

INTERNATIONAL BOUNDARY AND WATER COMMISSION  
UNITED STATES AND MEXICO

Ciudad Juarez, Chihuahua  
September 24, 1976

MINUTE NO. 254

OPERATION AND MAINTENANCE OF RETAMAL DIVERSION DAM

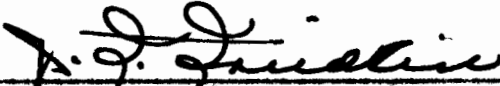
The Commission met in the offices of the Mexican Section in Ciudad Juarez, Chihuahua at 10:00 A.M., on September 24, 1976, to consider the "Joint Report of Principal Engineers on the Operation and Maintenance of Retamal Diversion Dam" dated July 15, 1976, submitted by Principal Engineers Delbert D. McNealy and Norberto Sanchez G., pursuant to Commission Minute No. 238. The English text of this Report is attached.

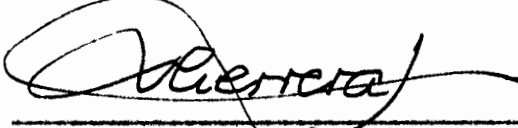
After reviewing the Joint Report the Commission adopted the following Resolution:


1. The aforementioned Joint Report, which forms part of this Minute, is approved.


2. The division between the two countries of the costs of operation and maintenance of the Retamal Diversion Dam, to be effected by allocation of work items to each of the Sections of the Commission, as recommended by the Principal Engineers in their Joint Report, is approved, subject to the modifications which the Commission may find appropriate based on experience obtained.

The meeting then adjourned.

  
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Commissioner of the United States

  
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Commissioner of Mexico

  
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Secretary of the United States  
Section

  
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Secretary of the Mexican Section

INTERNATIONAL BOUNDARY AND WATER COMMISSION  
UNITED STATES AND MEXICO

Ciudad Juárez, Chih.  
July 15, 1976

JOINT REPORT OF PRINCIPAL ENGINEERS  
ON OPERATION AND MAINTENANCE OF RETAMAL DIVERSION DAM

To the Honorable Commissioners  
International Boundary and Water Commission  
United States and Mexico  
El Paso, Texas, and El Chamizal, Chihuahua

Sirs:

In accordance with your instructions we respectfully submit for your consideration this joint report on the operation and maintenance of Retamal Diversion Dam.

Background

The two Governments built the Retamal Diversion Dam during 1972-73 pursuant to Minute No. 238, under the supervision of the Commission and through its respective Sections.

Description

The structure is formed basically of an automatic central radial gate, 82 feet (25.00 m) long, with two mechanical side radial gates 40 feet (12.19 m) long, an intake tower to feed the automatic system of the central gate, a control house, and four piers between the two abutments. In addition, there are two dikes to connect the structure with the river floodway levees; one dike on the Mexican side 0.54-mile (0.870 km) long, and the other dike on the United States side 1.78 miles (2.865 km) long.

Purpose

Retamal Diversion Dam forms an integral part of the flood control system of the Lower Rio Grande. Its purpose is to limit the flow downstream to 20,000 cfs (570 cubic meters per second) or the flow that the Commission believes to be the safe capacity of the Rio Grande at Brownsville-Matamoros.

In accordance with Minute No. 238, the excess floodwaters are to be diverted as follows: half through the floodway of the United States, located upstream from Anzalduas Diversion Dam, and the other half through the floodway of Mexico, located upstream from Retamal Diversion Dam.

Representatives

We believe that each Section should designate a representative in charge of directing and supervising the operation and maintenance works assigned to their respective country.

The two representatives should meet at Retamal Diversion Dam at least once every month to ensure that the operation and maintenance works and the functioning of the gates, emergency plants, and all accessory equipment are satisfactory.

Operation

When, in the judgment of the Commission, a flood is of duration and magnitude such that it can safely be contained in the channel of the river downstream, the structure should be operated in such a manner as to avoid diversions through the Mexican floodway. When, in the judgment of the Commission, a flood is of such duration and magnitude that there may be a need to divert the excess floodwaters of the Rio Grande through the floodways of the two countries, the Retamal Diversion Dam should be operated in such a manner as to cause the minimum possible danger to people and damage to properties downstream from the structure, subject to the requirement that the United States and Mexican floodways should carry equal rates and volumes of such excess floodwaters.

The links of the automatic gate and the opening of the valve should be adjusted in accordance with the operation instructions approved by the Commission. The automatic gate and the lateral gates should be operated in accordance with instructions to be formulated and modified, as necessary,

by the Commission in the light of experience.

Unilateral Operation

In accordance with Minute No. 238, the unilateral operation of the structure, which either country may wish to carry out to make use of its waters, would require the approval of the Commission; and any additional costs of operation and maintenance would be at the expense of the using country.

Maintenance

We believe that the structure should be maintained in good functioning condition, clean, without trash and with the paint and finish in good condition, and that there should be installed such devices as may be necessary for the protection of the structure, its installation and equipment.

The structure, installations, and equipment should be maintained in accordance with maintenance instructions approved by the Commission.

Distribution of Work

Minute No. 238 stipulates that the work of operation and maintenance of the structure should be carried out jointly by the two Sections of the Commission and the costs divided equally between the two countries.

We believe that an equitable distribution of the costs between the two countries would be achieved by having each Section of the Commission carry out the work of operation and maintenance of the works located in its territory, excepting work on the control house, the central gate, and other installations and connected equipment which are described and distributed as follows:

<u>Part of Dam</u>	<u>United States</u>	<u>Mexico</u>
1. <u>Control House</u>	Electrical circuits and air conditioning on the U. S. side, hydrographic receivers, control panel.	Electrical circuits and air conditioning on the Mexican side and maintenance of the interior and exterior and hoist of the central gate.

<u>Part of Dam</u>	<u>United States</u>	<u>Mexico</u>
2. <u>Hydrographic Equipment</u>	Stage recorders and transmitters for upstream and downstream water levels.	
3. <u>Intake Tower and Tubing</u>	Joint Maintenance Intake tower and tubing of the automatic control system.	
4. <u>Central Gate</u>	U.S. side: half of the gate, arms, counterweight arms, bearings, trunnions wells and floats in the wells.	Mexican side: half of the gate, arms, counterweight arms, bearings, trunnions, wells and floats in the wells.
	Joint Maintenance Removal of trash and silt from the central gate.	
5. <u>Electrical Energy</u>	Each Section should provide the same quantity of electrical energy measured in kilowatt hours for the operation of the gates and controls. Any difference in the supply of electrical energy should be periodically compensated by agreement of the two Sections of the Commission.	
6. <u>Major Repairs</u>	We believe that major repairs of the hoist of the central gate should be distributed equally between the two Sections of the Commission.	

The works proposed in paragraphs 3 and 4 above, for joint maintenance by the two Sections, can be divided subsequently between the two Sections of the Commission in light of experience gained with time.

#### Emergency Works

When it is necessary to carry out an urgent emergency work which, if not done quickly, may incur risk of serious damages to the structure or increase in the cost of work, the Commission should arrange for the execution of the works which it deems necessary and for equal division of the work between the two Sections, as soon as practical.


#### Recommendations

1. That the work of operation and maintenance be distributed to the two Sections of the Commission as described in this report.

2. That the conduct of operation and maintenance of the structure be carried out as described in this report.

3. That each Section designate a representative to be responsible for the supervision of the work of operation and maintenance of the structure as assigned.

Respectfully submitted,



Delbert D. McNealy  
Principal Engineer  
United States Section



Norberto Sanchez G.  
Principal Engineer  
Mexican Section