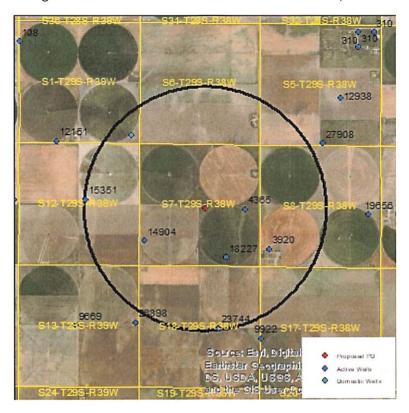
Evaluation of proposed move for Water Right No. 4365

Proposed: Move water right no. 4365 to a new well location a distance of 1,737 ft to the west.



Wells within 1 mile: 18227, 14904, 3920, 23744, 15351, and a domestic well in section 1-29-39.

The saturated thickness at the proposed well location is estimated to be 233 ft, based upon the driller's log and an observation well in section 7-29-38. 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:

$$S = 0.1007$$
, $T = 4511.4$ ft²/day, $tp_{current} = 162$ days, $Q_{current} = 362$ gpm, $tp_{proposed} = 71$ days, $Q_{proposed} = 1518$ gpm

Theis drawdowns were calculated as follows:

18227: Drawdown from current location = 3.87 ft

Drawdown from proposed location = 7.96 ft

Net drawdown = 4.1 ft

14904: Drawdown from current location = 2.60 ft

Drawdown from proposed location = 6.52 ft

Net drawdown = 3.9 ft

3920: Drawdown from current location = 4.10 ft

Drawdown from proposed location = 6.09 ft

Net drawdown = 2.0 ft

23744: Drawdown from current location = 2.38 ft

Drawdown from proposed location = 4.48 ft

Net drawdown = 2.1 ft

15351: Drawdown from current location = 2.04 ft

Drawdown from proposed location = 4.50 ft

Net drawdown = 2.5 ft

Domestic 1-29-39 Drawdown from current location = 2.25 ft

Drawdown from proposed location = 4.89 ft

Net drawdown = 2.6 ft

Net drawdown exceeds the drawdown allowance of 4.0 ft for water right no. 18227. Critical well analysis is necessary for that well.

Critical Well Evaluation:

18227:

Water Column = 233 ft

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

DE = 57.2 ft (Water level decline from 2021 through 2046 based upon GMD3 model)

DD = 40.3 ft (S = 0.1007, T = 33,745 gpd/ft, Q = 501 gpm, tp = 155 days, efficiency = 70%)

DT = 101.6 ft

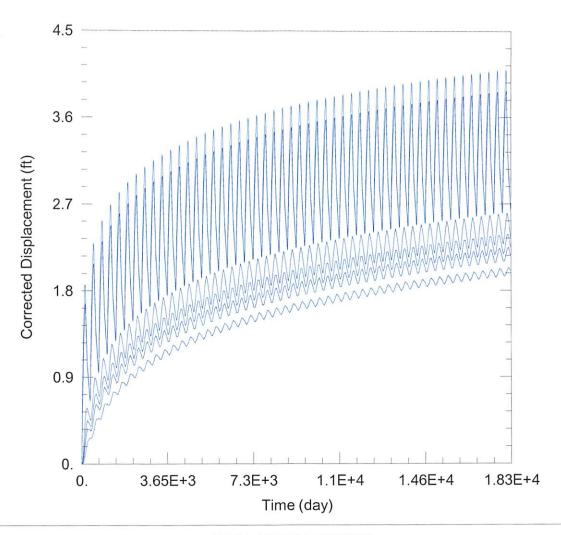
Economic Drawdown Constraint (EDC) = 0.4 * 233 ft = 93.2 ft

Physical Drawdown Constraint (PDC) = 233 ft - 60 ft = 173 ft

Total drawdown of 101.6 ft is greater than the EDC, so this well is critical.

Conclusion:

The proposed move is located in an area with a lot of saturated thickness, but the geologic formation appears to have somewhat low storage coefficient (S) and transmissivity (T). This creates a condition where wells create a deeper cone of depression when operating and are less productive than in areas with higher S and T in local aquifer formation. GMD3 staff recommends a rate limitation of 1250 gpm at the proposed new well location. This rate limitation would reduce the net effect on neighboring water right number 18227 to 3.9 ft.



WELL TEST ANALYSIS

Data Set: C:\Users\trevora\Documents\2021_Moves\4365\4365 Current.aqt

Date: 03/29/21

Time: 16:45:51

PROJECT INFORMATION

Company: GMD 3 Project: 4365

Location: Grant County

Test Well: 4365

WELL DATA

Pumping Wells			Observation Wells		
Well Name	X (ft)	Y (ft)	Well Name	X (ft)	Y (ft)
4365	-206140	242918		-206140	242918
			18227	-206939	240812
			14904	-210500	241561
			□ 3920	-205080	241192
			23744	-207281	237752
			- 15351	-213066	243358
			□ Domestic 1-29-39	-211065	246130

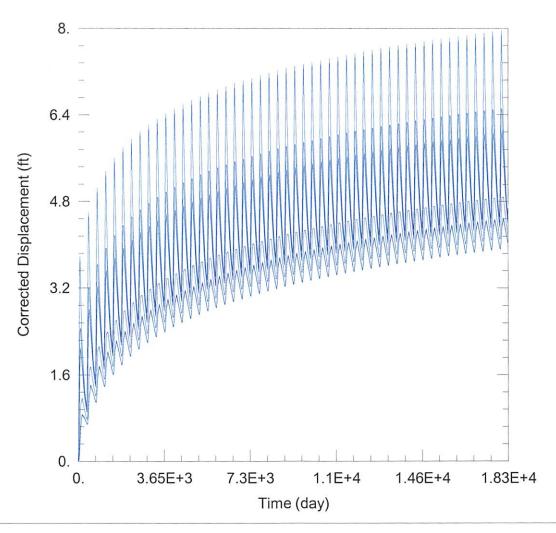
SOLUTION

Aquifer Model: Unconfined

 $T = \frac{4511.4}{Kz/Kr} = \frac{4511.4}{1}$

Solution Method: Theis

S = 0.1007b = 233. ft



WELL TEST ANALYSIS

Data Set: C:\Users\trevora\Documents\2021_Moves\4365\4365 Proposed.aqt

Date: 03/29/21 Time: 16:46:17

PROJECT INFORMATION

Company: GMD 3 Project: 4365

Location: Grant County

Test Well: 4365

WELL DATA

Pumping Wells					
Well Name	X (ft)	Y (ft)			
4365	-207876	242964			

Well Name	X (ft)	Y (ft)
	-207876	242964
- 18227	-206939	240812
14904	-210500	241561
3920	-205080	241192
23744	-207281	237752
15351	-213066	243358
 Domestic 1-29-39 	-211065	246130

Observation Wells

SOLUTION

Aquifer Model: Unconfined

 $T = 4511.4 \text{ ft}^2/\text{day}$

Kz/Kr = 1.

Solution Method: Theis

S = 0.1007b = 233. ft