Evaluation of proposed move for Water Right No. 15506 ID1

Proposed: Move water right no. 15506 ID1 a distance of 474 ft to the southeast.

Wells within 1 mile: 15506 ID4, 25558, 13915 ID1, 13915 ID2, 7226, 20259, and a domestic well in section 7-25-29.

The saturated thickness at the proposed well location is estimated to be 78 ft, based upon the driller's log and an observation well in section 7-25-29. For saturated thickness between 75 ft and 100 ft, the drawdown allowance is 2.0 ft.

50 year Theis Analysis: The following values were used to run the analysis:

$S = 0.1665$, $T = 11,395$ ft^2/day,

$tp_{current}$ = 167 days (based on average use and observed rate), $Q_{current}$ = 169 gpm (2018 inspection), $tp_{proposed}$ = 72 days, $Q_{proposed}$ = 890 gpm

Theis drawdowns were calculated as follows:

15506 ID4:   Drawdown from current location = 0.77 ft

                       Drawdown from proposed location = 1.82 ft

                       Net drawdown = **1.1 ft**

25558:	Drawdown from current location = 0.83 ft
	Drawdown from proposed location = 2.06 ft
	Net drawdown = **1.2 ft**
13915 ID1:	Drawdown from current location = 0.65 ft
	Drawdown from proposed location = 1.48 ft
	Net drawdown = **0.8 ft**
13915 ID2:	Drawdown from current location = 0.67 ft
	Drawdown from proposed location = 1.62 ft
	Net drawdown = **0.9 ft**
7226:	Drawdown from current location = 0.80 ft
	Drawdown from proposed location = 2.43 ft
	Net drawdown = **1.6 ft**
20259:	Drawdown from current location = 0.51 ft
	Drawdown from proposed location = 1.26 ft
	Net drawdown = **0.7 ft**
Domestic 7-25-29:	Drawdown from current location = 0.67 ft
	Drawdown from proposed location = 1.91 ft
	Net drawdown = **1.2 ft**

Net drawdown does not exceed the drawdown allowance of 2.0 ft for any well within 1 mile of the proposed location. Therefore, critical well analysis is not necessary.

Conclusion:

The proposed move is likely to create minimal effects on neighboring wells and is unlikely to cause impairment. GMD3 staff recommends approval of this proposal.
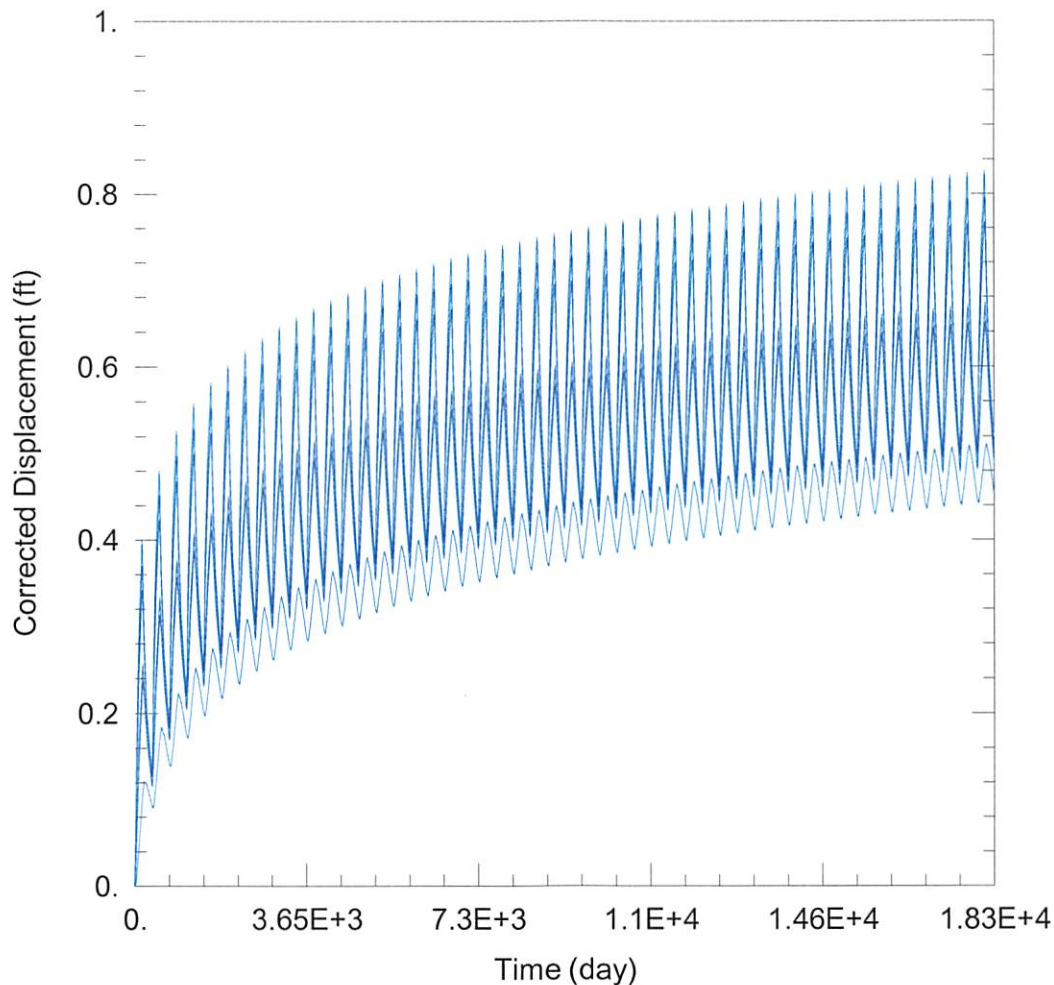
WELL TEST ANALYSIS

Data Set: C:\Users\trevora\Documents\2021_Moves\15506\15506 Current.aqt
Date: 12/02/21   Time: 16:13:49

PROJECT INFORMATION

Company: GMD 3
Project: 15506
Location: Gray County

WELL DATA

Pumping Wells			Observation Wells		
Well Name	X (ft)	Y (ft)	Well Name	X (ft)	Y (ft)
15506 ID1	68000	371608	▫	68000	371608
			▫ 15506 ID4	65488	372101
			▫ 25558	65895	370911
			▫ 13915 ID1	66463	374744
			▫ 13915 ID2	69118	374747
			▫ 7226	70366	371891
			▫ 20259	73283	370825
			▫ Domestic 7-25-29	70578	369563

SOLUTION

Aquifer Model: Unconfined   Solution Method: Theis
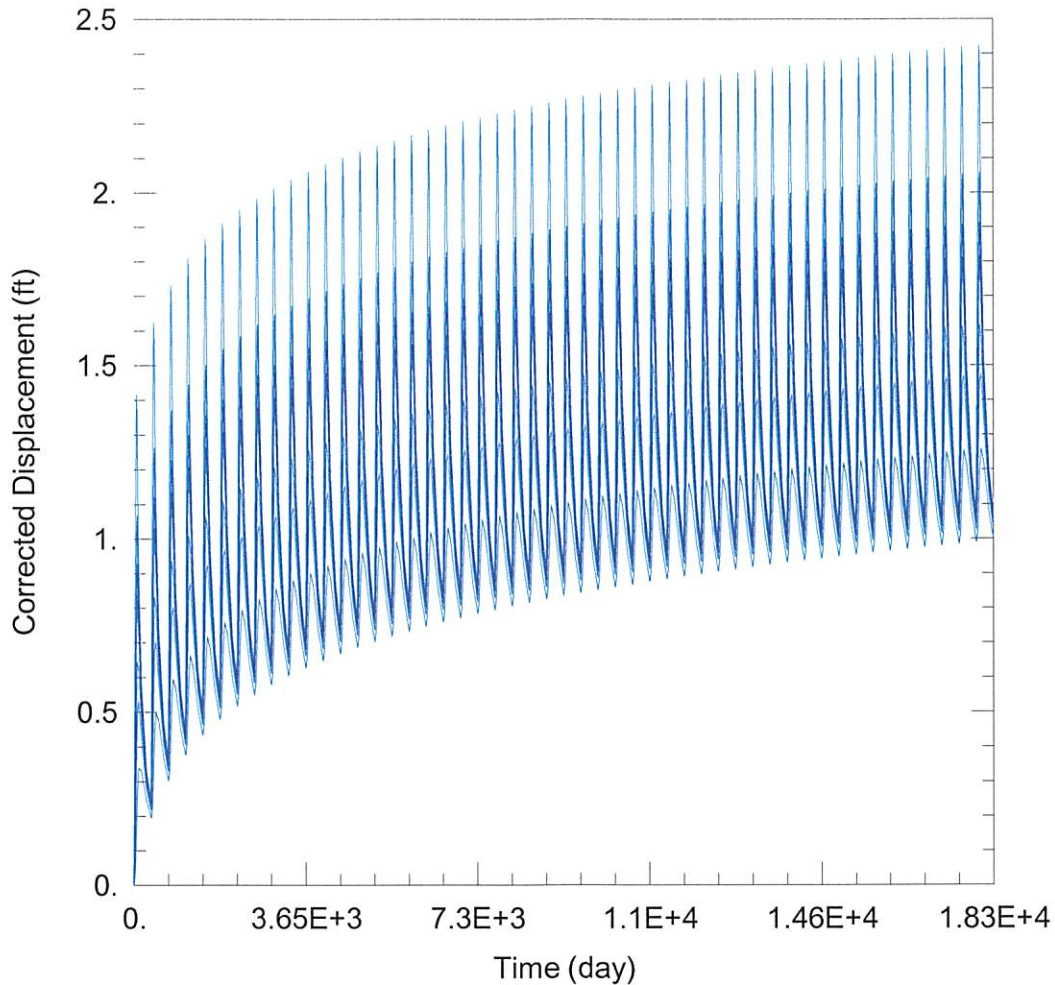
T   = 1.14E+4 ft^2/day   S   = 0.1665
Kz/Kr = 1.   b   = 78. ft

WELL TEST ANALYSIS

Data Set: C:\Users\trevora\Documents\2021_Moves\15506\15506 Proposed.aqt
Date: 12/02/21   Time: 16:13:42

PROJECT INFORMATION

Company: GMD 3
Project: 15506
Location: Gray County

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
15506 ID1	68404	371361

Observation Wells

Well Name	X (ft)	Y (ft)
▫	68404	371361
▫ 15506 ID4	65488	372101
▫ 25558	65895	370911
▫ 13915 ID1	66463	374744
▫ 13915 ID2	69118	374747
▫ 7226	70366	371891
▫ 20259	73283	370825
▫ Domestic 7-25-29	70578	369563

SOLUTION

Aquifer Model: Unconfined   Solution Method: Theis

$T = 1.14E+4 \ ft^2/day$ $S = 0.1665$
$Kz/Kr = 1.$ $b = 78. \ ft$