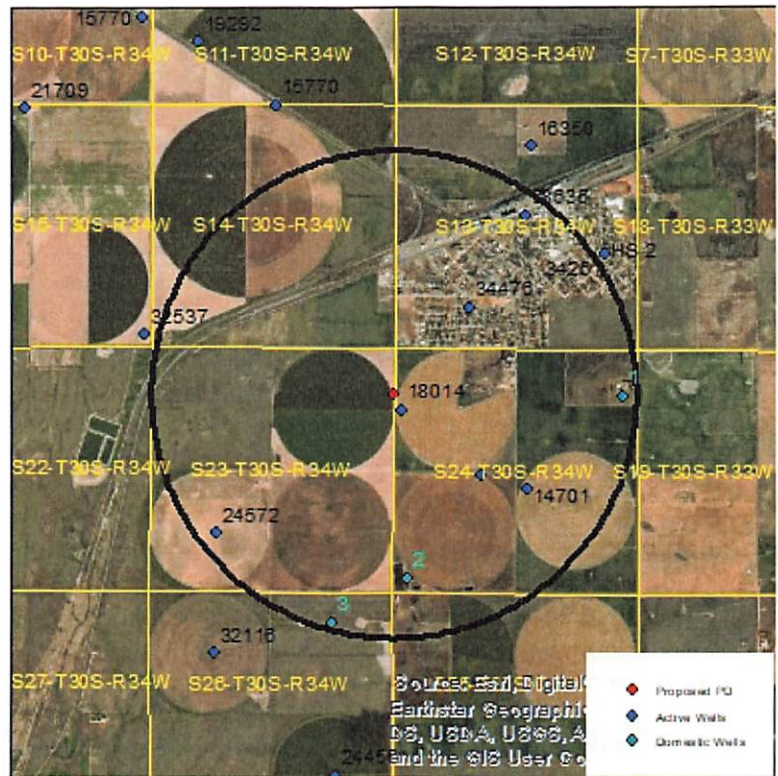


Evaluation of proposed move for Water Right No 18014

Proposed: Move water right no. 18014 a distance of 382 ft to the northwest.



Wells within 1 mile: 3273 & 9779, 14701, 34476, 38635, 24572, and 3 domestic wells, numbered on the above map.

The saturated thickness at the proposed well location is estimated to be 179 ft, based upon the GMD3 model. For saturated thickness between 150 ft and 200 ft, the drawdown allowance is 3.5 ft.

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

$S = 0.1553$, $T = 1444.8 \text{ ft}^2/\text{day}$, $tp_{\text{current}} = 296 \text{ days}$ (based upon average use and observed rate), $Q_{\text{current}} = 123 \text{ gpm}$ (based upon 2019 field inspection), $tp_{\text{proposed}} = 46 \text{ days}$, $Q_{\text{proposed}} = 1570 \text{ gpm}$

Theis drawdowns were calculated as follows:

- 3273 & 9779:
 - Drawdown from current location = 4.67 ft
 - Drawdown from proposed location = 8.92 ft
 - Net drawdown = **4.2 ft**

- 14701:
 - Drawdown from current location = 3.84 ft
 - Drawdown from proposed location = 7.30 ft
 - Net drawdown = **3.5 ft**

34476: Drawdown from current location = 4.28 ft
Drawdown from proposed location = 9.16 ft
Net drawdown = **4.9 ft**

38635: Drawdown from current location = 2.93 ft
Drawdown from proposed location = 6.00 ft
Net drawdown = **3.1 ft**

24572: Drawdown from current location = 3.00 ft
Drawdown from proposed location = 5.93 ft
Net drawdown = **2.9 ft**

Domestic 1: Drawdown from current location = 2.99 ft
Drawdown from proposed location = 5.84 ft
Net drawdown = **2.9 ft**

Domestic 2: Drawdown from current location = 3.59 ft
Drawdown from proposed location = 6.80 ft
Net drawdown = **3.2 ft**

Domestic 3: Drawdown from current location = 2.98 ft
Drawdown from proposed location = 5.72 ft
Net drawdown = **2.7 ft**

Net drawdown exceeds the drawdown allowance of 3.5 ft for water right nos. 3273 & 9779 and 34476.
Critical well analysis is necessary on those wells.

Critical Well Evaluation:

3273 & 9779:

Water Column = 158 ft

DP = 4.2 ft

DE = 38.1 ft (water level decline from 2021 through 2046 based upon GMD3 model)

DD = 95.8 ft (S = 0.1222, T = 15,930 gpd/ft, Q = 600 gpm, tp = 143 days, efficiency = 70%)

DT = 138.1 ft

Economic Drawdown Constraint (EDC) = $0.4 * 158 \text{ ft} = 63.2 \text{ ft}$

Physical Drawdown Constraint (PDC) = $158 \text{ ft} - 60 \text{ ft} = 98 \text{ ft}$

Total drawdown (138.1 ft) is greater than both the EDC (63.2 ft) and the PDC (98 ft) so the well is **critical**.

34476:

Water Column = 183 ft

DP = 4.9 ft

DE = 30 ft (water level decline from 2021 through 2046 based upon GMD3 model)

DD = 4.6 ft (S = 0.2145, T = 79,234 gpd/ft, Q = 134 gpm (assume 60% production time on municipal wells), tp = 219 days, efficiency = 70%)

DT = 39.5 ft

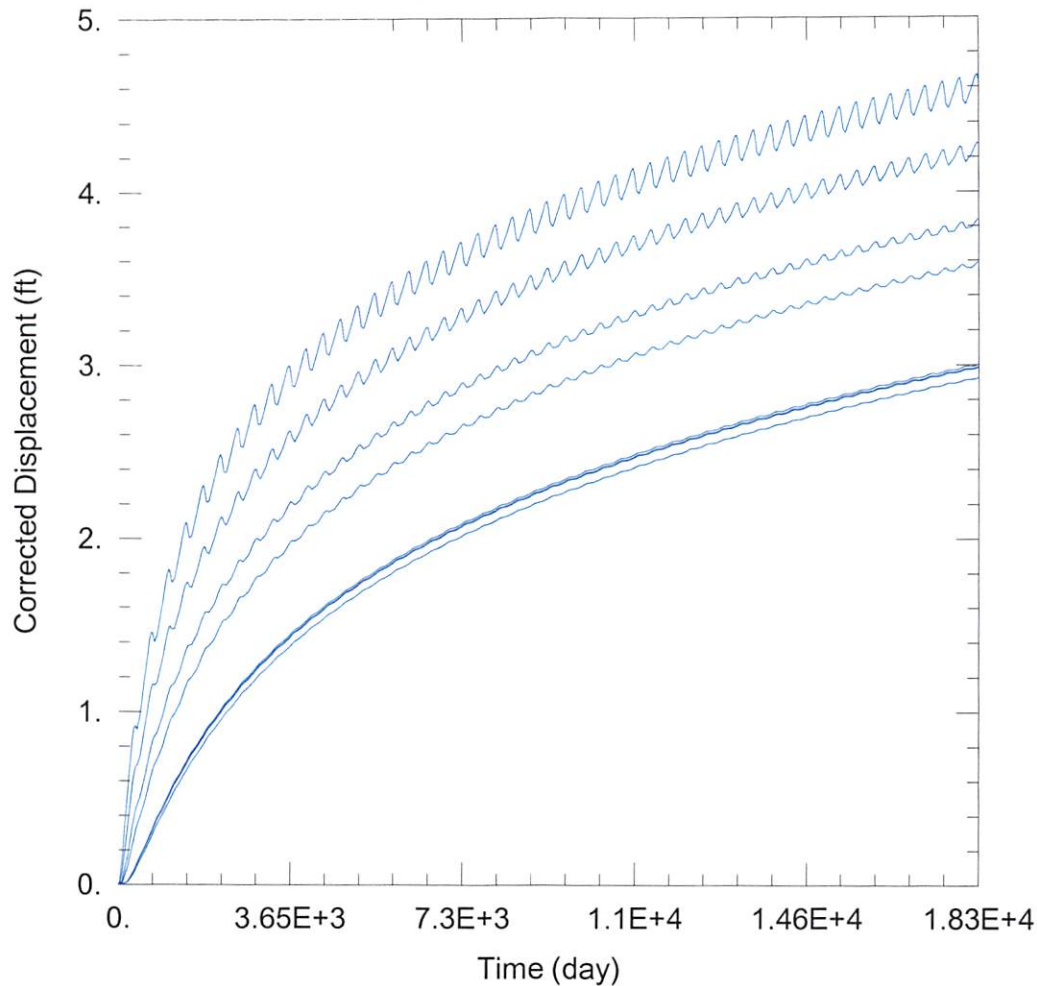
Economic Drawdown Constraint (EDC) = $0.4 * 183 \text{ ft} = 73.2 \text{ ft}$

Physical Drawdown Constraint (PDC) = $183 \text{ ft} - 60 \text{ ft} = 123 \text{ ft}$

Total drawdown (39.5 ft) is less than the EDC (73.2 ft) and the PDC (123 ft), so this well is **not critical**.

Conclusion:

If the proposed well is operated at its fully authorized rate and quantity, it is likely to cause a noticeable effect on the operation of neighboring water right no. 3273 & 9774, a critical well. This well is owned by the applicant. GMD3 staff recommends approval of the application on the basis that the applicant is only likely to create an impairment situation on his own well and is fully aware of potential problems that may occur.



WELL TEST ANALYSIS

Data Set: C:\Users\trevora\Documents\2021_Moves\18014\18014 Current.aqt

Date: 02/02/21

Time: 11:07:14

PROJECT INFORMATION

Company: GMD 3

Project: 18014

Location: Haskell County

Test Well: 18014

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
18014	-57654	201333

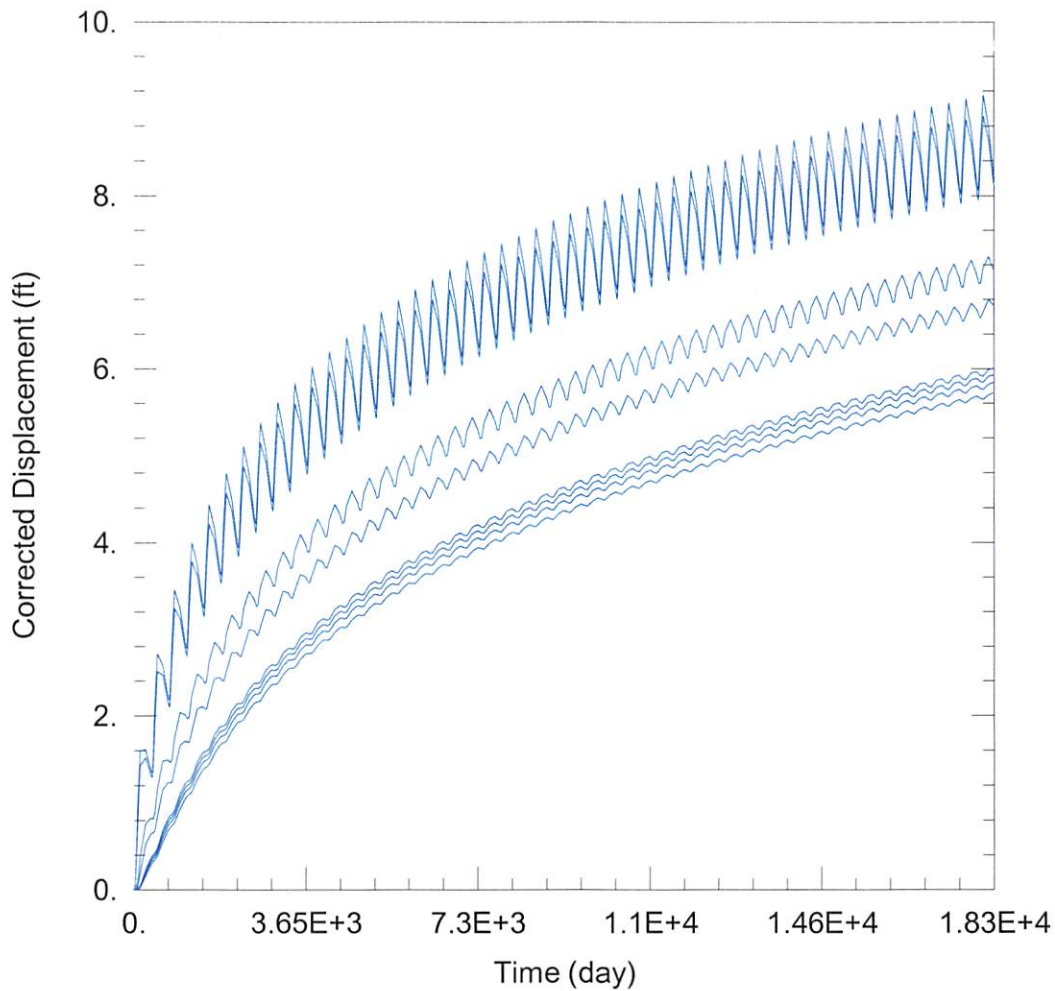
Observation Wells

Well Name	X (ft)	Y (ft)
□	-57654	201333
□ <u>3273 & 9779</u>	-55893	199947
□ <u>14701</u>	-54895	199624
□ <u>34476</u>	-56163	203538
□ <u>38635</u>	-54959	205534
□ <u>24572</u>	-61658	198669
□ <u>Domestic 1</u>	-52823	201648
□ <u>Domestic 2</u>	-57493	197700
□ <u>Domestic 3</u>	-59155	196721

SOLUTION

Aquifer Model: Unconfined

Solution Method: Theis



WELL TEST ANALYSIS

Data Set: C:\Users\trevora\Documents\2021_Moves\18014\18014 Proposed.aqt

Date: 02/02/21

Time: 11:07:07

PROJECT INFORMATION

Company: GMD 3

Project: 18014

Location: Haskell County

Test Well: 18014

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
18014	-57812	201680

Observation Wells

Well Name	X (ft)	Y (ft)
□	-57812	201680
□ <u>3273 & 9779</u>	-55893	199947
□ <u>14701</u>	-54895	199624
□ <u>34476</u>	-56163	203538
□ <u>38635</u>	-54959	205534
□ <u>24572</u>	-61658	198669
□ <u>Domestic 1</u>	-52823	201648
□ <u>Domestic 2</u>	-57493	197700
□ <u>Domestic 3</u>	-59155	196721

SOLUTION

Aquifer Model: Unconfined

Solution Method: Theis