be that this information will be of assistance.

Very truly yours,

EDWARD HYATT

State Engineer

✓  
cc - Senator Ed Fletcher

EH:P



STATE OF CALIFORNIA

DEPARTMENT OF PUBLIC WORKS Sacramento

March 13, 1942.

Hon. Ed Fletcher,  
Senator 40th District,  
State Capitol,  
Sacramento, Calif.

Dear Colonel:

Responsive to your verbal request of today the following excerpts, pertaining to a dam site in the vicinity of "Mission Gorge #3 Dam Site" are quoted from Bulletin 48 - San Diego County Investigation, of the Publications of the Division of Water Resources.

"However, after it was discovered that the large block of loose rock existed in the right abutment of the proposed dam site, attention was given to finding a more satisfactory dam site in the same vicinity. The canyon was studied upstream for several thousand feet and for some distance downstream. The best site appeared to be one which is about 200 feet downstream from the first site studied and 300 feet downstream from the sign painted on the rock on the right side of the stream. This site will be called the "Lower Mission Gorge No. 3 dam site." At it there is a fairly steep cliff about 100 feet high on the right side of the canyon. The geology of this site was also briefly studied by Chester Marliava and no serious shear zones or fractures were discovered. The type of rock is the same as at the site covered by the foregoing geological report."

This will also confirm opinion expressed that from an engineering point of view the "constant angle type" of arch dam can be considered, in principle, a permissive type of dam if competently designed and if foundation and abutment conditions at the site under consideration are found suitable for the construction of this type of dam.

Very truly yours,

Sig. EDWARD HYATT  
State Engineer

Copy of Letter.

ED FLETCHER COMPANY  
CUYAMACA WATER COMPANY

Real Estate

1020 NINTH AVENUE • SAN DIEGO, CALIFORNIA  
TELEPHONE FRANKLIN 6204

May 14, 1943

Mr. Ed Hyatt  
State Engineer  
Sacramento, Calif.

My dear Ed:

I have read report No. 3, San Diego Region State Council of Defense for the first time. I refer to Page 62, where you speak of an emergency supply of five million gallons a day for San Diego from Henshaw reservoir, taking it out of Lake Wolford and running it in to Camp Elliott from Bear Valley Power House of the Escondido Mutual Water Company.

Speaking of an emergency supply in large quantity, for immediate relief, I am thoroughly convinced that the government or the city should above all things take the following steps. First, commence operating the San Diego river pumping plants, second, immediately build a pipe line that will carry 20 or 30 million gallons of water per day from Camp Elliott or from the city system near by to San Pasqual, the locations being on the field survey which I furnished your department, the one we made from Pamo Dam. That survey is on the identical line that would be used to run water from Lake Wolford to Camp Elliott, as mentioned on page 62 of your report. You would kill three birds with one stone. You can pump into this pipe line from the holdings of the City of San Diego in San Pasqual Valley, at least ten million gallons a day during the eight or nine summer months. It is only five or six miles from San Pasqual to Lake Wolford so this same pipe line could pick up the five more gallons a day from Lake Henshaw. Your third step would be to run a six mile pipe line up to the Pamo Dam site, using the same pipe line to the city; you can pick up five to ten million gallons a day on the average from Pamo, and some day the city will build Pamo Dam, all the water flowing by gravity into the city. You could also complete Sutherland and hold that water back, and let it run by gravity to Pamo and into the City of San Diego's pipe line. (It is rather wasteful if you did not want to take Sutherland water over into San Vicente, which is the plan I have always advocated, and still believe in.) We don't need Colorado River water for some years to come, if we would just build this pipe line to San Pasqual, and easily obtain 15 to 20 million gallons of water a day, at the cheapest expense possible.

*ok*

*500,000 gals water running into city  
owning now*

I should appreciate your friendly criticism of this. I do not believe it would cost in excess of two million dollars to put in the pipe line above mentioned, with possibly a half million dollars to extinguish the rights. It would be the cheapest water San Diego has ever developed, as every drop of water which the



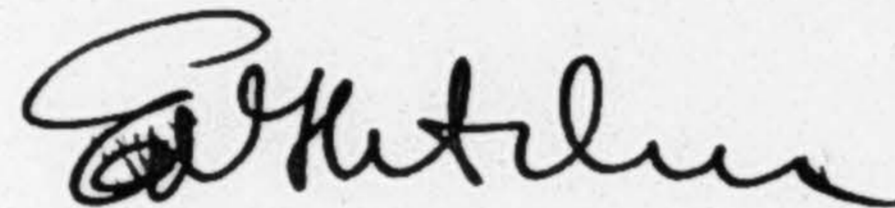
Page 2

city has developed so far has cost a million dollars for every million gallons of water per day *not safe speeds*

With kindest personal regards.

Let me hear from you  
Very sincerely yours,

EF:ms



May 14, 1943

Mr. Ed Hyatt,  
State Engineer,  
Sacramento, California.

My dear Ed:

I have read report No. 3, San Diego Region State Council of Defense for the first time. I refer to Page 62, where you speak of an emergency supply of five million gallons a day for San Diego from Henshaw reservoir, taking it out of Lake Wohlford, and running it into Camp Elliott from Bear Valley Power House of the Escondido Mutual Water Company.

Speaking of an emergency supply in large quantity for immediate relief, I am thoroly convinced that the government, or the city, should above all things take the following steps: First, commence operating the San Diego River pumping plants. Second, immediately build a pipe line that will carry 20 or 30 million gallons of water per day from Camp Elliott, or from the city system near by to San Pasqual, the locations being on the field survey which I furnished your department, the one we made from Pamo Dam.

That survey is on the identical line that would be used to run water from Lake Wohlford to Camp Elliott, as mentioned on page 62 of your report. You would kill three birds with one stone. You can pump into this pipe line from the holdings of the City of San Diego in San Pasqual Valley, 500 acres waterbearing gravels the city owns, at least 10 million gallons a day during the eight or nine summer months. It is only five or six miles from San Pasqual to Lake Wohlford so this same pipe line could pick up the five million more gallons a day from Lake Henshaw.

Your third step would be to run a six mile pipe line up to Pamo damsite from San Pasqual, using the same pipe line to the city. You can pick up 5 to 10 million gallons a day on the average from Pamo, and some day the city will build Pamo Dam, and all the water flow by gravity into the city. You could also complete Sutherland and hold that water back, and let it run by gravity to Pamo and into the City of San Diego's pipe line. We don't need Colorado River water for some years to come, if we would just build this pipe line to San Pasqual, and easily obtain 15 to 20 million gallons of water a day, at the cheapest expense possible.



I should appreciate your friendly criticism of this. I do not believe it would cost in excess of \$2,000,000 to put in the pipe line above mentioned, with possibly a half million dollars more to extinguish the rights. It would be the cheapest water San Diego has ever developed, as every drop of water which the city has developed so far has cost a million dollars for every million gallons of water per day net safe yield.

Let me hear from you.

Kindest personal regards

Yours sincerely,

EP Ms M

May 14, 1943

Mr. Ed Hyatt,  
State Engineer,  
Sacramento, California.

My dear Ed:

I have read report No. 3, San Diego Region State Council of Defense for the first time. I refer to Page 62, where you speak of an emergency supply of five million gallons a day for San Diego from Henshaw reservoir, taking it out of Lake Wohlford, and running it into Camp Elliott from Bear Valley Power House of the Escondido Mutual Water Company.

Speaking of an emergency supply in large quantity for immediate relief, I am thoroly convinced that the government, or the city, should above all things take the following steps: First, commence operating the San Diego River pumping plants. Second, immediately build a pipe line that will carry 20 or 30 million gallons of water per day from Camp Elliott, or from the city system near by to San Pasqual, the locations being on the field survey which I furnished your department, the one we made from Pamo Dam.

That survey is on the identical line that would be used to run water from Lake Wohlford to Camp Elliott, as mentioned on page 62 of your report. You would kill three birds with one stone. You can pump into this pipe line from the holdings of the City of San Diego in San Pasqual Valley, 500 acres waterbearing gravels the city owns, at least 10 million gallons a day during the eight or nine summer months. It is only five or six miles from San Pasqual to Lake Wohlford so this same pipe line could pick up the five million more gallons a day from Lake Henshaw.

Your third step would be to run a six mile pipe line up to Pamo damsite from San Pasqual, using the same pipe line to the city. You can pick up 5 to 10 million gallons a day on the average from Pamo, and some day the city will build Pamo Dam, and all the water flow by gravity into the city. You could also complete Sutherland and hold that water back, and let it run by gravity to Pamo and into the City of San Diego's pipe line. We don't need Colorado River water for some years to come, if we would just build this pipe line to San Pasqual, and easily obtain 15 to 20 million gallons of water a day, at the cheapest expense possible.



I should appreciate your friendly criticism of this. I do not believe it would cost in excess of \$2,000,000 to put in the pipe line above mentioned, with possibly a half million dollars more to extinguish the rights. It would be the cheapest water San Diego has ever developed, as every drop of water which the city has developed so far has cost a million dollars for every million gallons of water per day net safe yield.

Let me hear from you.

Kindest personal regards

Yours sincerely,

EF Ms M

June 16, 1943

Mr. Ed Hyatt, State Engineer,  
State Capitol,  
Sacramento, California.

Will you not take up with Edmonston and Van Etten the matter of your Department going ahead with the investigation of the new site of Mission Gorge #3?

Can you not send the boys down here to tell us what to do and to make the necessary investigation to see whether or not you can recommend Mission Gorge #3 as the site for the building of the dam if and when conditions warrant the building of that dam.

I have given a lot of hard work to the State and a lot of my time on state matters and I feel that your Department should at least extend this courtesy to me. Unofficially, tell us what to do and we will follow your instructions. But let's find out what we have here and once and for all decide whether or not to abandon the idea, or can your Department recommend the site?

I am referring to the proposed site several hundred feet below the present Mission Gorge #3 site.

Your early attention to this matter will be greatly appreciated.

With kindest personal regards, I am

Sincerely yours,



July 14, 1943

Mr. Ed Hyatt, State Engineer,  
State Capitol,  
Sacramento, California

My dear Ed:

Could you match dollar for dollar with us to make the investigation at Mission Gorge #3, taking the money out of appropriation of Senate Bill 727 as approved by the Governor?

All I want done is core drillings and surface excavations to determine that bed rock is there so that your department can recommend that site as one of the best sites for a dam and the complete control of the river.

When will Van Etten and Edmonston be down again?

Thanks for these kind words to Mr. Ward. I am hoping to interest them as well.

With kindest personal regards, I am,

Sincerely yours,

EDWARD HYATT, STATE ENGINEER  
CHIEF OF DIVISION

EARL WARREN  
GOVERNOR OF CALIFORNIA

C. H. PURCELL  
DIRECTOR

STATE OF CALIFORNIA  
**Department of Public Works**  
SACRAMENTO (5)

DIVISION OF WATER RESOURCES  
401 PUBLIC WORKS BUILDING

August 13, 1943

Honorable Ed Fletcher  
1020 Ninth Avenue  
San Diego, California

Dear Senator Fletcher:

I have for acknowledgment your letter, dated May 14, 1943 commenting on the report prepared by a Committee of the State Council of Defense on the water supply and water supply system of the City of San Diego.

With regard to the utilization of the underground waters of the San Diego and San Dieguito Rivers, I am advised that the Committee gave careful consideration to this matter and it was the conclusion of the Committee that the waters stored in those basins were of great value and should be conserved for emergency or standby purposes. It was found by the Committee that over a five year dry period the aggregate yield of those underground basins would approximate about 9 million gallons daily to all claimants, which was estimated would not be adequate to meet the anticipated increased demands in a critical dry period as occurred from 1896 to 1904. Furthermore, the retention of the waters in underground reservoirs and using first the waters in the surface reservoirs makes for greater total yield because of the lesser evaporation and other losses in the underground basins. A discussion of this matter is presented on pages 57 and 58 of the report.

In this connection, your attention is called to the following recommendation which appears on page 105 of the report, "The equipment previously used in securing a supply from underground basins be inventoried, overhauled and placed in good working condition and the wells be reconditioned in order that such source of supply may be utilized with a minimum loss of time in case of an emergency." As to the water in storage in the upper San Diego River Basin, it is available not only to the City of San Diego for utilization but also to La Mesa, Lemon Grove and Spring Valley Irrigation District at its El Monte Well Field, to the Riverview Farm Mutual Water Company, the Lakeside Farms Mutual Water Company and to a number of private plants which secure water supplies from that basin.

With regard to the development of the underground waters of the San Pasqual Valley, it is understood additional water rights would have to be acquired before any pumping for exportation would be practicable and





August 13, 1943

such would be the case in connection with the development of a supply at the Pamo site which lies upstream from San Pasqual Valley. It is understood, however, the right to store and divert water at the Sutherland site as against the riparian owners in San Pasqual Valley has been acquired by the City of San Diego.

It is estimated by the Committee that, over a five year dry period the yield from the San Pasqual basin would be about 2.4 million gallons daily and from the San Dieguito basin below Hodges Reservoir about 1.3 million gallons daily. It is understood, however, that should the water supply from Hodges Reservoir become exhausted, part or all of the water supply obtainable from both San Pasqual and San Dieguito basins may have to be utilized to meet the contractual arrangements with the Santa Fe and San Dieguito Irrigation Districts and Del Mar Light and Power Company.

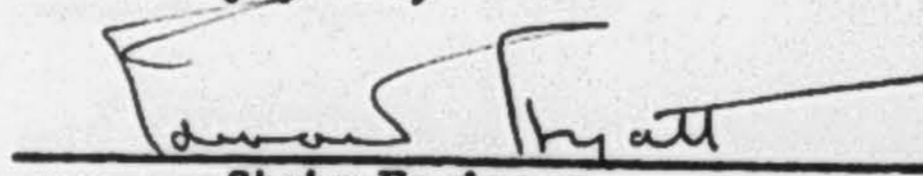
The development of surface storage capacity in streams in San Diego County under war time conditions to meet the increasing demands for water is believed not to be the proper solution. In view of the occurrence in the immediate past several years in succession of substantial run-off, the occurrence of a protracted dry period during the next several years is quite possible, which would result in a relatively small amount of water being stored in surface reservoirs if constructed at this time. Pamo and Sutherland developments would come under this classification. It is believed that the water situation, under the present circumstances is so grave in San Diego that the additional water supply to be provided should be assured.

Summarizing, it is believed that, over an immediate anticipated dry period upon which an additional water supply for the City of San Diego should be based, a dependable and an assured water supply from the San Diego and San Dieguito Rivers can not be secured in any substantial amount with consideration given to the existing rights to the waters of those streams.

It should be added that under normal conditions the future water needs of the City of San Diego could best be met by the development of the local water resources by constructing surface reservoirs about 8 years ahead of the occurrence of those needs.

With respect to the use of the projected pipe line from Pamo to the City of San Diego mentioned in your letter, it is pointed out that the gradient is too high for water to be conveyed in a pipe line from the tail race of the Bear Valley Power House of the Escondido Mutual Water Company without the employment of pumping.

Sincerely yours,

  
State Engineer

October 29, 1943

Mr. Ed Hyatt, Chief,  
Division of Water Resources  
401 Public Works Bldg.,  
Sacramento, California

My dear Ed:

Has your department determined the net safe yield of Mission Gorge #3, or can you give me approximately the amount. Based on El Capitan and San Vicente at its present height and including the additional watershed between Mission #2 and #3 is not the net safe yield  $4\frac{1}{2}$  to 5 million gallons a day?

Based on a dam at Mission #3 built to 330 foot contour, is that not the height for all practical purposes to conserve the water. I believe there is something like 9 or 10 acres of watershed below Mission #2 and above Mission #3.

Can you give me an approximate net safe yield? Also, how much will it be reduced if San Vicente is built to its maximum height as eventually planned?

An early reply will be appreciated.

Very sincerely yours,



STATE OF CALIFORNIA  
Department of Public Works  
SACRAMENTO (5)

DIVISION OF WATER RESOURCES  
401 PUBLIC WORKS BUILDING

November 9, 1943

Dear Colonel:

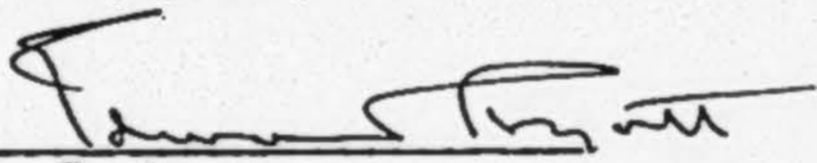
I returned from Denver a few days ago to find your letter of October 18, asking for five copies of the findings, after the investigations by Dr. Woods, of the San Diego Water Supply. These were sent you with office letter of October 26.

Your letter of October 29, asking for additional information on Mission Gorge, requires some further work, which is under way and the letter will be answered shortly.

I called up George Stout regarding the Mexican inspection trip and he said that it might take place early in December and he will keep me advised.

With kindest personal regards,

Sincerely yours,

  
State Engineer

Senator Ed Fletcher  
1020 Ninth Avenue  
San Diego, California

STATE OF CALIFORNIA  
Department of Public Works  
SACRAMENTO (5)

DIVISION OF WATER RESOURCES  
401 PUBLIC WORKS BUILDING

November 10, 1943

Honorable Ed Fletcher  
1020 Ninth Avenue  
San Diego, California


Dear Senator Fletcher:

In reply to your letter of October 29, 1943, the following studies of the safe yield of Mission Gorge Reservoir No. 3 operated in conjunction with other upstream reservoirs were made in connection with the investigations published in Bulletin 48, "San Diego County Investigation":

Capacity of Mission Gorge No. 3 in acre-feet	Capacity of upstream reservoirs in acre-feet	Safe yield from Mission Gorge No.3 in m.g.d.
29,200	128,500	2.86
29,200	303,000	2.32

No studies have been made to determine the safe yield of a reservoir at Mission Gorge No. 3 site with a maximum water surface elevation of 330 feet, capacity 44,000 acre-feet.

Sincerely yours,

  
State Engineer





November 12, 1943

Mr. Ed Hyatt, Chief,  
Division of Water Resources  
401 Public Works Building  
1130 N Street  
Sacramento, California

My dear Ed:

Answering yours of November 10th, won't you please investigate and see what the net safe yield would be with Mission No. 3 built at 330 feet elevation, with a capacity of 44,000 acre feet. It will be appreciated.

Very sincerely yours,

ED HYATT, STATE ENGINEER  
CHIEF OF DIVISION

EARL WARREN  
GOVERNOR OF CALIFORNIA

C. H. PURCELL  
DIRECTOR

STATE OF CALIFORNIA  
Department of Public Works

SACRAMENTO

DIVISION OF WATER RESOURCES  
401 PUBLIC WORKS BUILDING

July 7, 1944

Fish and Game Commission  
State Office Building No. 1  
Sacramento, 14, California

Attention: Mr. George P. Miller

Gentlemen:

Following the receipt of your letter of June 7, 1944, requesting a preliminary report as to the feasibility of three dam sites and three reservoir sites on lands offered by the Ed Fletcher Company of San Diego, for the purpose of establishing therein public fishing waters, on June 20, 1944, a brief examination was made by Mr. G. F. Engle, Senior Engineer of Dam Inspection, accompanied by Senator Ed Fletcher, Mr. Carl Johnson, president of the San Diego County Fish and Game Association, and Mr. Fred D. Pyle, Hydraulic Engineer for the City of San Diego.

Mr. Engle concludes that "the three sites are favorable in their general preliminary aspects and it is believed that subsequent further investigation and study which may be made will indicate some type of dam can be satisfactorily designed and constructed at each site at relatively low cost. The sites appear to be favorable and practicable" for dams 40 to 60 feet high.

Senator Fletcher submitted three maps of surveys made October 9, 1914, January 1929, and March 14, 1929, on the lower site. According to these maps a 40-foot dam would flood 6.5 acres, a 60-foot dam would flood 15.5 acres, and a 100-foot dam would flood 42.3 acres. Surveys will be required on the two upper sites to determine heights of dams to furnish desired lake areas. A suitable type of dam for each site will depend upon its height.

Very truly yours,

EDWARD HYATT  
State Engineer

cc - Senator Ed Fletcher

EH:P





EDWARD HYATT, STATE ENGINEER  
CHIEF OF DIVISION

EARL WARREN  
GOVERNOR OF CALIFORNIA

C. H. PURCELL  
DIRECTOR

STATE OF CALIFORNIA  
**Department of Public Works**

SACRAMENTO (5)

DIVISION OF WATER RESOURCES  
401 PUBLIC WORKS BUILDING

September 26, 1944

Senator Ed Fletcher  
1020 Ninth Avenue  
San Diego, California

Dear Colonel:

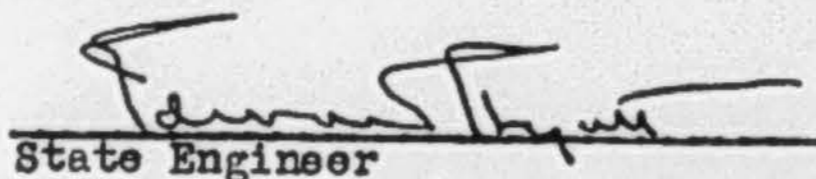
Regarding the small dam on Cedar Creek, from the maps on file here we are not clear just what site you had in mind, but from the contour map by T. H. King, dated March 14, 1929, we assume that the site is the one just above the falls on Cedar Creek. No design nor section can be made on the basis of the information available, and it probably would not be proper for us to go into this in any detail anyway until the work for the Fish and Game Commission gets under way. Using King's map for the site above the falls on Cedar Creek, and assuming it correct, a very rough estimate is that a dam 25 feet high, either gravity or variable radius arch, will require about 500 cubic yards of concrete. This may give you the figures you need.

It seems to me that this might await the surveys and estimates to be made for the Fish and Game Commission. Presumably one of these will be at the same site, which will afford the data necessary for design of a dam 25 feet high, as well as a higher one.

On the matter of the Fish and Game Commission survey, Mr. Holmes is clearing the records here so that he will be able to start work. The Commission wants a road located around one of the proposed lakes and we believe it can be arranged for the Highway Division to undertake this part of the survey. There are other questions on which you may be of assistance--first, where does he obtain permission to enter the grounds if a Marine detachment is in control? Second, a couple of laborers will be needed, which he did not find when he was down there last week.

Hope to get started next week. Will appreciate your advice on these points.

Very truly yours,

  
State Engineer

October 10, 1944

Mr. Ed Hyatt, State Engineer,  
Public Works Building  
Sacramento, California

My dear Ed:

Thanks for yours of the 26th. Will say the U.S. Marine Corps has gone ahead on its own to build a dam 24½ feet high on the King site. When I got home from Salt Lake City they had a rock crusher in there and the roads are all built, the engineer on the ground and they are preparing a little plan of their own which they are going to submit to me soon and all I know is that it is going to be three feet thick at the top--solid concrete with an arch--this has been told me by the engineer.

We have given permission to the government to cut out or down to within two feet of the ground or less all the brush and trees within the area flooded.

They are going to do a good job. It is under Col. Parsons and his engineer is a former engineer by the name of Capt. A.T. Fenster--a good scout. Have Mr. Holmes get in touch with me at your earliest convenience. I will give Mr. Holmes permission in writing to make a survey and will so notify the U.S. Marines so there will be no trouble going on the property at any time. I will furnish the laborers whenever you say the word but give me three or four days notice. Holmes was here but I was still in Salt Lake City at the meeting.

Enclosed find letter to Holmes giving permission to go on our property and when he comes down here I will give him a letter of introduction to Col. Parsons who is in charge of building the dam.

With kindest regards, I am,

Very sincerely yours,



October 10, 1944

Department of Public Works  
Sacramento, California

Attention: Mr. Ed Hyatt, State Engineer

My dear Mr. Hyatt:

Answering yours of the 26th of September, this will serve as a permit for you, or your representatives, Mr. Holmes and party, to enter our property and make surveys on Cedar Creek of the three damsites and reservoir sites, rights of way, etc., as per our offer to the State of California through the State Fish and Game Commission.

You may show this letter to the U.S. Marine Corps and to Mr. George Sawday, who leases the property for cattle grazing. I am sure they will cooperate with you in every way.

Very sincerely yours,

ED FLETCHER COMPANY

By \_\_\_\_\_

EDWARD HYATT, STATE ENGINEER  
CHIEF OF DIVISION

EARL WARREN  
GOVERNOR OF CALIFORNIA

C. H. PURCELL  
DIRECTOR

*Cedar creek*

STATE OF CALIFORNIA  
Department of Public Works

SACRAMENTO (5)

DIVISION OF WATER RESOURCES  
401 PUBLIC WORKS BUILDING

November 9, 1944

Senator Ed. Fletcher  
1020 Ninth Avenue  
San Diego, California

Dear Mr. Fletcher:

Following the survey, of the lower dam site on Cedar Creek, by Mr. Dolliver and Mr. Thomas on November 3, some trial arch designs were made for the site assuming a required 10 feet to 5 feet depth of excavation to solid rock. The section of the preliminary or trial arch varies from 3.7 feet at the top to about 5½ feet thick at the stream level.

Following your request Messrs. Dolliver and Thomas stopped at Camp Pendleton on November 6 to see Col. Parsons and since he was absent they were referred to Capt. C. L. Kent to whom they delivered a pencil drawing of the variable radius arch dam which had been laid out for the site. Capt. Kent said he would give the plan to Col. Parsons and transmit to him their comments which were informally about as follows:

1. The plan is only preliminary and is predicated on assumed location of bedrock, therefore, the design should be reviewed and revised according to the position and condition of the bedrock as exposed by practically finished excavation. The plan, therefore, is primarily a guide for staking out for the excavation, which in turn might even have to be altered somewhat as it proceeds.
2. No outlet gate or gates are shown on plan, the location, type and size being left to future consideration of interested parties.
3. No construction details are shown on the plan except the location of contraction joints and the centers, radii, and central angles for the assumed bedrock locations. All details should be furnished with revised design.
4. Any construction of lower arch rings looking toward an ultimate 50 ft. high dam should be on the basis of satisfactory foundation and abutment rock for the ultimate water load thrusts, the arch rings should be formed into true circular segments of concrete having at least 3,000 lb. per. sq. in. strength in 28 days and all other details should be of a satisfactory nature for the ultimate height.



Senator Ed. Fletcher - 2

November 9, 1944

5. The location of the preliminary design is tied to existing U. S. Marine Corps stakes.

Hoping that these statements are in harmony with previous understandings and are satisfactory to all concerned, I am.

Very truly yours,

*Edward Hyatt by*  
State Engineer  
*M. A. Holmes*  
Supervising Eng. of Dams.

EDWARD HYATT, STATE ENGINEER  
CHIEF OF DIVISION

EARL WARREN  
GOVERNOR OF CALIFORNIA

C. H. PURCELL  
DIRECTOR

STATE OF CALIFORNIA  
Department of Public Works

SACRAMENTO (5)

DIVISION OF WATER RESOURCES  
401 PUBLIC WORKS BUILDING

November 20, 1944

Senator Ed Fletcher  
1020 Ninth Avenue  
San Diego, California

SUBJECT: CEDAR CREEK DAM

Dear Colonel:

Receipt is acknowledged of your letter of November 14, requesting a sketch of the preliminary plan of Cedar Creek Dam.

A sketch was made of an arch dam by the field men during the three days that they were making the survey. Perhaps you saw this sketch as you requested a copy of it be left with the Marines at Camp Pendleton. In our letter of November 9th, we explained to you that this was an incomplete preliminary sketch, but stated that the thickness varied from 3.7 feet at the top to 5.5 feet at the base.

In a final design these dimensions may be changed but the length of the arch along the crest is more than 250 feet for a 50 foot dam, the thickness cannot be reduced materially. A study is under way to determine if an earth fill or a multiple arch would be cheaper than the arch. As you know, the Fish and Game requested a report on type of construction recommended and it is necessary to compare costs of various types in order to complete the report. Results of this study will not be available for some time, due to the shortage of men. Also any construction done by the Marines will effect the ultimate cost particularly if the type of dam that they now construct can be raised.

The dam that the Marines are proposing to construct for you (24.5 feet high) is not of sufficient size or capacity to be under the jurisdiction of this office but based on the probability of it being raised, we would like to be kept informed as to the design and progress of construction.

Very truly yours,

*James H. ...*  
State Engineer.



1  
January 26, 1950

Mr. Ed Hyatt, State Engineer  
Division of Water Resources  
Sacramento, California

Friend Hyatt:

Your letter of September 21, 1949 re Mission Gorge #3, received.

I don't question Mr. Van Etten's thorough work in connection with the comparative costs of a solid masonry dam, as between #2 site, owned by the City and #3 site, owned by the Ed Fletcher Company. The whole trouble is that neither Mr. Van Etten nor your office will consider building in Mission Gorge #3 a constant angle type of dam as planned by the noted engineer Jorgenson, or a multiple arch type of dam similar to Lake Hodges and Murray Dam, built by Bent Brothers. Your office has a definite offer made by Mr. Jorgenson, agreeing to build Mission Gorge Dam #3, a constant angle type of dam for \$1,750,000.00, complete. Bent Brothers were the bidders. Instead, Van Etten estimated in his report that a dam to his liking will cost \$5,241,900.00, which kills #3 on account of the cost.

On April 28, 1944 you wrote me as follows:

"Dear Senator Fletcher:

"In response to your verbal request of April 27, 1944, the following statement is made relative to the engineering feasibility of constructing a dam at Mission Gorge No. 3 site on the San Diego river:

"Based upon information developed at the site and upon a geologic investigation and report thereon, it is the conclusion of this office that a safe dam can be built at or near Mission Gorge No. 3 site for a maximum flow line elevation of 330 feet U.S.G.S. datum, which would be capable of storing approximately 40,000 acre-feet of water.

"This letter, however, is not to be construed as an approval of a dam at this site under the provisions of Division 3 of the Water Code, Chapter 368, Statutes of 1943, which requires the filing of an application with detailed plans before action is taken thereon by the State Engineer.

Very truly yours,  
EDWARD H. HYATT,  
State Engineer."

Page Two

Mr. Ed Hyatt, State Engineer

Jan. 26, 1950

Again I call your attention to the fact that Lloyd's of London insured our Lake Hodges and Murray Dams for 75¢ per thousand against collapse, flood or earthquake, but the rate was \$1.00 per thousand on Otay, Barrett and other gravity arch dams built by Savage. A multiple arch type of dam similar to Lake Hodges could be built today for less than two million dollars which would hold the required amount of water as stated in the report.

Your report favors Mission Gorge Site #2 inspite of the fact that the people of San Diego twice rejected a proposed bond issue to build Mission Gorge Dam #2 and the last time it did not even get a majority vote.

Your statement in effect that the City of San Diego approved your report as far as Mission Gorge #3 is concerned is in error. The following letter of October 25, 1949 from the City Manager states: *of San Diego*

"Dear Colonel Fletcher:

"Answering your letter to me personally of September 30 regarding improvement of the damsite in Mission Gorge by the City of San Diego, the City has made no move toward approving a dam at Mission Gorge site No. 2.

"You will remember that the City, as a whole, turned down the proposal to build on that damsite, at least twice. Although State Bulletins 48 and 55 recommend a dam at No. 2, it doesn't mean we have to build one there. I have personally been opposed to building a dam at Mission Gorge No. 2 since 1923. I am still of the opinion that for a dam in Mission Gorge, we should build it at No. 3. I have so informed Mr. Hyatt and Mr. Van Etten.

"I do not believe that you should be perturbed about the matter. When it becomes necessary to acquire the land that will be flooded by the dam at Mission Gorge No. 2, it will probably be found it is so expensive that it would be much cheaper to go down into the gorge where there will be less land to be flooded, where the city already owns considerable of the property, where the evaporation losses will be considerably less and where the recreation facilities will be more desirable. So, don't be worrying about the 'prominent' people--just remember the 'prominent' people who fought El Capitan.

"I feel very sure that some day a dam will be built at Mission Gorge No. 3, which will be known as Fletcher Dam and the water behind it, Fletcher Lake, whether you give the damsite and flooded land to the City, or whether it is purchased by the City from your family.

I am quite sure, however, that the City could not accept the gift with any conditions or reservations for the benefit of your family.



Jan. 26, 1950

"The people of San Diego recognize you as the father of waters and will be happy to have the name of Ed Fletcher Dam on the bronze plaque.

Very sincerely,  
FRED RHODES"

*City Manager*  
*City of San Diego*

In conclusion, I reiterate my reasons for believing that Mission Gorge Damsite #3 should be the site where the next dam should be built on the San Diego River:

1. After a thorough investigation the following noted engineers approved Mission Gorge Damsite #3: Francis Selew, former U.S. Reclamation Service Engineer, M.H. O'Shaughnessy, Hydraulic Engineer of San Francisco, John R. Freeman who recommended Site #3 if built at the lower site, but selected El Capitan as his first choice, two hydraulic engineers of the City of San Diego, Messrs. Earl and Whitney. After a six months' investigation the City Water Commission, appointed by the Mayor and City Council of San Diego--Messrs. White, Chandler and Wangenheim--spending thousands of dollars and on the advice of different engineers, they unanimously selected Mission Gorge Site #3 as compared with #2 and urged that the first dam be built on Mission Gorge Site #3--so did Mr. O'Shaughnessy, also two other hydraulic engineers of the State Public Utilities Commission, Fouly and Philip Harroun.

The above is according to my best recollection, from memory, covering the last 30 or 40 years.

2. There are 11 or 12 square miles of additional watershed in Mission Gorge #3 as compared with #2, with a considerably larger net safe yield.

3. The recent real estate activities and increase of homes and land values will very materially increase the cost if #2 is built and the valley lands of El Cajon Valley are flooded. The estimates of the cost of the acquisition of same, in my opinion, is a half million or more higher today than the estimates made in the report, and increasing each year--this does not apply if #3 is built instead.

4. Mission Gorge Damsite #3 is nearly two miles closer to San Diego and in the building of the pipeline the saving is a very large item to be taken into consideration.

5. Mission Gorge Damsite #3 should be built instead of #2 for the city limits of San Diego are now within a mile of Mission Gorge Site #3, with the city rapidly growing eastward and Alvarado Canyon, a four lane highway, just completed--our tourist travel is our second largest source of revenue--a lake built at Mission Gorge #3 is in a naturally beautiful

Jan. 26, 1950

setting--deep, rustic, scenic canyons--a natural park with two islands--it will be one of San Diego's major attractions only ten minutes away. If Mission Gorge Site #2 were built nearly all the natural beauty of Mission Gorge Site #3 is lost; many hundreds of acres of good, tillable land will be permanently taken from the tax roll and forever lost that would otherwise remain on the tax roll as farm land or subdivision property, if #3 was built.

6. The surface area of #3 is so much smaller for the same amount of water stored than #2 that there is a terrific saving in net safe yield.

I shall protest the Commission's report and appeal to the Director of Public Works, Mr. C.H. Purcell, furnishing him with all the correspondence in relation thereto and hope that this report can be reviewed.

Sincerely yours,



**Ed Fletcher Papers**

**1870-1955**

**MSS.81**

**Box: 13 Folder: 7**

**General Correspondence - Hyatt, Edward Jr.**



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