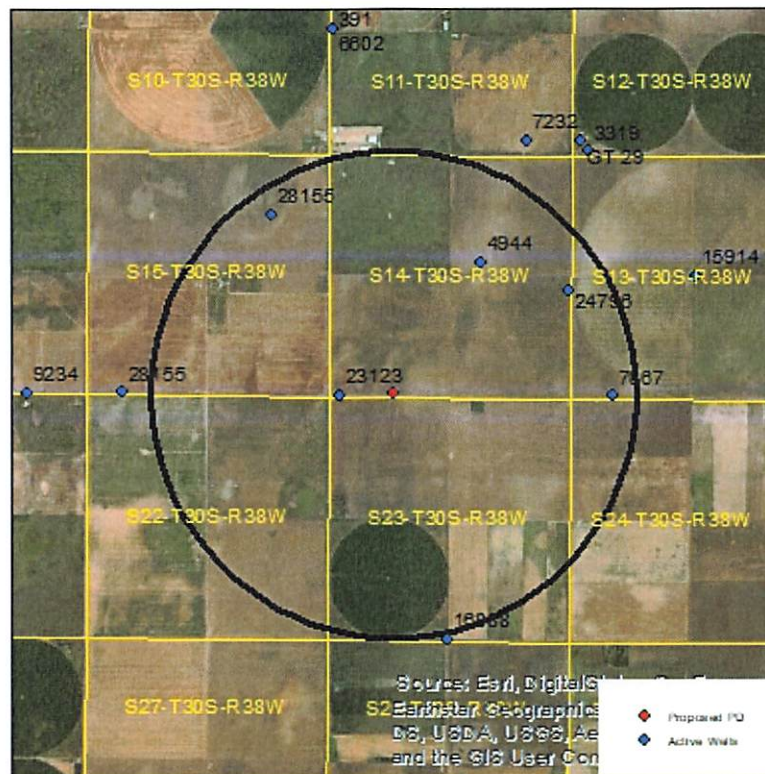


Evaluation of proposed move for Water Right No. 23123

Proposed: Move water right no. 23123 to its former well location, 1162 ft to the east.



Wells within 1 mile: 28155, 4944, 24796, and 7067.

The saturated thickness at the proposed well location is estimated to be 154 ft, based upon an observation well in section 13-30-38 and the driller's log. 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:

$S = 0.1548$, $T = 2636 \text{ ft}^2/\text{day}$, $tp_{\text{current}} = 308 \text{ days}$, $Q_{\text{current}} = 98 \text{ gpm}$, $tp_{\text{proposed}} = 181 \text{ days}$, $Q_{\text{proposed}} = 800 \text{ gpm}$

Theis drawdowns were calculated as follows:

28155:	Drawdown from current location = 1.80 ft
	Drawdown from proposed location = 8.12 ft
	Net drawdown = 6.3 ft
4944:	Drawdown from current location = 1.79 ft
	Drawdown from proposed location = 9.72 ft
	Net drawdown = 7.9 ft

24796: Drawdown from current location = 1.53 ft
Drawdown from proposed location = 8.43 ft
Net drawdown = **6.9 ft**

7067: Drawdown from current location = 1.45 ft
Drawdown from proposed location = 8.04 ft
Net drawdown = **6.6 ft**

Net drawdown exceeds the drawdown allowance of 3.5 ft for all wells within 1 mile of the proposed location. Critical well analysis is necessary on those wells.

Critical Well Evaluation:

28155:

Water Column = 129 ft

DP = 6.3 ft (Net drawdown from the proposal indicated above)

DE = 45.9 ft (Water level decline from 2022 through 2047 based upon GMD3 model)

DD = 0 ft (No recent water use)

DT = 52.2ft

Economic Drawdown Constraint (EDC) = $0.4 * 129 \text{ ft} = 51.6 \text{ ft}$

Physical Drawdown Constraint (PDC) = $129 \text{ ft} - 60 \text{ ft} = 69.0 \text{ ft}$

Total drawdown of 52.2 ft is greater than the EDC, so this well is **critical**.

4944:

Water Column = 147 ft

DP = 7.9 ft (Net drawdown from the proposal indicated above)

DE = 43.2 ft (Water level decline from 2022 through 2047 based upon GMD3 model)

DD = 0 ft (No recent water use)

DT = 51.1 ft

Economic Drawdown Constraint (EDC) = $0.4 * 147 \text{ ft} = 58.8 \text{ ft}$

Physical Drawdown Constraint (PDC) = $147 \text{ ft} - 60 \text{ ft} = 87 \text{ ft}$

Total drawdown of 51.1 ft is less than the EDC and PDC, so this well is **not critical**.

24796:

Water Column = 187 ft

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

DE = 43.2 ft (Water level decline from 2022 through 2047 based upon GMD3 model)

DD = 23.4 ft ($S = 0.1548$, $T = 19,718$ gpd/ft, $Q = 175$ gpm, $tp = 252$ days, efficiency = 70%)

DT = 73.5 ft

Economic Drawdown Constraint (EDC) = $0.4 * 187 \text{ ft} = 74.8 \text{ ft}$

Physical Drawdown Constraint (PDC) = $187 \text{ ft} - 60 \text{ ft} = 127.0 \text{ ft}$

Total drawdown of 73.5 ft is less than the EDC and PDC, so this well is **not critical**.

7067:

Water Column = 152 ft

DP = 6.6 ft (Net drawdown from the proposal indicated above)

DE = 36.6 ft (Water level decline from 2022 through 2047 based upon GMD3 model)

DD = 97.3 ft ($S = 0.1287$, $T = 11,276$ gpd/ft, $Q = 433$ gpm, $tp = 200$ days, efficiency = 70%)

DT = 140.5 ft

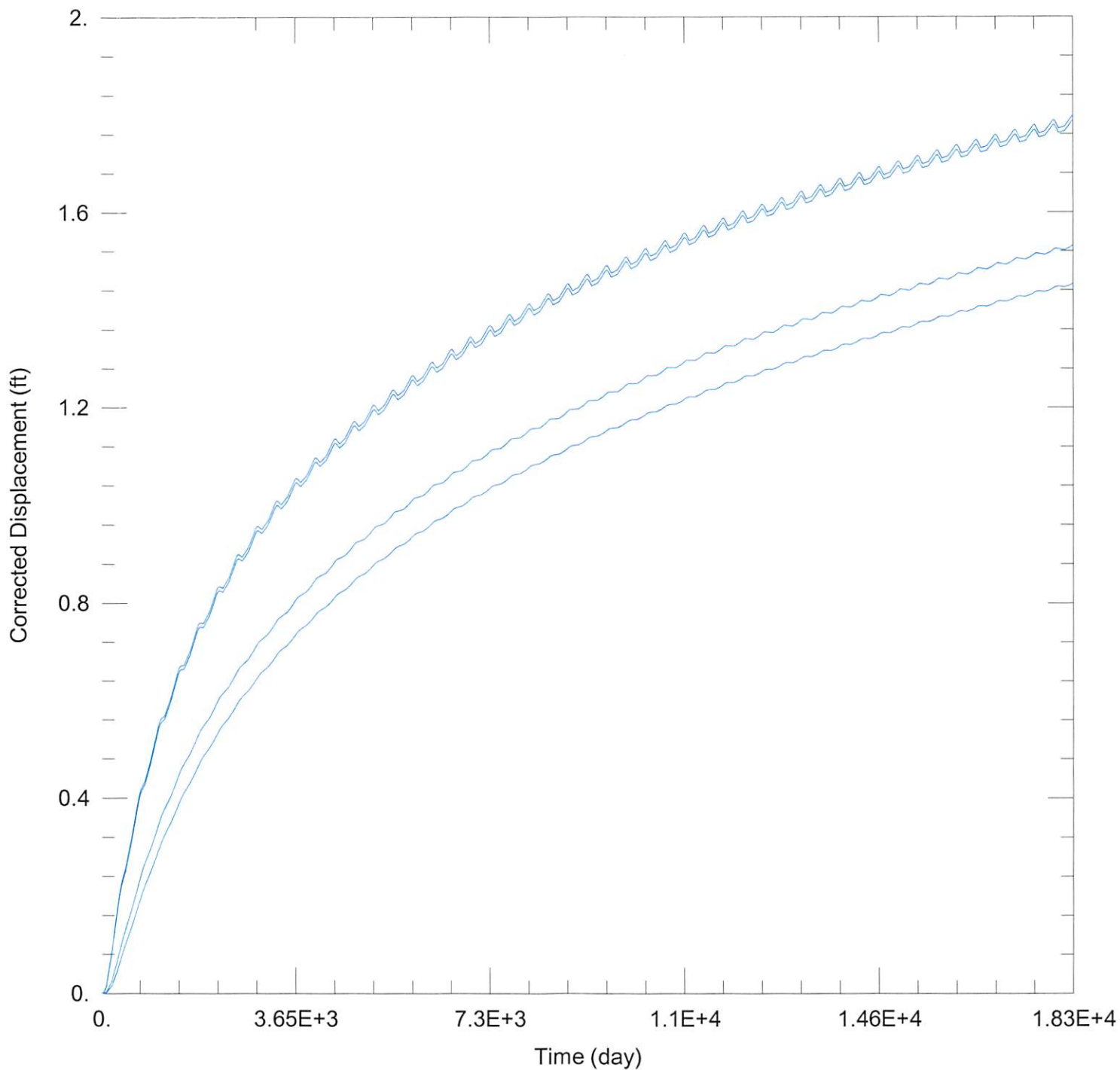
Economic Drawdown Constraint (EDC) = $0.4 * 152 \text{ ft} = 60.8 \text{ ft}$

Physical Drawdown Constraint (PDC) = $152 \text{ ft} - 60 \text{ ft} = 92.0 \text{ ft}$

Total drawdown of 140.5 ft is greater than the EDC and PDC, so this well is **critical**.

Conclusion:

The proposed move is in an area with depleted well conditions and declining aquifer levels. If the proposed well were to pump its full authorized authority, there would likely be a noticeable drawdown effect on all neighboring wells. Critical well analysis shows that water right numbers 28155 and 7067 are critical because after accounting for well drawdown effects, the remaining saturated thickness will decline by more than 40% in 25 years. Note that the proposed well location is not a new construction, and it is likely that the output will far less than the full authority of 800 gpm and 640 AF. Concerned neighbors can 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\23123\23123 Current.aqt

Date: 07/26/22

Time: 08:58:33

PROJECT INFORMATION

Company: GMD 3

Project: 23123

Location: Grant County

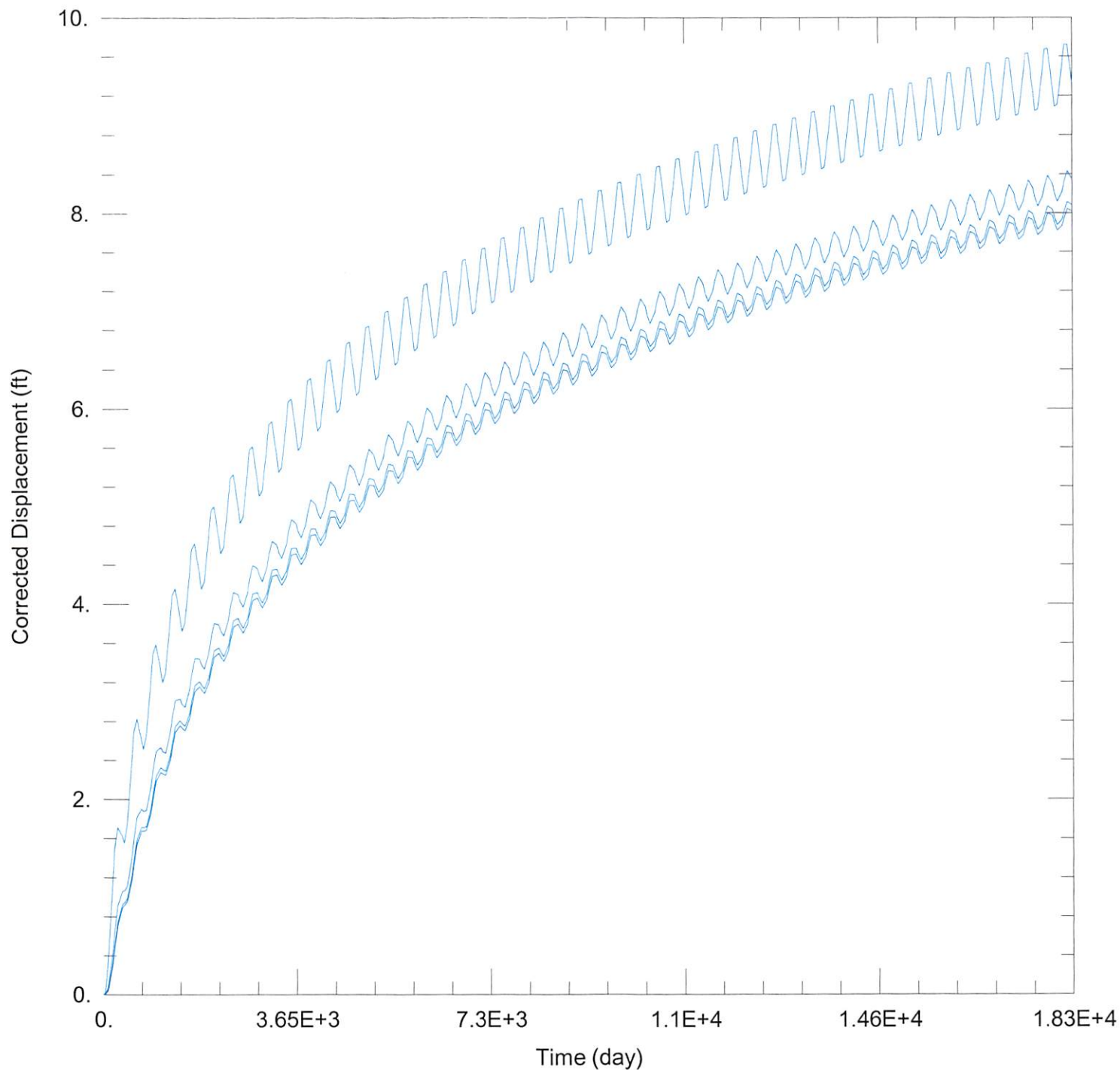
WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
23123	-189510	203401

Observation Wells

Well Name	X (ft)	Y (ft)
□	-189510	203401



WELL TEST ANALYSIS

Data Set: C:\Users\trevora\Documents\2022_moves\23123\23123 Proposed.aqt

Date: 07/26/22

Time: 16:25:52

PROJECT INFORMATION

Company: GMD 3

Project: 23123

Location: Grant County

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
23123	-188348	203407

Observation Wells

Well Name	X (ft)	Y (ft)
□	-188348	203407