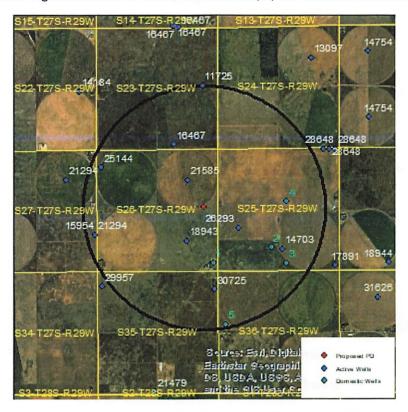
### Evaluation of proposed move for Water Right No. 21585

Proposed: Move water right no. 21585 to a new well location, 1,403 ft to the southeast.



Wells within 1 mile: 16467, 11725, 15954 & 21294, 25144, 18943, 26293, 14703, 30725, and five domestic wells, numbered on the above map.

The saturated thickness at the proposed well location is estimated to be 90 ft, based upon the driller's log and observation wells in sections 27-27-29 and 30-27-28. 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 = 0.163, T = 6480.2 ft
$$^2$$
/day, tp<sub>current</sub> = 92 days, Q<sub>current</sub> = 400 gpm, tp<sub>proposed</sub> = 65 days, Q<sub>proposed</sub> = 905 gpm

Theis drawdowns were calculated as follows:

16467:

Drawdown from current location = 2.21 ft

Drawdown from proposed location = 2.36 ft

Net drawdown = 0.1 ft

11725:

Drawdown from current location = 1.19 ft

Drawdown from proposed location = 1.63 ft

Net drawdown = 0.4 ft

Drawdown from proposed location = 1.71 ft

Net drawdown = **0.6** ft

25144: Drawdown from current location = 1.25 ft

Drawdown from proposed location = 1.73 ft

Net drawdown = 0.5 ft

18943: Drawdown from current location = 1.60 ft

Drawdown from proposed location = 3.81 ft

Net drawdown = 2.2 ft

26293: Drawdown from current location = 1.44 ft

Drawdown from proposed location = 3.61 ft

Net drawdown = 2.2 ft

14703: Drawdown from current location = 1.04 ft

Drawdown from proposed location = 2.00 ft

Net drawdown = 1.0 ft

30725: Drawdown from current location = 1.07 ft

Drawdown from proposed location = 2.10 ft

Net drawdown = 1.0 ft

Domestic 1: Drawdown from current location = 1.26 ft

Drawdown from proposed location = 2.81 ft

Net drawdown = 1.5 ft

Domestic 2: Drawdown from current location = 1.09 ft

Drawdown from proposed location = 2.19 ft

Net drawdown = 1.1 ft

Domestic 3: Drawdown from current location = 0.98 ft

Drawdown from proposed location = 1.84 ft

Net drawdown = 0.9 ft

Domestic 4:

Drawdown from current location = 1.13 ft

Drawdown from proposed location = 2.10 ft

Net drawdown = 1.0 ft

Domestic 5:

Drawdown from current location = 0.90 ft

Drawdown from proposed location = 1.66 ft

Net drawdown = 0.8 ft

Net drawdown exceeds the drawdown allowance of 2.0 ft for water right numbers 18943 and 26293. Critical well analysis is necessary on those wells.

### **Critical Well Evaluation:**

#### 18943:

Water Column = 90 ft

DP = 2.2 ft (Net drawdown from the proposal indicated above)

DE = 33.6 ft (Water level decline from 2022 through 2047 based upon GMD3 model)

DD = 0 ft (Well has not been operated for more than 10 years)

DT = 35.8 ft

Economic Drawdown Constraint (EDC) = 0.4 \* 90 ft = 36.0 ft

Physical Drawdown Constraint (PDC) = 90 ft - 60 ft = 30 ft

Total drawdown of 35.8 ft is greater than the PDC, so this well is critical.

#### 26293:

Water Column = 90 ft

DP = 2.2 ft (Net drawdown from the proposal indicated above)

DE = 33.0 ft (Water level decline from 2022 through 2047 based upon GMD3 model)

DD = 45.6 ft (S = 0.09743, T = 35,783 gpd/ft, Q = 630 gpm, tp = 68.5 days, efficiency = 70%)

DT = 80.8 ft

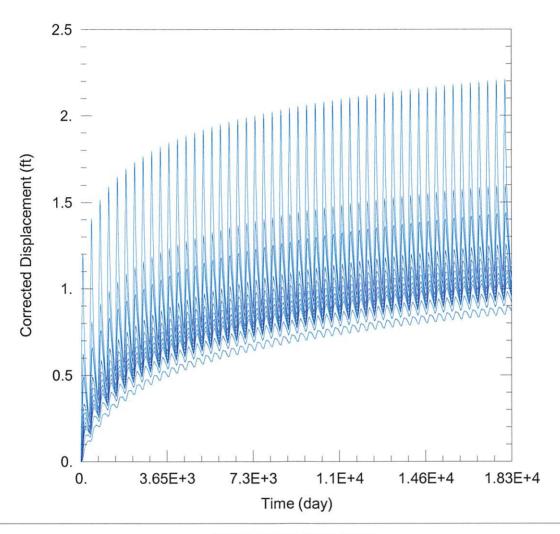
Economic Drawdown Constraint (EDC) = 0.4 \* 90 ft = 36.0 ft

Physical Drawdown Constraint (PDC) = 90 ft - 60 ft = 30 ft

Total drawdown of 80.8 ft is greater than the EDC and PDC, so this well is critical.

### **Conclusion:**

The proposed move is within a declining area with less than 100 ft saturated thickness. If the proposed well were to pump its full authorized authority, most effects on nearby wells would be minimal, but effects on two nearby critical wells exceed the drawdown allowance of 2.0 ft. One of these wells has not been operated for several years, but the other one was recently redrilled and might notice some well-to-well interaction effects. Concerned neighbors can 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\2022\_moves\21585\21585 Current.aqt

Date: 04/27/22 Time: 14:41:28

## PROJECT INFORMATION

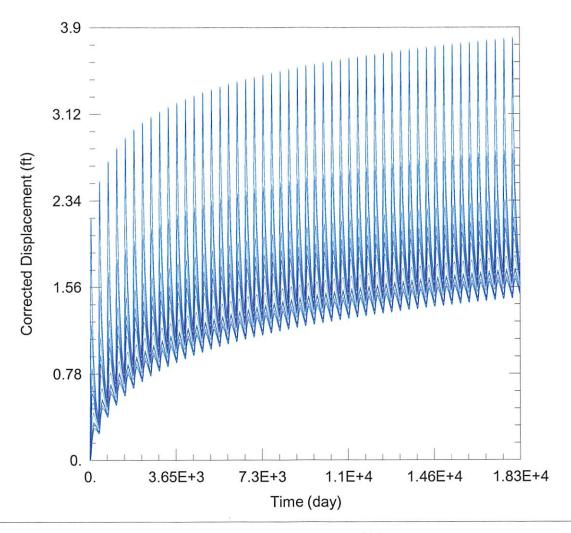
Company: GMD 3 Project: 21585

Location: Gray County

# WELL DATA

Pumping Wells			
Well Name	X (ft)	Y (ft)	
21585	99286	291496	

Observation Wells				
Well Name	X (ft)	Y (ft)		
	99286	291496		
<b>16467</b>	98672	293038		
<b>- 11725</b>	99937	295563		
<ul><li>15954 &amp; 21294</li></ul>	95242	289119		
<b>25144</b>	95521	292033		
<b>18943</b>	99267	288838		
<b>- 26293</b>	101522	289396		
<b>14703</b>	103407	288511		
<b>30725</b>	100461	286741		
<ul><li>Domestic 1</li></ul>	100404	287882		
Domestic 2	102932	288562		
<ul><li>Domestic 3</li></ul>	103596	287901		
<ul><li>Domestic 4</li></ul>	103591	290562		
Domestic 5	100948	285242		



# WELL TEST ANALYSIS

## PROJECT INFORMATION

Company: GMD 3 Project: 21585

Location: Gray County

## **WELL DATA**

Pumping Wells		
Well Name	X (ft)	Y (ft)
21585	100008	290294

Observation Wells			
Well Name	X (ft)	Y (ft)	
	100008	290294	
<b>16467</b>	98672	293038	
<b>- 11725</b>	99937	295563	
<ul><li>15954 &amp; 21294</li></ul>	95242	289119	
<b>- 25144</b>	95521	292033	
<b>18943</b>	99267	288838	
<b>- 26293</b>	101522	289396	
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Domestic 5	100948	285242	