Evaluation of proposed move for Water Right No 23567

Proposed: Move water right no. 23567 ID 1 a distance of 1,755 ft to the east.

Wells within 1 mile: 23567 ID3, 10487, 25146, a domestic well in section 21-29-40, and a domestic well in section 16-29-40.

The saturated thickness at the proposed well location is estimated to be 225 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:

$S = 0.1543$, $T = 5,269$ ft^2/day, $tp_{current} = 128$ days (based upon average use and observed rate), $Q_{current} = 196$ gpm (based upon 2018 field inspection), $tp_{proposed} = 95$ days, $Q_{proposed} = 620$ gpm

Theis drawdowns were calculated as follows:

23567 ID3:	Drawdown from current location = 0.98 ft
	Drawdown from proposed location = 2.82 ft
	Net drawdown = **1.8 ft**
10487:	Drawdown from current location = 0.92 ft
	Drawdown from proposed location = 3.11 ft
	Net drawdown = **2.2 ft**

25146: Drawdown from current location = 1.03 ft

Drawdown from proposed location = 2.26 ft

Net drawdown = **1.2 ft**

Domestic 21-29-40: Drawdown from current location = 1.33 ft

Drawdown from proposed location = 2.83 ft

Net drawdown = **1.5 ft**

Domestic 16-29-40: Drawdown from current location = 0.86 ft

Drawdown from proposed location = 1.95 ft

Net drawdown = **1.1 ft**

Net drawdown does not exceed the drawdown allowance of 4.0 ft for any wells within 1 mile of the proposed location. Therefore, critical well analysis is not necessary.

Conclusion:

Based upon information from the GMD3 model, this proposal will cause minimal effects on neighboring wells, and is unlikely to create an impairment. GMD3 staff recommends approval of the application.
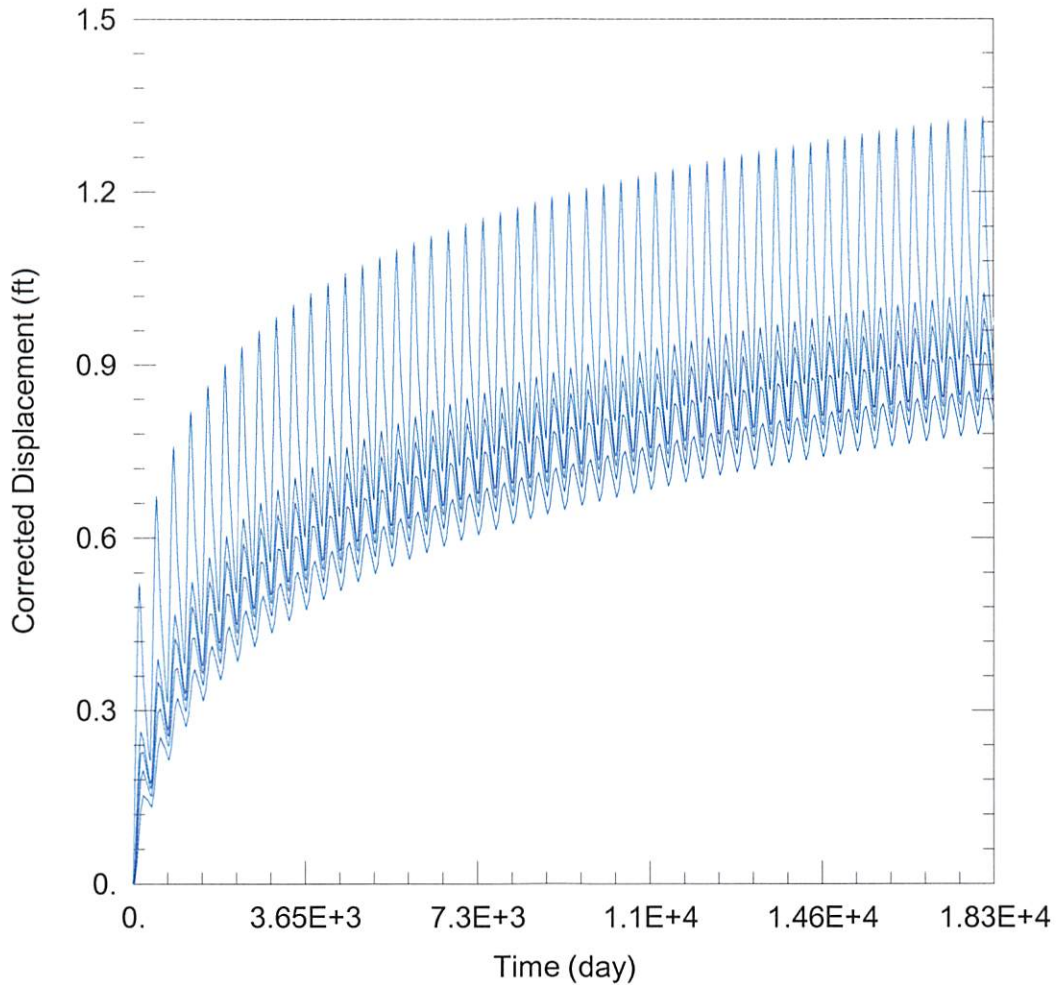
WELL TEST ANALYSIS

Data Set: C:\Users\trevora\Documents\2020_moves\23567\23567 Current.aqt
Date: 07/15/20   Time: 14:04:24

PROJECT INFORMATION

Company: GMD 3
Project: 23567 ID 1
Location: Stanton County
Test Well: 23567 ID 1

WELL DATA

Pumping Wells		
Well Name	X (ft)	Y (ft)
23567 ID1	-263467	233153

Observation Wells		
Well Name	X (ft)	Y (ft)
▫	-263467	233153
▫ 23567 ID3	-260772	230382
▫ 10487	-259236	232739
▫ 25146	-263290	236751
▫ Domestic 21-29-40	-263157	235509
▫ Domestic 16-29-40	-263241	237967

SOLUTION

Aquifer Model: Unconfined   Solution Method: Theis
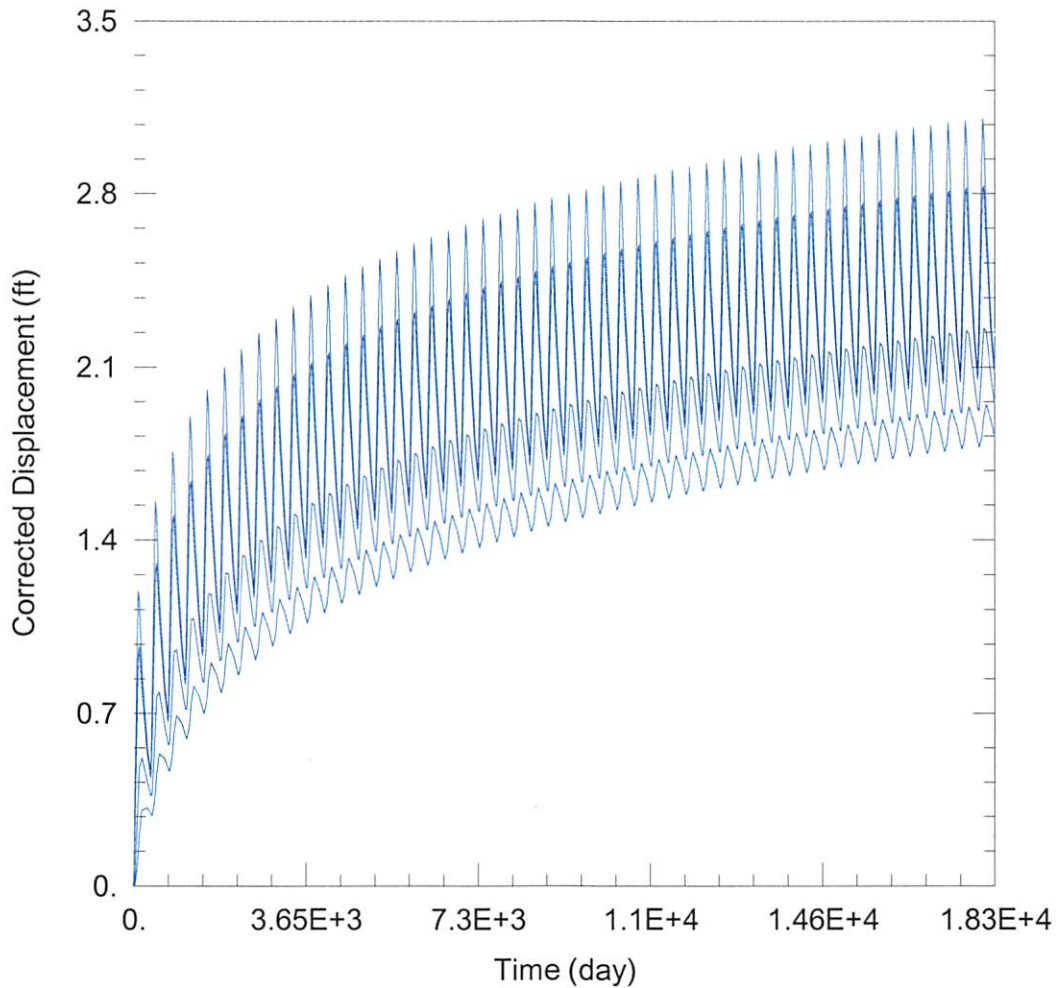
T   = 5269. ft^2/day   S   = 0.1543
Kz/Kr = 1.   b   = 225. ft

WELL TEST ANALYSIS

Data Set: C:\Users\trevora\Documents\2020_moves\23567\23567 Proposed.aqt
Date: 07/15/20   Time: 14:04:18

PROJECT INFORMATION

Company: GMD 3
Project: 23567 ID 1
Location: Stanton County
Test Well: 23567 ID 1

WELL DATA

Pumping Wells		
Well Name	X (ft)	Y (ft)
23567 ID1	-261713	233072

Observation Wells		
Well Name	X (ft)	Y (ft)
▫	-261713	233072
▫ 23567 ID3	-260772	230382
▫ 10487	-259236	232739
▫ 25146	-263290	236751
▫ Domestic 21-29-40	-263157	235509
▫ Domestic 16-29-40	-263241	237967

SOLUTION

Aquifer Model: Unconfined   Solution Method: Theis

T   = 5269. ft²/day   S   = 0.1543
Kz/Kr = 1.   b   = 225. ft