Evaluation of proposed move for Water Right No 14550

Proposed: Move water right no. 14550 a distance of 2,806 ft to the southwest.



Wells within 1 mile: 21865, 24273, 14101, 19809, 21455, a domestic well in the northwest $\frac{1}{2}$ of section 12-27-29, and a domestic well in section 13-27-29.

The saturated thickness at the proposed well location is estimated to be 94 ft, based upon the GMD3 model. For saturated thickness between 75 ft and 100 ft, the drawdown allowance is 2.0 ft. Note that the saturated thickness is greater than 100 ft in some neighboring sections. In those cases, the drawdown allowance is 2.5 ft. Drawdown allowance for each well is indicated below.

50 year Theis Analysis: The following values were used to run the analysis:

S = 0.001403, $T = 20,300 \text{ ft}^2/\text{day}$, $tp_{current} = 94 \text{ days}$ (based upon average use and observed rate), $Q_{current} = 473 \text{ gpm}$ (based upon 2016 field inspection), $tp_{proposed} = 65 \text{ days}$, $Q_{proposed} = 765 \text{ gpm}$

Theis drawdowns were calculated as follows:

21865: Drawdown from current location = 2.24 ft

Drawdown from proposed location = 4.14 ft

Drawdown allowance = 2.5 ft

Net drawdown = 1.9 ft

24273: Drawdown from current location = 2.03 ft

Drawdown from proposed location = 3.66 ft

Drawdown allowance = 2.5 ft

Net drawdown = 1.6 ft

14101: Drawdown from current location = 2.26 ft

Drawdown from proposed location = 3.91 ft

Drawdown allowance = 2.5 ft

Net drawdown = 1.7 ft

19809: Drawdown from current location = 2.27 ft

Drawdown from proposed location = 3.27 ft

Drawdown allowance = 2.5 ft

Net drawdown = 1.0 ft

21455: Drawdown from current location = 2.08 ft

Drawdown from proposed location = 3.29 ft

Drawdown allowance = 2.5 ft

Net drawdown = 1.2 ft

Domestic NW 12-27-29: Drawdown from current location = 2.72 ft

Drawdown from proposed location = 3.63 ft

Drawdown allowance = 2.0 ft

Net drawdown = **0.9** ft

Domestic SW 12-27-29: Drawdown from current location = 2.56 ft

Drawdown from proposed location = 4.49 ft

Drawdown allowance = 2.0 ft

Net drawdown = 1.9 ft

Domestic 13-27-29: Drawdown from current location = 1.97 ft

Drawdown from proposed location = 3.32 ft

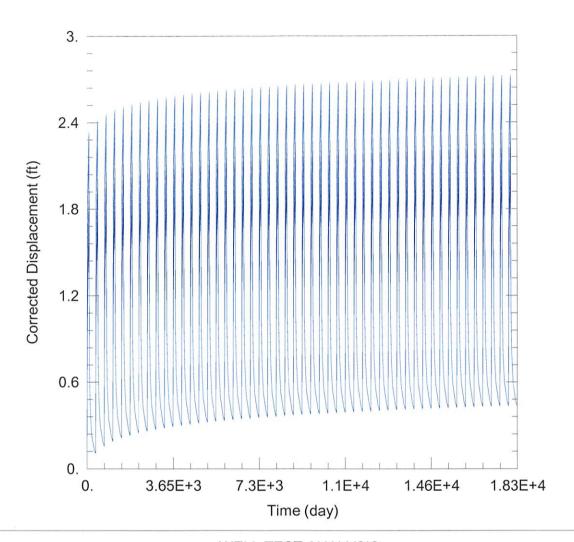
Drawdown allowance = 2.5 ft

Net drawdown = 1.3 ft

No effects on neighboring wells exceed the drawdown allowance. Therefore, critical well analysis is not necessary.

Conclusion:

The proposed move is likely to create minimal effects on neighboring wells. GMD3 staff recommends approval of this proposal.



WELL TEST ANALYSIS

Data Set: C:\Users\trevora\Documents\2020 moves\14550\14550 Current.agt

Date: 04/15/21 Time: 16:11:42

PROJECT INFORMATION

Company: GMD 3 Project: 14550

Location: Gray County Test Well: 14550

WELL DATA

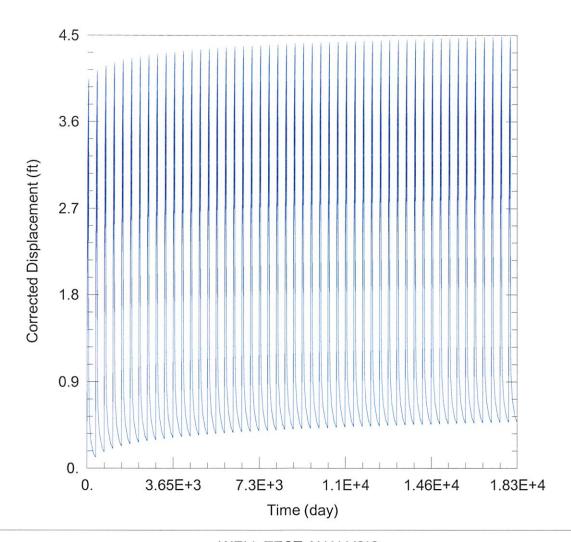
Pumping Wells			
Well Name	X (ft)	Y (ft)	
14550	103332	306036	

Well Name	X (ft)	Y (ft)
0	103332	306036
21865	99353	304828
24273	99390	302025
14101	102033	302169
19809	104596	302270
21455	103042	300851
 Domestic NW 12-27-29 	101556	307181
Domestic 13-27-29	100928	300464
 Domestic SW 12-27-29 	100709	305601

Observation Wells

SOLUTION

Aquifer Model: Unconfined Solution Method: Theis



WELL TEST ANALYSIS

Data Set: C:\Users\trevora\Documents\2020_moves\14550\14550 Proposed.aqt

Date: 04/15/21 Time: 16:11:36

PROJECT INFORMATION

Company: GMD 3 Project: 14550

Well Name

14550

Location: Gray County Test Well: 14550

WELL DATA

Pumping Wells

X (ft) Y (ft)

101143 304281

Well Name	X (ft)	Y (ft)
	101143	304281
21865	99353	304828
24273	99390	302025
- 14101	102033	302169
19809	104596	302270
21455	103042	300851
 Domestic 12-27-29 	101556	307181
 Domestic 13-27-29 	100928	300464
 Neighbor Domestic 	100709	305601

Observation Wells

SOLUTION

Aquifer Model: Unconfined Solution Method: Theis