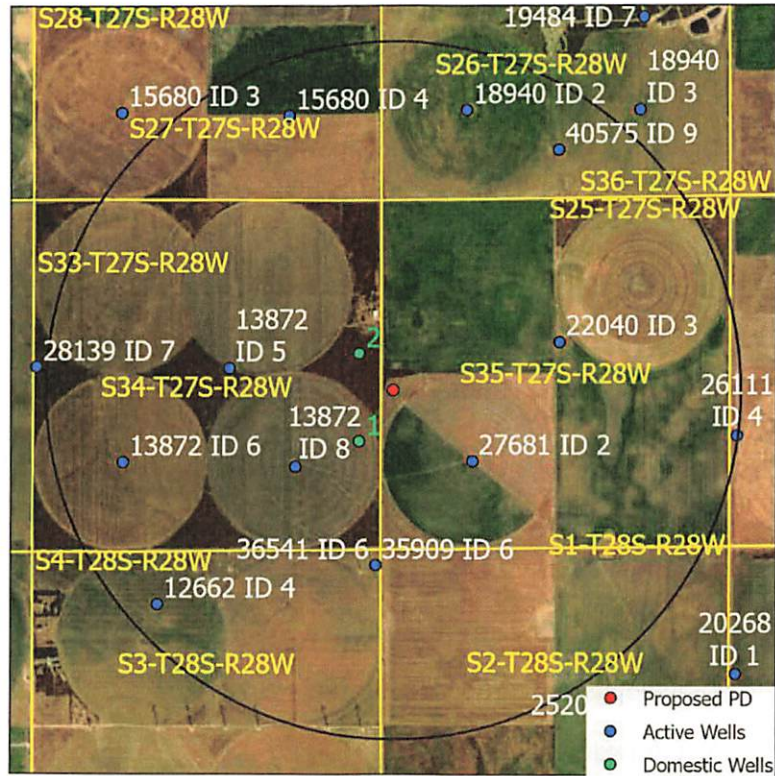


Evaluation of proposed move for Water Right No. 27681

Proposed: Move water right no. 27681 to a new well location, 1,605 ft to the northwest.



Wells within 1 mile: 15680, 18940, 40575, 13872 ID 5, 13872 ID 6, 13872 ID 8, 22040, 26111, 12662, 35909 & 36541, and two domestic wells, numbered on the above map.

The saturated thickness at the proposed well location is estimated to be 42 ft, based upon the GMD3 model. For saturated thickness less than 50 ft, the drawdown allowance is 1.0 ft.

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

$S = 0.109$, $T = 4951 \text{ ft}^2/\text{day}$, $t_{p\text{current}} = 100 \text{ days}$, $Q_{\text{current}} = 300 \text{ gpm}$, $t_{p\text{proposed}} = 77 \text{ days}$, $Q_{\text{proposed}} = 800 \text{ gpm}$

Theis drawdowns were calculated as follows:

- 15680:
 - Drawdown from current location = 1.05 ft
 - Drawdown from proposed location = 2.60 ft
 - Net drawdown = **1.6 ft**

- 18940:
 - Drawdown from current location = 1.13 ft
 - Drawdown from proposed location = 2.63 ft
 - Net drawdown = **1.5 ft**

40575: Drawdown from current location = 1.19 ft
Drawdown from proposed location = 2.61 ft
Net drawdown = **1.4 ft**

13872 ID 5: Drawdown from current location = 1.35 ft
Drawdown from proposed location = 3.89 ft
Net drawdown = **2.5 ft**

13872 ID 6: Drawdown from current location = 1.13 ft
Drawdown from proposed location = 2.68 ft
Net drawdown = **1.6 ft**

13872 ID 8: Drawdown from current location = 1.76 ft
Drawdown from proposed location = 4.88 ft
Net drawdown = **3.1 ft**

22040: Drawdown from current location = 2.00 ft
Drawdown from proposed location = 3.74 ft
Net drawdown = **1.7 ft**

26111: Drawdown from current location = 1.33 ft
Drawdown from proposed location = 2.32 ft
Net drawdown = **1.0 ft**

12662: Drawdown from current location = 1.13 ft
Drawdown from proposed location = 2.46 ft
Net drawdown = **1.3 ft**

35909 & 36541: Drawdown from current location = 2.06 ft
Drawdown from proposed location = 3.71 ft
Net drawdown = **1.6 ft**

Domestic 1: Drawdown from current location = 2.35 ft
Drawdown from proposed location = 7.88 ft
Net drawdown = **5.5 ft**

Domestic 2: Drawdown from current location = 1.93 ft
 Drawdown from proposed location = 8.83 ft
 Net drawdown = **6.9 ft**

Net drawdown exceeds the drawdown allowance for the wells authorized under water right nos. 15680, 18940, 40575, 13872 ID 5, 13872 ID 6, 13872 ID 8, 22040, 12662, 35909 & 36541, and the two domestic wells. All irrigation wells are considered critical if projected saturated thickness is less than 60 ft. Therefore, all neighboring wells with authorized water rights are considered critical. Critical well analysis was performed on the neighboring domestic wells.

Critical Well Evaluation:

Domestic 1:

Water Column = 42 ft

DP = 5.5 ft (Net drawdown from the proposal indicated above)

DE = 6.6 ft (Water level decline from 2024 through 2049 based upon GMD3 model)

DT = 12.1 ft

Economic Drawdown Constraint (EDC) = $0.4 * 42 \text{ ft} = 16.8 \text{ ft}$

Physical Drawdown Constraint (PDC) = $42 \text{ ft} - 20 \text{ ft} = 22.0 \text{ ft}$

Total drawdown of 12.1 ft is less than the EDC and the PDC, so this well is **not critical**.

Domestic 2:

Water Column = 34 ft

DP = 6.9 ft (Net drawdown from the proposal indicated above)

DE = 9.9 ft (Water level decline from 2024 through 2049 based upon GMD3 model)

DT = 16.8 ft

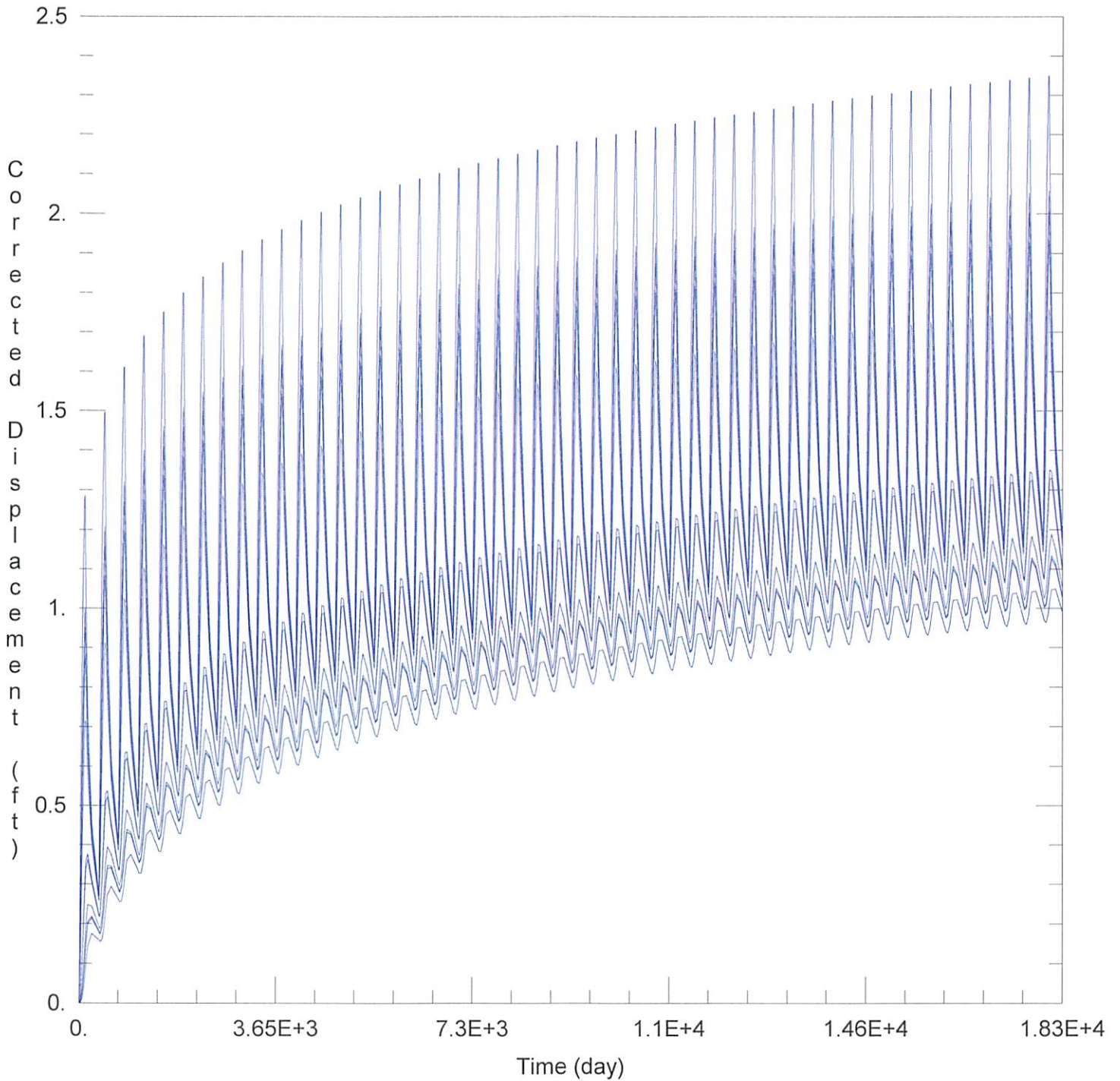
Economic Drawdown Constraint (EDC) = $0.4 * 34 \text{ ft} = 13.6 \text{ ft}$

Physical Drawdown Constraint (PDC) = $34 \text{ ft} - 20 \text{ ft} = 14.0 \text{ ft}$

Total drawdown of 16.8 ft exceeds the EDC and the PDC, so this well is **critical**.

Conclusion:

The proposed move is in a depleted aquifer area with about 40 ft of remaining saturated thickness. The analysis shows that net well-to-well effects created by this proposal are likely to be small but may be noticeable, due to the limited amount of remaining aquifer. Most nearby wells were flagged as critical because there is little saturated thickness remaining in the aquifer, with further declines projected over the next 25 years. Concerned neighbors should contact GMD3 at (620) 275-7147 or the Division of Water Resources at (620) 276-2901.



WELL TEST ANALYSIS

Data Set: C:\Users\trevora\Documents\2024_moves\27681\27681 Current.aqt

Date: 10/03/24

Time: 11:46:10

PROJECT INFORMATION

Company: GMD 3

Project: 27681

Location: Gray County

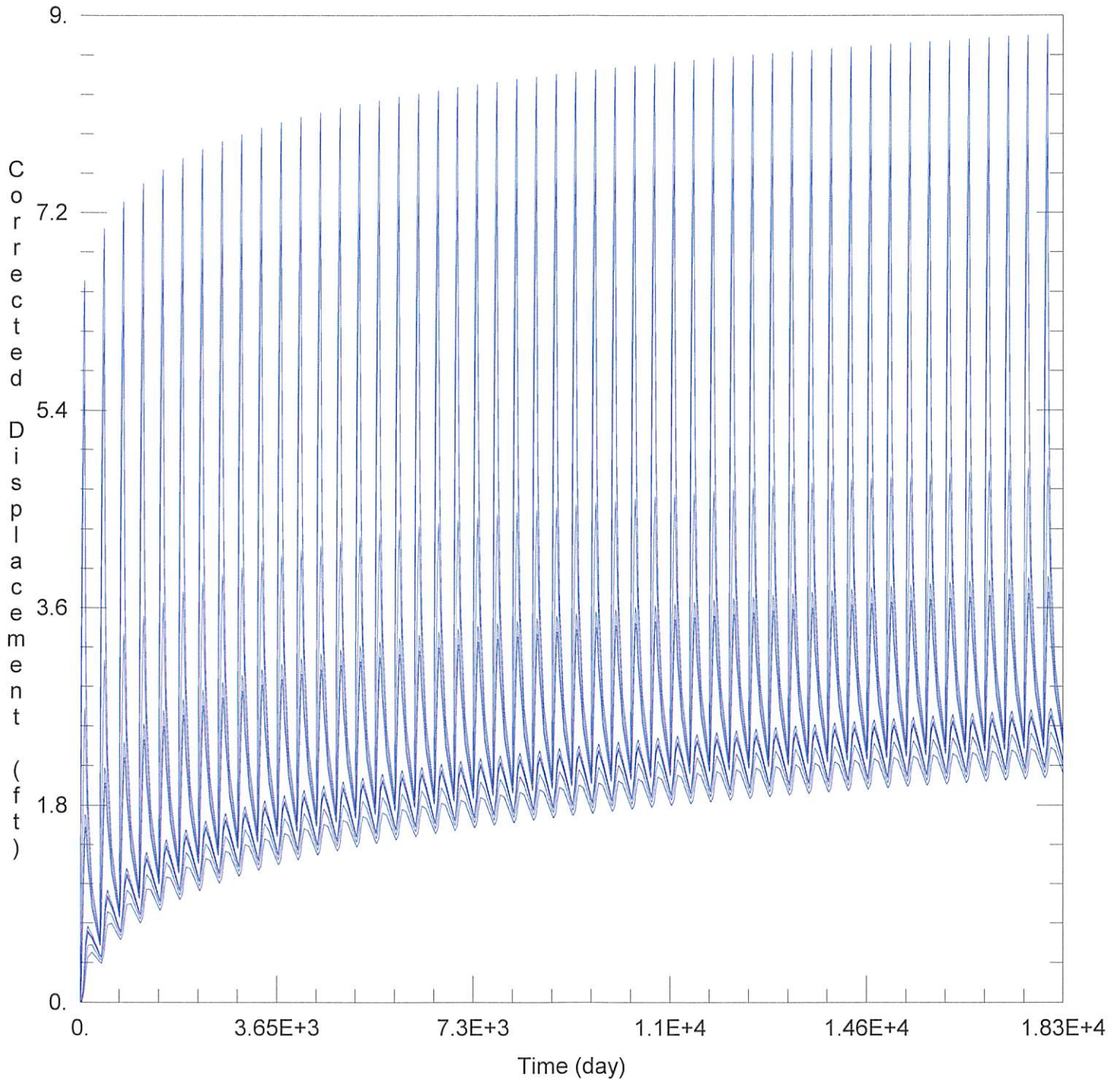
WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
27681	128323	283767

Observation Wells

Well Name	X (ft)	Y (ft)
□ 15680	125510	288001



WELL TEST ANALYSIS

Data Set: C:\Users\trevora\Documents\2024_moves\27681\27681 Proposed.aqt

Date: 10/03/24

Time: 11:46:03

PROJECT INFORMATION

Company: GMD 3

Project: 27681

Location: Gray County

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
27681	127125	284836

Observation Wells

Well Name	X (ft)	Y (ft)
□ 15680	127125	284836
□ 15680	125510	288001