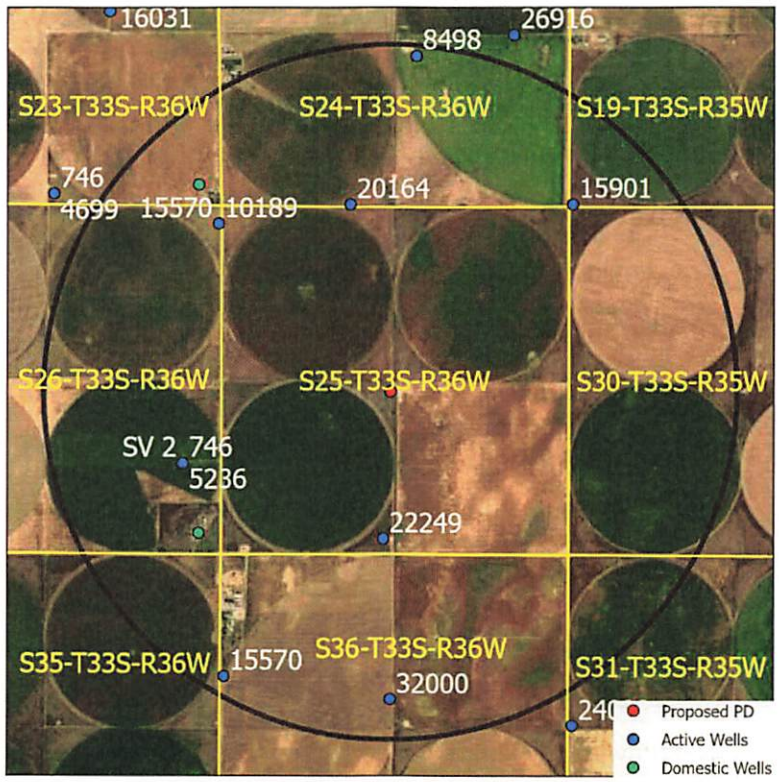
Evaluation of proposed move for Water Right No. 22249

Proposed: Move water right no. 22249 to a new well location, 2,239 ft to the north.



Wells within 1 mile: 10189 & 15570, 20164, 8498, 15901, SV 2 & 746 & 5236, 15570, 32000, a domestic well in section 23-33-36, and a domestic well in section 26-33-36.

The saturated thickness at the proposed well location is estimated to be 218 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 = 0.054, T = 8928 ft^2/day, $tp_{current}$ = 120 days, $Q_{current}$ = 573 gpm, $tp_{proposed}$ = 101 days, $Q_{proposed}$ = 1770 gpm

Theis drawdowns were calculated as follows:

10189 & 15570:	Drawdown from current location = 2.11 ft
	Drawdown from proposed location = 7.32 ft
	Net drawdown = **5.2 ft**
20164:	Drawdown from current location = 2.20 ft
	Drawdown from proposed location = 8.46 ft
	Net drawdown = **6.3 ft**

8498:	Drawdown from current location = 1.74 ft
	Drawdown from proposed location = 4.06 ft
	Net drawdown = **4.1 ft**
15901:	Drawdown from current location = 2.01 ft
	Drawdown from proposed location = 6.95 ft
	Net drawdown = **4.9 ft**
SV 2 & 746 & 5236:	Drawdown from current location = 2.89 ft
	Drawdown from proposed location = 7.72 ft
	Net drawdown = **4.8 ft**
15570:	Drawdown from current location = 2.93 ft
	Drawdown from proposed location = 5.90 ft
	Net drawdown = **3.0 ft**
32000:	Drawdown from current location = 3.42 ft
	Drawdown from proposed location = 6.21 ft
	Net drawdown = **2.8 ft**
Domestic 23-33-36:	Drawdown from current location = 1.97 ft
	Drawdown from proposed location = 6.60 ft
	Net drawdown = **4.6 ft**
Domestic 26-33-36:	Drawdown from current location = 3.15 ft
	Drawdown from proposed location = 7.36 ft
	Net drawdown = **4.2 ft**

Net drawdown exceeds the drawdown allowance for the wells authorized under water right nos. 10189 & 15570, 20164, 8498, 15901, SV 2 & 746 & 5236, the domestic well in section 23-33-36, and the domestic well in section 26-33-36. Critical well analysis was performed for those wells.

Critical Well Evaluation:

10189 & 15570:

Water Column = 136 ft

DP = 5.2 ft (Net drawdown from the proposal indicated above)

DE = 31.2 ft (Water level decline from 2024 through 2049 based upon GMD3 model)

DD = 76.1 ft (S = 0.034, T = 3881 ft^2/day, Q = 789 gpm, tp = 107 days, efficiency = 70%)

DT = 112.5 ft

Economic Drawdown Constraint (EDC) = 0.4 * 136 ft = 54.4 ft

Physical Drawdown Constraint (PDC) = 136 ft – 60 ft = 76 ft

Total drawdown of 112.5 ft is greater than the EDC and the PDC, so this well **is critical.**

20164:

Water Column = 136 ft

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

DE = 31.2 ft (Water level decline from 2024 through 2049 based upon GMD3 model)

DD = 95.0 ft (S = 0.034, T = 3881 ft^2/day, Q = 990 gpm, tp = 97 days, efficiency = 70%)

DT = 132.5 ft

Economic Drawdown Constraint (EDC) = 0.4 * 136 ft = 54.4 ft

Physical Drawdown Constraint (PDC) = 136 ft – 60 ft = 76 ft

Total drawdown of 132.5 ft exceeds the EDC and the PDC, so this well **is critical.**

8498:

Water Column = 224 ft

DP = 4.1 ft (Net drawdown from the proposal indicated above)

DE = 32.7 ft (Water level decline from 2024 through 2049 based upon GMD3 model)

DD = 37.3 ft (S = 0.037, T = 9372 ft^2/day, Q = 887 gpm, tp = 120 days, efficiency = 70%)

DT = 74.1 ft

Economic Drawdown Constraint (EDC) = 0.4 * 224 ft = 89.6 ft

Physical Drawdown Constraint (PDC) = 224 ft – 60 ft = 164 ft

Total drawdown of 74.1 ft is less than the EDC and the PDC, so this well **is not critical.**

15901:

Water Column = 268 ft

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

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

DD = 23.7 ft (S = 0.036, T = 10,735 ft^2/day, Q = 620 gpm, tp = 204 days, efficiency = 70%)

DT = 59.9 ft

Economic Drawdown Constraint (EDC) = 0.4 * 268 ft = 107.2 ft

Physical Drawdown Constraint (PDC) = 268 ft – 60 ft = 208 ft

Total drawdown of 59.9 ft is less than the EDC and the PDC, so this well **is not critical.**

SV 2 & 746 & 5236:

Water Column = 124 ft

DP = 4.8 ft (Net drawdown from the proposal indicated above)

DE = 29.8 ft (Water level decline from 2024 through 2049 based upon GMD3 model)

DD = 34.7 ft (S = 0.041, T = 3496 ft^2/day, Q = 326 gpm, tp = 130 days, efficiency = 70%)

DT = 69.3 ft

Economic Drawdown Constraint (EDC) = 0.4 * 124 ft = 49.6 ft

Physical Drawdown Constraint (PDC) = 124 ft – 60 ft = 64 ft

Total drawdown of 69.3 ft exceeds the EDC and the PDC, so this well **is critical.**

Domestic 23-33-36:

Water Column = 126 ft

DP = 4.6 ft (Net drawdown from the proposal indicated above)

DE = 30.6 ft (Water level decline from 2024 through 2049 based upon GMD3 model)

DT = 35.2 ft

Economic Drawdown Constraint (EDC) = 0.4 * 126 ft = 50.4 ft

Physical Drawdown Constraint (PDC) = 126 ft – 20 ft = 106 ft

Total drawdown of 35.2 ft is less than the EDC and the PDC, so this well **is not critical.**

Domestic 26-33-36:

Water Column = 178 ft

DP = 4.2 ft (Net drawdown from the proposal indicated above)

DE = 30.4 ft (Water level decline from 2024 through 2049 based upon GMD3 model)

DT = 34.6 ft

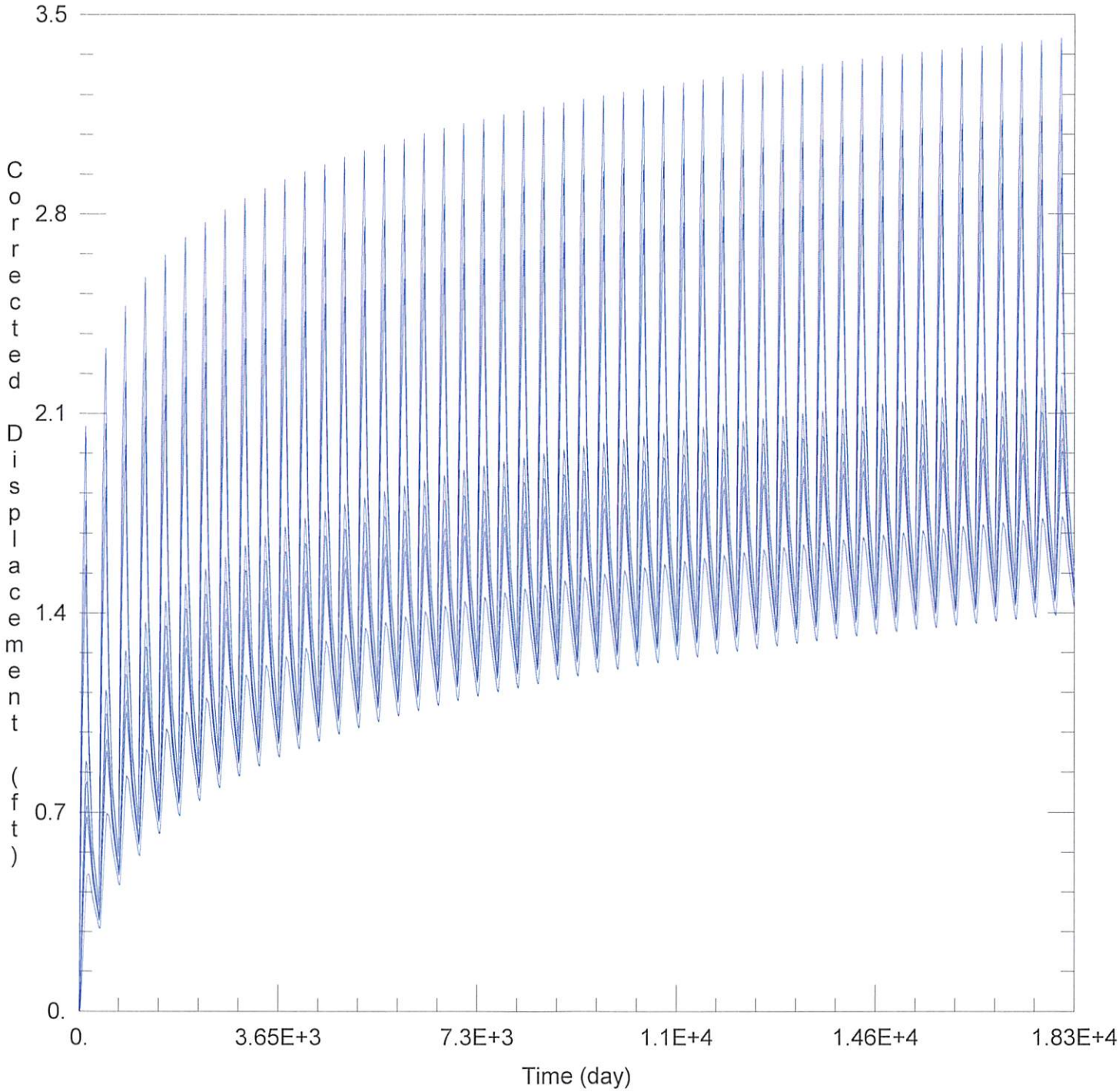
Economic Drawdown Constraint (EDC) = 0.4 * 178 ft = 71.2 ft

Physical Drawdown Constraint (PDC) = 178 ft – 20 ft = 158 ft

Total drawdown of 34.6 ft is less than the EDC and the PDC, so this well **is not critical.**

Conclusion:

The proposed move is in an area where the aquifer's saturated thickness and transmissivity varies significantly over short distances. The analysis shows that if the proposed well is pumped to its full authorized authority, net well-to-well effects created by this proposal are likely to be small but noticeable. Nearby wells authorized under water right numbers 10189 & 15570, 20164, and SV 2 & 746 & 5236 were flagged as critical because projected declines of the usable aquifer over the next 25 years amount to more than 40% of the remaining saturated thickness, after accounting for the drawdown requirements to maintain current pumping rates. 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\22249\22249 Current.aqt
Date: 09/19/24 Time: 16:25:10

PROJECT INFORMATION

Company: GMD 3
Project: 22249
Location: Stevens County

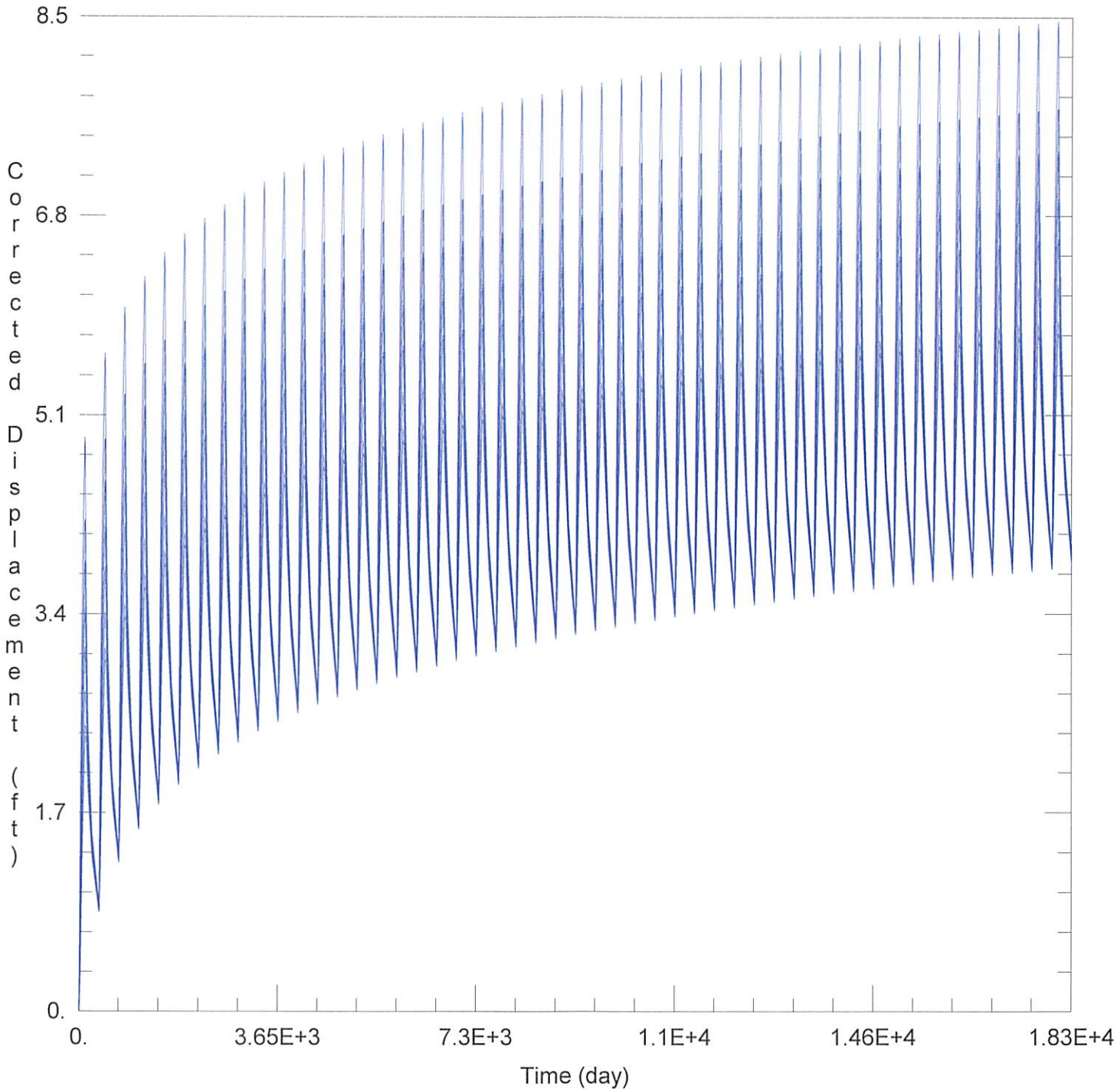
WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
22249	-112504	97362

Observation Wells

Well Name	X (ft)	Y (ft)
□	-112504	97362
□ 10189 & 15570	-115020	102146



WELL TEST ANALYSIS

Data Set: C:\Users\trevora\Documents\2024_moves\22249\22249 Proposed.aqt
Date: 09/19/24 Time: 16:24:59

PROJECT INFORMATION

Company: GMD 3
Project: 22249
Location: Stevens County

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
22249	-112398	99598

Observation Wells

Well Name	X (ft)	Y (ft)
□	-112398	99598
□ 10189 & 15570	-115020	102146