# NEW MEXICO BUREAU OF GEOLOGY AND MINERAL RESOURCESOpen-File Report 6372025

# Winter 2024 Water-Level Monitoring Results for a Region Northwest of Clovis, NM

Prepared for the Ogallala Land & Water Conservancy

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# OPEN-FILE REPORT

### Open-File Report 637—Winter 2024 Water-Level Monitoring Results for the Ogallala Land & Water Conservancy Geoffrey Rawling

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Cover Photograph: The author locates a well with a handheld GPS unit. Photo by Scott Christenson

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# EXECUTIVE SUMMARY

Water-level data collected from October to December 2024 are presented, and changes in water-level elevations are calculated for 36 wells west and northwest of Clovis, New Mexico. Water-level rises are concentrated in the northern half of the study area. Water-level declines are dominant around Cannon Air Force Base. The average water-level change across all wells is zero; the median change is -1.2 ft.

### METHODS AND DATA

his report summarizes water-level measurements made in December 2024 in wells leased by the Ogallala Land & Water Conservancy (OLWC) in a region northwest of Clovis, New Mexico. The author measured water levels in 21 of the 23 wells recommended for monitoring by Rawling (2024, table 3). Well OG-80 was not measured because the wellhead had been sealed shut. Well OG-83 was not measured because Roman Well Service reported that there was oil on the water in November 2024 (Ladona Clayton, personal communication, December 2024).

Water levels were measured using either a steel tape or an electric probe (if the well was unequipped) following standard methods of the U.S. Geological Survey (USGS; Garber and Koopman, 1968; Falk et al., 2011; Galanter and Curry, 2019). Depth to water was measured from the top of the well casing and converted to depth to water below ground level using the measured height of the top of the casing above local ground; the local ground elevation was determined from a 4.5-m resolution digital elevation model (DEM). The previous measurements at these wells were made in January 2023.

Additional water-level measurements from October 2024 were provided for 11 wells on Cannon Air Force Base (Ladona Clayton, personal communication, December 2024). These are the same wells with data reported in Rawling (2024). Depths to water for these wells are reported from the top of the well casing, along with the elevation of the top of the well casing. The well site elevation was determined using the 4.5-m resolution DEM to determine the water level elevation and the depth to water relative to ground level. The previous measurements at these wells used in this report were made in March 2023. Water levels from four wells measured by the USGS in December 2024 were downloaded from the National Water Information System (https:// waterdata.usgs.gov/nwis, accessed February 11, 2024). These data are reported as depth to water relative to ground, with no measuring point height (and so assigned to be zero in this report); the well site elevation and water level elevation were also determined using the same 4.5-m DEM. The previous measurements at these wells used in this report were made in February 2023.



The author locates a well with a handheld GPS unit. Photo by Scott Christenson

### RESULTS

The data used in this report are shown in Table 1<sup>1</sup>. Figures 1 and 2 show the change in water level at each well since the previous measurements. Waterlevel declines are negative and rises are positive. The average water-level change across all wells is zero no net change; the median change is -1.2 ft. All of the wells more than 4 mi north of U.S. Route 60

showed water-level rises. To the south around Cannon Air Force Base, water-level declines dominate. Given the lack of groundwater recharge in this part of New Mexico, the water-level rises likely are due to flattening of merged cones of depression around formerly pumping wells rather than any significant addition of new water to the aquifer (Nativ and Riggio, 1990; Nativ, 1992; Wood and Sanford, 1995; Gurdak and Roe, 2010; Rawling, 2016).



Figure 1. Change in water-level elevations at wells since previous measurement. Declines are negative. CAFB = Cannon Air Force Base.

<sup>&</sup>lt;sup>1</sup> Table 1 is available for download at https://geoinfo.nmt.edu/ publications/openfile/details.cfml?Volume=637



Figure 2. Change in water-level elevations at wells in the vicinity of Cannon Air Force Base (CAFB) since previous measurement. Declines are negative.

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