# DEPARTMENT OF THE INTERIOR UNITED STATES GEOLOGICAL SURVEY



San Francisco, Cal., March 15, 1915.

Volcan Land & Water Co.,

San Francisco, Cal.

Gentlemen:

Enclosed is a gage height book for Matagual Creek near Warner Springs for the quarter April 1 to June 30, 1915. As soon as you have finished with the book for the quarter ending March 31, kindly mail it to this office.

Very truly yours,

H.D. McGlashan District Engineer. T.

Enc.

April 20, 1915.

Mr. H. T. McGlashan, U S Custom House, San Francisco, Cal.

Dear Sir :-

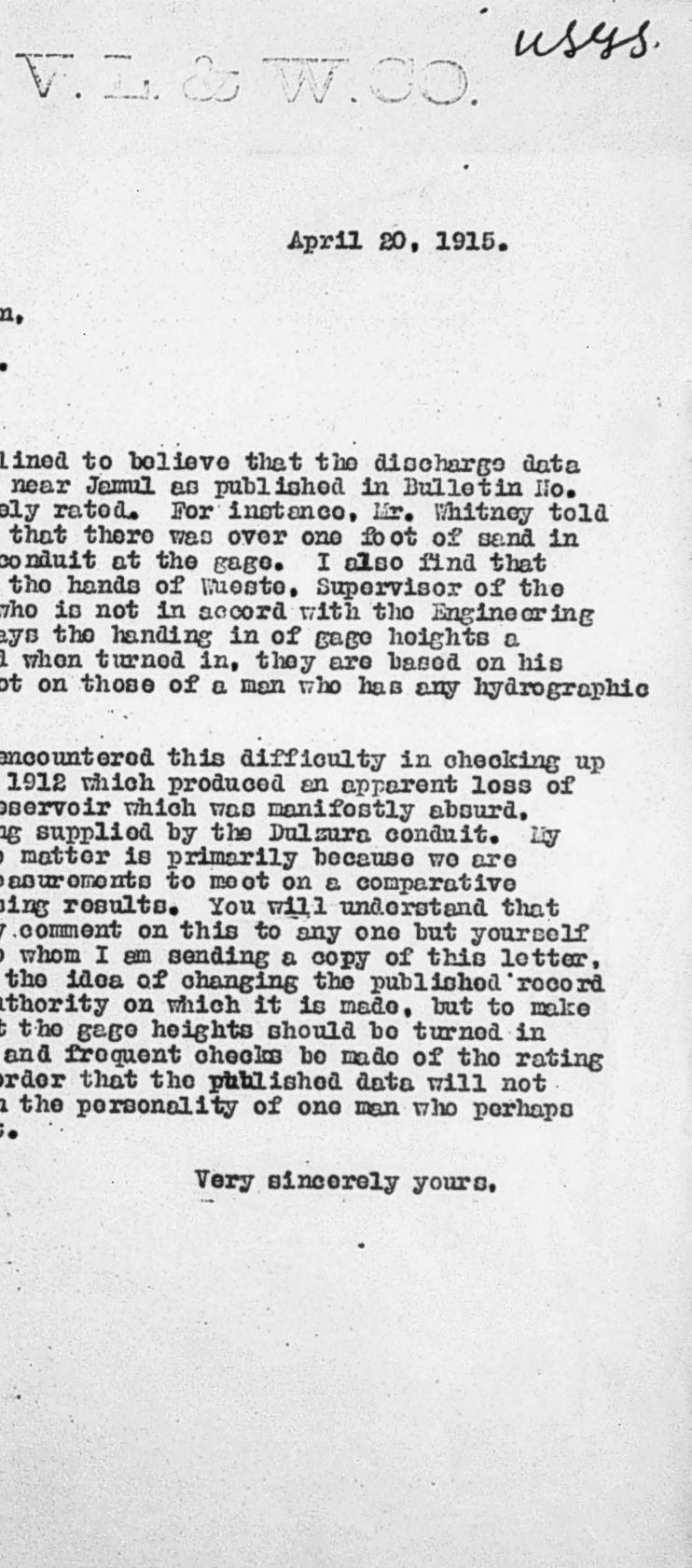
I am inclined to believe that the discharge data of Dulzura Conduit near Jamul as published in Bulletin No. 300 is not accurately rated. For instanco, Mr. Whitney told mo on one occasion that there was over one foot of sand in the bottom of the conduit at the gage. I also find that the records are in the hands of Wueste, Supervisor of the Water Department, who is not in accord with the Engineering Department and delays the handing in of gage heights a yoar at a time, and when turned in, they are based on his calculations and not on those of a man who has any hydrographic knowledge.

I first encountered this difficulty in checking up the safe yield for 1912 which produced an apparent loss of 210% in the Otay Reservoir which was manifostly absurd. this reservoir being supplied by the Dulzura conduit. My own interest in the matter is primarily because we are obliged with our measurements to meet on a comparative basis these surprising results. You will understand that I have not made any comment on this to any one but yourself and to Mr. Ebert to whom I am sending a copy of this letter, and it is not with the idea of changing the published 'record which states the authority on which it is made, but to make the suggestion that the gage heights should be turned in weakly by the City and frequent checks be made of the rating of the station in order that the published data will not depend so much upon the personality of one man who perhaps is not a free agent.

Very sincerely yours.

WSP-BK

OC to F C Ebert.



#### UNITED STATES

DEPARTMENT OF THE INTERIOR

#### Geological Survey

### 303 Customhouse, San Francisco, California, December 31, 1925.

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

Dear Mr. Fletcher:

Reference is made to your preliminary permit for Project No. 217 from the Federal Power Commission covering proposed power development on Boulder Creek:

It is my understanding that you have sold the Cuyamaca properties to the La Mesa - Lemon Grove Irrigation District and probably are no longer interested in this permit. I shall be pleased to learn if you are to retain this permit in order that I may make the necessary report to the Federal Power Commission.

Very truly yours,

[should be McGLASHAN con H. McGlachan District Engineer.



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# UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY 625 Market Street Bldg., San Francisco 5, Calif. November 11, 1944.

Senator Ed. Fletcher, Member, Joint Committee on Water Problems of California Legislature, San Diego, California.

Dear Senator Fletcher:

Enclosed is a copy of a statement which I presented to your Committee at its meeting in San Francisco on October 26, 1944. This was done in an effort to explain to your Committee the necessity for increasing the cooperation between the State of California and the Geological Survey for the investigation of the water resources of California.

For a number of years our work has been conducted on a very limited budget. Now it seems very necessary to increase the item for our work in the State Engineer budget to \$45,000 annually if we are to maintain it on a satisfactory basis. Of course the State fund will continue to be matched by a similar amount of Federal funds. This increase will provide the necessary money to keep our gaging stations in good repair, do more field work which will increase the accuracy of the records, and provide a small fund for ground water investigation.

At the present time the suggested increase in the State budget is of especial importance. The other item in the statement outlines a post-war program which includes the establishment of about 50 additional stations. The records from these stations will be needed by the State Engineer and Federal activities in order to plan future developments in the State.

It is believed that if your Committee will sponsor this plan and recommend it to the Director of Finance and the Legislature it should receive favorable support by the State.

For many, many years you have realized the importance of our work and all this time you have been extremely helpful to this office. For this reason I feel that you may be anxious to support this program.

I was much disappointed that you were not present at the meeting of the Committee in San Francisco for I would have very much enjoyed a visit with you. With best regards, I am,

Very truly yours,

District Engineer.

Enc.



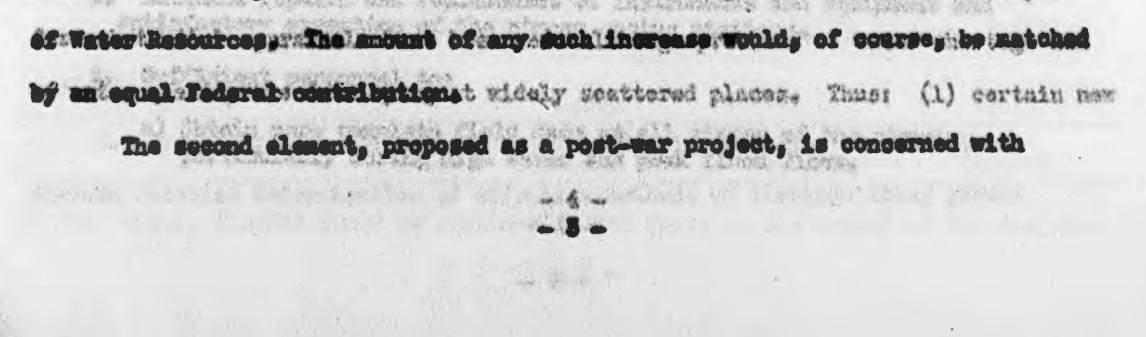
sousilitudes in a warr large boundary with anthread the matarial with the taken of the the set TO JOINT COMMITTEE ON WATER PROBLEMS the the State and an heart the shift day the shift of the state of the bound and the shift and OF THE CALLFORNITA LEGISLATURE for flood control and miltinla-devena when any house the state of the state State Building, San Francisco, California Thue the many projucts althem correctly and an projected, which we will October 26, 1944 aggregate investments remains fete some towns while are producted fanderskeidle on the edoquest and rel proposed Current and Post-War Programs for Basie Weth Mathe Longe Surface and Underground Water Resources or bestrong an au sustained in the second for a star second the second as a second the second s obtain the besic water information for the were not yory mail indaad. The United States Goological Survey very much appraciates the opportunity forded by your Chairman to present briafly to the Committee a mather that surely is of roal interest to you and one which you may very wall wish to sponsor and recommend to the State Director of Finance and the Legislatures in California. It It relates to the basic program of recording the flow of the streams and the maintenance of closely related mater resources investigations as now carried on throughout the State by the Mater Resources Branch of the Geological Survey in cooperation with the Division of Mater Resources, State Department of Public Works, and several counties, municipalities, and irrigation, municipal utility, and conservation districts, All cooperative money is matched by Federal funds. These records of water resources are needed for the studies and development of plans for domestic and industrial uses, irrigation, power, flood control, drainage and navigation as well as planning for recreation, wild life, and waste dis-

posal projects. Author is 1870. In 1384 that office was discontinued and provides have in it is balleved that your Committee fully realises that our cooperative program, which provides records of stream flow and other basic water information, constitutes in a year large measure the source of asterial upon which all water plans for the State are based, Apr include the State-wide Mater Plan as well, is those for flood control, and pultiple-purpose basis development throughout California. Thus the new projects wither currently suthorized or projected, which may well, 000 accregate investments munding into very large sums, are predicated fundamentally on the elegancy and reliability of these pater records and facts. Compared with these engine, the expeditures which have been ande and must continue to be provided to b, obtain the basic mater information for these projects are very small indeed.

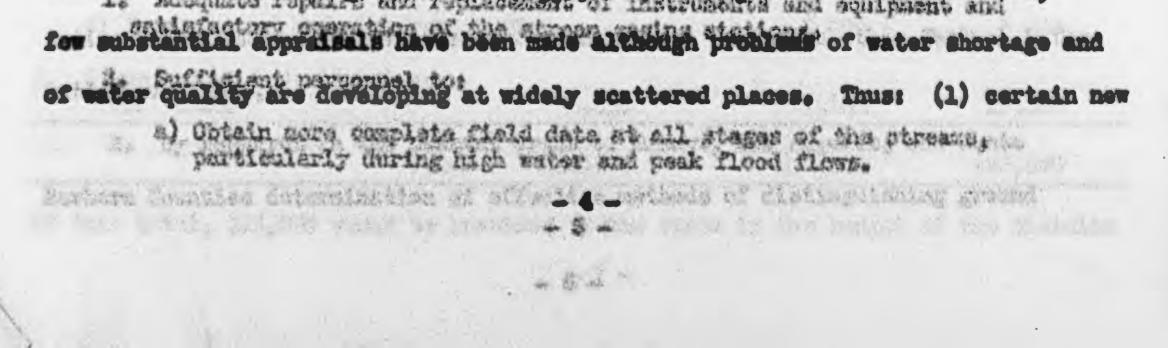
On July 1, 2021, the year in which the State Engineering Department began its studies to develop a State mide under plan, there were being maintained under the equipmention system gaging program BL gaging stations on streams in Sauremento. and San Josquin River besins, and a total of 155 on all streams in California. Wit was then presented that says permistroan flow records would be needed for the W. developiers of the plan and provision was note for the establishment of additional stations from time to time, with a total on July 1, 1946 was 595 stations which includes 52 maintained satirally at Federal expansion of the Federal Four Commission who periods solid contents that comparative program with a small expandent in parmit the initiation of certain ground-mater investigations, which are explained Historical Review Auchors on This would be made offective by provision for an increase in the The nearmont of the flow of streams in California was begin by the amount of the deeperative item in the mate kinemial budget of the Reate Division

State Engineer in 1878. In 1884 that office was discontinued and practically no of water Resources. The amount of any such increase would, of course, bo natched further stream measurements were made until 1894 when engineers of the Geological by an equal Federal contribution. Survey made their first measurements in the State. In 1905 the State Legislature The served element, proposed as a posterur project, is concerned with

athorized the scoperation with the Geological Survey which has continued to date. statio The first State appropriation was \$7,500 for each of the years of the biennium anding June 50, 1905, As the need for additional stream-flow data became creat, the appropriations were gradually increased to a maximum of about \$50,000 in 1952. For later years the allotants were gradually reduced and since 1952 they have varied between about \$25,000 and \$55,000 enmally . The present fund is not edequate to keep equipment in sepairs meet neterially increased costs of operation, and provide some small increase in the work the need present peedage State to bear and Apart from the mintenance of the present program there is the consider tion also of means to meet the requirements for early establishment and operation of many new gaging stations which the State and other agencies have indicated will be examined not only to the future planning of ultimate development but also to the efficient operation of projects, or units of projects, such as Gentral Valley, as they are completely treatice, the State of California has carried on inves-Tigehings to decopplemental progress proposed for the fiscal period 1945-67 a in In view of these considerations, a two-elevent program is here proposed for consideration by the Joint Consittoe. The first is concerned with adequate eistennes of the present state coopentive program with a enall expension to permit the initiation of certain ground-water investigations, which are explained further one This would be pade affective by provision for an increase in the amount of the cooperative item in the next biennial budget of the State Division



the construction and subsequent operation of a substantial number of new gaging stations as will as with the rehabilitation and improvement of some of the present stations. This could be parried out either as a part of the State's post-war progres, for shigh the legislature may be asked to appropriate funds, or by an appropriate increase in the funds budgeted for the Division of Water Resources and thus the increase could be astened by Federal funds. In either case in order to assure proper and continued maintenance and operation of the new stations when completed, there should be an advance counitment on the part of the State to bear one half of the added controal and industrial ground-water supplies and investigations with respect to water populing benath the land surface in California very substantial volumes are pluned from wells for municiral needs. for industries, and for irrightion. The State-vide use of these ground-mater resources is in the general order of several million several billion gallons a day seters Since the early teenties, the State of California has carried on investigations to determine the amounts of such water that are available for use in several areas, particularly where overdraft has occurred or has threatened owing to withdrawals for extensive irrightion. This work has not involved apoperative participation by the Geological Survey, In resent years, however, several urgent ground anter problems have been investigated by the Geological Survey in cooperation with county and municipal agencies, dive the second state of 1. In the field of ground water supply for sunicipal and industrial uses,



of higher purity and lower temperature than the water of the streams; (2) locally

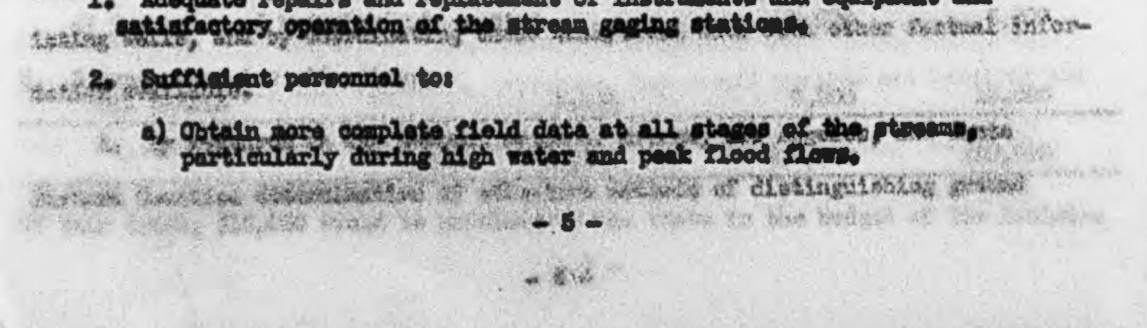
along the coust, the heavy withdrawals are drawing salt rater inland from the ocean; and (2) oil-field brines and industrial wastes seen to be inveding the ground-water bodies in various districts of heavy use. The utility of the ground-water supply is detoriorating at these places and the availability of preterosuitable for pros-

pective now industrial and additional public uses is unknown.

With respect to these equilibrian california basins under a stall continuhensive investory of minicipal and industrial grandmater supplies and investigations of their problems can be undertaken in the post-wat periods. In preparention for such an undertaking it is proposed; through cooperation between the fitse Division of Water Resources and the Geological Survey as provided hereins, to explore some of the fundamental and perplexing problems related to the chemical character of ground waters. These problems are now known only in general terms; early exploration of a critical few would permit orderly and effective progress in the post-war progrem contemplated.

First Element - Increase in Biennial Budget

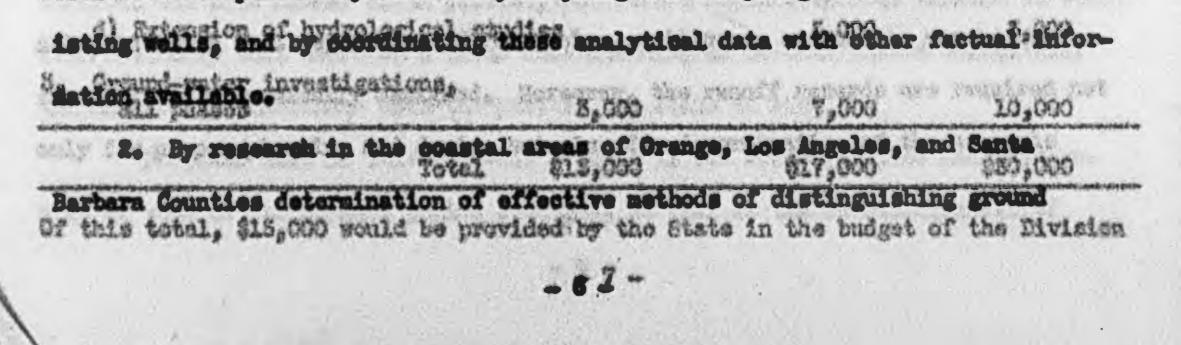
With respect to the first element, additional funds for that part conourned with stream gaging and surface water investigations are needed for and will be used to provide:



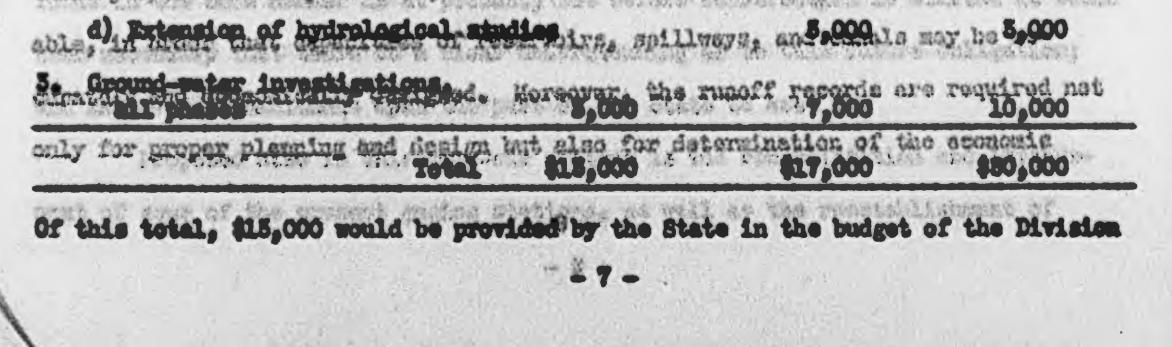
development and operating agencies.

bave or may have been conteminated by cil-field brings or other industrial c) Prepare and make available to interested water agencies, in the waster to shan of meter bulleting, ponthly and annual review of mater conditions, forecasts of spring and summer water supplies, and, durteninating minter and early minter anothe apprelates of the possibility and magnitude of floods. This service would be largely confined wads the free to coutborn California basins since a comentat similar service is suros already afforded to northern California basins by the Snow-Survey to protect to Bulletine and Foresents Legisd, by the State Division of Water of Resources. d) Extend to other southern California basins under a small continu-The three conjusted for the upper Santa Ana River basin. The latter particult facere being carried on ab the request of and in cooperation with the San Bernardino County Flood Control District. By analyzing westigations and evaluating reinfall sumoff relations, ground water storage in in the mountainous sub-basins, and other hydrological elements as other counterrelated to particular basin characteristics, data are developed respecting the nature, occurrence and probable frequency of critical respecting also the long term safe water yield of the basins. These tional funds date granessial to proper planning both for flood control and COD Servation STREET, OVER STATE

With respect to that part of the limiting cooperative program that is herein proposed and that is concerned with ground-water problems, funds would be directed towards. It in selected areas of intensive industry, as in the vicinity of San Francisco Bay and Los ingeles, evaluation of the utility of ground waters to meet the rigorous requirements of existing and prospective new industrial enterprises. This would be accompliated by critically sampling and analyzing the waters of ex-



ters that have or may have been contaminated by ocean water, from those that have or have been contaminated by oil-field brines or other industrial wastes. Ho simple but fully effective method is now known, Decause the conteningting waters soon to things profoundly in character as they invade the fresh ground-auter souss. Thus, commonly it is not known whether measures to protect the litigrity of a fresh ground water body should seek to correct inadequate disposal of wastes or to check the inland hovement of ocean water. The three countles just suggested afford in excellent research dres because much pertinent factual information already has been acquired in connection with inwestigations of other objectives; findings in these areas would be applicable in "other constal areas of the State Pould be increased to \$45,000. incomposition could be appeal or proving several pairs of delivered be described for a The proposed distribution to the above enumerated items of the total addiat hitsking aft a tional funds needed annually is shown as follows: Although the stream-flow records currently needed in connection with the planning of the larger units in the Sta Morther Plan Southern g obtain Total Le Equipment and operations there is an indicated need for the early establishment **89,000** The appendial number of additional stations before the complete plan of development wan be inspire tone comparisal of that need may be geored when control ation b) Analyze and sale referred storage, conversions and other units contemplated in the mitigate plans for use and control of the veters of the State. Each unit of those propries and bulleting requires a record of the water 1.600, that will 600 wail-



of Water Resources making the total increase for the biennium \$50,000 which would be natched by Federal funds.

Although, as previously stated, the annual anount contributed by the State during the current blemnium is about \$25,000, it should be noted that based solely on the increase in compensation of personnel, occasioned by the War Overtime Pay Act of 1943, the State has already included an item, to neet its share of this increase, in the budget now being prepared for the next biennium. With this addition tion the annual amount set up for the State's cooperation is \$50,000. It should be made clear that the annual amount of \$13,000 needed for the first-element program here presented is additional to this \$50,000. Therefore, the annual amount of this item in the State budget would be increased to \$45,000. The construction could be spread over several years or it could be designed for a minimum of two years, conti Second Rement - Post-war Programity of materials and Although the stream-flow records currently needed in connection with the planning of the larger units in the State-wide Mater Plan are being obtained by wisting saging stations, there is an indicated need for the carly establishment of a substantial number of additional stations before the complete plan of development can be formulated. Some supraisal of that need may be gained when consideration is given to the many additional storage, convergence and other units contemplated in the ultimate plans for use and control of the waters of the State . Each unit of these proposed developments requires a record of the water supply that will be avail-

able, in order, that especities of reservoirs, spillagys, and cenals may be acmustaly and economically designed. Moreover, the rupoff records are required not only for proper planning and design but also for determination of the economic must of some of the present gaging stations, as well as the resutablishment of

44 8 m

femilikility of the project and, in many instances plate chosential for its operationd upod suppletion of emistication of relation a stations equipment installed many you're addition to the investment addition constitute the larger that be plane, inthe division and the units that will be considered in the future for the complete division for the state.

he the result of conferences with the State Division of Mater Resources, Federal, and other agencies; it has been determined that there is need for the darly establishment of send 10 additional giging stations, largely in the Sadrasento and Sen Josquin River Basins, in order that dependable rimoff records shall be atchind minen required, "Proposed as a post-war project, it is estimated that the total cost of constructing the stations making up this total would be approximately \$125,000. The construction could be spread over several years or it could be designed for a minimum of two years; contingent of course upon the svailability of materials and antioner, recommendations to the Director of Finance and the Legislature as you may The intering upon such a program it is essential that provision be made for the proper operation and maintenance of the stations when they are completed, Based upon present costs this may be estimated at an average of \$500 per station, which would meen that upon completion of while afotherse stationsgothers, would be required annually in addition to present deeperative Stands; \$25,000; "Et is gontempleted that this additional guount would be provided by equal State and Federal funds in the same manner as it prepent that before construction is btarted if would

## seen necessary that there be a clear understanding as to this Suters colligation;

## and an advance commitment upon the part of the State to meet it.

## Proposed also in this post-war program is the rehabilitation and improve-

## ment of some of the present gaging stations, as well as the reestablishment of

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certain of those which were discontinued because of lack of funds or were destroyed by floods and have not since been rebuilt. At some stations equipment installed many years ago is in need of repairs and improvements; at others the original installation was of temperary type and should be replaced by permanent and more suitable structures.

It is estimated that the cost of the most urgent work of this character would be about \$60,000, distributed in roughly equal proportions to northern and southern California stations. As in the case of the proposed new stations, this work could be extended over several years or it may be planned to be carried out in a minimum period of two years.

### S 11 1 1 7

In brief, the program here presented for consideration by your Committee and such recommendations to the Director of Finance and the Legislature as you may care to make, is as follows:

- (1) An increase of \$15,000 in the State's cooperation for water resources investigations, making the total of the annual amount for this item to be included in the budget of the Division of Water Resources, \$45,000.
- A post-war program of construction and improvement of stream-gaging ((;)) stations encunting to \$185,000.
- Consitment on the part of the State to assume one-half of the cost of {{·}}]]]

## operation and maintenance of the new gaging stations which it is esti-

### mated will amount to \$12,500 anomally.

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**Ed Fletcher Papers** 

1870-1955

## **MSS.81**

Box: 18 Folder: 1

## General Correspondence - McGlashan, H.D.



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