

GMD3 Change Review

File No(s): 24108.

DWR office: GC.

App filed to change: PD.

Is Landowner(s) correct in WRIS: J&L Smith Farms.

If NO, is documentation included?

Is Water Use Correspondent correct in WRIS? Yes.

If NO, is documentation included?

Regulation(s) Reviewed: KAR 5-23-3

Point of diversion ID No(s) 02 being changed.

	ft. North	ft. West					
Authorized PD							
Proposed PD							
Difference	0	0					
a2 + b2 = c2	0	0	0				

GPS for proposed PD: Lat: 37.7297222 Long: -101.1675.

Is proposed PD stacking on existing WRs? No.

Is Proposed PU overlapping existing WRs? Land already overlaps 17680 & 31268, no change.

Land Owner(s) notified: DWR only showed applicant with wells within half mile.

Name ____.

Name ____.

Address ____.

Address ____.

Zip ____.

Zip ____.

Neighboring certified well(s) notified: ____.

Name ____.

Name ____.

Address ____.

Address ____.

Zip ____.

Zip ____.

Domestic well(s) notified: well in same quarter owned by applicant.

Name ____.

Name ____.

Address ____.

Address ____.

Zip ____.

Zip ____.

Base Acres: ____.

Perfected Acres: ____.

Irr. Return-Flow ____%

Saturated thickness in area >200' = de minimus effect standard is 4' or less.

WR 17680 ID5 was close at 3.2', but that well and land is owned by applicant.

Domestic well in SE SE NE 5-27-35 showed 4.7' and again is owned by applicant.

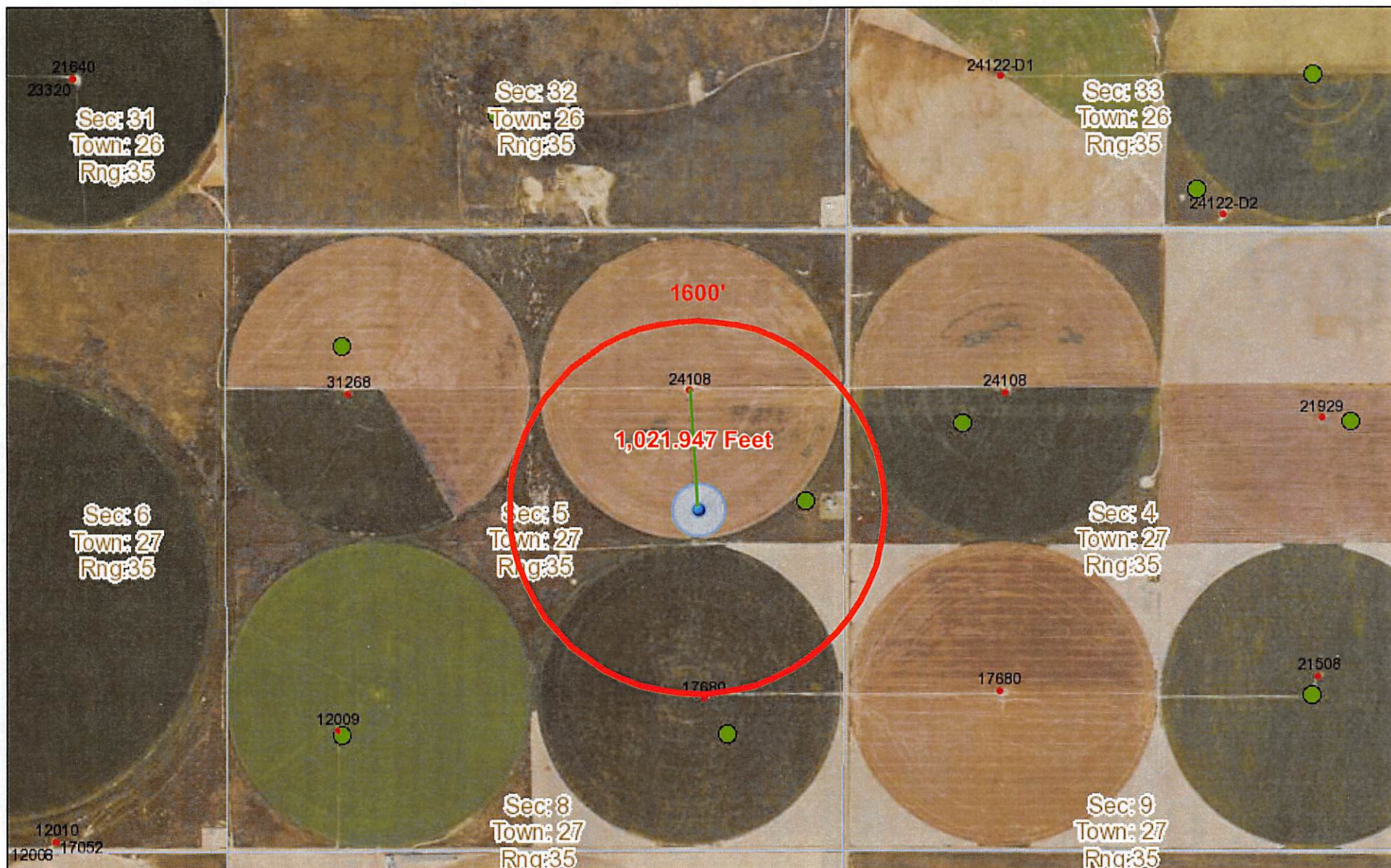
Critical well analysis for domestic well showed Economic Drawdown Constraint set limit of 55.6'. Total Drawdown calculated at 41.7', so not considered a critical well.

Is a waiver needed: Move is less than half mile and minimum spacing to neighboring wells is met.

GMD3 Change Review

Recommendation: After review of all information, current area rules are met. Well to well analysis showed that none of the wells within a mile studied were considered critical. With no further information, staff would recommend approval.

A handwritten signature in black ink, consisting of a large, stylized 'J' followed by a series of loops and a horizontal stroke.



March 8, 2019
16:21 PM

DISCLAIMER: This map is not intended for conveyances, nor is it a legal survey. The information is presented on a best-efforts basis, and should not be relied upon for making financial, survey, legal or other commitments.

GPS Position

Wells

? Other

• IRR

+

CON

⊠

DEW

⚠

DOM

+

FPR

+

HYD

★

IND

▲

MUN

▢

REC

⊠

STK

⚡

THX

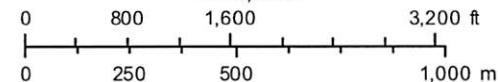
?

Empty

●

WWC5 WELLS GMD3

1:18,056



INPUTS	
Target Section Definition	
Section	5
Township	27
Range	35
Range Direction	W
Target Point Coordinates (NAD27 or NAD83)	
Target Longitude	-101.167500
Target Latitude	37.729722

Load Data and Compute

Instructions

1. Enter values for section, township, range and range direction.
2. Enter **NAD27** or **NAD83** longitude and latitude of target point.
3. Click "Load Data and Compute" button.
4. Use feet distances corresponding to datum of target point.

Loaded Section Data		
From LEOBASE using NAD83		
Corner	Corner Latitudes	Corner Longitudes
SW	37.72166927	-101.18144883
NW	37.73630207	-101.18149510
NE	37.73636342	-101.16310789
SE	37.72171554	-101.16325977
Degrees Longitude per Foot		3.45747354E-06
Degrees Latitude per Foot		2.74621894E-06
Target Point Distances from Corners using NAD83		
Corner	Feet North(+)/South(-)	Feet East(-)/West(+)
SW	2932	-4034
NW	-2396	-4048
NE	-2418	1270
SE	2916	1226

Target point is In Section

Loaded Section Data		
From LEOBASE using NAD27		
Corner	Corner Latitudes	Corner Longitudes
SW	37.72164900	-101.18100000
NW	37.73628200	-101.18104600
NE	37.73634300	-101.16265900
SE	37.72169500	-101.16281100
Degrees Longitude per Foot		3.45747259E-06
Degrees Latitude per Foot		2.74598553E-06
Target Point Distances from Corners using NAD27		
Corner	Feet North(+)/South(-)	Feet East(-)/West(+)
SW	2940	-3905
NW	-2389	-3918
NE	-2411	1400
SE	2923	1356

Target point is In Section

Difference (NAD83 Minus NAD27)		
Corner	Corner Latitudes	Corner Longitudes
SW	0.00002027	-0.00044883
NW	0.00002007	-0.00044910
NE	0.00002042	-0.00044889
SE	0.00002054	-0.00044877
Difference (NAD83 Minus NAD27)		
Corner	Feet North(+)/South(-)	Feet East(-)/West(+)
SW	-7.63093864	-129.81337553
NW	-7.10519281	-129.89146361

Water Rights and Points of Diversion Within 1.00 miles of point defined as:

2923 ft N and 1356 ft W of the SE Corner of Section 5, T 27S, R 35W

Located at: 101.167499 West Longitude and 37.729722 North Latitude

GROUNDWATER ONLY

1600' on A11

File Number	Use	ST	SR	Dist (ft)	Q4	Q3	Q2	Q1	FeetN	FeetW	Sec	Twp	Rng	ID	Batt	Auth_Quan	Add_Quan	Unit
A__ 12009	00	IRR	NK	G	3546	--	NE	SW	SW	1000	4335	5	27	35W	4	222.00	222.00	AF
A__ 17680	00	IRR	NK	G	3134	--	--	NC	SW	-----	-----	4	27	35W	1	265.00	265.00	AF
Same					1638	--	NW	SE	SE	1293	1191	5	27	35W	5	298.00	298.00	AF
A__ 24108	00	IRR	NK	G*	2924	--	--	NC	NW	-----	-----	4	27	35W	4	272.00	272.00	AF
Same					1074	--	--	NC	NE	-----	-----	5	27	35W	2	272.00	272.00	AF
A__ 24122	D1	IRR	NK	G	4604	--	--	NC	SW	1306	3998	33	26	35W	1	272.00	272.00	AF
A__ 24122	D2	IRR	NK	G	5252	--	SW	SW	SE	101	2093	33	26	35W	4	272.00	272.00	AF
A__ 31268	00	IRR	NK	G	3067	--	NE	SW	NW	3950	4235	5	27	35W	3	272.00	272.00	AF

Total Net Quantities Authorized:	Direct	Storage
Total Requested Amount (AF) =	.00	.00
Total Permitted Amount (AF) =	.00	.00
Total Inspected Amount (AF) =	.00	.00
Total Pro_Cert Amount (AF) =	.00	.00
Total Certified Amount (AF) =	2145.00	.00
Total Vested Amount (AF) =	.00	.00
TOTAL AMOUNT (AF) =	2145.00	.00

An * after the source of supply indicates a pending application for change for the file number.

An * after the ID indicates a 15 AF exemption was granted for the file number.

A "G" in the Batt column indicates the GEO CTR of a battery. A "B" indicates a well in the battery.

The number in the Batt column is the number of wells in the battery.

Water Rights and Points of Diversion Within 1.00 miles of point defined as:

101.167499 West Longitude and 37.729722 North Latitude

GROUNDWATER ONLY

WATER USE CORRESPONDENTS:

File Number Use ST SR

A__ 12009 00 IRR NK G

> LARRY K SMITH

>

> 8569 E ROAD 2

> ULYSSES KS 67880

>-----

A__ 17680 00 IRR NK G

> DEW FARMS INC

> BRAD DEW

> 66 NORTH 1000 EAST

> MAPLETON UT 84664

>-----

> J & L SMITH FARMS INC

> BRYAN SMITH

> 9170 E ROAD 2

> ULYSSES KS 67880

>-----

A__ 24108 00 IRR NK G

> DEW FARMS INC
> BRAD DEW
> 66 NORTH 1000 EAST
> MAPLETON UT 84664

> J & L SMITH FARMS INC
> BRYAN SMITH
> 9170 E ROAD 2
> ULYSSES KS 67880

A__ 24122 D1 IRR NK G
> GARY V & DONNA COVEY TRUST
>
> PO BOX 845
> ULYSSES KS 67880

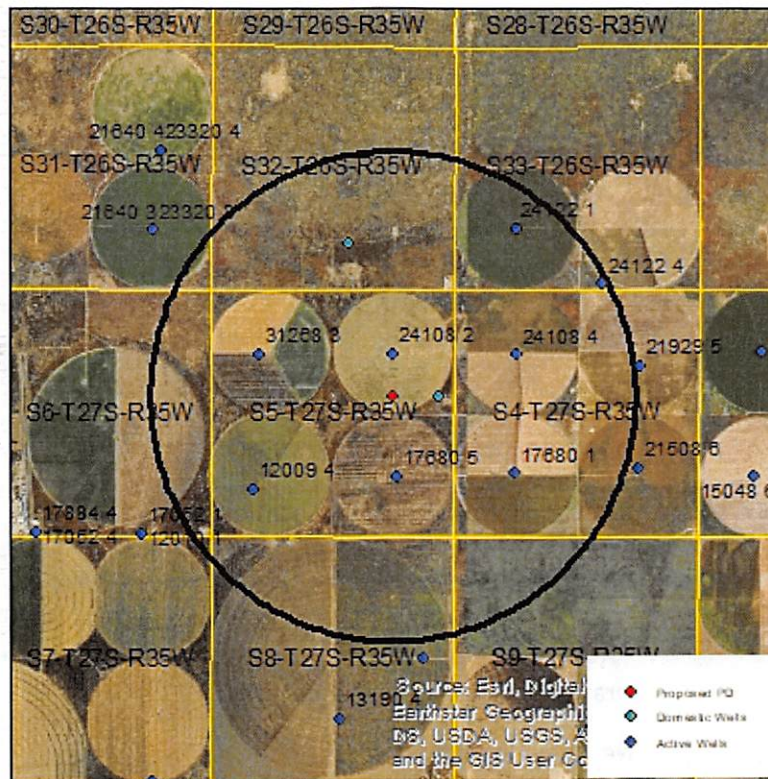
A__ 24122 D2 IRR NK G
> J & L SMITH FARMS INC
> BRYAN SMITH
> 9170 E ROAD 2
> ULYSSES KS 67880

A__ 31268 00 IRR NK G
> J & L SMITH FARMS INC
> BRYAN SMITH
> 9170 E ROAD 2
> ULYSSES KS 67880

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Well Evaluations of proposed move for Water Right No 24108 ID 2

Proposed: Move the well authorized under water right no. 24108 ID 2 905 ft to the south.



Wells within 1 mile: 24108 ID 4, 17680 ID 5, 12009 ID 4, 31268 ID 3, 24122 ID 1, 24122 ID 4, 17680 ID 1, a domestic well in section 32-26-35, and a domestic well in section 5-27-35.

The saturated thickness at the proposed well location is estimated to be 469 ft, based upon the driller's log at the proposed well location and water level information from a monitoring well located in section 1-27-36. Note that this well is drilled well beneath the extent of the Ogallala Aquifer. For saturated thicknesses greater than 200 ft, the maximum allowable Theis drawdown to neighboring critical wells is 4.0 ft.

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

$S = 0.1683$, $T = 4216 \text{ ft}^2/\text{day}$, $tp_{\text{current}} = 100 \text{ days}$ (based upon reported quantity and observed rate at 2012 inspection), $Q_{\text{current}} = 293 \text{ gpm}$ (observed at 2012 inspection), $tp_{\text{proposed}} = 74 \text{ days}$, $Q_{\text{proposed}} = 830 \text{ gpm}$.

Theis drawdowns were calculated and results are as follows:

24108 ID 4: Drawdown from current location = 1.65 ft
 Drawdown from proposed location = 3.38 ft
 Net drawdown = **1.7 ft**

17680 ID 5:

Drawdown from current location = 1.67 ft

Drawdown from proposed location = 4.87 ft

Net drawdown = **3.2 ft**

12009 ID 4:

Drawdown from current location = 1.25 ft

Drawdown from proposed location = 2.86 ft

Net drawdown = **1.6 ft**

31268 ID 3:

Drawdown from current location = 1.57 ft

Drawdown from proposed location = 3.20 ft

Net drawdown = **1.6 ft**

24122 ID 1:

Drawdown from current location = 1.32 ft

Drawdown from proposed location = 2.51 ft

Net drawdown = **1.2 ft**

24122 ID 4:

Drawdown from current location = 1.14 ft

Drawdown from proposed location = 2.29 ft

Net drawdown = **1.1 ft**

17680 ID 1:

Drawdown from current location = 1.34 ft

Drawdown from proposed location = 3.15 ft

Net drawdown = **1.8 ft**

Domestic 32-26-35:

Drawdown from current location = 1.70 ft

Drawdown from proposed location = 2.95 ft

Net drawdown = **1.3 ft**

Domestic 5-27-35:

Drawdown from current location = 2.59 ft

Drawdown from proposed location = 7.32 ft

Net drawdown = **4.7 ft**

Net drawdown exceeds 4.0 ft on the domestic well located in section 5-27-35, so critical well analysis is necessary.

Critical Well Analysis:

Domestic well in section 5-27-35:

Saturated Thickness = 139 ft. Water column is less, but the well is more than 25 years old, so it is reasonable to expect it to be redrilled to the bottom of the Ogallala formation.

DP = 4.58 ft (based upon 25 yr net Theis drawdown)

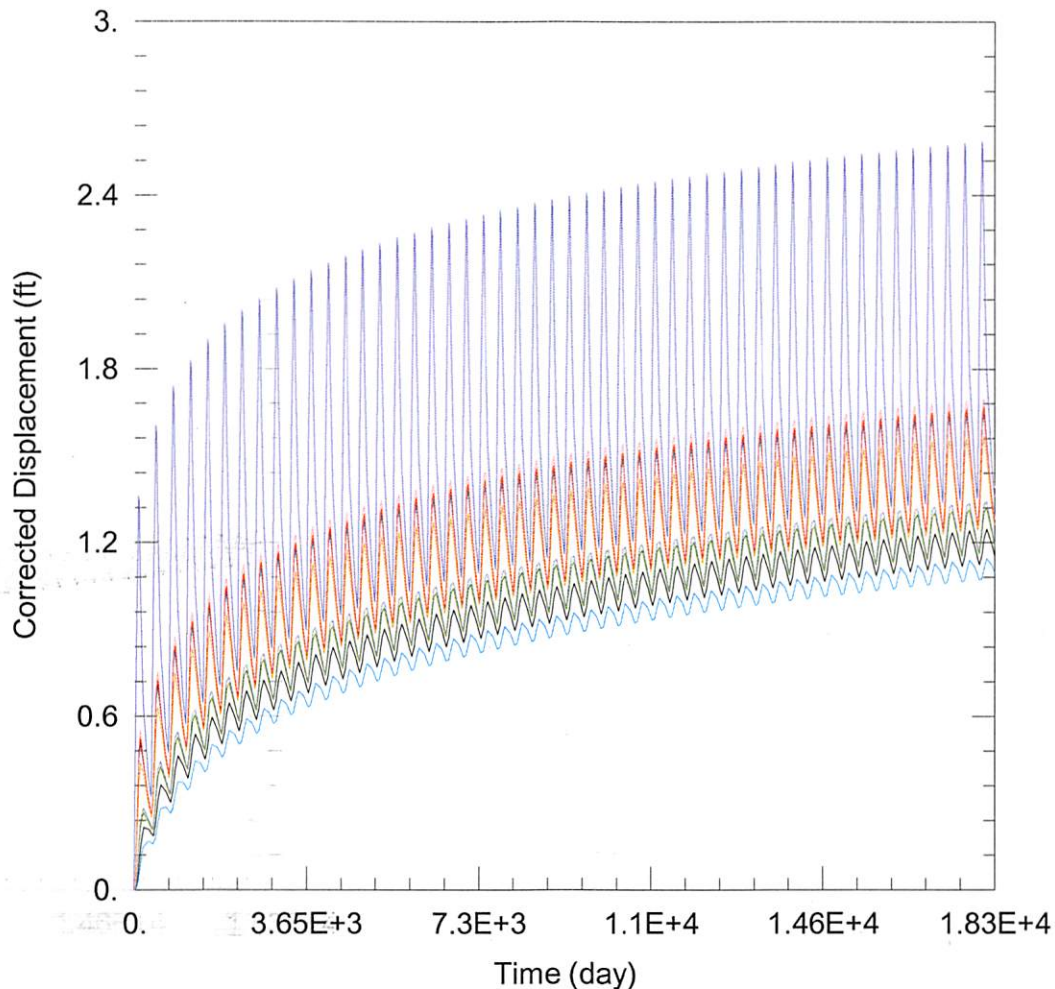
DE = 37.1 ft (based upon water level declines predicted by the GMD3 model)

DT = 41.7 ft

Economic Drawdown Constraint (EDC) = $139 \text{ ft} * 0.4 = 55.6 \text{ ft}$

Physical Drawdown Constraint (PDC) = $139 \text{ ft} - 20 \text{ ft} = 119 \text{ ft}$

The economic drawdown constraint is less than the physical drawdown constraint, so the maximum allowable drawdown is 55.6 ft. Total drawdown of 41.7 ft is less than the maximum allowable drawdown, so this well is not critical.



WELL TEST ANALYSIS

Data Set: C:\Users\trevora\Documents\2019_moves\24108\24108 Current.aqt

Date: 03/11/19

Time: 11:29:12

PROJECT INFORMATION

Company: GMD 3

Project: 24108

Location: Grant County

Test Well: 24108

WELL DATA

Pumping Wells

Observation Wells

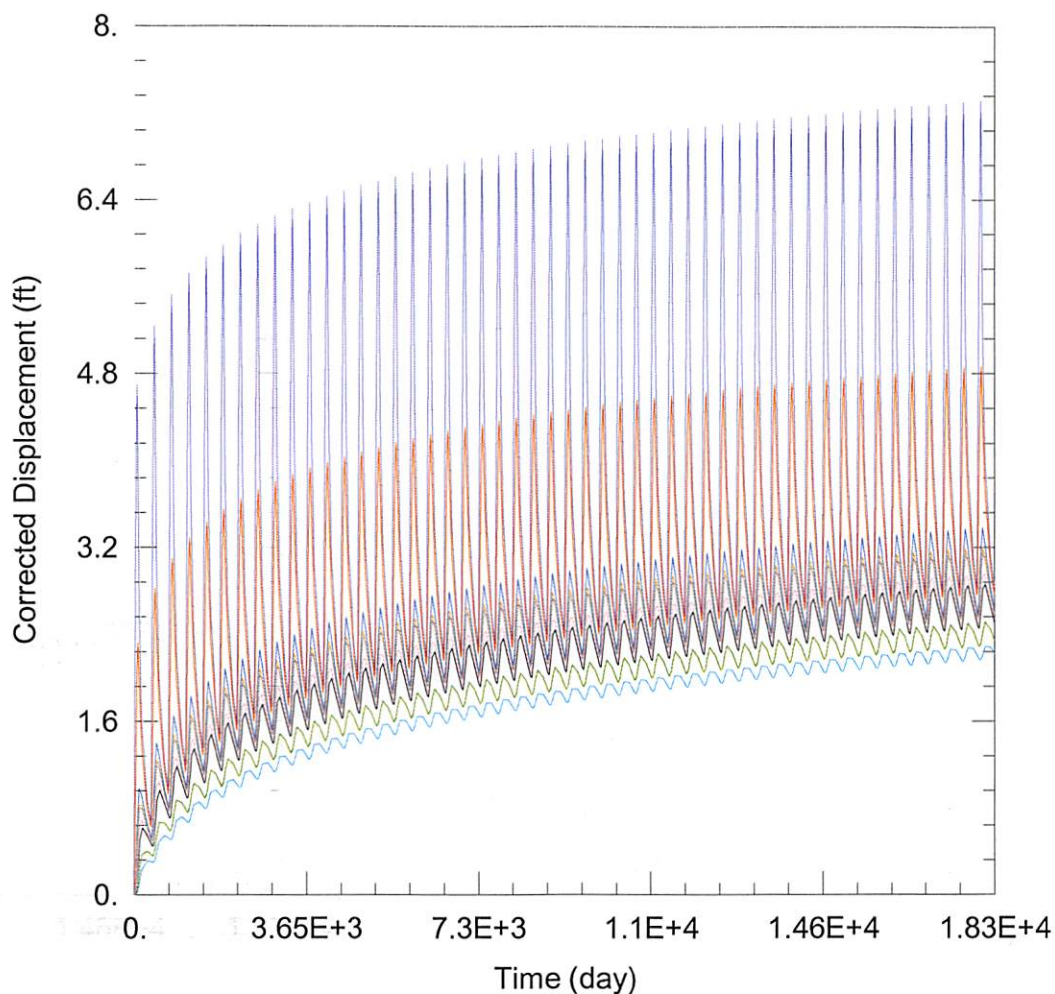
Well Name	X (ft)	Y (ft)
241008 ID2	-106526	312441

Well Name	X (ft)	Y (ft)
□	-106526	312441
□ 24108 ID4	-103834	312423
□ 17680 ID5	-106418	309802
□ 12009 ID4	-109546	309536
□ 31268 ID3	-109438	312430
□ 24122 ID1	-103855	315132
□ 24122 ID4	-101960	313938
□ 17680 ID1	-103895	309863
□ Domestic 32-26-35	-107487	314819
□ Domestic 5-27-35	-105526	311505

SOLUTION

Analysis Method: Unconfined

Solution Method: Theis



WELL TEST ANALYSIS

Data Set: C:\Users\trevora\Documents\2019_moves\24108\24108 Proposed.aqt

Date: 03/11/19

Time: 11:39:05

PROJECT INFORMATION

Company: GMD 3

Project: 24108

Location: Grant County

Test Well: 24108

WELL DATA

Pumping Wells

Observation Wells

Well Name	X (ft)	Y (ft)
241008 ID2	-106525	311536

Well Name	X (ft)	Y (ft)
□	-106525	311536
□ 24108 ID4	-103834	312423
□ 17680 ID5	-106418	309802
□ 12009 ID4	-109546	309536
□ 31268 ID3	-109438	312430
□ 24122 ID1	-103855	315132
□ 24122 ID4	-101960	313938
□ 17680 ID1	-103895	309863
□ Domestic 32-26-35	-107487	314819
□ Domestic 5-27-35	-105526	311505

SOLUTION

Analysis Method: Unconfined

Solution Method: Theis

INPUTS		
	Longitude	Latitude
Point 1	-101.167384	37.732540
Point 2	-101.167500	37.729722

Current 24108

Proposed Sect 5

Degrees Longitude per Foot 3.45757197E-06

Degrees Latitude per Foot 2.74621938E-06

Distance Between Points (ft) 1027

Compute Distance Between Points

Instructions

1. Enter Longitudes and Latitudes of the two points (both must be in the same datum, NAD27 or NAD83).
2. Click "Compute Distance Between Points" button.