## INTERNATIONAL BOUNDARY AND WATER COMMISSION UNITED STATES AND MEXICO

El Paso, Texas, September 28, 1963.

## MINUTE NO. 215

## DESIGN AND PROCEDURES FOR CONSTRUCTION OF AMISTAD DAM

The Commission met at the offices of the United States Section at El Paso, Texas, at 10:00 a.m. on September 28, 1963, to consider the design prepared and the procedures proposed for construction of Amistad Dam, the second major international storage dam on the Rio Grande contemplated under the 1944 Water Treaty.

The two Commissioners reviewed the work which has been undertaken by the Commission, in connection with the dam since the adoption of Minute No. 210, dated January 12, 1961, in which the construction of the dam was recommended and which was subsequently approved by the two Governments, as follows:

The technical design work, including preparation of specifications and engineering estimates, has been completed, and invitations to bid on the performance of the construction work could be issued on November 1 of this present year of 1963. This technical design work was divided between the two Sections of the Commission in accordance with the Resolution of Minute No. 210.

As the design work progressed, engineering conferences were held in which the Principal Engineers and technical advisers of the two Sections and members of the design staffs of the two countries participated to review and approve the design criteria and to agree upon the principles and procedures for accomplishment of the remaining stages of the work. Technical advisers who were consulted in various stages of the design work included:

For the United States Section: R. J. Tipton, Consulting Engineer, Denver, Colorado; Walker R. Young, Consulting Engineer, Denver, Colorado; General Carroll H. Dunn, Division Engineer, U. S. Army Engineers, Dallas, Texas; Colonel Frank P. Koisch, District Engineer, U. S. Army Engineers, Fort Worth, Texas.

For the Mexican Section: Aurelio Benassini, Chief Engineer, Irrigation and River Control, of the Ministry of Hydraulic Resources; Alfonso de la O Carreño, Consulting Engineer, of the same Ministry; José Ortega López, Director of Studies and Designs of the same Ministry; Alfredo Jiménez Abad, Director of Designs, Federal Power Commission.

On the basis of the designs and cost estimates, the engineers of the two Sections jointly prepared an allocation of items of construction of the dam for performance by each of the two countries in a manner to effect division of costs in accordance with the Resolution of Minute No. 210; they also

took into account that each country will provide in its territory its facilities for generation of hydroelectric energy, further in accordance with the same Minute. In addition, they prepared a schedule for construction to phase the work by one country in with that of the other.

Under date of April 26, 1963, the Commission adopted Minute No. 213, subsequently approved by the two Governments, recommending that the rock foundation of the dam be grouted to form the impervious curtain required and that it was necessary to proceed with the performance thereof in order not to delay future construction work of the dam. This work is being performed at the present time.

The Commission reviewed the "Joint Report of the Principal Engineers on the Designs and Construction Procedures for Amistad Dam on the Rio Grande", submitted by Principal Engineers L. H. Henderson and Jenaro Paz Reyes, dated September 10, 1963, the English and Spanish texts of which, together with its 15 exhibits, are attached hereto and form a part hereof. In this Report there are described the designs which have been prepared for Amistad Dam and the installations required for future plants for generation of hydroelectric energy, and there are set forth the recommendations of the Principal Engineers as to allocations of work items to each country for performance, and the procedures which should be followed in construction.

The Commission finds that said Report conforms to the provisions of the Water Treaty of 1944, to the Resolutions of prior Minutes Nos. 207, 210, and 213 relating to Amistad Dam, as well as to the experience obtained by the Commission in the construction of Falcon Dam.

The Commission then adopted the following Resolution, subject to the approval of the two Governments:

- 1. The Commission approves the "Joint Report of the Principal Engineers on the Designs and Construction Procedures for Amistad Dam on the Rio Grande", submitted by Principal Engineers L. H. Henderson and Jenaro Paz Reyes under date of September 10, 1963, and recommends its approval by the two Governments, and that the Commission be authorized to make such modifications of the design as it may consider necessary in order to accomplish sound and expeditious construction of the dam.
- 2. The division of work items and allocation thereof for performance by the two Sections of the Commission, as described in the section on "Allocations of Cost and Work" and recommended in the Joint Report of the Principal Engineers, is sound from an engineering standpoint and will effect provation of cost of construction in accordance with the provisions of Articles 5 and 7 of the Water Treaty, and the Resolution of Minute No. 210, and is approved subject to such equal exchange of work items, or such part thereof as, in the opinion of the Commission, it may be necessary or desirable to make between the two countries for sound and expeditious construction of the dam. It is understood that each Section will be responsible for the performance of the work items allocated to its country, including unforeseen expenditures which may have to be made in the performance of the work there-
- 3. The Commission will study claims which may be submitted by either of the two countries for extra expenditures which one of them may have had to incur in the construction of the portion of the dam assigned to it, due

to causes occasioned by the construction of the portion of the dam assigned to the other country, and will decide whether such claims are justified or not. The Commission will determine the amount of the claims which it finds valid and the method of their adjustment.

- 4. Each Section shall perform within the territory of its country the work required to fill cavities and to seal minor faults in the rock along the perimeter of the reservoir, in order to preclude the possibility of excessive reservoir leakage. The actual cost of this work, as determined by the Commission, shall be prorated between the United States and Mexico in the proportion of 56.2 percent and 43.8 percent, respectively, in accordance with the Resolution of Minute No. 210, and in order to effect this division such modifications shall be made in the division between the two countries of work items as may be required.
- 5. Each Section of the Commission shall perform within its own territory and at the expense of its country the appurtenant domestic items of work corresponding to its country and referred to in Paragraph 5 of the recommendations of the Joint Report of the Principal Engineers.
- 6. The procedures recommended in the Joint Report of the Principal Engineers for issuance of specifications and awarding of contracts for construction, and for joint supervision of the construction by the Commission, are approved, with each Section having direct charge of the work allocated to its country.
- 7. The construction program recommended in the Joint Report of the Principal Engineers is approved, subject to such later modifications as the Commission may determine to be necessary or desirable for expeditious construction of the dam.

The meeting then adjourned.

(Signed) J. F. Friedkin (Signed) D. Herrera J.

Commissioner of the United States Commissioner of México

(Signed) R. P. Daguerre
Acting Secretary of the United States
Section

(Signed) Fernando Rivas S. Secretary of the Mexican Section