

Appendix 303

SUPPLEMENTARY REPORT OF THE COLORADO RIVER BOARD ("SIBERT BOARD")

(See Appendix 302 for the first report)

UNITED STATES DEPARTMENT OF THE INTERIOR,
COLORADO RIVER BOARD,
April 16, 1930

HON. RAY LYMAN WILBUR,
Secretary of the Interior,
Washington, D. C.

SIR: As requested in your letter of March 15, 1930, the Colorado River Board met in Denver, Colorado, on April 10.

The purpose of the meeting, as stated in your instructions, was "to consider the design of Boulder dam, the advisability of increasing its height, and other questions which have presented themselves in connection with the studies that have been undertaken."

The Board understands that all matters for consideration at this time are enumerated in the letter of Mr. R. F. Walter, Chief Engineer, dated April 10, 1930, as follows:

- (a) The raising of height of the dam 25 feet, or from elevation 1,207 to 1,232.
- (b) The general procedure being followed in the mathematical treatment in analyzing the stresses in the dam, as presented in report entitled "Present status of Boulder Canyon designs," dated February 5, 1930.
- (c) Approval of the tentative section of the dam as shown on page 17 of that report, suitably amended for a top elevation of 1,232.

(a) The Board was originally required to report on the feasibility of a dam 550 feet high above low water at the site, such dam to impound a maximum of 26,000,000 acre-feet with a freeboard of ten feet. Of this impounded water there was set aside only 5,000,000 acre-feet as flood control storage.

It is obvious that a reservoir cannot be used to develop a stated amount of power and at the same time adequately regulate floods, unless, after setting aside the storage required for the power, there remains sufficient storage for flood control.

The power to be developed was fixed at 550,000 firm horsepower. The Board found that this power could be developed at the present time with the power storage provided, and that ordinary floods could be satisfactorily controlled. However, in the event of a great flood

such as that of 1884, it would be necessary to send as much as 160,000 second-feet of water down the valley in order to prevent the dam from being overtopped.

Although a flood of this magnitude has occurred only once in the last fifty years, the possibility of its recurrence is nevertheless a constant menace and the Board is informed that the people of the lower valley demand that provision be made to more effectively control such unusual floods.

Without encroaching upon the power development provided for, this increased flood control can be accomplished only by increasing the height of the dam. The Bureau of Reclamation has proposed that the crest of the dam be raised 25 feet, from elevation 1,207 feet to, elevation 1,232 feet, for the purpose of providing an additional flood-control storage of 4,500,000 acre-feet with a freeboard of three feet, thus making the total flood-control storage 9,500,000 acre-feet.

The Board approves the proposed increase in the height of the dam, and is of the opinion that this change can be made within the adopted estimate of cost.

The Board emphasizes the fact that its approval of the increase in height of the proposed dam is based solely on the desirability of more effective flood control and that the development of power should never be a factor in the control of the flood-storage space in the reservoir.

(b) The general procedure being followed in the mathematical treatment in analyzing the stresses in the dam, as presented in the report entitled "Present Status of Boulder Canyon Designs," dated February 5, 1930, seems to be logical and essential to cover the conditions which will actually obtain in a dam constructed in the narrow Black Canyon gorge selected as the site of the structure. The Board recommends that this procedure be continued with such changes and additions as the completion of the mathematical investigation now under way may require.

(c) As a basis for complete study and detailed design of a dam of the type and general dimensions considered, the Board approves the tentative section of the dam shown on page 17 of the report entitled, "Present Status of Boulder Canyon Designs" by Chief Designing Engineer J. L. Savage, dated February 5, 1930, suitably amended for the increased height to a top elevation of 1,232 feet.

The proposal of the engineers of the Bureau of Reclamation to construct and test a model dam of similar design, for the purpose of establishing a check on the reliability of the methods of stress analysis which have been employed in designing the structure is approved and it is urged that this be done at an early date.

Very respectfully,

COLORADO RIVER BOARD,
Wm. L. Sibert,
Maj. Gen. WILLIAM L. SIBERT,
Chairman.

Charles P. Berkey,
CHARLES P. BERKEY,
Daniel W. Mead,
DANIEL W. MEAD,
W. J. Mead,
WARREN J. MEAD,
Robt. Ridgway,
ROBERT RIDGWAY,

DENVER, COLORADO, *April 16, 1930.*