INTERNATIONAL BOUNDARY AND WATER COMMISSION
UNITED STATES AND MEXICO

El Paso, Texas
September 3, 1986

JOINT REPORT OF THE PRINCIPAL ENGINEERS RELATING TO THE INSTALLATION OF INTERNATIONAL BOUNDARY MONUMENT NO. 13-R

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

Sirs:

In accordance with your instructions, we respectfully present for your consideration this joint report relating to the installation of International Boundary Monument No. 13-R, as replacement for Monument No. 13, which was found missing from its original location approximately 44.7 miles (71.9 kilometers) west of Monument No. 1.

On November 21, 1983, personnel of the Mexican Section observed that Monument No. 13, made of cast iron, was missing from its position, finding only the dislocated and overturned concrete base.

To replace the monument, the following accords were reached:

1. Locate a new monument as close as possible to the original location of Monument No. 13 by using Monuments Nos. 12 and 14 for locating the new monument, and calculating the location by using the equations approved by Principal Engineers Delbert D. McNealy and Norberto Sanchez Gomez in August 1974.

2. The United States Section was responsible for making the calculations, establishing the alignment and placement of the field reference points, with the review of the Mexican Section.

3. It was agreed to designate the Monument as No. 13-R, considering that the present measurements and alignment methods used are not compatible to the methods used for installing the monument in 1892-1894, and therefore, the location of the monument, could not be in the precise position as the original Monument No. 13. The letter R was adopted as a reference for the replacement monument.

4. The Mexican Section supplied the monument, constructed the new concrete base and installed the new monument on January 21, 1986, with the United States Section reviewing the work.

The new Monument No. 13-R has been placed 5.15 feet (1.57 meters) south of and perpendicular to a straight line between Monuments Nos. 12 and 14, with the perpendicular line being located at 22,695.69 feet (6,917.646 meters) from Monument No. 12 and 15,351.923 feet (4,679.266 meters) from Monument No. 14. The above data are shown on the attached Exhibit A for Monument No. 13-R.

RECOMMENDATIONS

1. That the Commission agree that the new international boundary monument designated as No. 13-R is the official replacement of the original Monument No. 13.

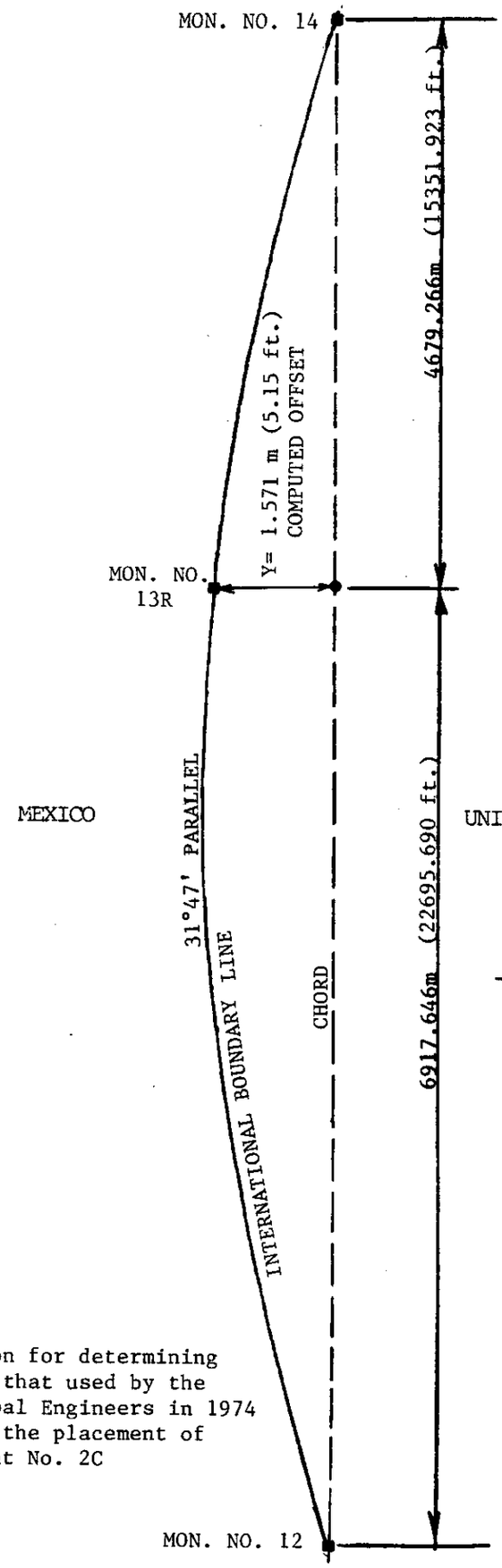
2. That the Commission approve the location of Monument 13-R.

3. That we delete reference to Monument No. 13 from the location tables for the international boundary monuments, and note that it has been replaced by Monument No. 13-R.

Respectfully,

Jose S. Valdez
Acting Principal Engineer
United States Section

Luis Guzman del Castillo
Principal Engineer
Mexican Section



MEASURED DISTANCES TO ESTABLISH
MONUMENT NO. 13-R

$$Y = \frac{1}{2}\,\frac{\overline{AB} \times \overline{BC}}{10{,}303.354}$$

$$Y = \frac{(6917.646\text{m} \times 4679.266\text{m})}{20{,}606.708} = 1571 \text{ mm} = 1.571 \text{ m} = 5.15 \text{ ft.}$$

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NOTE: Equation for determining "Y" is that used by the Principal Engineers in 1974 during the placement of Monument No. 2C