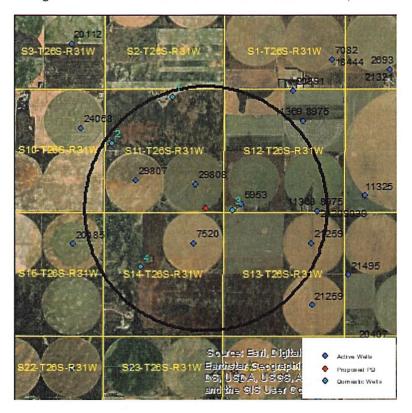
### Evaluation of proposed move for Water Right No. 29808

Proposed: Move water right no. 29808 to a new well location a distance of 1,131 ft to the southeast.



Wells within 1 mile: 29807, 5953, 8975 & 11369, 7520, 21259, and 4 domestic wells, numbered on the above map.

The saturated thickness at the proposed well location is estimated to be 77 ft, based upon the driller's log and nearby observation wells. For saturated thickness between 75 ft and 100 ft, the drawdown allowance is 2.0 ft. Some nearby wells have over 100 ft of saturated thickness and their drawdown allowance is 2.5 ft.

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

S = 0.1897, T = 3369.2 ft<sup>2</sup>/day, tp<sub>current</sub> = 251 days (based upon average use and observed rate),  $Q_{current} = 92$  gpm (based upon 2020 field inspection), tp<sub>proposed</sub> = 57 days,  $Q_{proposed} = 900$  gpm

Theis drawdowns were calculated as follows:

29807:

Drawdown from current location = 1.40 ft

Drawdown from proposed location = 2.87 ft

Net drawdown = 1.5 ft

5953: Drawdown from current location = 1.53 ft

Drawdown from proposed location = 4.86 ft

Net drawdown = 3.3 ft

8975 & 11369: Drawdown from current location = 0.94 ft

Drawdown from proposed location = 2.24 ft

Net drawdown = 2.2 ft

7520: Drawdown from current location = 1.41 ft

Drawdown from proposed location = 4.78 ft

Net drawdown = 3.4 ft

21259: Drawdown from current location = 0.91 ft

Drawdown from proposed location = 2.24 ft

Net drawdown = 1.3 ft

Domestic 1: Drawdown from current location = 1.13 ft

Drawdown from proposed location = 2.20ft

Net drawdown = 1.1 ft

Domestic 2: Drawdown from current location = 1.11 ft

Drawdown from proposed location = 2.22 ft

Net drawdown = 1.1 ft

Domestic 3: Drawdown from current location = 1.61 ft

Drawdown from proposed location = 6.18 ft

Net drawdown = 4.6 ft

Domestic 4: Drawdown from current location = 1.07 ft

Drawdown from proposed location = 2.62 ft

Net drawdown = 1.5 ft

Net drawdown exceeds the drawdown allowance for the wells operated under water right nos. 5953 and 7520. Both wells are owned and operated by the applicant, so critical well analysis was not performed on them. The drawdown allowance of 2.5 ft (saturated thickness is 102 ft at well location) for Domestic 3 is exceeded and this well is not owned by the applicant. Critical well analysis was performed, and the results are as follows.

#### **Critical Well Evaluation:**

#### Domestic 3:

Water Column = 102 ft

DP = 4.6 ft (Net drawdown from the proposal indicated above)

DE = 44.5 ft (Water level decline from 2021 through 2046 based upon GMD3 model)

DT = 49.1 ft

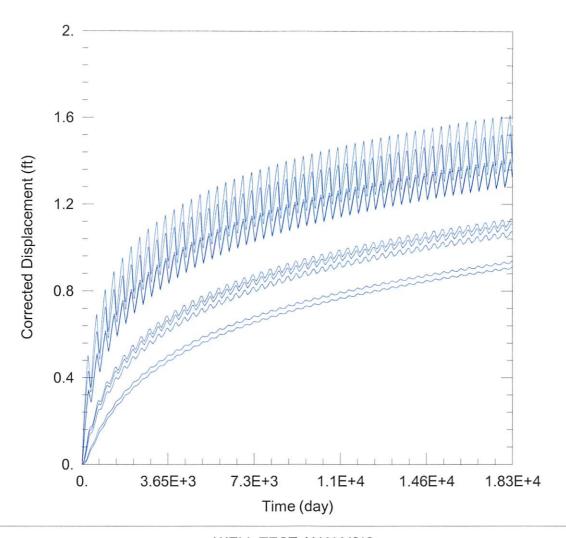
Economic Drawdown Constraint (EDC) = 0.4 \* 102 ft = 40.8 ft

Physical Drawdown Constraint (PDC) = 102 ft - 20 ft = 82 ft

Total drawdown of 49.1 ft is greater than the EDC, so this well is critical.

#### Conclusion:

The proposed move is 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 neighboring critical wells. GMD3 staff recommends a rate limitation of 500 gpm and a quantity limitation of 179 AF at the proposed new well location. This rate and quantity would reduce the net effect on the neighboring critical domestic well to 2.5 ft.



# WELL TEST ANALYSIS

Data Set: C:\Users\trevora\Documents\2021\_Moves\29808\29808 Current.aqt

Date: 04/15/21 Time: 16:56:57

## PROJECT INFORMATION

Company: GMD 3 Project: 29808

Location: Finney County
Test Well: 29808

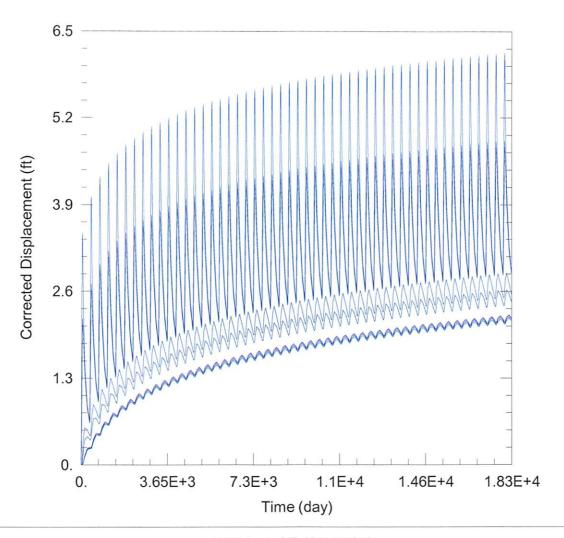
# WELL DATA

| Pumping Wells |        |        |  |  |
|---------------|--------|--------|--|--|
| Well Name     | X (ft) | Y (ft) |  |  |
| 29808         | 36180  | 336260 |  |  |

| Well Name                          | X (ft) | Y (ft) |
|------------------------------------|--------|--------|
|                                    | 36180  | 336260 |
| <b>29807</b>                       | 33559  | 336421 |
| · 5953                             | 38184  | 335371 |
| <ul><li>8975 &amp; 11369</li></ul> | 41450  | 335077 |
| <b>7520</b>                        | 36077  | 333682 |
| <b>21259</b>                       | 41221  | 333686 |
| Domestic 1                         | 35170  | 340029 |
| Domestic 2                         | 32537  | 338021 |
| <ul><li>Domestic 3</li></ul>       | 37782  | 335132 |
| Domestic 4                         | 33802  | 332676 |

**Observation Wells** 

### SOLUTION



# WELL TEST ANALYSIS

Data Set: <u>C:\Users\trevora\Documents\2021\_Moves\29808\29808 Proposed.aqt</u>
Date: 04/15/21 Time: 16:57:12

## PROJECT INFORMATION

Company: GMD 3 Project: 29808

Location: Finney County Test Well: 29808

## WELL DATA

| Pumping Wells |        |        |  |  |
|---------------|--------|--------|--|--|
| Well Name     | X (ft) | Y (ft) |  |  |
| 29808         | 36602  | 335211 |  |  |

| Well Name                          | X (ft) | Y (ft) |
|------------------------------------|--------|--------|
|                                    | 36602  | 335211 |
| <b>29807</b>                       | 33559  | 336421 |
| □ 5953                             | 38184  | 335371 |
| <ul><li>8975 &amp; 11369</li></ul> | 41450  | 335077 |
| □ <b>7</b> 520                     | 36077  | 333682 |
| <b>21259</b>                       | 41221  | 333686 |
| Domestic 1                         | 35170  | 340029 |
| <ul><li>Domestic 2</li></ul>       | 32537  | 338021 |
| <ul> <li>Domestic 3</li> </ul>     | 37782  | 335132 |
| <ul><li>Domestic 4</li></ul>       | 33802  | 332676 |

**Observation Wells** 

## SOLUTION