

## Evaluation of proposed move for Water Right No. 18908

Proposed: Move water right no. 18908 to a new well location a distance of 1,091 ft to the northwest.



Wells within 1 mile: 11122, 2868, 2383, 17510, FI 19 & 2636 & 6527 & 10329, 39708, 21403, 14474, 15424, 13294 ID1, 13294 ID5, 29229, and 11 domestic wells, numbered on the above map.

The saturated thickness at the proposed well location is estimated to be 71 ft, based upon the driller's log and an observation well in section 26-23-32. For saturated thickness between 50 ft and 75 ft, the drawdown allowance is 1.5 ft.

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

$S = 0.2408$ ,  $T = 7076.1 \text{ ft}^2/\text{day}$ ,  $tp_{\text{current}} = 184 \text{ days}$ ,  $Q_{\text{current}} = 150 \text{ gpm}$ ,  $tp_{\text{proposed}} = 72 \text{ days}$ ,  $Q_{\text{proposed}} = 820 \text{ gpm}$

Theis drawdowns were calculated as follows:

11122: Drawdown from current location = 0.94 ft  
 Drawdown from proposed location = 3.00 ft  
 Net drawdown = **2.1 ft**

2868: Drawdown from current location = 0.78 ft  
 Drawdown from proposed location = 2.14 ft  
 Net drawdown = **1.4 ft**

2383: Drawdown from current location = 0.78 ft  
Drawdown from proposed location = 2.01 ft  
Net drawdown = **1.2 ft**

17510: Drawdown from current location = 0.65 ft  
Drawdown from proposed location = 1.55 ft  
Net drawdown = **0.9 ft**

FI 19 & 2636 & 6527 & 10329: Drawdown from current location = 0.69 ft  
Drawdown from proposed location = 1.54 ft  
Net drawdown = **0.9 ft**

39708: Drawdown from current location = 0.62 ft  
Drawdown from proposed location = 1.54 ft  
Net drawdown = **0.92 ft**

21403: Drawdown from current location = 0.61 ft  
Drawdown from proposed location = 1.46 ft  
Net drawdown = **0.9 ft**

14474: Drawdown from current location = 0.65 ft  
Drawdown from proposed location = 1.50 ft  
Net drawdown = **0.9 ft**

15424: Drawdown from current location = 0.86 ft  
Drawdown from proposed location = 1.73 ft  
Net drawdown = **0.9 ft**

13294 ID1: Drawdown from current location = 0.71 ft  
Drawdown from proposed location = 1.37 ft  
Net drawdown = **0.7 ft**

13294 ID5: Drawdown from current location = 0.70 ft  
Drawdown from proposed location = 1.39 ft  
Net drawdown = **0.7 ft**

29229: Drawdown from current location = 0.73 ft  
Drawdown from proposed location = 1.37 ft  
Net drawdown = **0.6 ft**

Domestic 1: Drawdown from current location = 0.70 ft  
Drawdown from proposed location = 1.60 ft  
Net drawdown = **0.9 ft**

Domestic 2: Drawdown from current location = 0.66 ft  
Drawdown from proposed location = 1.66 ft  
Net drawdown = **1.0 ft**

Domestic 3: Drawdown from current location = 0.75 ft  
Drawdown from proposed location = 1.99 ft  
Net drawdown = **1.2 ft**

Domestic 4: Drawdown from current location = 0.82 ft  
Drawdown from proposed location = 2.08 ft  
Net drawdown = **1.3 ft**

Domestic 5: Drawdown from current location = 0.70 ft  
Drawdown from proposed location = 1.55 ft  
Net drawdown = **0.9 ft**

Domestic 6: Drawdown from current location = 0.62 ft  
Drawdown from proposed location = 1.38 ft  
Net drawdown = **0.8 ft**

Domestic 7: Drawdown from current location = 0.64 ft  
Drawdown from proposed location = 1.44 ft  
Net drawdown = **0.8 ft**

Domestic 8: Drawdown from current location = 0.74 ft  
Drawdown from proposed location = 1.39 ft  
Net drawdown = **0.7 ft**

Domestic 9: Drawdown from current location = 0.75 ft  
Drawdown from proposed location = 1.47 ft  
Net drawdown = **0.7 ft**

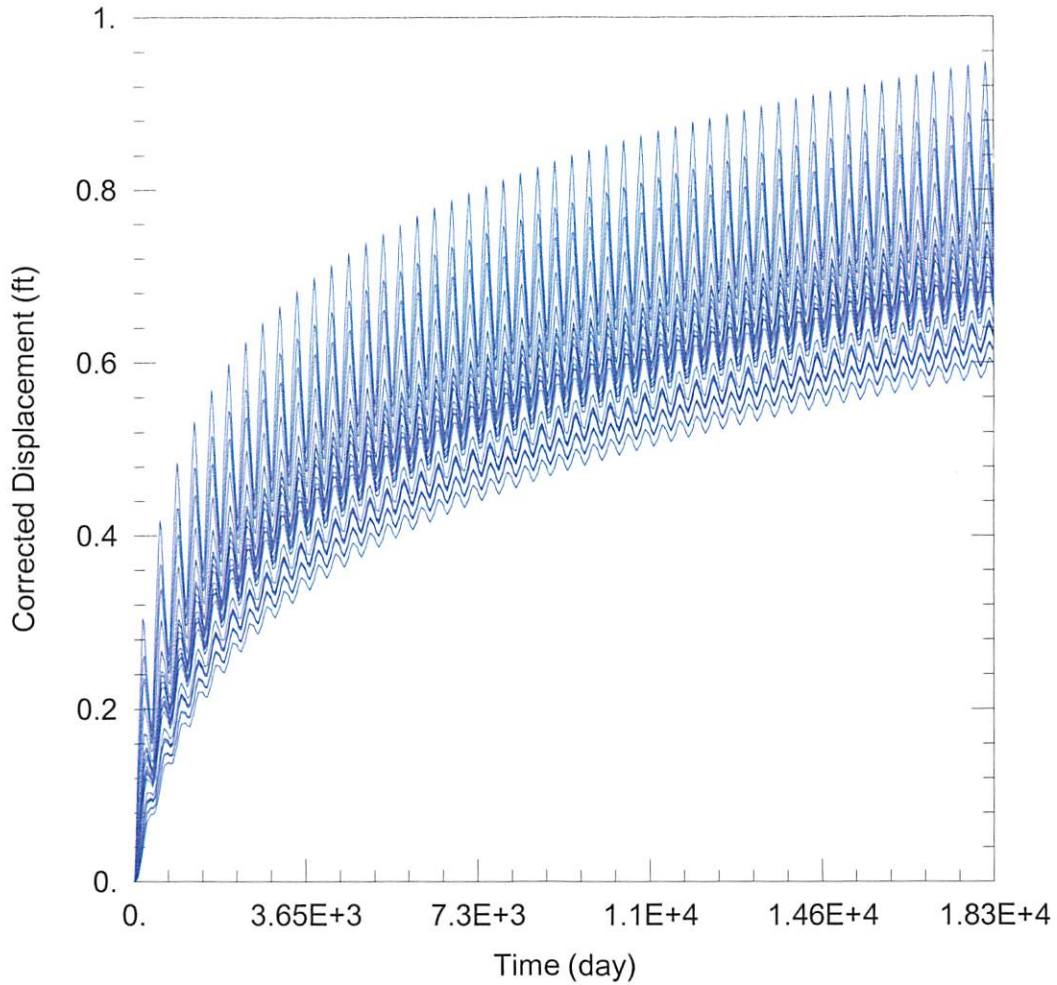
Domestic 10: Drawdown from current location = 0.89 ft  
Drawdown from proposed location = 1.66 ft  
Net drawdown = **0.8 ft**

Domestic 11: Drawdown from current location = 0.78 ft  
Drawdown from proposed location = 1.64 ft  
Net drawdown = **0.9 ft**

Net drawdown exceeds the drawdown allowance of 1.5 ft for water right no. 11122. The GMD3 model predicts a water table decline of 45.2 ft over the next 25 years, which is 64% of the remaining saturated thickness. Therefore, all neighboring wells are critical and the drawdown allowance should not be exceeded.

**Conclusion:**

The proposed moves are located in an area with depleted aquifer and if the new well is operated at the proposed rate and quantity, it is likely to create noticeable effects on a neighboring critical well. GMD3 staff recommends a rate limitation of 400 gpm and a quantity limitation of 233 AF at the proposed new well location. This rate and quantity would reduce the net drawdown effect on water right no. 11122 to 1.5 ft.



WELL TEST ANALYSIS

Data Set: C:\Users\trevora\Documents\2021\_Moves\18908\18908 Current.aqt

Date: 03/30/21

Time: 15:58:39

PROJECT INFORMATION

Company: GMD 3

Project: 18908

Location: Finney County

Test Well: 18908

WELL DATA

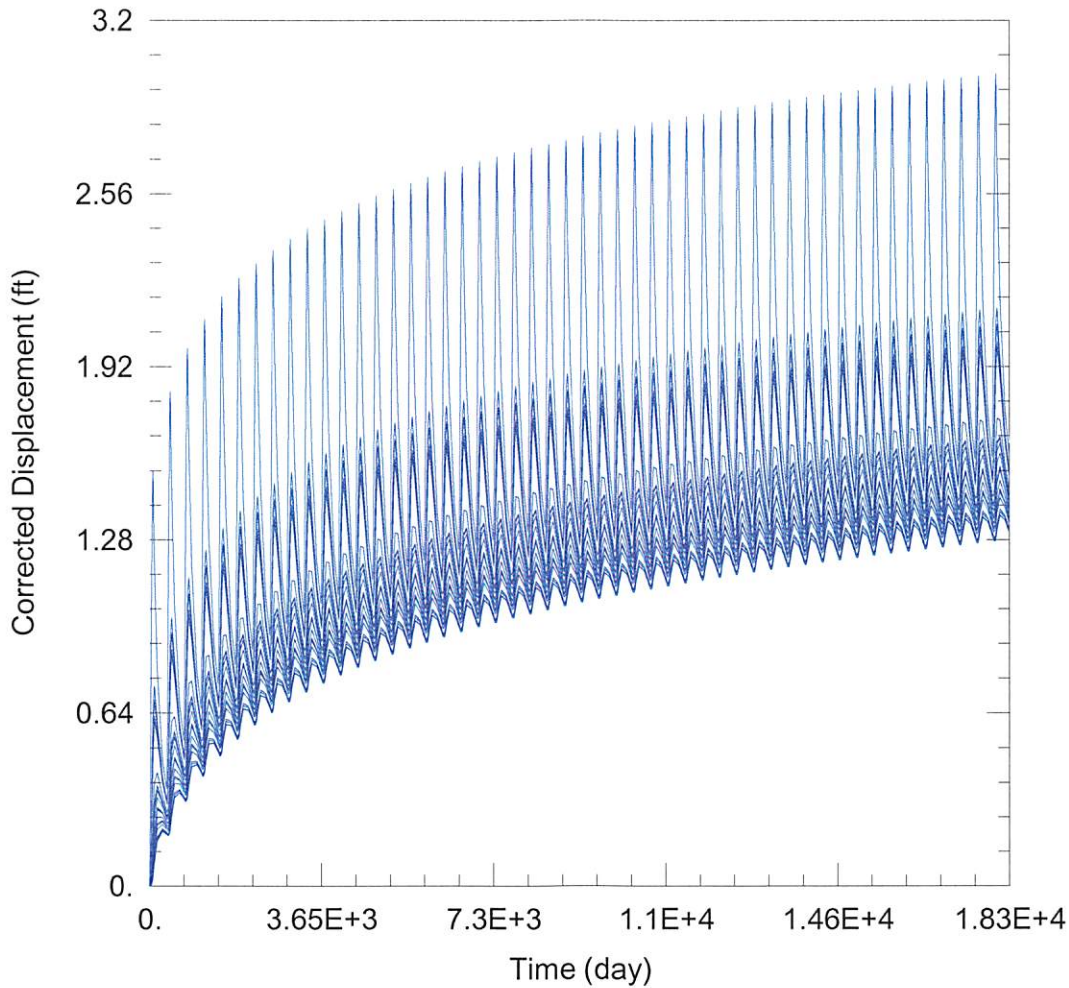
Pumping Wells

Well Name	X (ft)	Y (ft)
18908	-4885	417848

Observation Wells

Well Name	X (ft)	Y (ft)
□	-4885	417848
□ 11122	-7275	418824
□ 2868	-6267	421264
□ 2383	-4941	421537
□ 17510	-4567	422906
□ FI 19 & 2636 & 6527 & 1032	-2378	421646
□ 39708	-8859	421520
□ 21403	-10040	420271
□ 14474	-9984	417667
□ 15424	-2004	418929
□ 13294 ID1	-4626	413576
□ 13294 ID5	-5980	413624
□ 29229	-1946	414942





WELL TEST ANALYSIS

Data Set: C:\Users\trevora\Documents\2021\_Moves\18908\18908 Proposed.aqt

Date: 03/30/21

Time: 15:58:30

PROJECT INFORMATION

Company: GMD 3

Project: 18908

Location: Finney County

Test Well: 18908

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
18908	-5570	418697

Observation Wells

Well Name	X (ft)	Y (ft)
□	-5570	418697
□ 11122	-7275	418824
□ 2868	-6267	421264
□ 2383	-4941	421537
□ 17510	-4567	422906
□ FI 19 & 2636 & 6527 & 1032	-2378	421646
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