

## UNDERGROUND WATER USE AND PROBLEMS IN LUNA COUNTY

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### LUNA COUNTY

The Mimbres Valley Underground Water Basin is located in Luna County and comprises an area of approximately 2,500 square miles.

Underground water, which is the principle source of irrigation water, is found in a thick body of sand and gravel underlying the wide bolsons of the Mimbres Valley. The water derived for pumping comes chiefly from storage, and is evidenced by declining water levels in all areas of irrigational pumpage.

Pump irrigation began in the Mimbres Valley between 1908 and 1911 until by 1914 nearly 200 pumping plants were in operation. The pump irrigation economy suffered a severe slump so that in 1918 there were only 25 pumping plants still in operation. This can be attributed to high production costs, farming crops which were not suited to the land, and inexperience of the operators. In 1923 there began a gradual renewal in irrigation from underground waters and gradually increased ever since so that in 1956 there were 640 pumping plants, irrigated 32,000 acres.

The irrigated area in the Mimbres Basin can be considered as being divided into six districts, for a discussion of ground water level declines.

1. MAIN IRRIGATED AREA (Deming and vicinity and South approximately 12 miles). In 1914 the water level in this area averaged 40 feet below land surface. In 1956 the water level had declined to 100 feet. Large scale withdrawals of ground water commenced around 1940 and the water level decline has averaged 2-4 feet per year. This area contains 20,000 acres of irrigated land at present.

2. LEWIS FLATS (10-15 miles East of Deming)

Water levels 1914 averaged 40 feet below land surface and 1956 averaged 90 feet, a decline of 50 feet. Acreage irrigated in 1956 was 2,700 acres.

3. FRANKLIN AREA (15 miles East and 5 miles South of Deming)

Development of this area commenced in 1952 at which time water level was 70 feet below land surface, as of 1956 this level had declined 10 feet. In 1956 there were 1,100 acres being irrigated.

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4. WEST OF RED MOUNTAIN (12 Miles West of Deming)

Development of this area commenced in 1950, at which time the water level was 90 feet below land surface. In 1956 the water level was 120 feet or a decline of 30 feet in six years. At the present time 2,500 acres are being irrigated in this area.

5. COLUMBUS AREA

Development in this area commenced in the early 1900's and has been spasmodic ever since. In 1950 approximately 200 acres were being irrigated, whereas in 1956 the irrigation had increased so that 3,900 acres were being irrigated. Water levels in this area remained fairly constant until 1950 at which time a gradual decline in water levels was noted. The depth to water in 1950 varied from 30 to 90 feet below the surface and the water levels have declined 10 feet in the past 6 years.

6. HERMANAS (15 miles West of Columbus)

Development commenced in this area in 1953 and at the present time 2,000 acres are being irrigated. Depth to water averages from 200 to 240 feet below land surface. No significant declines in water levels have been noted.

Pumping lifts at the height of the irrigation season, in the Mimbres Valley, average from 100 feet to a maximum of 280 feet in Hermanas area.

With the greater pumping depth the yields in most of the wells has been greatly reduced as the aquifer has proven to be less permeable at the greater depths. This has necessitated the construction of more supplemental wells in order to develop the required amount of water. For the past 8 years wells have had to be deepened or replaced due to the receding water table.

#### HIDALGO COUNTY

In Hidalgo County there are three principal areas in which underground water is used for irrigation, namely the Animas, Virden, and Playas Valleys.

1. ANIMAS VALLEY is located Southwest of Lordsburg. In 1947 approximately 1,000 acres of land was irrigated, by using wells. In 1948 there was a large scale development of this valley so that at the present time approximately 15,000 acres are being irrigated by using 165 wells. The declines in water levels for the period 1948 through 1956 have been 28 feet at center of pumping, to 10 feet at the edge of the pumped area.

Since 1948 it has been necessary to either deepen or replace all of the original wells, the average depth in 1948 being 130 feet, whereas the average depth in 1956 is 300 feet. The pumping lifts average approximately 130 feet.

2. VIRDEN VALLEY is located on the Gila River at the New Mexico-Arizona line. Up until the last 5 years the irrigation in this valley was mainly surface water, with ground water used as a supplement. In the last five years ground water has become the principal source of supply with surface water being used as a supplement. In 1956 approximately 2,600 acres were irrigated with 50 wells in operation.

3. THE PLAYAS VALLEY UNDERGROUND WATER BASIN is located in the Southeastern portion of Hidalgo County, joining Mexico to the South.

The surface drainage covers an area of approximately 1,000 square miles, with the valley floor being approximately 500 square miles in area.

The area contains no permanent streams and practically its only certain source of water is underground. Water derived for irrigation is pumped from storage as in other valleys of this region.

The depth of the saturated valley fill has not been determined to date. A well drilled to a depth of 836 feet failed to reach the bed-rocks.

The water table varies from flowing artesian wells to approximately 200 feet in depth. The slope of the land and water table is to the North.

Irrigation of any extent commenced in 1948 and has steadily increased to approximately 2,000 acres, using 20 wells.

In Hidalgo County, as is true for a large part of Southwestern New Mexico, ground water available for irrigation comes mainly from storage. In most of developed areas ground water is being mined resulting in declining water levels.