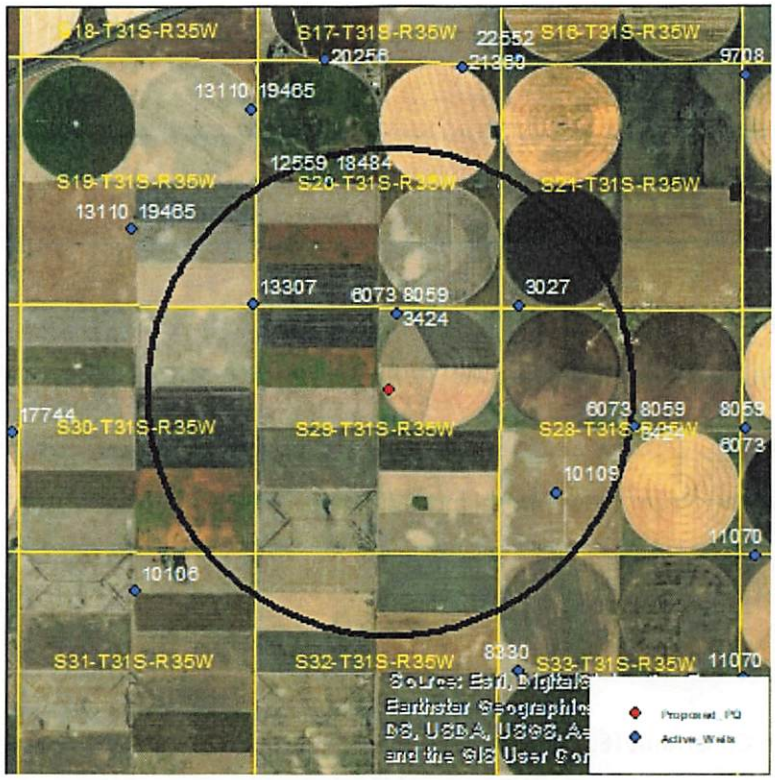
Evaluation of proposed move for Water Right Nos. 3424 & 6073 & 8059

Proposed: Move water right nos. 3424 & 6073 & 8059 ID4 to a new well location, 1,690 ft to the southwest.



Wells within 1 mile: 13307, 12559 & 18484, 3027, and 10109.

The saturated thickness at the proposed well location is estimated to be 200 ft, based upon the GMD3 model. 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 = 0.124, T = 11,251 ft^2/day, $tp_{current}$ = 144 days, $Q_{current}$ = 194 gpm, $tp_{proposed}$ = 94 days, $Q_{proposed}$ = 2408 gpm

Theis drawdowns were calculated as follows:

13307:	Drawdown from current location = 0.77 ft
	Drawdown from proposed location = 6.21 ft
	Net drawdown = **5.4 ft**
12559 & 18484:	Drawdown from current location = 0.76 ft
	Drawdown from proposed location = 5.05 ft
	Net drawdown = **4.3 ft**

3027:	Drawdown from current location = 0.85 ft
	Drawdown from proposed location = 6.43 ft
	Net drawdown = **5.6 ft**
10109:	Drawdown from current location = 0.57 ft
	Drawdown from proposed location = 5.46 ft
	Net drawdown = **4.9 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:

13307:

Water Column = 182 ft

DP = 5.4 ft (Net drawdown from the proposal indicated above)

DE = 44.6 ft (Water level decline from 2023 through 2048 based upon GMD3 model)

DD = 0 ft (No well use in the last 10 years)

DT = 50.0 ft

Economic Drawdown Constraint (EDC) = 0.4 * 182 ft = 72.8 ft

Physical Drawdown Constraint (PDC) = 182 ft – 60 ft = 122 ft

Total drawdown of 50.0 ft is less than the EDC and the PDC, so this well **is not critical.**

12559 & 18484:

Water Column = 160 ft

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

DE = 42.7 ft (Water level decline from 2023 through 2048 based upon GMD3 model)

DD = 31.3 ft (S = 0.1359, T = 2595 ft^2/day, Q = 675 gpm, tp = 119 days, efficiency = 70%)

DT = 79.6 ft

Economic Drawdown Constraint (EDC) = 0.4 * 160 ft = 64.0 ft

Physical Drawdown Constraint (PDC) = 160 ft – 60 ft = 100 ft

Total drawdown of 79.6 ft is greater than the EDC, so this well **is critical.**

3027:

Water Column = 161 ft

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

DE = 42.7 ft (Water level decline from 2023 through 2048 based upon GMD3 model)

DD = 31.3 ft (S = 0.0762, T = 8113 ft^2/day, Q = 675 gpm, tp = 119 days, efficiency = 70%)

DT = 79.6 ft

Economic Drawdown Constraint (EDC) = 0.4 * 161 ft = 64.4 ft

Physical Drawdown Constraint (PDC) = 161 ft – 60 ft = 101 ft

Total drawdown of 79.6 ft is greater than the EDC, so this well **is critical.**

10109:

Water Column = 168 ft

DP = 4.9 ft (Net drawdown from the proposal indicated above)

DE = 45.0 ft (Water level decline from 2023 through 2048 based upon GMD3 model)

DD = 0 ft (No well use in the last 10 years)

DT = 49.9 ft

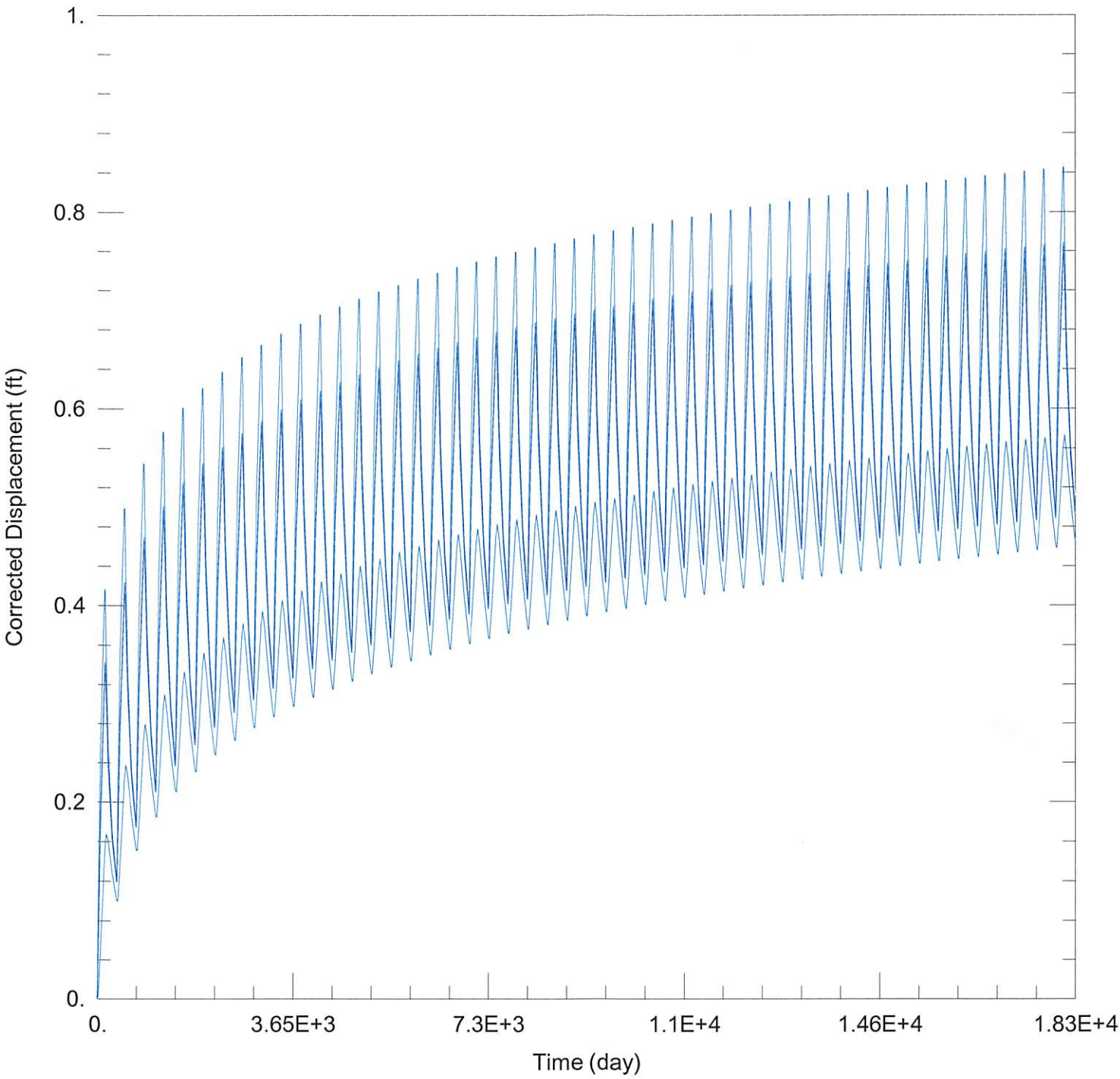
Economic Drawdown Constraint (EDC) = 0.4 * 168 ft = 67.2 ft

Physical Drawdown Constraint (PDC) = 168 ft – 60 ft = 108 ft

Total drawdown of 49.9 ft is less than the EDC and PDC, so this well **is not critical.**

Conclusion:

The proposed move includes three water rights that are split over three wells with a blanket authorized rate and quantity of 3480 gpm and 1600 AF. For this analysis, it was assumed that the two wells that are not proposed to be moved will continue to operate at their current rates and quantities, allowing for up to 2408 gpm and 1004.5 AF at the proposed well location. It is very unlikely that the proposed well will be able to run at that rate or will pump that quantity of water, but it would be permitted to do so. If the proposed well were to operate at its fully authorized rate and quantity, it is likely that a noticeable effect would be generated on two nearby critical wells. These wells were flagged as critical because the GMD3 model projects that they will lose more than 40% of the aquifer necessary to provide their current production 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\2023_moves\3424_6073_8059\3424 & 6073 & 8059 Current.aqt
Date: 03/15/23 Time: 15:15:19

PROJECT INFORMATION

Company: GMD 3
Project: 3424 & 6073 & 8059
Location: Stevens County

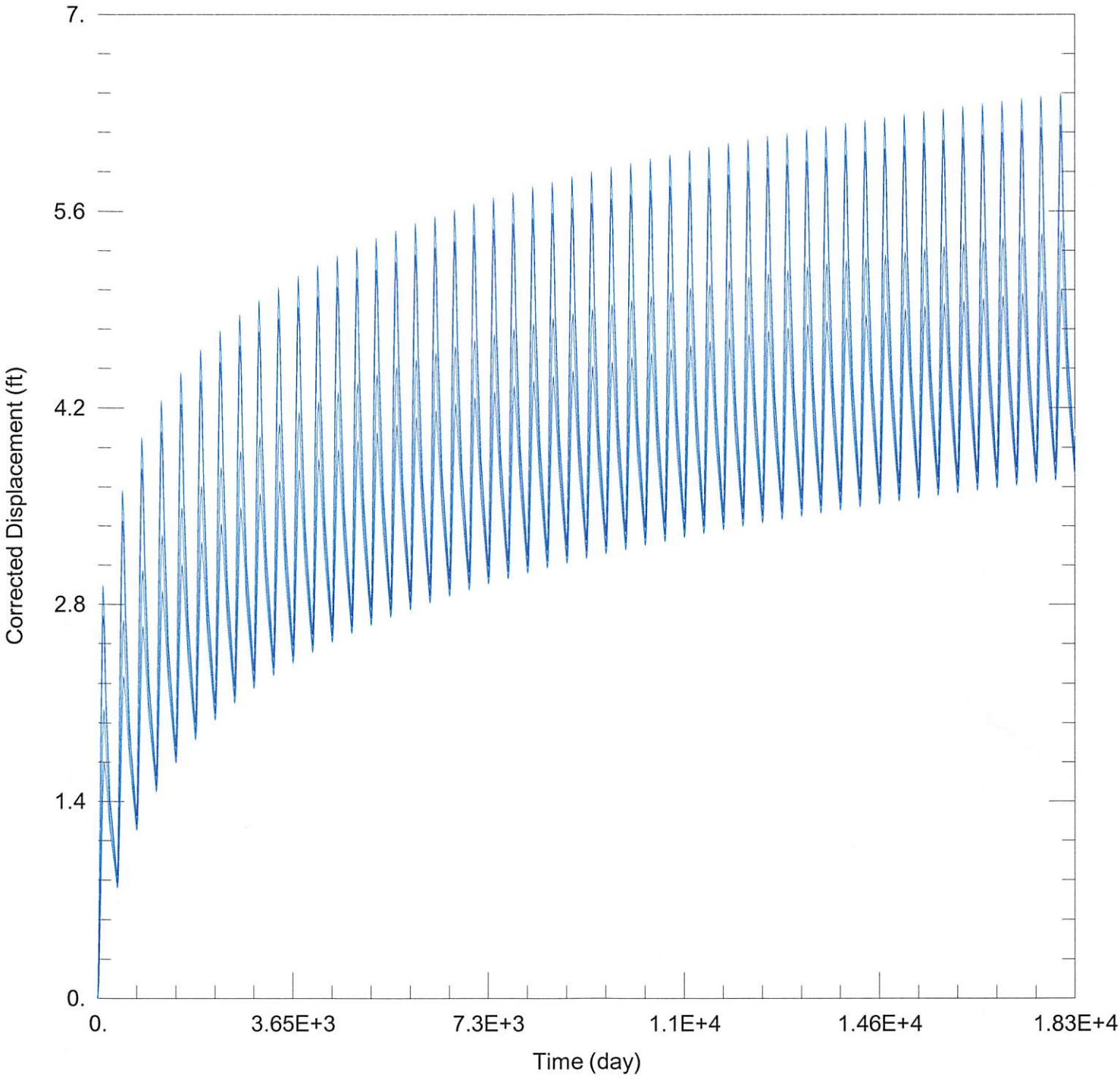
WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
3424 & 6073 & 8059	-101393	165480

Observation Wells

Well Name	X (ft)	Y (ft)
□	-101393	165480



WELL TEST ANALYSIS

Data Set: C:\...\3424 & 6073 & 8059 Proposed.aqt
Date: 03/15/23 Time: 15:15:13

PROJECT INFORMATION

Company: GMD 3
Project: 3424 & 6073 & 8059
Location: Stevens County

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
3424 & 6073 & 8059	-101562	163799

Observation Wells

Well Name	X (ft)	Y (ft)
□	-101562	163799