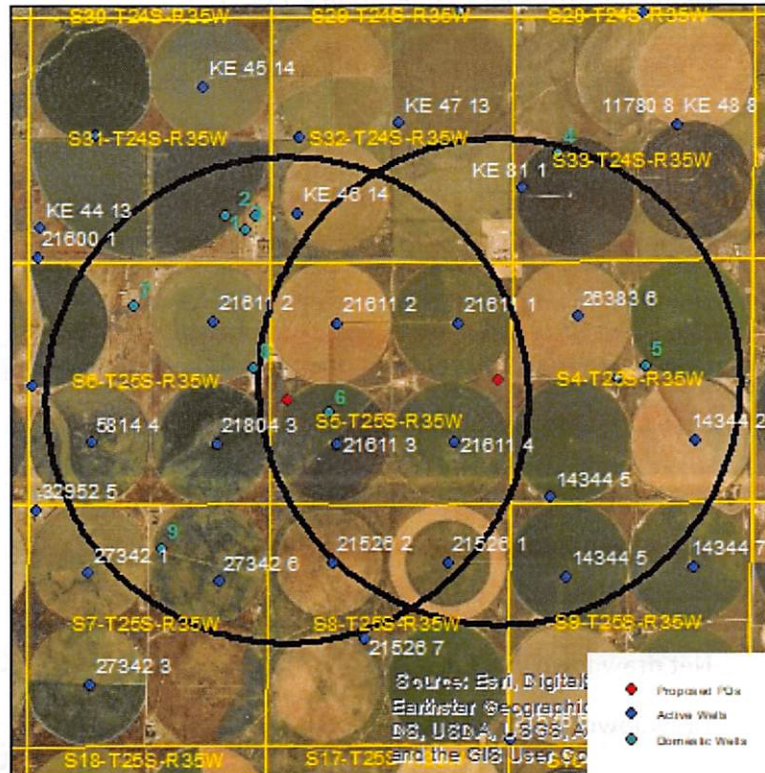


Evaluation of proposed move for Water Right Nos 21611 ID 3 and 21611 ID 4

Proposed: Move water right nos. 21611 ID3 and 21611 ID 4. The new point of diversion for 21611 ID3 will be located 1,498 ft to the northwest of the current point of diversion. The new point of diversion for 21611 ID 4 will be located 1,641 ft to the northeast of the current point of diversion.



Wells within 1 mile: 21611 ID 1, 21611 ID 2 (section 5), 21611 ID 2 (section 6), 21804, 5814, 27342, 21526 ID 1, 21526 ID 2, 14344 ID 2, 14344 ID 5 (section 4), 14344 ID 5 (section 9), 26383 ID 3, 26383 ID 6, KE 81, KE 46, and 9 domestic wells, numbered in the map above.

The saturated thickness at the proposed well location is estimated to be 492 ft, based upon the water level measured in section 10-26-35 and the driller's logs at the proposed well locations. Note that this thickness includes portions of the unconfined Dakota Aquifer. For saturated thickness greater than 200 ft, the drawdown allowance is 4.0 ft.

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

$$S = 0.1682, T = 15,889 \text{ ft}^2/\text{day}$$

21611 ID 3: $tp_{\text{current}} = 240$ days (based upon average use and observed rate), $Q_{\text{current}} = 244$ gpm (based upon 2018 field inspection), $tp_{\text{proposed}} = 74$ days, $Q_{\text{proposed}} = 850$ gpm

21611 ID 4: $tp_{\text{current}} = 100$ days (based upon average use and observed rate), $Q_{\text{current}} = 244$ gpm (based upon 2014 field inspection), $tp_{\text{proposed}} = 74$ days, $Q_{\text{proposed}} = 860$ gpm

Theis drawdowns were calculated as follows:

21611 ID 1: Drawdown from current location = 2.14 ft
Drawdown from proposed location = 3.42 ft
Net drawdown = **1.3 ft**

21611 ID 2 (sec 5): Drawdown from current location = 1.99 ft
Drawdown from proposed location = 3.12 ft
Net drawdown = **1.1 ft**

21611 ID 2 (sec 6): Drawdown from current location = 1.63 ft
Drawdown from proposed location = 2.49 ft
Net drawdown = **0.9 ft**

21804: Drawdown from current location = 1.83 ft
Drawdown from proposed location = 2.85 ft
Net drawdown = **1.0 ft**

5814: Drawdown from current location = 1.40 ft
Drawdown from proposed location = 1.71 ft
Net drawdown = **0.3 ft**

27342: Drawdown from current location = 1.62 ft
Drawdown from proposed location = 1.82 ft
Net drawdown = **0.2 ft**

21526 ID 1: Drawdown from current location = 2.15 ft
Drawdown from proposed location = 2.10 ft
Net drawdown = **-0.1 ft**

21562 ID 2: Drawdown from current location = 1.99 ft
Drawdown from proposed location = 2.14 ft
Net drawdown = **0.2 ft**

14344 ID 2: Drawdown from current location = 1.38 ft
Drawdown from proposed location = 1.70 ft
Net drawdown = **0.3 ft**

14344 ID 5 (sec 4): Drawdown from current location = 2.11 ft
Drawdown from proposed location = 2.34 ft
Net drawdown = **0.2 ft**

14344 ID 5 (sec 9): Drawdown from current location = 1.67 ft
Drawdown from proposed location = 1.81 ft
Net drawdown = **0.1 ft**

26383 ID 3: Drawdown from current location = 1.64 ft
Drawdown from proposed location = 2.29 ft
Net drawdown = **0.7 ft**

26383 ID 6: Drawdown from current location = 1.64 ft
Drawdown from proposed location = 2.50 ft
Net drawdown = **0.9 ft**

KE 81: Drawdown from current location = 1.41 ft
Drawdown from proposed location = 1.88 ft
Net drawdown = **0.5 ft**

KE 46: Drawdown from current location = 1.50 ft
Drawdown from proposed location = 2.01 ft
Net drawdown = **0.5 ft**

Domestic 1: Drawdown from current location = 1.42 ft
Drawdown from proposed location = 1.87 ft
Net drawdown = **0.4 ft**

Domestic 2: Drawdown from current location = 1.46 ft
Drawdown from proposed location = 1.94 ft
Net drawdown = **0.5 ft**

Domestic 3: Drawdown from current location = 1.48 ft
Drawdown from proposed location = 1.67 ft
Net drawdown = **0.5 ft**

Domestic 4: Drawdown from current location = 1.31 ft
Drawdown from proposed location = 1.99 ft
Net drawdown = **0.4 ft**

Domestic 5: Drawdown from current location = 1.50 ft
Drawdown from proposed location = 2.05 ft
Net drawdown = **0.5 ft**

Domestic 6: Drawdown from current location = 2.78 ft
Drawdown from proposed location = 4.20 ft
Net drawdown = **1.4 ft**

Domestic 7: Drawdown from current location = 1.41 ft
Drawdown from proposed location = 1.84 ft
Net drawdown = **0.4 ft**

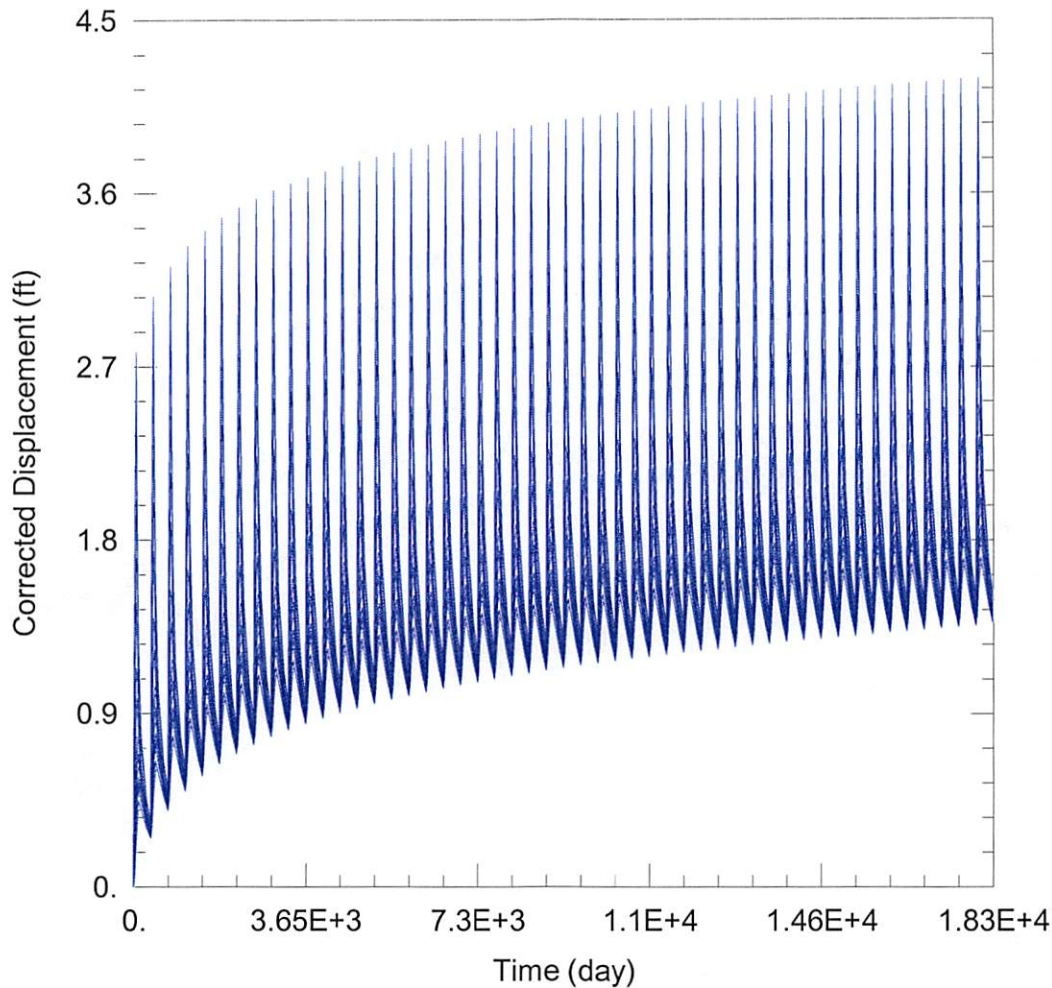
Domestic 8: Drawdown from current location = 1.88 ft
Drawdown from proposed location = 3.86 ft
Net drawdown = **2.0 ft**

Domestic 9: Drawdown from current location = 1.52 ft
Drawdown from proposed location = 1.77 ft
Net drawdown = **0.3 ft**

Net drawdown does not exceed the drawdown allowance of 4.0 ft for any well located within 1 mile of the proposal, so critical well evaluation is not necessary.

Conclusion:

Effects on neighboring wells are expected to be negligible. Any impairment created by this proposal is unlikely. GMD3 staff recommends approval of the application.



WELL TEST ANALYSIS

Data Set: C:\Users\trevora\Documents\2019_moves\21611\21611 Proposed.aqt

Date: 12/06/19

Time: 16:20:03

PROJECT INFORMATION

Company: GMD 3

Project: 21611

Location: Kearny County

Test Well: 21611

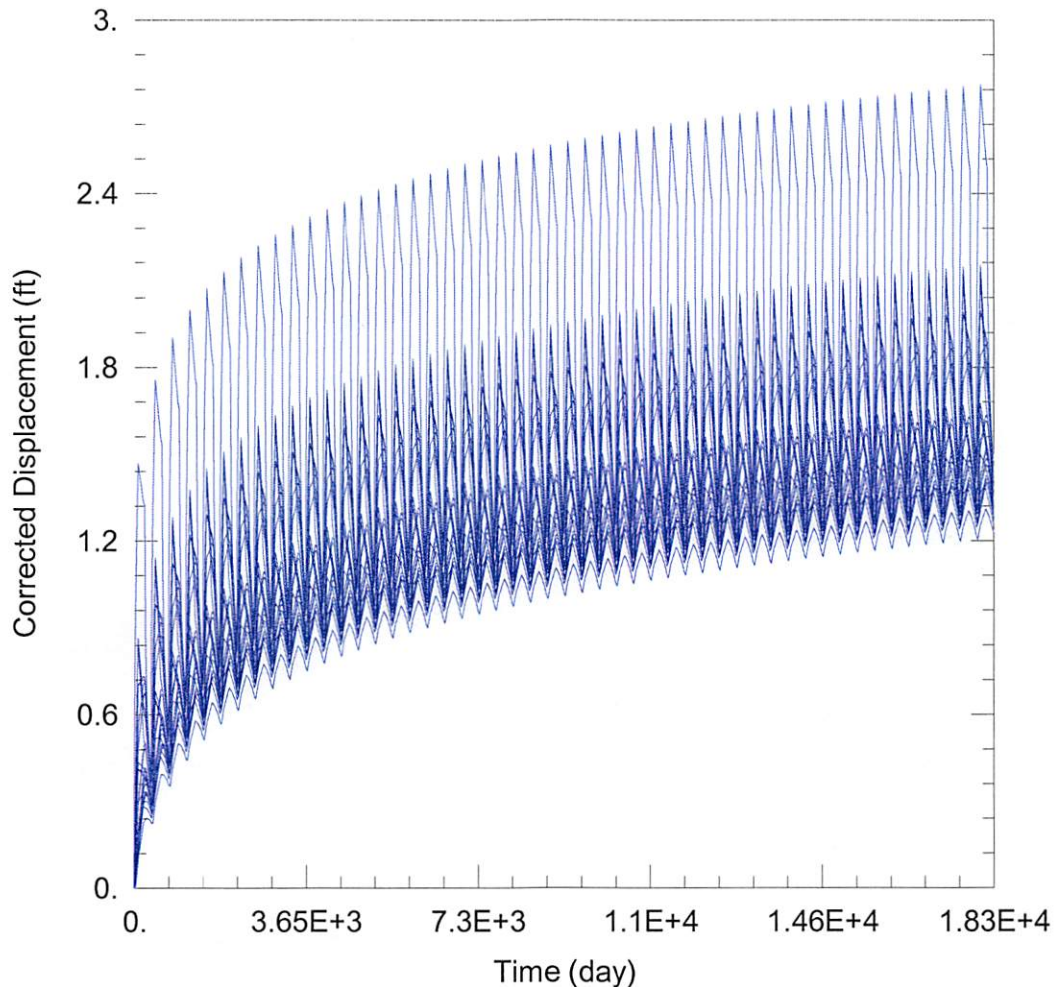
WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
	-113680	376097
	-109028	376494

Observation Wells

Well Name	X (ft)	Y (ft)
□	-113680	376097
□	-109028	376494
□ 21611 ID1	-109920	377747
□ 21611 ID2 sec 5	-112557	377740
□ 21611 ID2 sec 6	-115257	377794
□ 21804	-115193	375115
□ 5814	-117955	375145
□ 27342	-115157	372147
□ 21526 ID1	-110134	372555
□ 21526 ID2	-112662	372560
□ 14344 ID2	-104719	375210
□ 14344 ID5 sec 4	-107898	373978
□ 14344 ID5 sec 9	-107556	372246



WELL TEST ANALYSIS

Data Set: C:\Users\trevora\Documents\2019_moves\21611\21611 Current.aqt

Date: 12/06/19

Time: 16:20:11

PROJECT INFORMATION

Company: GMD 3

Project: 21611

Location: Kearny County

Test Well: 21611

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
	-112556	375107
	-109984	375160

Observation Wells

Well Name	X (ft)	Y (ft)
□	-112556	375107
□	-109984	375160
□ 21611 ID1	-109920	377747
□ 21611 ID2 sec 5	-112557	377740
□ 21611 ID2 sec 6	-115257	377794
□ 21804	-115193	375115
□ 5814	-117955	375145
□ 27342	-115157	372147
□ 21526 ID1	-110134	372555
□ 21526 ID2	-112662	372560
□ 14344 ID2	-104719	375210
□ 14344 ID5 sec 4	-107898	373978
□ 14344 ID5 sec 9	-107556	372246