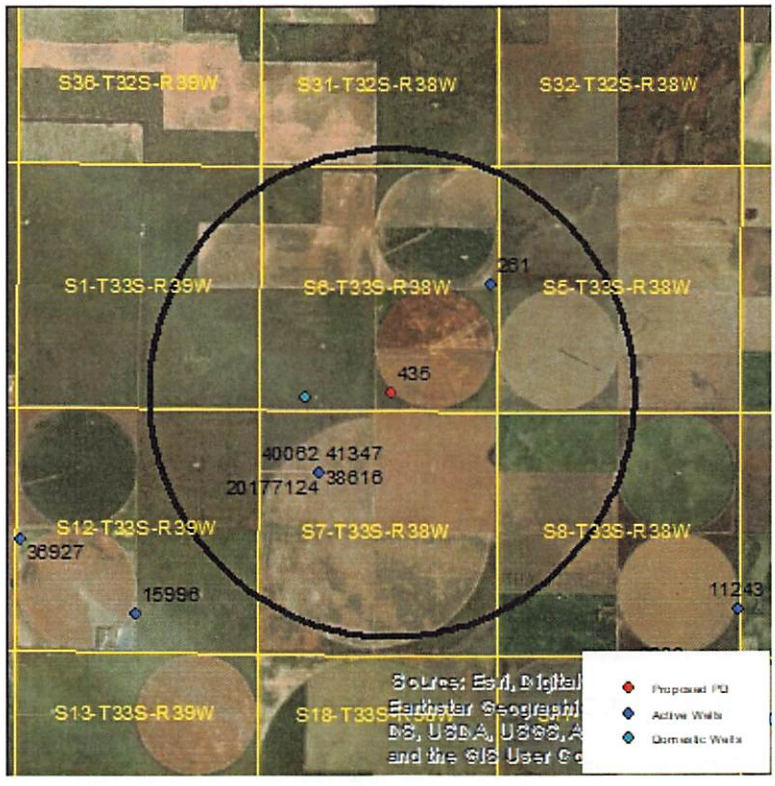
Evaluation of proposed move for Water Right Nos. 435, 38616, 40062, and 41347

Proposed: Move water right no. 435 to the well currently authorized under water right nos. 38616, 40062, and 41347, a distance of 2,332 ft to the southwest. Move water right nos. 38616, 40062, and 41347 to the well currently authorized under water right no. 435, a distance of 2,332 ft to the northeast. Total authority on the southwest well will be reduced from 1453AF @ 1800 gpm to 640 AF @ 1000 gpm. Total authority on the northeast well will be increased from 640 AF @ 1000 gpm to 1453 AF @ 1800 gpm.



Wells within 1 mile: 261 and a domestic well in section 6-33-38.

The saturated thickness at the proposed well location is estimated to be 226 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. (Note water right number indicates current well location. Proposed values apply to the well location, not the water right):

S = 0.05629, T = 11,204 ft^2/day,

435: $tp_{current}$ = 122 days, $Q_{current}$ = 1000 gpm, $tp_{proposed}$ = 183 days, $Q_{proposed}$ = 1800 gpm

38616 & 40062 & 41347: $tp_{current}$ = 153 days, $Q_{current}$ = 1390 gpm, $tp_{proposed}$ = 145 days, $Q_{proposed}$ = 1000 gpm

Theis drawdowns were calculated as follows:

261:	Drawdown from current location = 9.34 ft
	Drawdown from proposed location = 13.86 ft
	Net drawdown = **4.5 ft**
Domestic 6-33-38:	Drawdown from current location = 14.81 ft
	Drawdown from proposed location = 18.00 ft
	Net drawdown = **3.2 ft**

Net drawdown exceeds the drawdown allowance of 4.0 ft for the well authorized under water right no. 261. Critical well analysis is necessary on that well.

Critical Well Evaluation:

261:

Water Column = 226 ft

DP = 4.5 ft (Net drawdown from the proposal indicated above)

DE = 24.2 ft (Water level decline from 2021 through 2046 based upon GMD3 model)

DD = 10.5 ft (S = 0.05629, T = 83,808 gpd/ft, Q = 300 gpm, tp = 127 days, efficiency = 70%)

DT = 39.2 ft

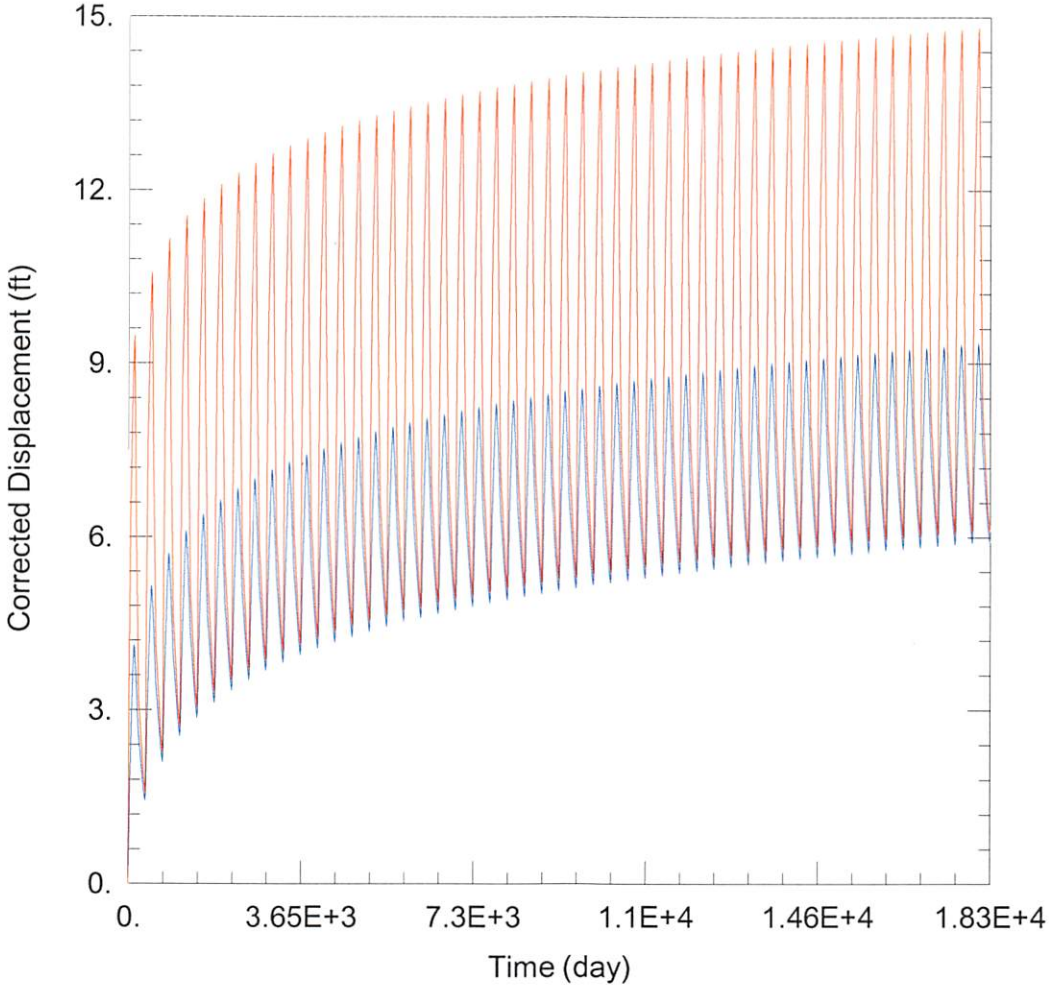
Economic Drawdown Constraint (EDC) = 0.4 * 226 ft = 90.4 ft

Physical Drawdown Constraint (PDC) = 226 ft – 60 ft = 166 ft

Total drawdown of 39.2 ft is less than the EDC and PDC, so this well **is not critical.**

Conclusion:

The proposed moves will create an effect on the well authorized under water right no. 261 that is likely to be noticeable. Saturated thickness, modeled declines, and aquifer parameters show that this water right will likely be able to access a similar rate and quantity to its current use over the next 25 years, accounting for the move. This well is also owned and operated by the Applicant. Therefore, GMD3 staff recommends approval of the application.



WELL TEST ANALYSIS

Data Set: C:\...\435_38616_40062_41347 Current.aqt
Date: 06/29/21 Time: 14:08:41

PROJECT INFORMATION

Company: GMD 3
Project: 435, 38616, 40062, 41347
Location: Stevens County

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
	-201602	119105
	-203158	117368

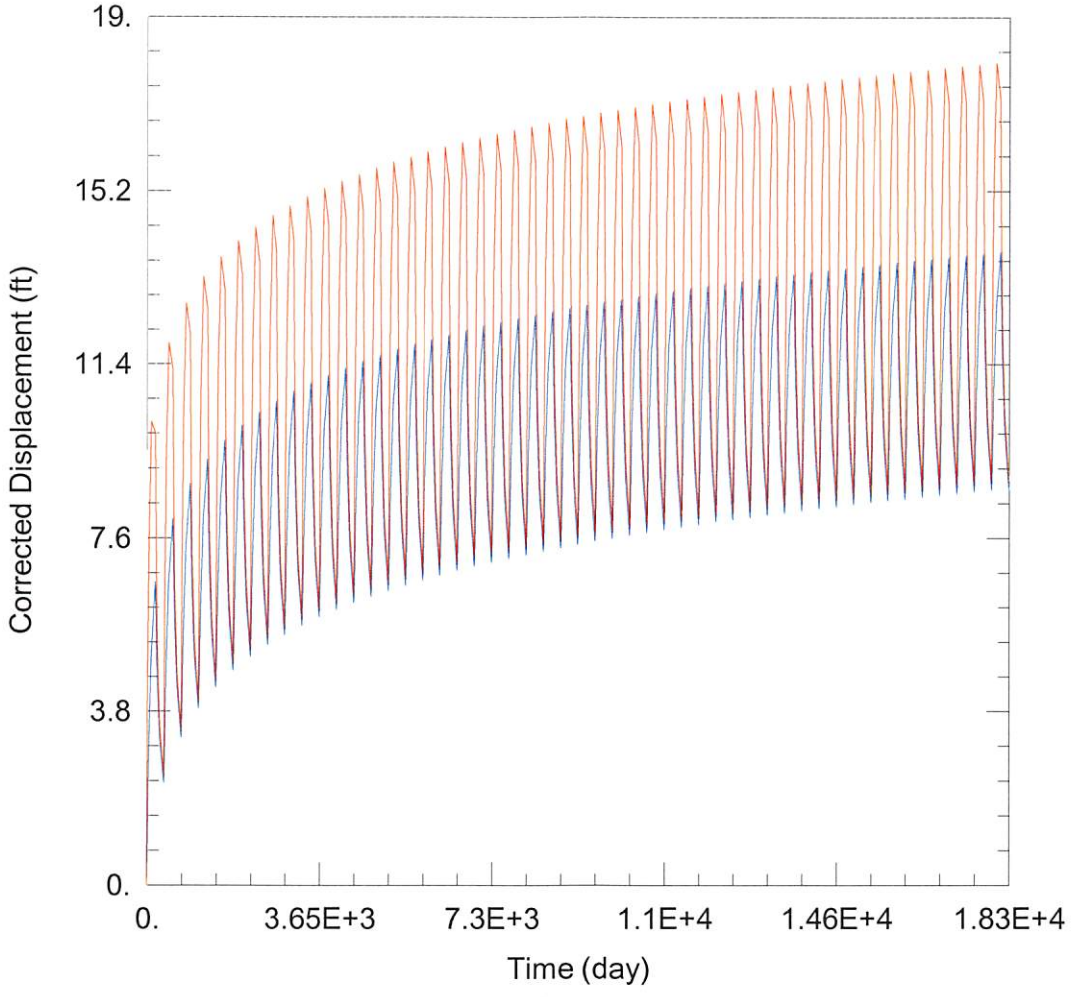
Observation Wells

Well Name	X (ft)	Y (ft)
□	-201602	119105
□	-203158	117368
□ 261	-199458	121452
□ Domestic 6-33-38	-203471	119030

SOLUTION

Aquifer Model: Unconfined
Solution Method: Theis

T = 1.12E+4 ft^2/day
S = 0.05629
Kz/Kr = 1.
b = 226. ft



WELL TEST ANALYSIS

Data Set: C:\...\435_38616_40062_41347 Proposed.aqt
Date: 06/29/21 Time: 14:01:42

PROJECT INFORMATION

Company: GMD 3
Project: 435, 38616, 40062, 41347
Location: Stevens County

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
	-201602	119105
	-203158	117368

Observation Wells

Well Name	X (ft)	Y (ft)
▫	-201602	119105
▫	-203158	117368
▫ 261	-199458	121452
▫ Domestic 6-33-38	-203471	119030

SOLUTION

Aquifer Model: Unconfined
Solution Method: Theis

T = 1.12E+4 ft^2/day
S = 0.05629
Kz/Kr = 1.
b = 226. ft