

INTERNATIONAL BOUNDARY AND WATER COMMISSION
UNITED STATES AND MEXICO

Ciudad Juarez, Chih.
September 7, 1949

Minute No. 192

PLANS AND PROCEDURES FOR CONSTRUCTION OF FALCON DAM
AND RECOMMENDATIONS FOR CONSTRUCTION OF FALCON HYDRO-
ELECTRIC PLANTS.

The Commission met in the offices of the Mexican Section at Ciudad Juárez, Chihuahua, on September 7, 1949, at 10:00 a.m., for the purpose of review and approval, subject to the final approval of the two Governments, of the plans which have been prepared for the lowest major international storage dam to be constructed on the Rio Grande pursuant to the provisions of article 5 of the Water Treaty concluded February 3, 1944; and for review and approval of recommendations to the two Governments, pursuant to article 7 of that treaty, with respect to the feasibility of constructing plants for the generation of hydroelectric energy at Falcón Dam.

The Commission reviewed the provisions of the Water Treaty relating to the construction of the major international storage dams on the Rio Grande and the submission of reports and recommendations to the two Governments concerning the construction of plants for generating hydroelectric energy at such dams. The steps heretofore taken in the development of plans for Falcón Dam and of recommendations and plans for the construction of plants for the generation of hydroelectric energy at that dam were then reviewed. These steps are as follows:

Preliminary studies carried on by the Commission prior to the conclusion of the Water Treaty had shown in a general way the feasibility of the Rio Grande International Dams Project provided for by the treaty, and the feasibility of hydroelectric power generation at the international storage dams. The additional studies and investigations and certain procedures to be followed in the development of the final plans and specifications for the major international storage dams were set out in the "Report on Joint Engineering Conference" of the Consulting Engineers and Technical Advisers of the Commission, held in Mexico, D. F., March 4-13, 1946. This report was approved by the Commission in Minute No. 182, adopted September 23, 1946, and subsequently approved with certain understandings by the two Govern-

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ments. Pursuant to the recommendations contained in this report, the additional studies and investigations have been carried on by the two Sections of the Commission.

Minute No. 187, dated December 20, 1947, and subsequently approved by both Governments, set forth the Commission's determinations, in the light of studies and investigations completed to that date, as to site and required capacities of the lowest major international storage dam to be built on the Rio Grande.

Minute No. 190, dated August 13, 1948, and subsequently approved by both Governments, set forth the Commission's action in allocating to the two Sections the performance of the then remaining items of work preparatory to construction of Falcon Dam. It also set forth the Commission's agreement that the provisions of article 5 of the Water Treaty relating to proration between the two Governments of costs of construction of the major international storage dams in proportion to the conservation storage capacity allotted to each can best be given effect, and that construction work can best be expedited by allocating items of construction work to the two Sections on the basis of the estimated costs and in the proportion stated, the items of work to be performed by the Section to which allocated or by such public or private agency of its respective country as may be designated by that Section, and under the joint supervision of the two Sections.

Under the allocation of work items provided for in Minute No. 190, the technical design work, including the preparation of plans and specifications for Falcón Dam, was allocated to the United States Section for performance in the Offices of the Chief Engineer of the Bureau of Reclamation of the United States in Denver, Colorado, under the control and supervision of the Commission.

As the studies and investigations and performance of design work progressed, joint engineering conferences of the Commission, Principal Engineers and Technical Advisers were held to review and approve or require modifications of the work accomplished and to agree upon and prescribe principles and procedures for accomplishment of the remaining stages of work. Among other decisions, it was concluded that plans for Falcón Dam and for plants for the generation of hydroelectric energy at that dam should be developed concurrently and that plans for the dam and recommendations as to hydroelectric plants should be submitted together for the consideration of the two Governments.

In addition to the Commissioners, the Principal Engineers and other engineers of the two Sections, the following Technical Advisers have participated in the several joint engineering conferences:

For the United States: Chief Engineer L. N. McClellan, Chief

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Designing Engineer W. H. Nalder and Engineer H. G. Arthur, of the Bureau of Reclamation; Colonel Henry Hutchings, Jr., of the Corps of Engineers; and Consulting Engineers R. J. Tipton and Walker R. Young, of Denver, Colorado.

For Mexico: Antonio Coria, Assistant Chief of the Technical Consulting Department, Aurelio Benassini, First Chief Engineer of Irrigation, Oscar Vega Argüelles, Director General of Studies and Designs, Andrés García Quintero, Director General of Hydrology, and Armando Bravo Hollis, Chief of the Department of Electromechanical Engineering of the Ministry of Hydraulic Resources.

Following consideration of the foregoing, the Commission reviewed the "Joint Report on the Plans for the Lowest Major International Storage Dam and Power Plants on the Rio Grande", submitted by Principal Engineers C. M. Ainsworth and Joaquín C. Bustamante under date of July 12, 1949. This report, the English and Spanish texts of which, together with its twelve exhibits, are attached hereto and form part hereof, describes in detail the plans which have been prepared for Falcón Dam and the plants for the generation of hydroelectric energy proposed for construction at that dam, and sets forth the recommendations of the Principal Engineers as to procedures which should be followed in construction.

The Commission then adopted the following resolution:

- "(1) The 'Joint Report on the Plans for the Lowest Major International Storage Dam and Power Plants on the Rio Grande' including the twelve exhibits attached thereto, submitted by Principal Engineers C. M. Ainsworth and Joaquín C. Bustamante under date of July 12, 1949, is approved.
- (2) The approval by our respective Governments of the plans for the lowest major international storage dam as described in the Joint Report of the Principal Engineers and shown on the drawings attached thereto is recommended, subject to such modifications as may subsequently be found by the Commission to be necessary for sound and expeditious construction.
- (3) The construction of plants for the generation of hydroelectric energy at Falcon Dam is found to be feasible from both engineering and economic standpoints and should be undertaken concurrently with the construction of the dam and in accordance with the plans described in the Joint Report of the Principal Engineers and shown on the drawings attached thereto, with such modifications as may subsequently be found by the Commission to be necessary for sound and expeditious construction.

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- (4) It is therefore recommended that each Government approve as soon as practicable the construction of plants for the generation of hydroelectric energy at Fal on Dam, in accordance with the plans described in the Joint Report of the Principal Engineers and shown on the drawings attached thereto, subject to such modifications as may subsequently be found by the Commission to be necessary for sound and expeditious construction. It is also recommended that all necessary arrangements be made by each Government in order that its Section of the Commission may undertake its share of the construction of such plants concurrently with the construction of Fal on Dam. Inasmuch as the Water Treaty requires the specific approval of the two Governments of construction of plants for the generation of hydroelectric energy at the major international storage dams on the Rio Grande, it is understood and agreed that under the exception provided in article 25 of the Water Treaty neither Government is required to communicate to the Commission within the thirty-day period referred to in that article its approval or disapproval of the construction herein recommended of plants for the generation of hydroelectric energy at Fal on Dam.
- (5) The division of work items and the allocation thereof to the two Sections of the Commission for performance, as recommended in the discussion of 'Allocations of Costs and Work' in the Joint Report of the Principal Engineers, is found to be sound from the engineering standpoint and to provide for proration of construction costs in accordance with the provisions of article 5 of the Water Treaty. The said division and allocation of work items to the two Sections is approved subject to such modifications as the Commission may find to be necessary in the light of any material increases or decreases in actual quantities of particular items as estimated in the Joint Report of the Principal Engineers, and subject also to such exchanges between the two Sections of work items or portions thereof as may in the opinion of the Commission be necessary or desirable for sound and expeditious construction, provided that such exchanges shall not result in the performance by either Section of a disproportionate share of the work. It is agreed further that reallocations necessitated by increases or decreases in quantities of work items as estimated in the Joint Report of the

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Principal Engineers will be accomplished mainly through reallocation of the quantities of excavation for the spillway. If either Government should not approve the construction of plants for the generation of hydroelectric energy at Falcon Dam as recommended, it will be necessary to modify the plans and reallocate work items on the basis of construction of the dam only.

- (6) Each Section of the Commission will undertake the performance within its own country and at the expense of that country of general work items of the nature referred to in paragraph 4 of 'Conclusions and Recommendations' of the Joint Report of the Principal Engineers.
- (7) The construction program recommended in the Joint Report of the Principal Engineers is approved subject to such modifications as the Commission may subsequently determine to be necessary or desirable in the light of construction requirements.
- (8) The procedures recommended in the Joint Report of the Principal Engineers for the issuance of specifications and awarding of contracts covering both construction work and the purchase of materials, and for the supervision, engineering and inspection of the work, are approved."

The meeting then adjourned.

s/ L. M. Lawson
Commissioner of the United States

s/ D. Herrera J
Commissioner of Mexico

s/ George H. Winters
Secretary of the United States Section

s/ Fernando Rivas S
Secretary of the Mexican Section