### Evaluation of proposed move for Water Right No. 7195 D1

Proposed: Move water right no. 7195 D1 ID7 to a new well location 637 ft to the north.



Wells within 1 mile: 16536, 38997, 38993, 38570, 1847, 1202, 1203, 2531, 38991, and four domestic wells, numbered on the above map.

The saturated thickness at the proposed well location is estimated to be 260 ft, based upon the GMD3 model. 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 = 0.149, T = 13,773 ft<sup>2</sup>/day,  $tp_{current} = 75$  days,  $Q_{current} = 896$  gpm,  $tp_{proposed} = 199$  days,  $Q_{proposed} = 1250$  gpm (Note that the current well location has not been used over the past 10 years. This right has a limitation with 7195 D1 ID8, and as a worst-case scenario, analysis was run as if all authority was pumped out of the proposed well location. Current effects are from 7195 D1 ID8.)

Theis drawdowns were calculated as follows:

16536:

Drawdown from current location = 1.55 ft

Drawdown from proposed location = 5.88 ft

Net drawdown = 4.3 ft

20007.	Drawdawa fram	aumont location - 1 12 ft
38997:	Drawdown Ironi	current location = 1.13 ft

Drawdown from proposed location = 4.60 ft

Net drawdown = 3.5 ft

38993: Drawdown from current location = 1.21 ft

Drawdown from proposed location = 6.36 ft

Net drawdown = 5.1 ft

38570: Drawdown from current location = 1.08 ft

Drawdown from proposed location = 4.03 ft

Net drawdown = 2.9 ft

1847: Drawdown from current location = 2.74 ft

Drawdown from proposed location = 4.28 ft

Net drawdown = 1.5 ft

1202: Drawdown from current location = 1.46 ft

Drawdown from proposed location = 4.64 ft

Net drawdown = 3.6 ft

1203: Drawdown from current location = 1.13 ft

Drawdown from proposed location = 4.69 ft

Net drawdown = 3.6 ft

2531: Drawdown from current location = 0.88 ft

Drawdown from proposed location = 4.09 ft

Net drawdown = 3.2 ft

38991: Drawdown from current location = 1.18 ft

Drawdown from proposed location = 5.56 ft

Net drawdown = 4.4 ft

Domestic 1: Drawdown from current location = 1.90 ft

Drawdown from proposed location = 8.86 ft

Net drawdown = 7.0 ft

Domestic 2: Drawdown from current location = 1.98 ft

Drawdown from proposed location = 9.2 ft

Net drawdown = 7.2 ft

Domestic 3: Drawdown from current location = 1.57 ft

Drawdown from proposed location = 4.45 ft

Net drawdown = 2.9 ft

Domestic 4: Drawdown from current location = 1.15 ft

Drawdown from proposed location = 6.10 ft

Net drawdown = 5.0 ft

Net drawdown exceeds the drawdown allowance of 4.0 ft for water right nos. 16536, 38993, 38991, and domestic wells 1, 2, and 4. Critical well analysis is necessary for those wells.

### **Critical Well Evaluation:**

### 16536:

Water Column = 260 ft

DP = 4.3 ft (Net drawdown from the proposal indicated above)

DE = 46.9 ft (Water level decline from 2021 through 2046 based upon GMD3 model)

DD = 10.7 ft (S = 0.144, T = 103,025 gpd/ft, Q = 400 gpm, tp = 107 days, efficiency = 70%)

DT = 61.9 ft

Economic Drawdown Constraint (EDC) = 0.4 \* 260 ft = 104 ft

Physical Drawdown Constraint (PDC) = 260 ft - 60 ft = 200 ft

Total drawdown of 61.9 ft is less than the EDC and PDC, so this well is not critical.

### 38993:

Water Column = 286 ft

DP = 5.1 ft (Net drawdown from the proposal indicated above)

DE = 28 ft (Water level decline from 2021 through 2046 based upon GMD3 model)

DD = 1.8 ft (S = 0.09633, T = 74,750 gpd/ft, Q = 50 gpm, tp = 82 days, efficiency = 70%)

DT = 34.9 ft

Economic Drawdown Constraint (EDC) = 0.4 \* 286 ft = 114.4 ft

Physical Drawdown Constraint (PDC) = 286 ft - 60 ft = 226 ft

Total drawdown of 34.9 ft is less than the EDC and PDC, so this well is not critical.

### 38991:

Water Column = 286 ft

DP = 4.4 ft (Net drawdown from the proposal indicated above)

DE = 28 ft (Water level decline from 2021 through 2046 based upon GMD3 model)

DD = 1.9 ft (S = 0.09633, T = 74,750 gpd/ft, Q = 50 gpm, tp = 179 days, efficiency = 70%)

DT = 34.3 ft

Economic Drawdown Constraint (EDC) = 0.4 \* 286 ft = 114.4 ft

Physical Drawdown Constraint (PDC) = 286 ft - 60 ft = 226 ft

Total drawdown of 34.3 ft is less than the EDC and PDC, so this well is not critical.

### Domestic 1:

Water Column = 267 ft

DP = 6.9 ft (Net drawdown from the proposal indicated above)

DE = 50.2 ft (Water level decline from 2021 through 2046 based upon GMD3 model)

DT = 57.1 ft

Economic Drawdown Constraint (EDC) = 0.4 \* 267 ft = 106.8 ft

Physical Drawdown Constraint (PDC) = 267 ft - 20 ft = 247 ft

Total drawdown of 57.1 ft is less than the EDC and PDC, so this well is not critical.

### Domestic 2:

Water Column = 267 ft

DP = 7.2 ft (Net drawdown from the proposal indicated above)

DE = 50.2 ft (Water level decline from 2021 through 2046 based upon GMD3 model)

DT = 57.4 ft

Economic Drawdown Constraint (EDC) = 0.4 \* 267 ft = 106.8 ft

Physical Drawdown Constraint (PDC) = 267 ft - 20 ft = 247 ft

Total drawdown of 57.4 ft is less than the EDC and PDC, so this well is not critical.

### Domestic 4:

Water Column = 267 ft

DP = 5.0 ft (Net drawdown from the proposal indicated above)

DE = 50.2 ft (Water level decline from 2021 through 2046 based upon GMD3 model)

DT = 55.2 ft

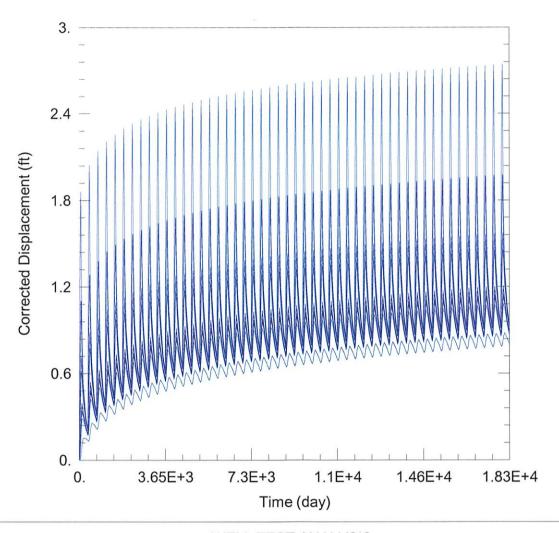
Economic Drawdown Constraint (EDC) = 0.4 \* 267 ft = 106.8 ft

Physical Drawdown Constraint (PDC) = 267 ft - 20 ft = 247 ft

Total drawdown of 55.2 ft is less than the EDC and PDC, so this well is not critical.

### **Conclusion:**

The proposed moves are located in an area with ample saturated thickness and aquifer properties that allow for productive wells. If the proposed well were to pump its full authorized authority, there would likely be a noticeable effect on a few neighboring wells. Critical well analysis shows that none of these neighboring wells are critical, meaning that they are not likely to lose a significant amount of productivity because of this change. GMD3 staff recommends approval of the application.



### WELL TEST ANALYSIS

### PROJECT INFORMATION

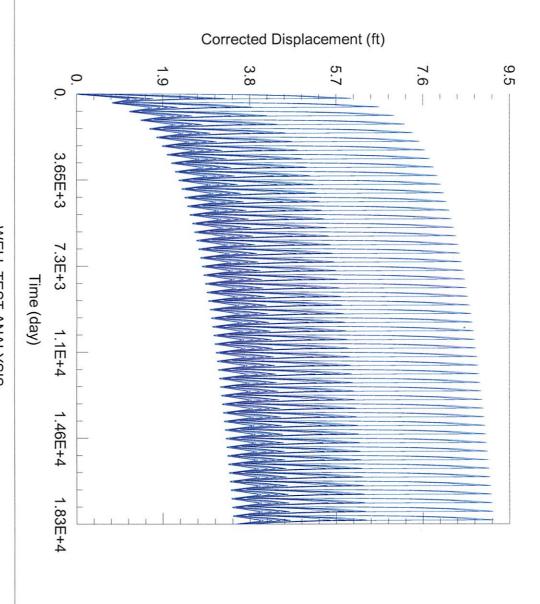
Company: GMD 3 Project: 7195 D1

Location: Kearny County

### **WELL DATA**

Р	Pumping Wells	
Well Name	X (ft)	Y (ft)
7195 ID8	-91621	410508

Obse	ervation Wells	
Well Name	X (ft)	Y (ft)
а	-91621	410508
<b>- 16536</b>	-90249	407226
□ 38997	-89015	405689
<b>38993</b>	-92070	405576
□ 38570	-87543	406380
· 1847	-91702	412129
<b>1202</b>	-95454	410471
<b>1203</b>	-96557	408224
· 2531	-96571	404215
<b>38991</b>	-90860	405451
<ul><li>Domestic 1</li></ul>	-93041	408266
Domestic 2	-92779	408262
<ul><li>Domestic 3</li></ul>	-95039	411206
Domestic 4	-94116	405797



## WELL TEST ANALYSIS

Data Set: C:\Users\trevora\Documents\2021\_Moves\7195\_D1\7195 Proposed.aqt
Date: 10/22/21 Time: 16:22:37

# PROJECT INFORMATION

Company: GMD 3 Project: 7195 D1

Location: Kearny County

Pumping Wells X (ft) -92677

Well Name Proposed PD

### WELL DATA

	Observation Wells	on Wells	
子 (ft)	Well Name	X (ft)	丫(ft)
407533		-92677	407533
	· 16536	-90249	407226
	<sub>0</sub> 38997	-89015	405689
	<sub>0</sub> 38993	-92070	405576
	<sub>-</sub> 38570	-87543	406380
	n 1847	-91702	412129
	n 1202	-95454	410471
	n 1203	-96557	408224
	· 2531	-96571	404215
	<sub>0</sub> 38991	-90860	405451
	Domestic 1	-93041	408266
	Domestic 2	-92779	408262
	Domestic 3	-95039	411206
	- Domestic 4	-04116	405797