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INTERNATIONAL BOUNDARY AND WATER COMMISSION
UNITED STATES AND MEXICO

Ciudad Juarez, Chihuahua
February 9, 1987

JOINT REPORT OF THE PRINCIPAL ENGINEERS
PROPOSING TECHNICAL BASIS FOR JOINTLY FUNDED
NEW RIVER WATER QUALITY IMPROVEMENT MEASURES
IN MEXICALI, BAJA CALIFORNIA

To The Honorable Commissioners
International Boundary and Water Commission
United States and Mexico
El Paso, Texas and Ciudad Juarez, Chihuahua

Sirs:

Pursuant to your instructions, we respectfully submit for your consideration this joint report proposing a technical basis for measures jointly funded by the Governments of the United States and Mexico to be undertaken in Mexican territory to significantly improve the water quality of the New River at the international boundary at Calexico, California-Mexicali, Baja California.

Further, pursuant to your instructions, we considered that the following fundamental criteria be applied in arriving at the recommended measures:

1. That the measures result in a significant improvement in New River quality at the boundary;
2. That the cost of measures be shared equally between the United States and Mexico; and
3. That the measures be under the supervision of the International Boundary and Water Commission, United States and Mexico.

We reviewed and evaluated the following measures formulated by Mexican authorities to improve the quality of the waters of the New River at the boundary:

1. <u>Construction of Pumping Plant No. 1A</u>

A 68 million gallons per day - mgd (3,000 liters per second - lps) pumping plant with seven 200 horsepower (hp) pumps, including one standby pump, pumping against a total dynamic head of 79 feet (24 meters). The pumping

plant would be located between existing Pumping Plant No. 1 and the Mexicali lagoons. Estimated cost, $1,054,864 United States currency.

Pumping Plant No. 1A would eliminate untreated sewage bypasses to the New River, estimated at 1.8 mgd (80 lps), from Pumping Plant No. 1, which has inadequate capacity to handle the existing sewage load.

2. Acquisition of Standby Pumps and Motors

Two standby pumps and motors would be acquired for Pumping Plant No. 2, one at the upper sump and one at the lower sump and one standby pump and motor would be acquired for the right bank pumping plant, opposite Pumping Plant No. 2.

The standby pump at the upper sump, Pumping Plant No. 2, would be a Fairbanks-Morse (Model No. 5741 or compatible) vertical centrifugal nonclog angle flow dry well type pump, with a 125 hp motor capable of pumping 12 mgd (530 lps). Estimated cost, $36,000, United States currency.

The standby pump to be located at the lower sump, Pumping Plant No. 2, would be a Fairbanks-Morse (Model No. 5414 or compatible) vertical centrifugal nonclog, dry well, lateral suction type pump, with a 60 hp motor capable of pumping 3.7 mgd (160 lps). Estimated cost, $15,000 United States currency.

The standby pump to be located at the right bank pumping plant would be a Johnston (Model No. 2857 or compatible) vertical centrifugal mixed flow helix type water lubricated surface discharge pump with a 40 hp motor capable of pumping 8.0 mgd (350 lps). Estimated cost, $16,000 United States currency.

These standby pumps would eliminate the discharge of up to 15.7 mgd (690 lps) of untreated sewage to the New River which periodically occurs due to breakdown of existing pumping units.

3. Acquisition of Sewer Line Cleaning Equipment

One truck mounted water pressure-type sewer line cleaning unit with 1,500-gallon (5,678 liter) capacity with pressures up to 2,000 pounds per

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square inch (141 kilograms per square centimeter) and one trailer mounted vacuum manhole cleaner with complementary vacuum pump and storage tank. Estimated cost, $78,136 United States currency.

Regular cleaning of sewer lines would prevent discharges of untreated sewage estimated at 2.3 mgd (100 lps), to the New River due to blockage of sewer lines.

4. Maintenance Program For Mexicali Sanitation System

A regular maintenance program would be carried out on all collector lines, pumping plants, pressure lines and oxidation lagoons. Estimated cost for 1987, $200 million pesos, Mexican currency.

The maintenance program could help prevent the discharge of up to 15.7 mgd (690 lps) of untreated sewage to New River.

We reviewed and evaluated the water quality improvements expected from each of these proposed measures, based on the estimated amount of untreated sewage discharges into the New River that each measure would eliminate, and the relative cost of each measure. From this careful review, we conclude that the first three measures would provide a significant improvement in the quality of the waters of the New River at the boundary and could be covered by the available funds of $1.2 million, U.S. currency, to be equally divided by the two countries for a joint border sanitation project. The location of the proposed features is shown on Exhibit No. 1.

A summary of the engineering features of the joint project, their estimated cost, and purpose is shown on Exhibit No. 2. We consider that an important element in improving the quality of the New River at the boundary is the timely implementation of these features. We examined the schedule provided by the Mexican authorities and observed that it provides for an immediate acquisition of the sewer line cleaning equipment and standby pumps, and early construction of Pumping Plant No. 1A as shown on the schedule in Exhibit No. 3.

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We recognize that the above recommended project features are but a small part of the total works required for solution of the border sanitation problem at Calexico, California-Mexicali, Baja California. We consider however that the Government of Mexico will be undertaking various measures to improve the quality of the New River waters at the boundary. Included is the development of a regular maintenance program for the Mexicali sanitation system and the rehabilitation of collector lines in the City of Mexicali.

As part of the evaluation of the recommended features, authorities in Mexico advised that consideration was given to the construction of a separate line for collection of the industrial waste discharges and conveyance to the Mexicali treatment lagoons. However, the cost of such a line was determined by Mexico to be beyond the funding available for the joint project. We agree with that determination. Nevertheless, the Government of Mexico is considering actions to reduce the industrial wastewater discharges to the New River.

Further, Mexico's engineers gave consideration to the installation of booster pumps in the existing pressure lines from Pumping Plant No. 1 to the Mexicali lagoons as part of the proposed Pumping Plant No. 1A. However, they concluded, and it was agreed by the U.S. Section engineers, that such installation was impractical because of the anticipated design and operational difficulties.

Recommendations

Based on the foregoing considerations, we recommend that:

1. The Commission adopt the joint border sanitation project in Mexicali made up of:
   a. Construction of Pumping Plant No. 1A.
   b. Acquisition of two standby pumps and motors for Pumping Plant No. 2 and one for the right bank pumping plant, opposite Pumping Plant No. 2.
   c. Acquisition of sewer line cleaning equipment.

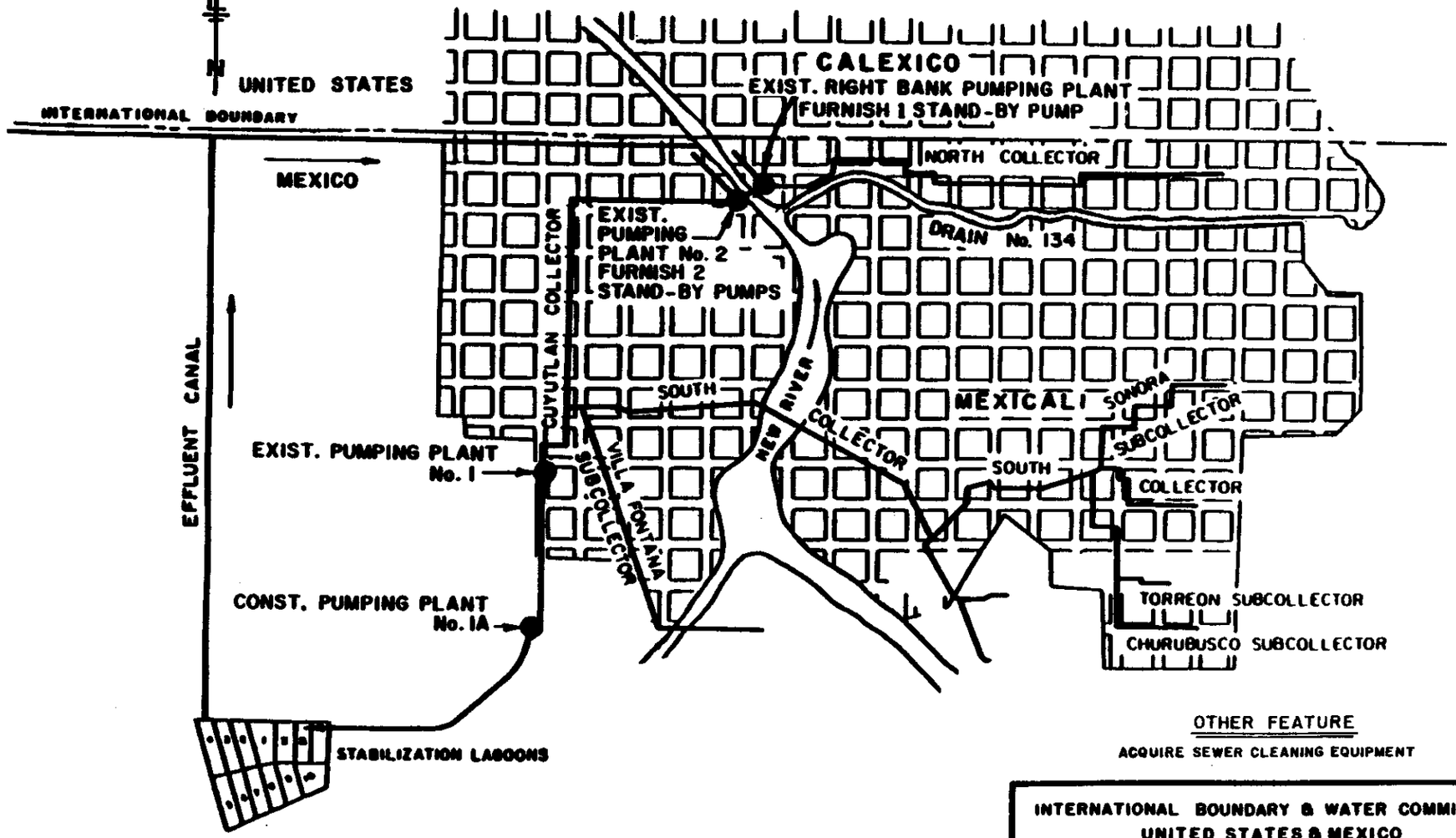
2. The estimated cost of construction and acquisition of equipment as outlined in Exhibit No. 2, be divided equally between United States and Mexico with the understanding that if the cost of Pumping Plant No. 1A exceeds the estimate, Mexico will pay the additional cost to complete it and place it in operation.
3. The three standby pumps and motors and the sewer line cleaning equipment be acquired immediately and that Pumping Plant No. 1A be constructed according to the schedule shown in Exhibit No. 3.
4. The construction, operation and maintenance of the recommended project features be under the supervision of the International Boundary and Water Commission.

Respectfully submitted,

George R. Baumli
Principal Engineer
United States Section

Luis Guzman del Castillo
Principal Engineer
Mexican Section

EXHIBIT No. 1



OTHER FEATURE

ACQUIRE SEWER CLEANING EQUIPMENT

INTERNATIONAL BOUNDARY & WATER COMMISSION
UNITED STATES & MEXICO

JOINT UNITED STATES - MEXICO PROJECT
NEW RIVER WATER QUALITY IMPROVEMENT

FOR THE UNITED STATES — FOR MEXICO

George R. Baumli — PRINCIPAL ENGINEER

2/6/87 DATE

PRINCIPAL ENGINEER

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