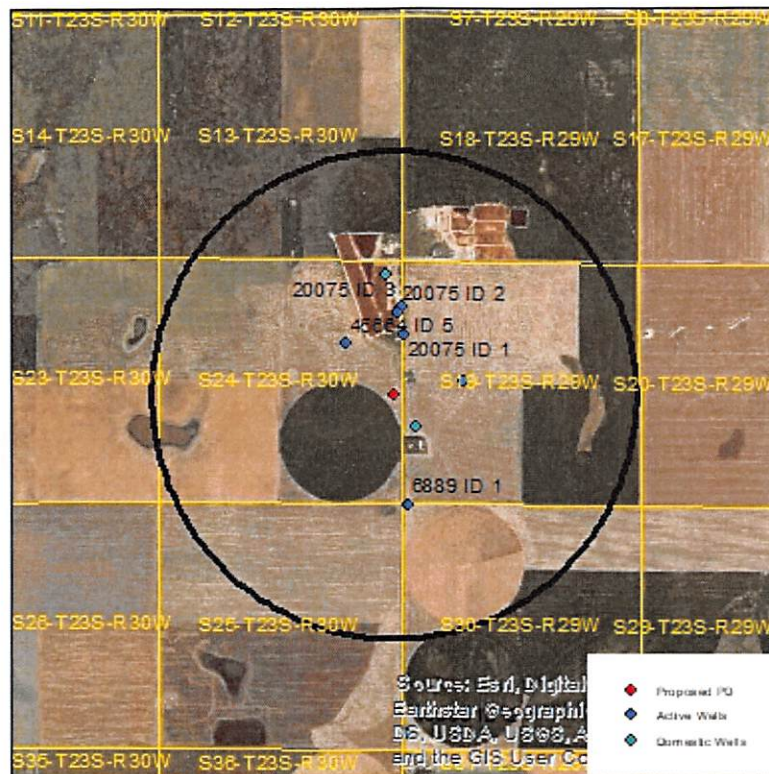


## Evaluation of proposed move for Water Right No 20075 D1

Proposed: Move water right no. 20075 D1 a distance of 1,318 ft to the south.



Wells within 1 mile: 20075 D2 ID 2, 20075 D2 ID 3, 20075 D2 ID 4, 45664, 48591, 6889, a domestic well in section 24-23-30, and a domestic well in section 19-23-30.

The saturated thickness at the proposed well location is estimated to be 37 ft, based upon an observation well in section 30-23-29 and the driller's log at the proposed well location. For saturated thickness less than 50 ft, the drawdown allowance is 1.0 ft.

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

$S = 0.1843$ ,  $T = 2,049 \text{ ft}^2/\text{day}$ ,  $tp_{\text{current}} = 111 \text{ days}$  (based upon average use and authorized rate),  $Q_{\text{current}} = 75 \text{ gpm}$  (authorized rate),  $tp_{\text{proposed}} = 160 \text{ days}$ ,  $Q_{\text{proposed}} = 75 \text{ gpm}$

Theis drawdowns were calculated as follows:

- |                |   |
|----------------|---|
| 20075 D2 ID 2: | Drawdown from current location = 2.11 ft  |
|                | Drawdown from proposed location = 1.35 ft |
|                | <b>Net drawdown = -0.8 ft</b>             |
| 20075 D2 ID 3: | Drawdown from current location = 1.94 ft  |
|                | Drawdown from proposed location = 1.30 ft |
|                | <b>Net drawdown = -0.6 ft</b>             |

20075 D2 ID 4: Drawdown from current location = 2.01 ft  
Drawdown from proposed location = 1.33 ft  
Net drawdown = **-0.7 ft**

45664: Drawdown from current location = 1.19 ft  
Drawdown from proposed location = 1.48 ft  
Net drawdown = **0.3 ft**

48591: Drawdown from current location = 1.02 ft  
Drawdown from proposed location = 1.48 ft  
Net drawdown = **0.5 ft**

6889: Drawdown from current location = 0.61 ft  
Drawdown from proposed location = 1.13 ft  
Net drawdown = **0.5 ft**

Domestic 24-23-30: Drawdown from current location = 1.16 ft  
Drawdown from proposed location = 1.09 ft  
Net drawdown = **-0.1 ft**

Domestic 19-23-39: Drawdown from current location = 0.88 ft  
Drawdown from proposed location = 2.02ft  
Net drawdown = **1.1 ft**

Net drawdown exceeds the drawdown allowance of 1.0 ft for the domestic well in section 19-23-39. Critical well analysis is necessary on that well.

**Critical Well Analysis:**

**Domestic 19-23-39:**

Water Column = 48 ft

DP = 1.1 ft

DE = 0.1 ft (Water level decline from 2020 through 2045 based upon GMD3 model)

DT = 1.2 ft

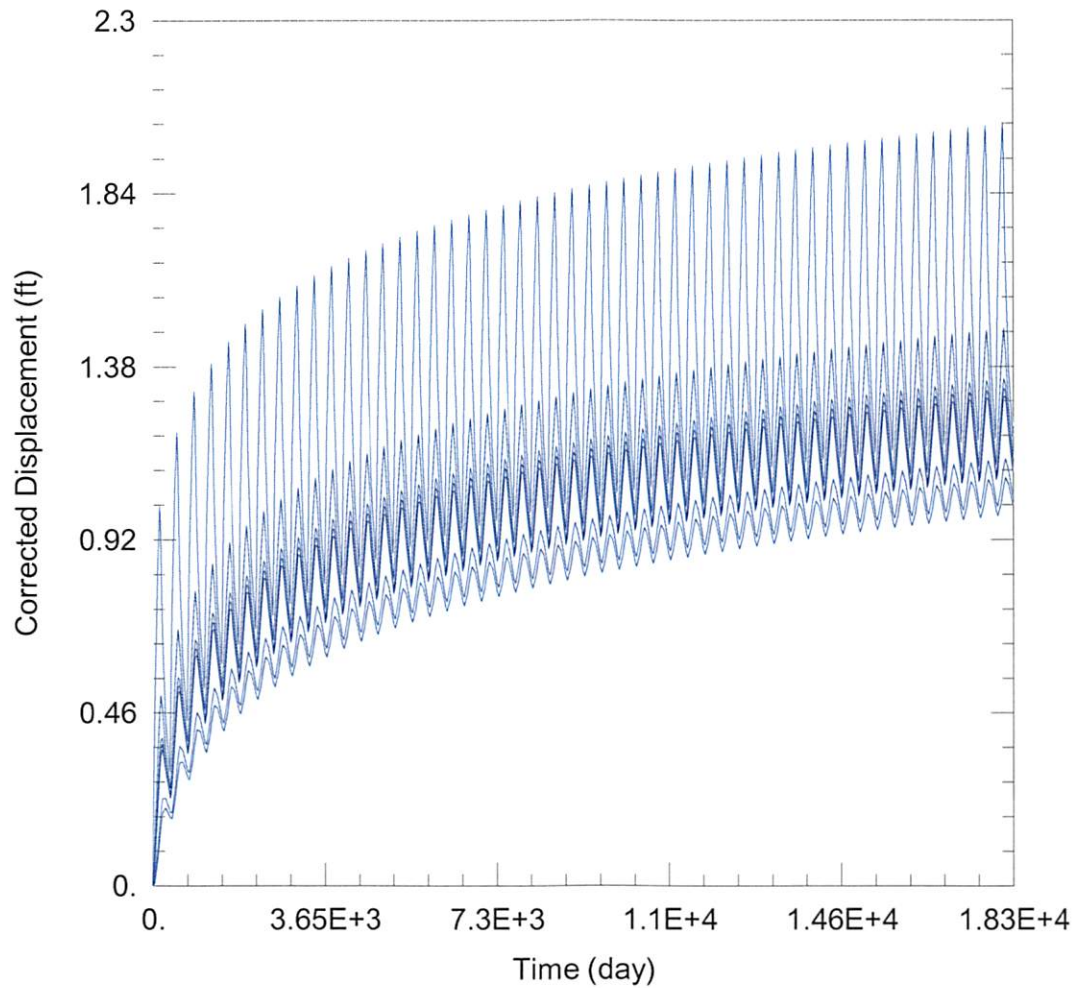
Economic Drawdown Constraint (EDC) = 48 ft \* 0.4 = 19.2 ft

Physical Drawdown Constraint (PDC) = 48 ft – 20 ft = 28 ft

The EDC is more conservative than the PDC, so the maximum allowable drawdown is 19.2 ft. Total drawdown of 1.2 ft is less than the maximum allowable drawdown, so this well is **not critical**.

**Conclusion:**

Based upon information from the GMD3 model and driller's logs, this proposal will cause minimal effects on neighboring wells, and is unlikely to create an impairment. The drawdown allowance is slightly exceeded on one well, but that well has not been identified as critical. GMD3 staff recommends approval of the application.



WELL TEST ANALYSIS

Data Set: C:\...\20075 D1 Proposed.aqt

Date: 05/04/20

Time: 09:57:49

PROJECT INFORMATION

Company: GMD 3

Project: 20075 D1

Location: Finney County

Test Well: 20075 D1

WELL DATA

Pumping Wells

| Well Name | X (ft) | Y (ft) |
|-----------|--------|--------|
| 20075 D1  | 70304  | 423303 |

Observation Wells

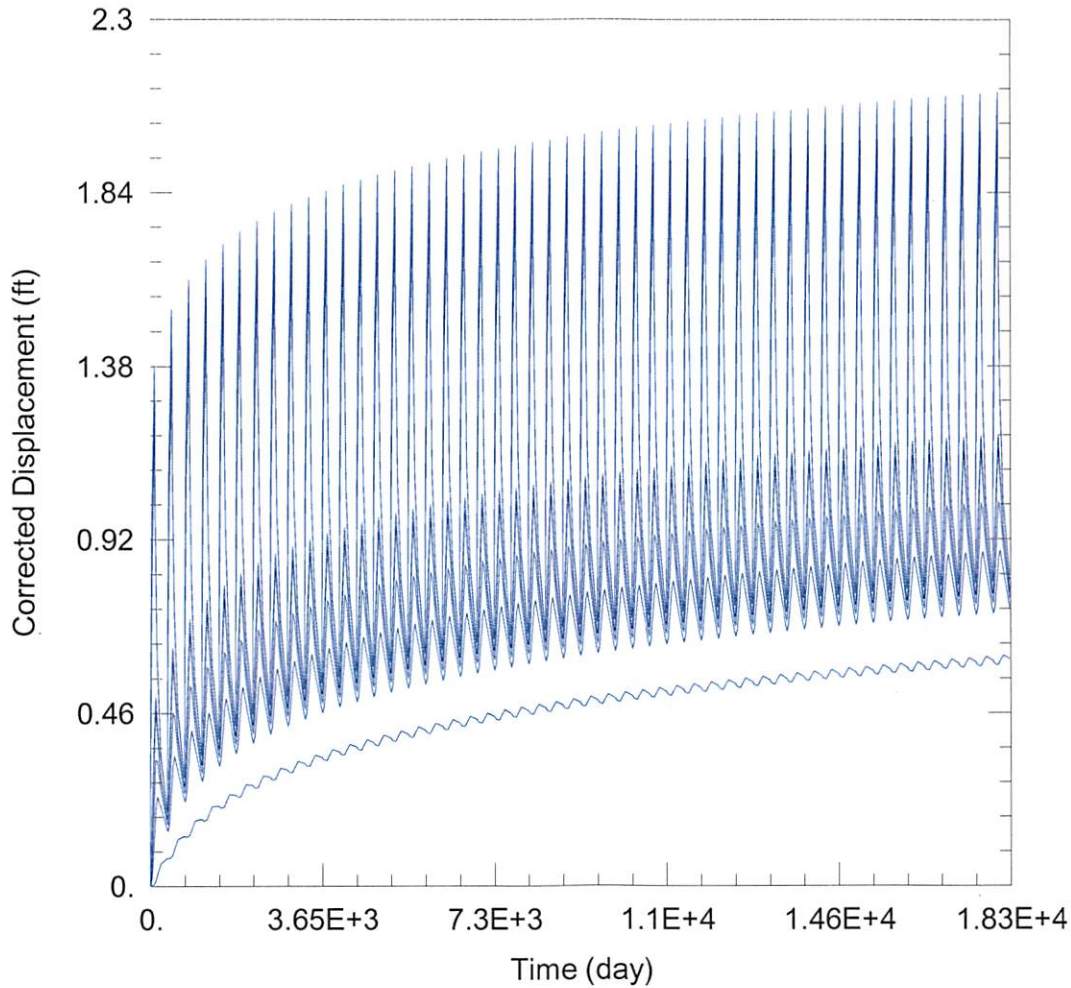
| Well Name           | X (ft) | Y (ft) |
|---------------------|--------|--------|
| □                   | 70304  | 423303 |
| □ 20075 D2 ID2      | 70397  | 425087 |
| □ 20075 D2 ID3      | 70469  | 425186 |
| □ 20075 D2 ID4      | 70417  | 425142 |
| □ 45664             | 69247  | 424404 |
| □ 48591             | 71807  | 423617 |
| □ 6889              | 70613  | 420908 |
| □ Domestic 24-23-30 | 70151  | 425902 |
| □ Domestic 19-23-29 | 70802  | 422608 |

SOLUTION

Aquifer Model: Unconfined

Solution Method: Thisis





WELL TEST ANALYSIS

Data Set: C:\...\20075 D1 Current.aqt  
 Date: 05/04/20

Time: 09:58:06

PROJECT INFORMATION

Company: GMD 3  
 Project: 20075 D1  
 Location: Finney County  
 Test Well: 20075 D1

WELL DATA

Pumping Wells

| Well Name | X (ft) | Y (ft) |
|-----------|--------|--------|
| 20075 D1  | 70514  | 424604 |

Observation Wells

| Well Name           | X (ft) | Y (ft) |
|---------------------|--------|--------|
| □                   | 70514  | 424604 |
| □ 20075 D2 ID2      | 70397  | 425087 |
| □ 20075 D2 ID3      | 70469  | 425186 |
| □ 20075 D2 ID4      | 70417  | 425142 |
| □ 45664             | 69247  | 424404 |
| □ 48591             | 71807  | 423617 |
| □ 6889              | 70613  | 420908 |
| □ Domestic 24-23-30 | 70151  | 425902 |
| □ Domestic 19-23-29 | 70802  | 422608 |

SOLUTION

Aquifer Model: Unconfined

Solution Method: Theis