

Evaluation of proposed move for Water Right No. 28903

Proposed: Move water right no. 28903 to a new well location, 1085 ft to the southeast.



Wells within 1 mile: 18479, 7755, 12836, 5065, 27818, 3261 & 8172, and three domestic wells, numbered on the above map.

The saturated thickness at the proposed well location is estimated to be 148 ft, based upon the GMD3 model. For saturated thickness between 125 ft and 150 ft, the drawdown allowance is 3.0 ft.

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

$S = 0.1916$, $T = 11,001 \text{ ft}^2/\text{day}$, $tp_{\text{current}} = 276 \text{ days}$, $Q_{\text{current}} = 110 \text{ gpm}$, $tp_{\text{proposed}} = 116 \text{ days}$,
 $Q_{\text{proposed}} = 1400 \text{ gpm}$

Theis drawdowns were calculated as follows:

18479:	Drawdown from current location = 0.53 ft
	Drawdown from proposed location = 3.19 ft
	Net drawdown = 2.7 ft
7755:	Drawdown from current location = 0.61 ft
	Drawdown from proposed location = 3.27 ft
	Net drawdown = 2.7 ft

12836:	Drawdown from current location = 0.53 ft Drawdown from proposed location = 3.06 ft Net drawdown = 2.5 ft
5065:	Drawdown from current location = 0.65 ft Drawdown from proposed location = 5.01 ft Net drawdown = 4.4 ft
27818:	Drawdown from current location = 0.55 ft Drawdown from proposed location = 3.59 ft Net drawdown = 3.0 ft
3261 & 8172:	Drawdown from current location = 0.48 ft Drawdown from proposed location = 2.97 ft Net drawdown = 2.5 ft
Domestic 1:	Drawdown from current location = 0.60 ft Drawdown from proposed location = 3.04 ft Net drawdown = 2.4 ft
Domestic 2:	Drawdown from current location = 0.73 ft Drawdown from proposed location = 6.35 ft Net drawdown = 5.6 ft
Domestic 3:	Drawdown from current location = 0.51 ft Drawdown from proposed location = 3.11 ft Net drawdown = 2.6 ft

Net drawdown exceeds the drawdown allowance of 3.0 ft for all water right no. 5065 and domestic well no. 2. Critical well analysis is necessary on those wells.

Critical Well Evaluation:**5065:**

Water Column = 156 ft

DP = 4.4 ft (Net drawdown from the proposal indicated above)

DE = 66.5 ft (Water level decline from 2022 through 2047 based upon GMD3 model)

DD = 14.4 ft ($S = 0.1726$, $T = 14,038 \text{ ft}^2/\text{day}$, $Q = 547 \text{ gpm}$, $tp = 120 \text{ days}$, efficiency = 70%)

DT = 85.3 ft

Economic Drawdown Constraint (EDC) = $0.4 * 156 \text{ ft} = 62.4 \text{ ft}$

Physical Drawdown Constraint (PDC) = $156 \text{ ft} - 60 \text{ ft} = 96 \text{ ft}$

Total drawdown of 85.3 ft is greater than the EDC, so this well is **critical**.

Domestic 2:

Water Column = 156 ft

DP = 5.6 ft (Net drawdown from the proposal indicated above)

DE = 66.5 ft (Water level decline from 2022 through 2047 based upon GMD3 model)

DT = 72.1 ft

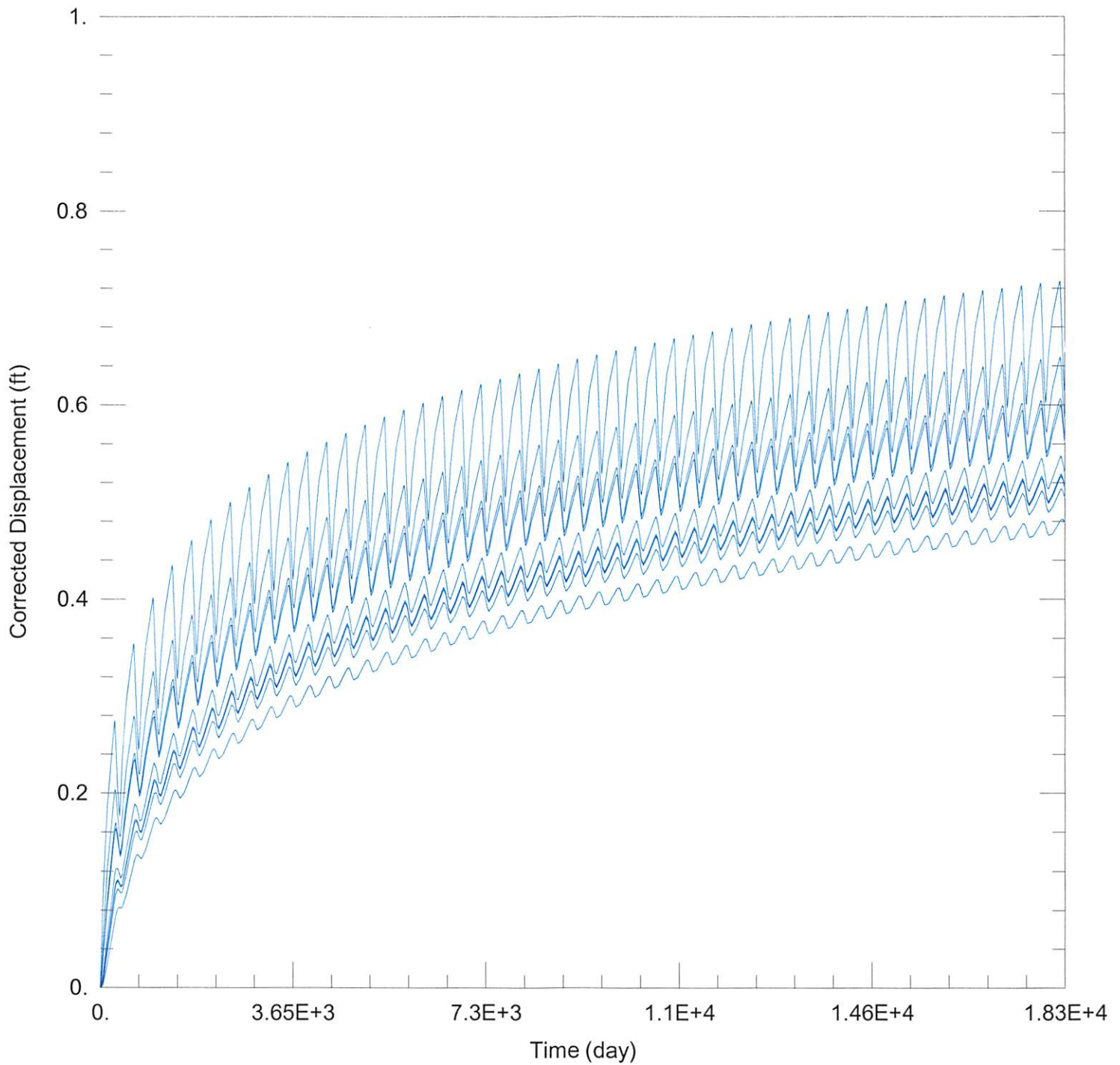
Economic Drawdown Constraint (EDC) = $0.4 * 156 \text{ ft} = 62.4 \text{ ft}$

Physical Drawdown Constraint (PDC) = $156 \text{ ft} - 20 \text{ ft} = 136 \text{ ft}$

Total drawdown of 72.1 ft is greater than the EDC, so this well is **critical**.

Conclusion:

The proposed move is in an area with less than 150 ft saturated thickness and the GMD3 model predicts declines exceeding 40% of the remaining saturated thickness over the next 25 years. Modeled aquifer characteristics are somewhat favorable, so most wells within 1 mile of the proposal are unlikely to have noticeable effects on performance due to the proposed move. The two closest wells, water right no. 5065 and the well labeled Domestic 2 on the map, will have effects exceeding 4 ft if the proposed well operates at its fully authorized rate and quantity. These effects might noticeably affect performance over the next several years, given the already lowered saturated thickness and projected rate of decline. Any concerned neighbor may 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\2022_moves\28903\28903 Current.aqt

Date: 10/24/22

Time: 14:31:08

PROJECT INFORMATION

Company: GMD 3

Project: 28903

Location: Haskell County

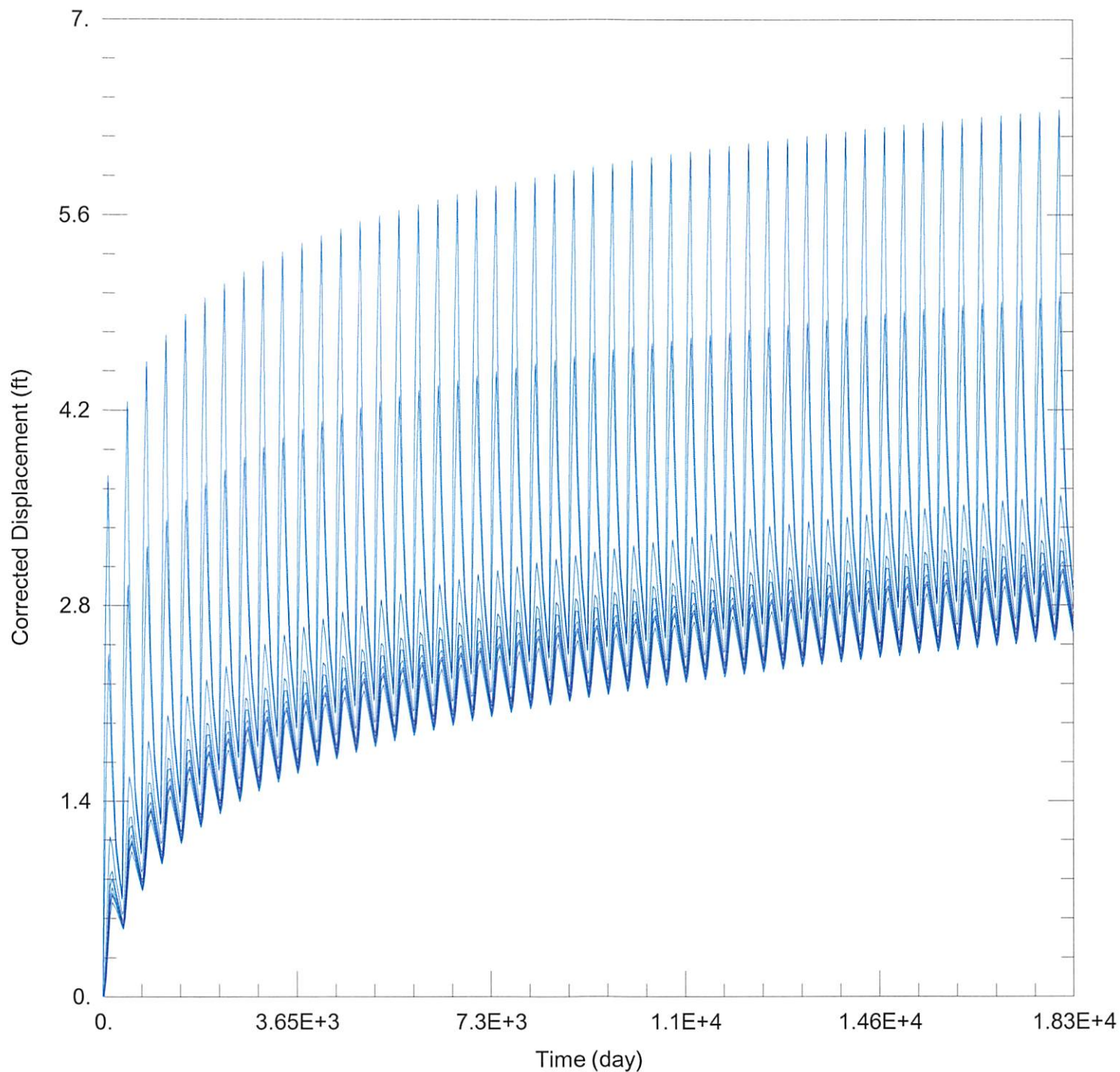
WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
28903	-7186	213088

Observation Wells

Well Name	X (ft)	Y (ft)
□	-7186	213088



WELL TEST ANALYSIS

Data Set: C:\Users\trevora\Documents\2022_moves\28903\28903 Proposed.aqt

Date: 10/24/22

Time: 14:31:01

PROJECT INFORMATION

Company: GMD 3

Project: 28903

Location: Haskell County

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
28903	-6164	212723

Observation Wells

Well Name	X (ft)	Y (ft)
□	-6164	212723