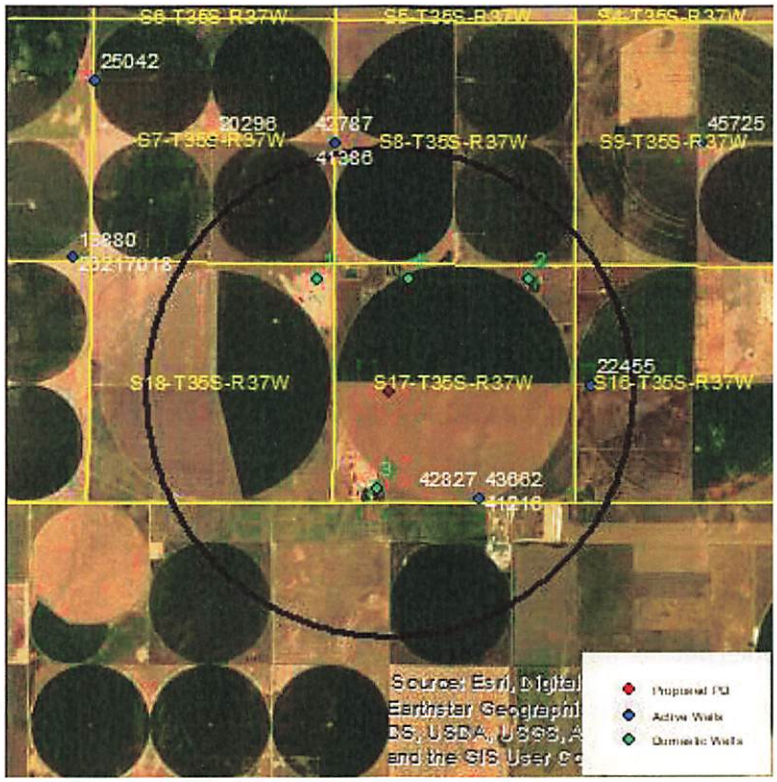
Evaluation of proposed move for Water Right No. 43662

Proposed: Move water right no. 43662 to a new well location, 2,347 ft to the northwest. Water right numbers 41216 & 42827 will remain at the original location. This is an additional well.



Wells within 1 mile: 41216 & 42827, 22455, and four domestic wells, numbered on the above map.

The saturated thickness at the proposed well location is estimated to be 345 ft, based upon the GMD3 model. For saturated thickness greater than 200 ft, the drawdown allowance is 4.0 ft.

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

S = 0.1395, T = 2469 ft^2/day, $tp_{proposed}$ = 145 days, $Q_{proposed}$ = 700 gpm

Theis drawdowns were calculated as follows:

41216 & 42827:	Net drawdown = **8.0 ft**
22455:	Net drawdown = **6.4 ft**
Domestic 1:	Net drawdown = **8.2 ft**
Domestic 2:	Net drawdown = **6.9 ft**
Domestic 3:	Net drawdown = **10.0 ft**
Domestic 4:	Net drawdown = **9.0 ft**

Net drawdown exceeds the drawdown allowance for all wells within 1 mile of the proposed location. Critical well analysis is necessary on those wells.

Critical Well Evaluation:

41216 & 42827:

Water Column = 345 ft

DP = 8.0 ft (Net drawdown from the proposal indicated above)

DE = 29.2 ft (Water level decline from 2024 through 2049 based upon GMD3 model)

DD = 97.9 ft (S = 0.1395, T = 2469 ft^2/day, Q = 698 gpm, tp = 188 days, efficiency = 70%)

DT = 135.1 ft

Economic Drawdown Constraint (EDC) = 0.4 * 345 ft = 138.0 ft

Physical Drawdown Constraint (PDC) = 345 ft – 60 ft = 285.0 ft

Total drawdown of 135.1 ft is less than the EDC and the PDC, so this well **is not critical.**

22455:

Water Column = 345 ft

DP = 6.4 ft (Net drawdown from the proposal indicated above)

DE = 29.2 ft (Water level decline from 2024 through 2049 based upon GMD3 model)

DD = 84.4 ft (S = 0.1395, T = 2469 ft^2/day, Q = 600 gpm, tp = 197 days, efficiency = 70%)

DT = 120.0 ft

Economic Drawdown Constraint (EDC) = 0.4 * 345 ft = 138.0 ft

Physical Drawdown Constraint (PDC) = 345 ft – 60 ft = 285.0 ft

Total drawdown of 120.0 ft is less than the EDC and the PDC, so this well **is not critical.**

Domestic 1:

Water Column = 314 ft

DP = 8.2 ft (Net drawdown from the proposal indicated above)

DE = 31.3 ft (Water level decline from 2024 through 2049 based upon GMD3 model)

DT = 39.5 ft

Economic Drawdown Constraint (EDC) = 0.4 * 314 ft = 125.6 ft

Physical Drawdown Constraint (PDC) = 314 ft – 20 ft = 294.0 ft

Total drawdown of 39.5 ft is less than the EDC and the PDC, so this well **is not critical.**

Domestic 2:

Water Column = 345 ft

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

DE = 29.2 ft (Water level decline from 2024 through 2049 based upon GMD3 model)

DT = 36.1 ft

Economic Drawdown Constraint (EDC) = 0.4 * 345 ft = 138.0 ft

Physical Drawdown Constraint (PDC) = 345 ft – 20 ft = 325.0 ft

Total drawdown of 36.1 ft is less than the EDC and the PDC, so this well **is not critical.**

Domestic 3:

Water Column = 345 ft

DP = 10.0 ft (Net drawdown from the proposal indicated above)

DE = 29.2 ft (Water level decline from 2024 through 2049 based upon GMD3 model)

DT = 39.2 ft

Economic Drawdown Constraint (EDC) = 0.4 * 345 ft = 138.0 ft

Physical Drawdown Constraint (PDC) = 345 ft – 20 ft = 325.0 ft

Total drawdown of 39.2 ft is less than the EDC and the PDC, so this well **is not critical.**

Domestic 4:

Water Column = 345 ft

DP = 9.0 ft (Net drawdown from the proposal indicated above)

DE = 29.2 ft (Water level decline from 2024 through 2049 based upon GMD3 model)

DT = 38.2 ft

Economic Drawdown Constraint (EDC) = 0.4 * 345 ft = 138.0 ft

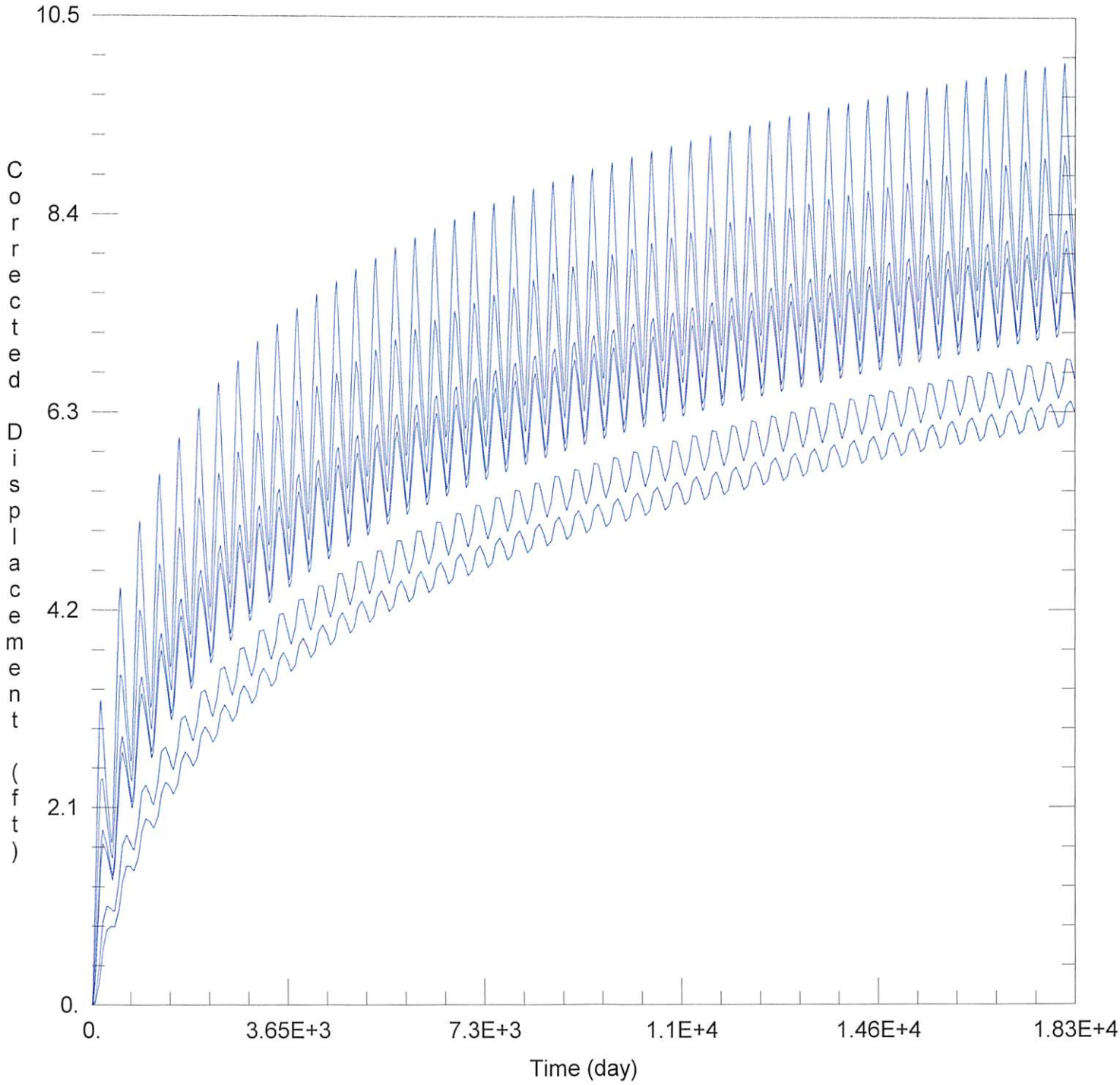
Physical Drawdown Constraint (PDC) = 345 ft – 20 ft = 325.0 ft

Total drawdown of 38.2 ft is less than the EDC and the PDC, so this well **is not critical.**

Conclusion:

The proposed move is in an aquifer area with abundant saturated thickness. The GMD3 model shows a low transmissivity value for the amount of saturated thickness available, indicating that wells operating at their current rates and quantities are likely creating significant drawdown effects on the aquifer. The proposed new well is likely to create large effects on remaining usable water level for neighboring wells, but no neighboring wells were flagged as critical because the remaining saturated thickness is likely

sufficient to maintain current operations 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\43662\43662 Proposed.aqt
Date: 01/22/24 Time: 16:31:46

PROJECT INFORMATION

Company: GMD 3
Project: 43662
Location: Stevens County

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
Proposed PD	-166718	47025

Observation Wells

Well Name	X (ft)	Y (ft)
□	-166718	47025
□ 41216 & 42827	-164783	44719