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WATER-SUPPLY PAPER 365

GROUND WATER IN SOUTHEASTERN NEVADA

BY

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gasoline engine and a No. 8 horizontal-shaft centrifugal pump. The pump has a 10-inch suction pipe.

Ground water.—No extensive attempt has been made to obtain ground water in the Muddy and Virgin valleys. Three shallow wells in the vicinity of Logan, one well east of Overton on the Morrison farm, one well north of St. Thomas on the Whitmore farm, and one deep well belonging to the San Pedro, Los Angeles & Salt Lake Railroad at St. Thomas constitute the ground-water development in the Muddy Valley. The only well in the Virgin Valley is at Bunkerville. The wells at Logan are driven, and the depth to water in them could not be ascertained. In the Morrison well, in the NE. ¼ NE. ¼ sec. 19, T. 16 S., R. 68 E., the water stands 11 feet below the surface. In the Whitmore well, in sec. 33, T. 16 S., R. 68 E., the water stands 20.4 feet below the surface. In the railroad well at St. Thomas, which affords the best index of the ground-water conditions in the valley, the first water was struck at 30 feet. This water was cased out and drilling continued to a depth of 805 feet. The water stands 284 feet below the surface and is reported to bear continuous pumping at a rate of 120 gallons a minute. The well at Bunkerville, which is reported to be 60 feet deep, yields water that is too brackish to be palatable.

Ground water in Muddy Valley lies near enough to the surface to be profitably pumped for irrigation, but it is found in quicksand, which does not give up its supply readily enough to allow continuous pumping. The Morrison brothers attempted to irrigate with ground water in 1912, but the attempt was unsuccessful. In Mesilla Valley, in New Mexico, satisfactory irrigation supplies have been developed in wells ending in fine sand by sinking perforated iron casings to the desired depth, pumping out the sand in as large quantities as possible, and filling the resulting cavities, outside of the casing, with fine gravel. By this process gravel screens were developed around the well casings and water was obtained much more freely than from the fine sand. Some such method would be worthy of trial in the Muddy Valley.

QUALITY OF WATER.

The quality of the water in Muddy Valley is shown by analyses 18, 19, 20, and 41 in the table opposite page 30. The water in Muddy River, which forms the principal supply for the valley, contains 835 parts per million of dissolved solids, sodium being the most abundant base and the sulphate the most abundant acid radicle. This water is poor for boiler use on account of its high content of scaling ingredients, and it is only fair for irrigation, its alkali coefficient being 16. Chemically it is only fair for domestic use, because of its content of sulphate, and hygienically it is questionable.