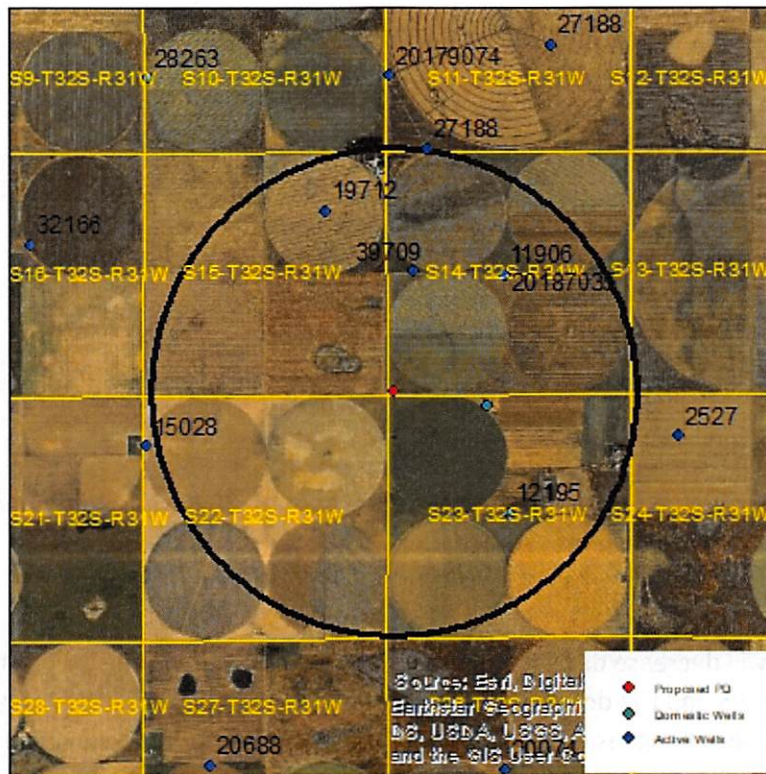**Evaluation of proposed reallocation for Water Right No 39709**

Proposed: Move water right no. 39709 a distance of 2631 ft to the southwest.



Wells within 1 mile: 11906, 27188, 19712, 12195, and a domestic well in section 23-32-31.

The saturated thickness at the proposed well location is estimated to be 199 ft, based on an observation well in section 26-32-31 and local drillers' logs. For saturated thicknesses between 150 and 200 ft, the drawdown allowance is 3.5 ft.

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

$S = 0.1457$, $T = 4570$ ft$^2$/day, $tp_{current} = 105$ days (based upon observed rate and reported quantity), $Q_{current} = 865$ gpm (based upon observation during 2017 field inspection), $tp_{proposed} = 76$ days, $Q_{proposed} = 865$ gpm.

Theis drawdowns were calculated as follows:

| 11906: | Drawdown from current location = 4.23 ft |
| | Drawdown from proposed location = 3.11 ft |
| | Net drawdown = **-1.1 ft** |
| 27188: | Drawdown from current location = 3.40 ft |
| | Drawdown from proposed location = 2.39 ft |
| | Net drawdown = **-1.0 ft** |

| 19712: | Drawdown from current location = 3.79 ft |
| --- | --- |
| | Drawdown from proposed location = 2.77 ft |
| | Net drawdown = **-1.0 ft** |
| 12195: | Drawdown from current location = 2.15 ft |
| | Drawdown from proposed location = 3.01 ft |
| | Net drawdown = **0.9 ft** |
| Domestic 23-32-31: | Drawdown from current location = 2.99 ft |
| | Drawdown from proposed location = 4.60 ft |
| | Net drawdown = **1.6 ft** |

None of the net well effects exceed the drawdown allowance of 3.5 ft, therefore none of the neighboring wells are likely to be impaired.

**Conclusion:**

The proposed move will decrease drawdown effect to 3 of the 5 neighboring wells. The increased effect on water right no. 12195 and the domestic well in section 23-32-31 are well within the 3.5 ft drawdown allowance. The proposed change is not likely to unreasonably contribute to an impairment situation. Therefore, GMD3 staff recommends approval of the application.
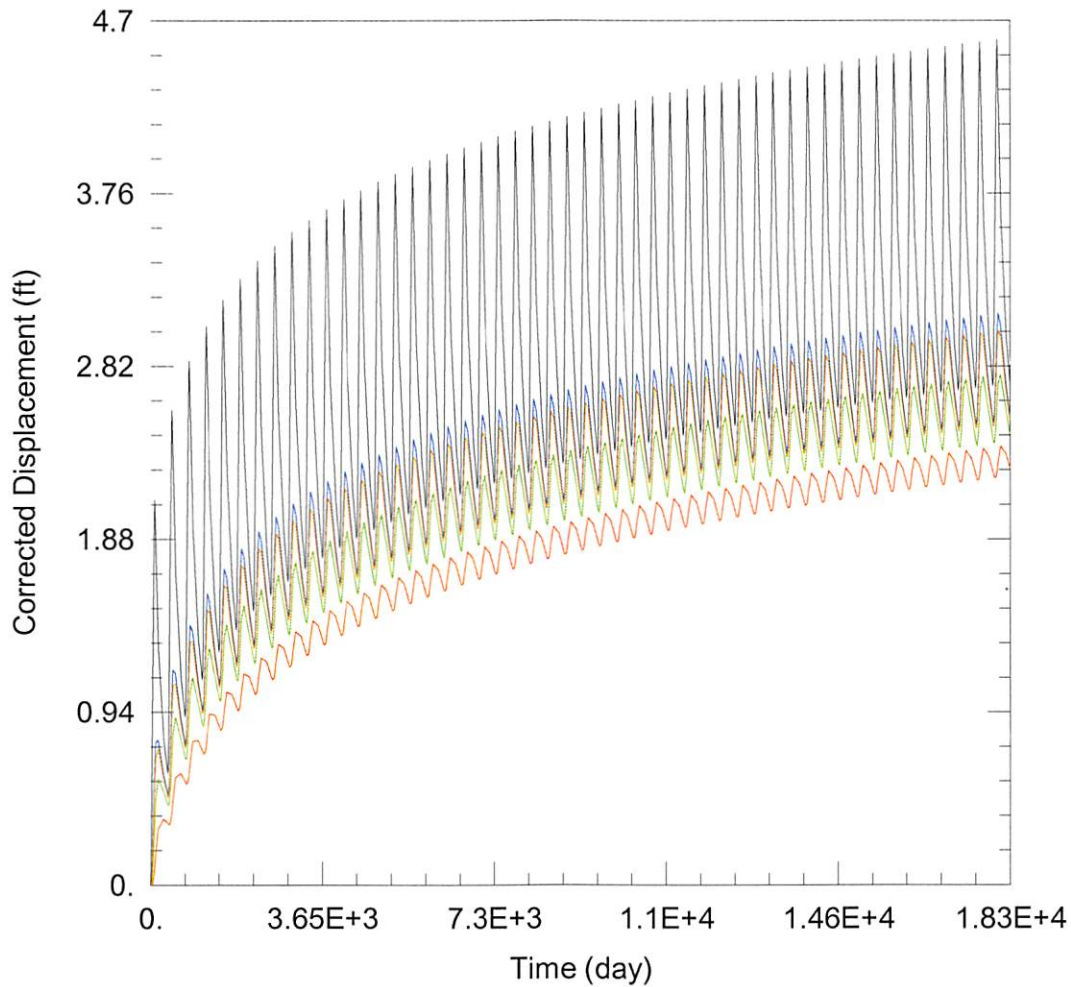
## WELL TEST ANALYSIS

Data Set: C:\Users\trevora\Documents\2019_moves\39709\39709 Proposed.aqt
Date: 07/03/19                                      Time: 14:43:35

## PROJECT INFORMATION

Company: GMD 3
Project: 39709
Location: Seward County
Test Well: 39079

## WELL DATA

| Pumping Wells | | |
|---|---|---|
| Well Name | X (ft) | Y (ft) |
| 39709 | 37375 | 139228 |

| Observation Wells | | |
|---|---|---|
| Well Name | X (ft) | Y (ft) |
| ▢ | 37375 | 139228 |
| ▢ 11906 | 39786 | 141755 |
| ▢ 27188 | 38123 | 144488 |
| ▢ 19712 | 35901 | 143131 |
| ▢ 12195 | 39881 | 136589 |
| ▢ Domestic 23-32-31 | 39404 | 138917 |

## SOLUTION

Aquifer Model: Unconfined                    Solution Method: Theis
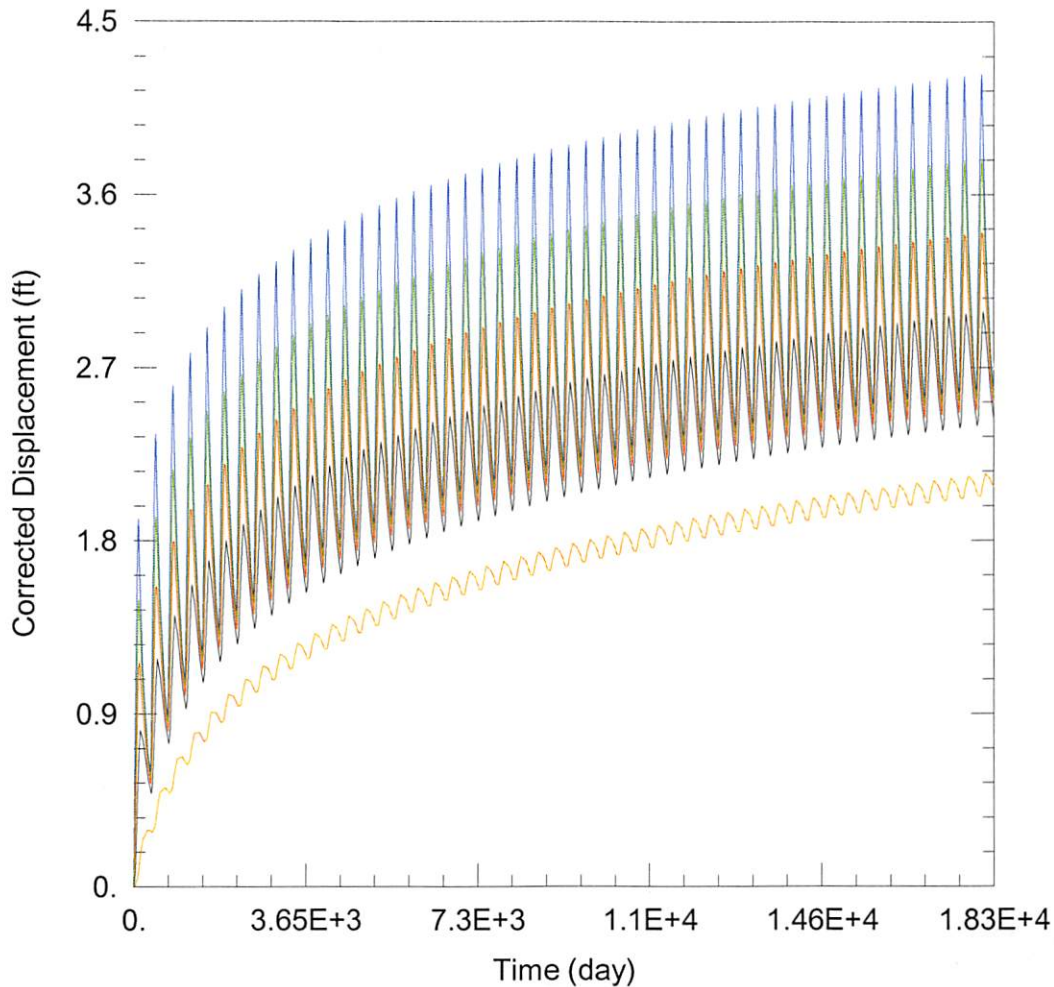
T    = 4570. ft²/day                         S    = 0.1457
Kz/Kr = 1.                                   b    = 199. ft

## WELL TEST ANALYSIS

Data Set:  C:\Users\trevora\Documents\2019_moves\39709\39709 Current.aqt
Date:  07/03/19                                          Time:  14:43:42

### PROJECT INFORMATION

Company:  GMD 3
Project:  39709
Location:  Seward County
Test Well:  39079

### WELL DATA

| Pumping Wells | | | | Observation Wells | | |
|---|---|---|---|---|---|---|
| Well Name | X (ft) | Y (ft) | | Well Name | X (ft) | Y (ft) |
| 39709 | 37815 | 141822 | | ▫ | 37815 | 141822 |
| | | | | ▫ 11906 | 39786 | 141755 |
| | | | | ▫ 27188 | 38123 | 144488 |
| | | | | ▫ 19712 | 35901 | 143131 |
| | | | | ▫ 12195 | 39881 | 136589 |
| | | | | ▫ Domestic 23-32-31 | 39404 | 138917 |

### SOLUTION

Aquifer Model:  Unconfined                    Solution Method:  Theis

T      = 4570. ft²/day                          S      = 0.1457
Kz/Kr = 1.                                      b      = 199. ft