

**KANSAS GEOLOGICAL SURVEY
OPEN-FILE REPORT 2002-35**

EXPANSION FOR THE HIGH PLAINS AQUIFER
OBSERVATION NETWORK OF WATER WELLS
IN SOUTHWEST KANSAS

by

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Expansion for the High Plains aquifer observation network of water wells in southwest Kansas

The Kansas Geological Survey has demonstrated interest in systematically improving the reliability of the observation network of wells monitoring water level in the High Plains aquifer. The most recent proposal appeared in Kansas Geological Survey Open-File Report 2002-14 (Olea and Davis, 2002).

More recently, the desire has been expressed to eliminate extrapolation of water levels in areas where the aquifer has a relatively large saturated thickness. These areas tend to occur in southwest Kansas. Table 1 lists 17 wells that will help reduce the kriging standard deviation below 10 ft in four areas in Gray, Kearny, Meade, and Morton counties where the saturated portion of the aquifer is thick.

The effectiveness of the additions is demonstrated in Plate 1, which is the kriging standard deviation map that results after adding the 17 new wells to those used to produce Plate 10 of Open-File Report 2002-14 (Olea and Davis, 2002). The criteria for the selection of the wells are the same ones explained in the OFR 2002-14.

Table 1. Proposed additions to the network in areas with thick saturated aquifer

ID	County	Location	Well depth ft	Use
1	Gray	28S 28W 15 NC NC SE	230.	Domestic
2	Kearny	23S 38W 35 SE NE SE	65.	Miscellaneous
3	Kearny	24S 37W 24 SE	160.	Domestic
4	Meade	32S 29W 20 NE NE NE	432.	Irrigation
5	Meade	33S 30W 15 NC NW NW	360.	Oilf. wat. sup.
6	Meade	33S 29W 16 NW SE SW	310.	Miscellaneous
7	Meade	34S 30W 10 SW SW SE	280.	Domestic
8	Meade	34S 29W 31 NC NE	360.	Oilf. wat. sup.
9	Meade	34S 29W 11 NW NW NW	349	Domestic
10	Morton	32S 42W 33 SE SE SW	160	Oilf. wat. sup.
11	Morton	33S 41W 18 NW NW NW	180	Oilf. wat. sup.
12	Morton	33S 41W 25 NC SW NE	200	Oilf. wat. sup.
13	Morton	33S 41W 31 NE SW SW	130	Domestic
14	Morton	32S 41W 14 SE SE NW	170	Domestic
15	Morton	33S 40W 2 NW SE NE	240	Oilf. wat. sup.
16	Morton	34S 43W 29 SE SE NE	100	Irrigation
17	Morton	33S 42W 31 E2 SW SW	300.	Oilf. wat. sup.

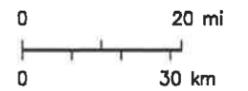
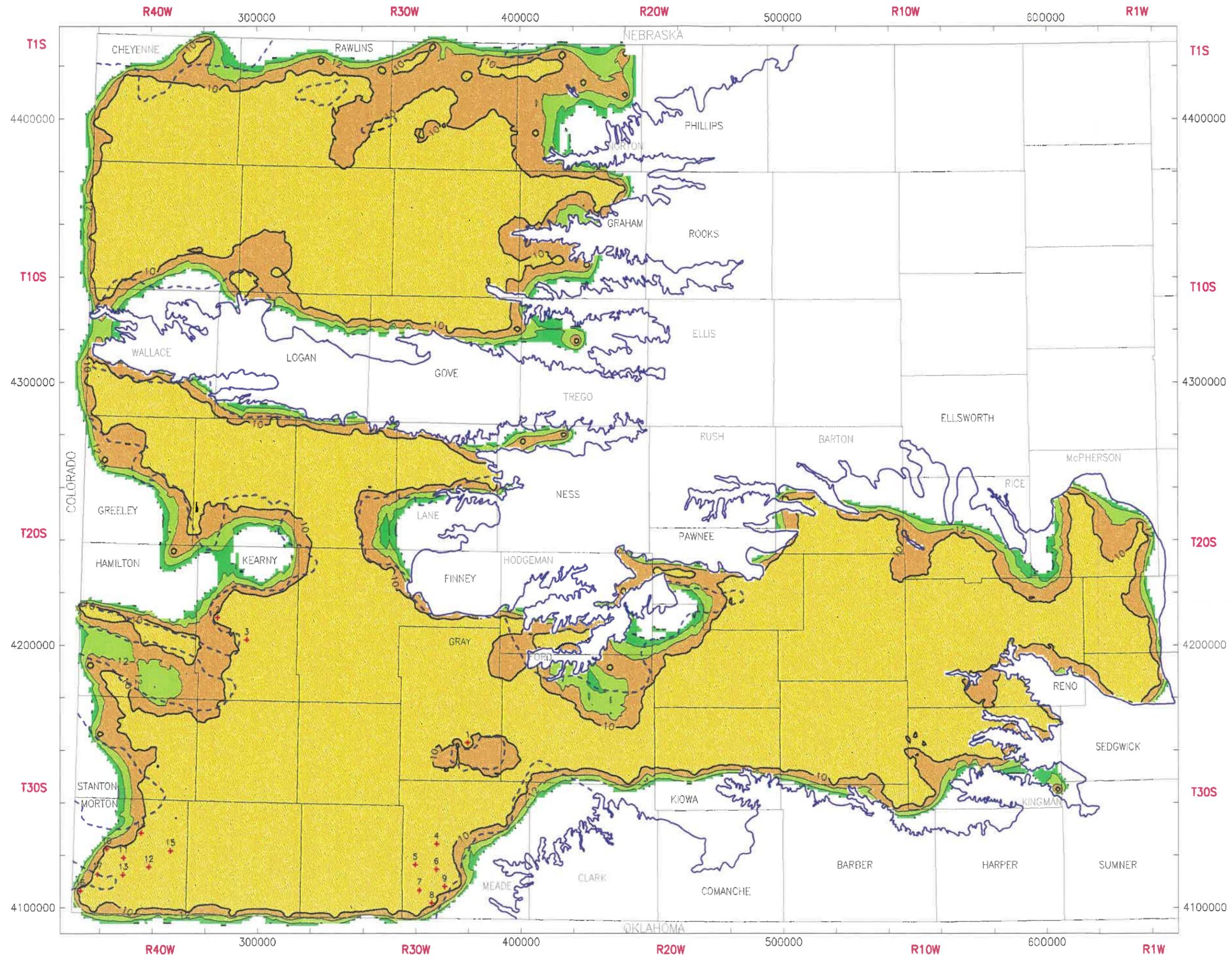
ACKNOWLEDGMENT

We thank Dr. Allen Macfarlane for checking selected wells to ensure that they are tapping the High Plains aquifer.

REFERENCES

Olea, R. A. and J. C. Davis, 2002, Geostatistical analysis and mapping for the Year 2002 Water Levels in the High Plains Aquifer of Kansas: Kansas Geological Survey Open-File Report No. 2002-14, 34 p. and 17 plates

KRIGING STANDARD DEVIATION AFTER PROPOSED NETWORK ENHANCEMENTS



- Geologic boundary
- - - Major aquifer limit
- + Proposed well

PLATE 1
 Kansas Geological Survey
 OFR 2002-35
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