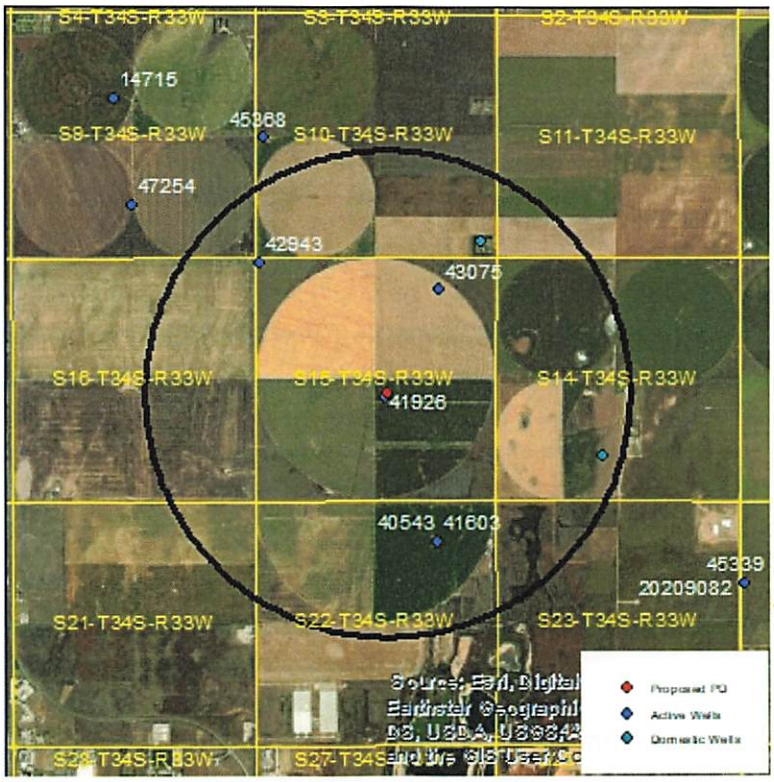
Evaluation of proposed move for Water Right Nos. 41296 and 43075

Proposed: Move water right nos. 41296 and 43075 to a new well location, 127 ft to the northeast of 41296 and 2,513 ft to the southwest of 43075.



Wells within 1 mile: 42943, 40543 & 41603, a domestic well in section 10-34-33, and a domestic well in section 14-34-33.

The saturated thickness at the proposed well location is estimated to be 377 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 = 0.1906, T = 6613 ft^2/day,

41926: $tp_{current}$ = 82 days, $Q_{current}$ = 609 gpm

43075: $tp_{current}$ = 66 days, $Q_{current}$ = 1237 gpm

$tp_{proposed}$ = 91 days, $Q_{proposed}$ = 2590 gpm

Theis drawdowns were calculated as follows:

42943: Drawdown from current location = 4.10 ft

Drawdown from proposed location = 7.33 ft

Net drawdown = **3.2 ft**

40543 & 41603:	Drawdown from current location = 3.81 ft
	Drawdown from proposed location = 8.10 ft
	Net drawdown = **4.3 ft**
Domestic 10-34-33:	Drawdown from current location = 6.95 ft
	Drawdown from proposed location = 7.44 ft
	Net drawdown = **0.5 ft**
Domestic 14-34-33:	Drawdown from current location = 3.53 ft
	Drawdown from proposed location = 6.41 ft
	Net drawdown = **2.9 ft**

Net drawdown exceeds the drawdown allowance of 4.0 ft for water right nos. 40543 & 41603. Critical well analysis is necessary on that well.

Critical Well Evaluation:

40543 & 41603:

Water Column = 389 ft

DP = 4.3 ft (Net drawdown from the proposal indicated above)

DE = 32.2 ft (Water level decline from 2022 through 2047 based upon GMD3 model)

DD = 43.8 ft (S = 0.169, T = 41,864 gpd/ft, Q = 715 gpm, tp = 86 days, efficiency = 70%)

DT = 80.3 ft

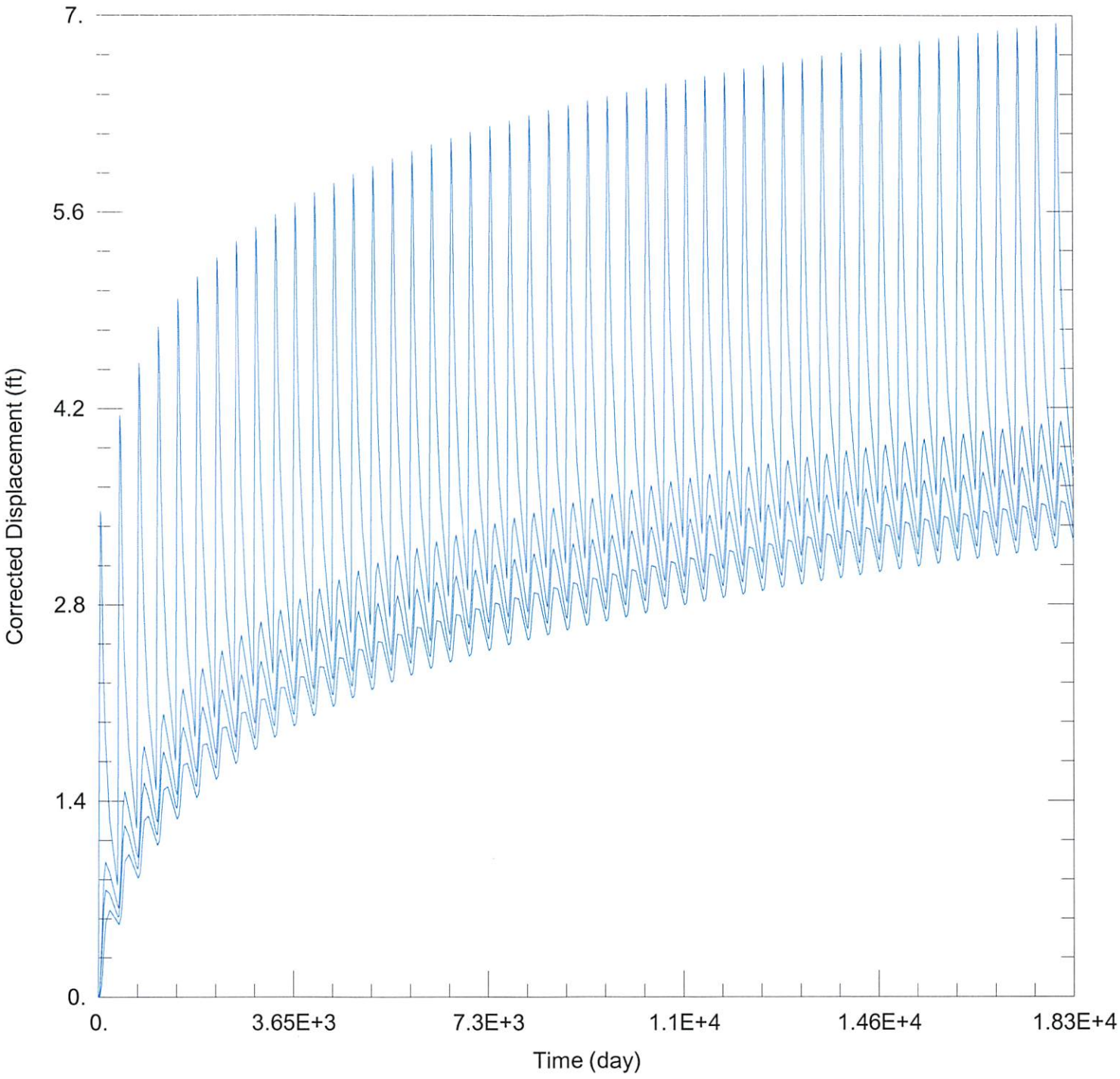
Economic Drawdown Constraint (EDC) = 0.4 * 389 ft = 155.6 ft

Physical Drawdown Constraint (PDC) = 389 ft – 60 ft = 329 ft

Total drawdown of 80.3 ft is less than the EDC and PDC, so this well **is not critical.**

Conclusion:

The proposed move is in an area with more than 300 ft saturated thickness and aquifer properties that allow for some productive wells. This proposal will stack two large water rights onto a single well location, and if the well is operated at its fully authorized rate and quantity, it may produce an additional well-to-well drawdown effect exceeding 4 ft at the well to the south authorized under water right nos. 40543 & 41603. Critical well analysis showed that there is sufficient saturated thickness at this location, accounting for modeled aquifer conditions and well drawdown effects, that impairment due to this proposal is unlikely. 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\2022_moves\43075\43075 Current.aqt
Date: 08/10/22 Time: 10:49:02

PROJECT INFORMATION

Company: GMD 3
Project: 43075
Location: Seward County

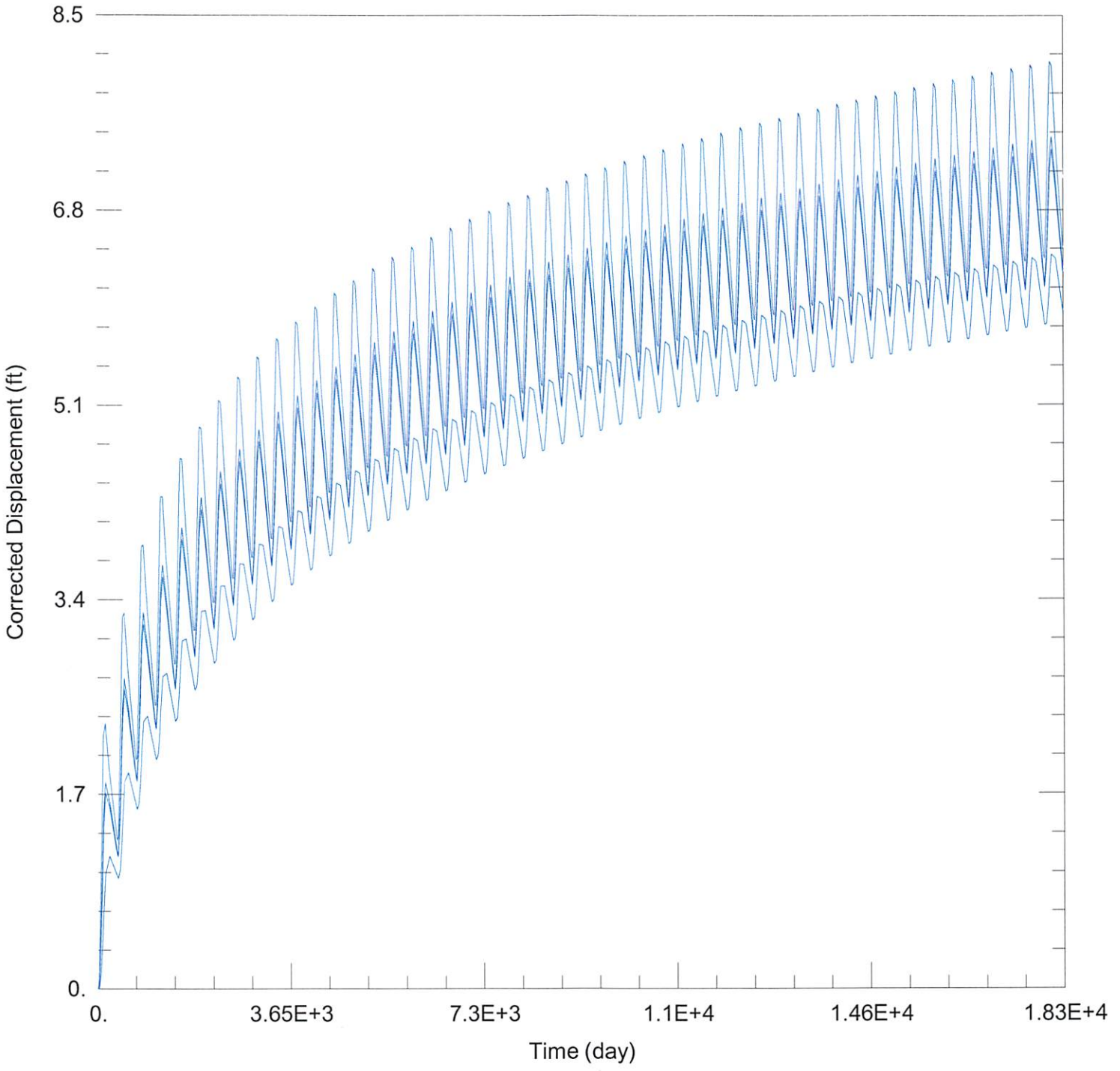
WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
41926	-27751	78109

Observation Wells

Well Name	X (ft)	Y (ft)
□	-27751	78109



WELL TEST ANALYSIS

Data Set: C:\Users\trevora\Documents\2022_moves\43075\43075 Proposed.aqt
Date: 08/10/22 Time: 10:48:57

PROJECT INFORMATION

Company: GMD 3
Project: 43075
Location: Seward County

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
Proposed PD	-27687	78218

Observation Wells

Well Name	X (ft)	Y (ft)
□	-27687	78218