GMD3 Change Review

File No(s).: 36553. DWR office: GC.
App filed to change: PD.
Is Landowner(s) correct in WRIS: Duane & Becky Zortman.
If NO, is documentation included?
Is Water Use Correspondent correct in WRIS? YES.
If NO, is documentation included?
Regulation(s) Reviewed: KAR 5-23-36
Point of diversion ID No(s) 04 being changed.

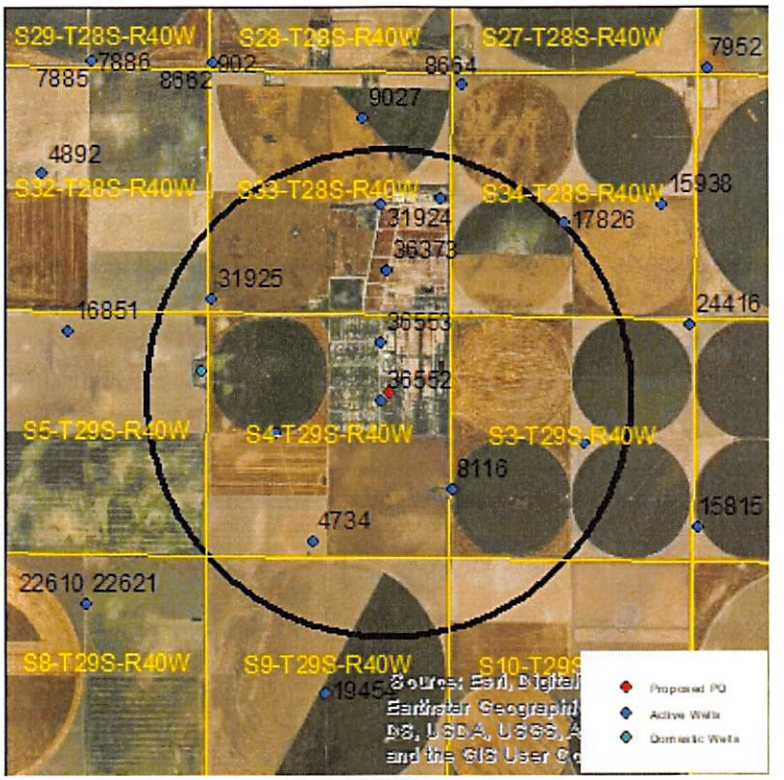
	ft. North		ft. West						
Authorized PD	4669		1539		Sect 4-29-40				
Proposed PD	3597		1493						
Difference	1072	s	46	e					
a2 + b2 = c2	1149184		2116		1072.986	foot move	sE		

GPS for proposed PD: Lat: __ Long:__.
Is proposed PD stacking on existing WRs? 36552 is in final steps for a move of less than 300', then proposal is for both WRs to be on the same well.
Is Proposed PU overlapping existing WRs? No Change.
Land Owner(s) notified: __.
Name __. Name __.
Address __. Address __.
Zip __. Zip __.
Neighboring certified well(s) notified: __.
Name __. Name __.
Address __. Address __.
Zip __. Zip __.
Domestic well(s) notified: __.
Name __. Name __.
Address __. Address __.
Zip __. Zip __.
Base Acres: __.
Perfected Acres: __.
Irr. Return-Flow ___%
Actually two changes going on here. WR 36552 had a less than 300" move proposed that is about to be finalized. That would be 35.85AF @ 75gpm.
This change will then stack on the same proposed well with 53.77AF @ 75gpm.
Total effect from that well is proposed 89.62AF @ 150gpm.
BOTH WRs are for STK watering
Is a waiver needed: Distance moved and spacing to neighboring wells meets current area rules.

Recommendation: ___.

Evaluation of proposed moves for Water Right No. 36553

Proposed: Move 7641 1,088 ft to the south and 36552 249 ft to the north.



Wells within 1 mile: 25776, 4734, 8116, 4146 & 8749, 36373, 31924, 17644, 31925, and a domestic well in section 5-29-40.

Average saturated thickness in Section 6-24-32 is 114 ft (based upon water table elevation at monitoring well in section 2-29-40 and local drillers logs). For saturated thicknesses between 100 and 125 ft, the maximum allowable Theis drawdown to neighboring critical wells is 2.5 ft.

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

S = 0.09286, T = 98.54 ft^2/day, $tp_{current}$(36552)= 219 days (estimate feedyards operate 60% of the day every day), $tp_{current}$(36553) = 219 days $Q_{current}$(36552) = 3.8 gpm (well very rarely operates), $Q_{current}$(36553) = 10.9 gpm (well very rarely operates) $tp_{proposed}$ = 135 days, $Q_{proposed}$ = 150 gpm.

Theis drawdowns calculations are as follows:

25776: Current drawdown = 2.46 ft

Proposed drawdown = 16.81 ft

Net drawdown = **14.4 ft**

4734:	Current drawdown = 1.53 ft
	Proposed drawdown = 11.77 ft
	Net drawdown = **10.2 ft**
8116:	Current drawdown = 2.16 ft
	Proposed drawdown = 17.41 ft
	Net Drawdown = **15.2 ft**
4146 & 8749:	Current drawdown = 1.25 ft
	Proposed drawdown = 9.05 ft
	Net drawdown = **7.8 ft**
36373:	Current drawdown = 3.59 ft
	Proposed drawdown = 16.52 ft
	Net drawdown = **12.9 ft**
31924:	Current drawdown = 2.12 ft
	Proposed drawdown = 10.12 ft
	Net drawdown = **8.0 ft**
17644:	Current drawdown = 1.85 ft
	Proposed drawdown = 9.19 ft
	Net drawdown = **7.3 ft**
31925:	Current drawdown = 1.68 ft
	Proposed drawdown = 9.20 ft
	Net drawdown = **7.5 ft**
Domestic 5-29-40:	Current drawdown = 1.68 ft
	Proposed drawdown = 10.08 ft
	Net drawdown = **8.4 ft**

Critical Well Evaluation:

25776: Water column = 109 ft (from driller's log)

DP = 14.35 ft (based upon 50 year Theis calculation using the above parameters)

DE = 20.8 ft (based upon water table declines from the GMD3 model over 25 years)

DD = 114 ft (S = 0.09286, T = 737.1 gpd/ft, Q = 449 gpm, tp = 150 days, efficiency = 70%.)

*Calculated DD was greater than the water column, so 114 ft was used.

DT = 149.2 ft

Total drawdown (149.2 ft) is greater than the water column, so this well is **critical.**

*Note that this well is far more productive than the model indicates it should be.

4734: Water column = 114 ft (from model. No log available)

DP = 10.23 ft

DE = 20.8 ft

DD = 0 ft (well not operated since 2007)

DT = 31.0 ft

EDC = 0.4 * 114 ft = 45.6 ft

PDC = 114 ft – 60 ft = 54 ft

The economic drawdown constraint is more conservative, so it governs.

Total drawdown (31.0 ft) is less than the EDC, so this well is **not critical.**

8116: Water column = 192 ft (from driller's log)

DP = 15.2 ft

DE = 54.3 ft

DD = 78.7 ft (S = 0.08083, T = 5205 gpd/ft, Q = 161 gpm, tp = 292 days, efficiency = 70%)

DT = 148.2 ft

EDC = 0.4 * 192 ft = 76.8 ft

PDC = 192 ft – 60 ft = 132 ft

The economic drawdown constraint is more conservative, so it governs.

Total drawdown (148.2 ft) is greater than the EDC, so this well **is critical.**

4146 & 8749:

Water column = 227 ft

DP = 7.80 ft

DE = 54.3 ft

DD = 129.3 ft (S = 0.08083, T = 5205 gpd/ft, Q = 270 gpm, tp = 212 days, efficiency = 70%)

DT = 191.4 ft

EDC = 0.4 * 227 ft = 90.8 ft

PDC = 227 ft – 60 ft = 167 ft

The economic drawdown constraint is more conservative, so it governs.

Total drawdown (191.4 ft) is greater than the EDC, so this well **is critical.**

36373: Water column = 92.2 ft (well was drilled in 1983, so ST from model was used)

DP = 12.94 ft

DE = 55.6 ft

DD = 0

DT = 68.5 ft

EDC = 0.4 * 92.2 ft = 36.9 ft

PDC = 92.2 ft – 60 ft = 32.2 ft

The physical drawdown constraint is more conservative, so it governs.

Total drawdown (68.5 ft) is greater than the PDC, so this well **is critical.**

31924: Water column = 92.2 ft (from model, no log available)

DP = 8.00 ft

DE = 55.6 ft

DD = 22.0 ft (S = 0.2664, T = 78,803 gpd/ft, Q = 632 gpm, tp = 216 days, efficiency = 70%)

DT = 85.6 ft

EDC = 0.4 * 92.2 ft = 36.9 ft

PDC = 92.2 ft – 60 ft = 32.2 ft

The physical drawdown constraint is more conservative, so it governs.

Total drawdown (85.6 ft) is greater than the PDC, so this well **is critical.**

17644: Water column = 92.2 ft (from model, no log available)

DP = 7.34 ft

DE = 55.6 ft

DD = 3.27 ft (S = 0.2664, T = 78,803 gpd/ft, Q = 93.9 gpm, tp = 219 days, efficiency = 70%)

DT = 66.2 ft

EDC = 0.4 * 92.2 ft = 36.9 ft

PDC = 92.2 ft – 60 ft = 32.2 ft

The physical drawdown constraint is more conservative, so it governs.

Total drawdown (66.2 ft) is greater than the PDC, so this well **is critical.**

31925: Water column = 132 ft (from driller's log)

DP = 7.52 ft

DE = 55.6 ft

DD = 5.71 ft (S = 0..2664, T = 78,803 gpd/ft, Q = 164 gpm, tp = 219 days, efficiency = 70%)

DT = 68.8 ft

EDC = 0.4 * 132 ft = 52.8 ft

PDC = 132 ft – 60 ft = 72 ft

The economic drawdown constraint is more conservative, so it governs.

Total drawdown (68.8 ft) is greater than the EDC, so this well **is critical.**

Domestic 5-29-40:

Water column = 104 ft (from driller's log)

DP = 8.41 ft

DE = 44.5 ft

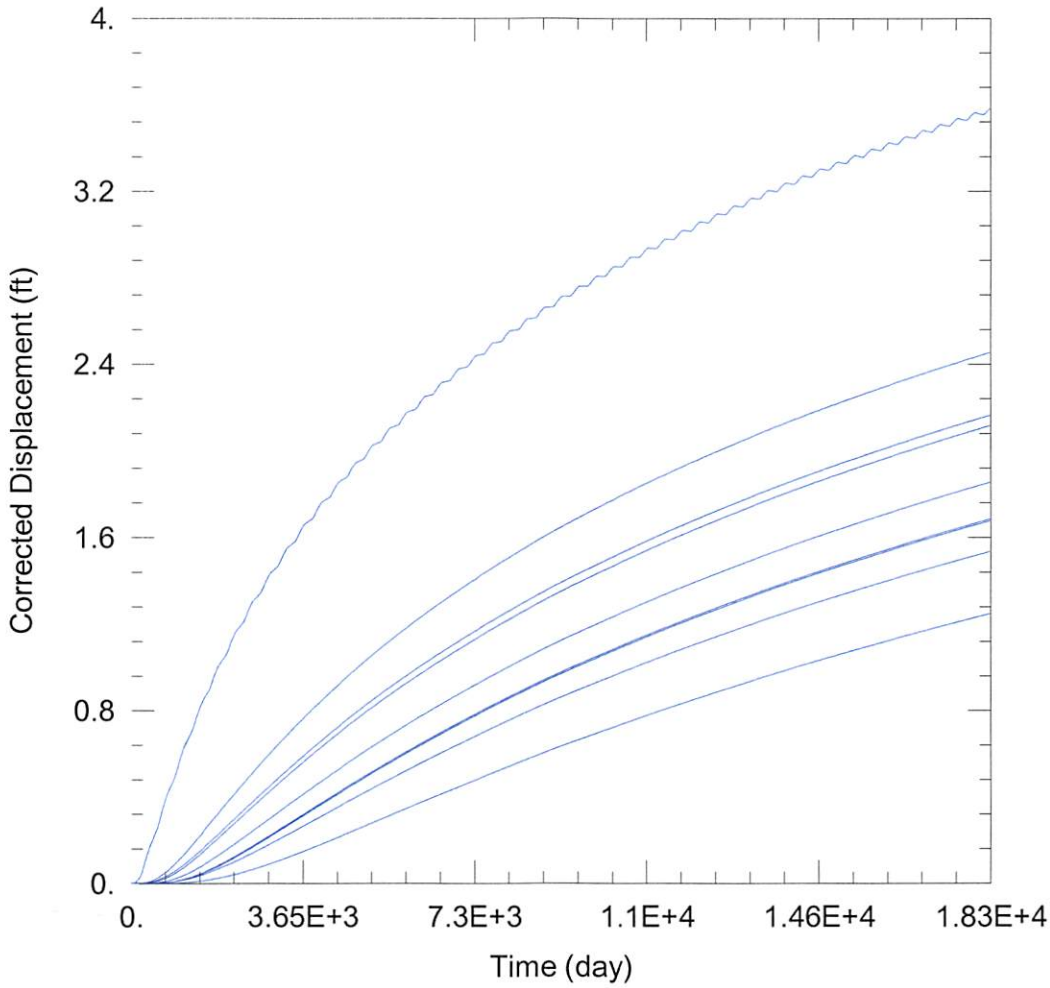
DT = 52.9 ft

EDC = 0.4 * 104 ft = 41.6 ft

PDC = 104 ft – 20 ft = 84 ft

The economic drawdown constraint is more conservative, so it governs.

Total drawdown (52.9 ft) is greater than the EDC, so this well **is critical.**



WELL TEST ANALYSIS

Data Set: C:\Users\trevora\Documents\2019_moves\36553\36552_36553_Current.aqt
Date: 04/23/19 Time: 17:08:10

PROJECT INFORMATION

Company: GMD 3
Project: 36553
Location: Stanton County
Test Well: 36553

WELL DATA

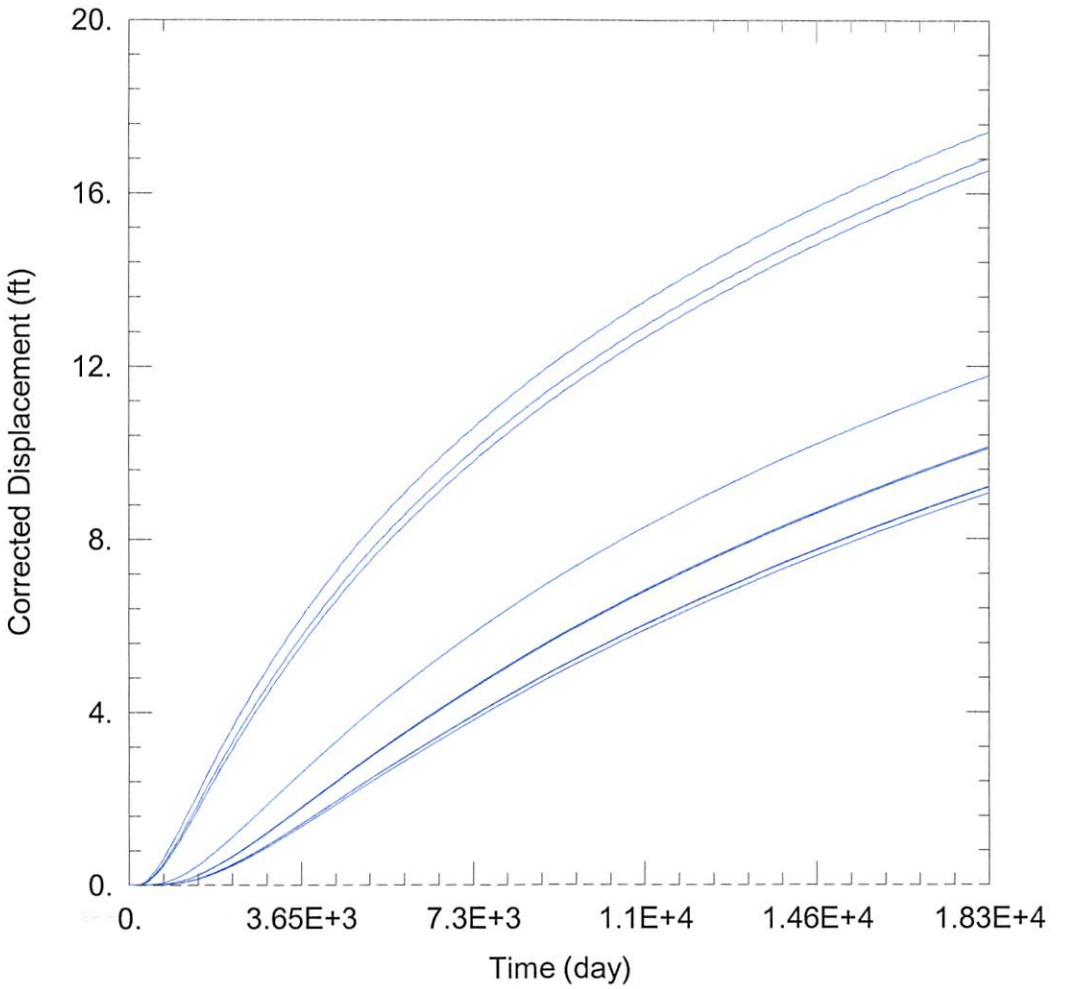
Pumping Wells

Well Name	X (ft)	Y (ft)
	-259601	249751
	-259589	251011

Observation Wells

Well Name	X (ft)	Y (ft)
▫	-259601	249751
▫	-259589	251011
▫ 25776	-261878	249041
▫ 4734	-261083	246707
▫ 8116	-258028	247858
▫ 4146 & 8749	-255172	248832
▫ 36373	-259464	252587
▫ 31924	-259610	254001
▫ 17644	-258291	254138
▫ 31925	-263279	251968
▫ Domestic 5-29-40	-263486	250398

SOLUTION



WELL TEST ANALYSIS

Data Set: C:\Users\trevora\Documents\2019_moves\36553\36552_36553_Proposed.aqt
Date: 04/23/19 Time: 17:08:02

PROJECT INFORMATION

Company: GMD 3
Project: 36553
Location: Stanton County
Test Well: 36553

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
36552	-259432	249935

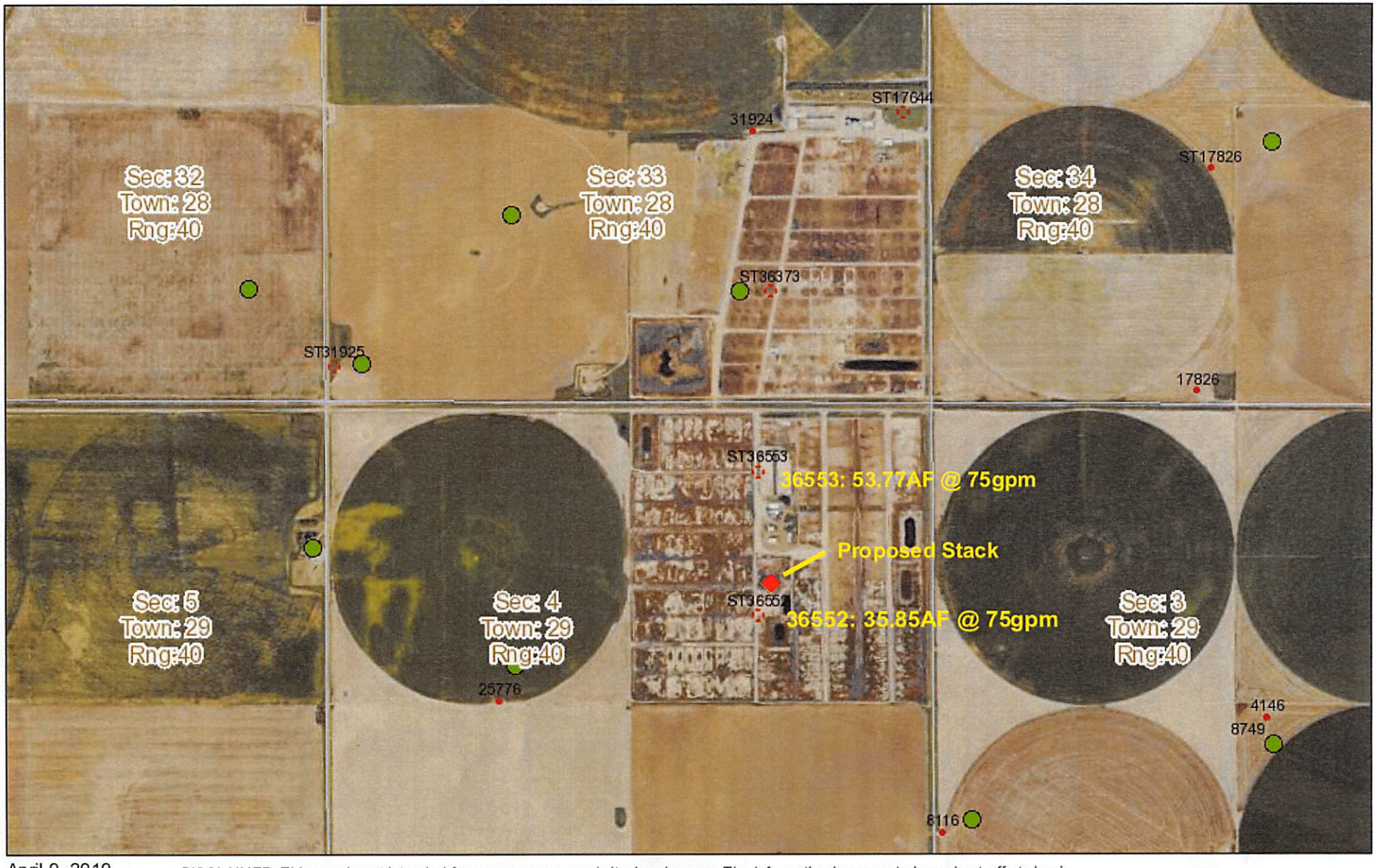
Observation Wells

Well Name	X (ft)	Y (ft)
▫	-259432	249935
▫ 25776	-261878	249041
▫ 4734	-261083	246707
▫ 8116	-258028	247858
▫ 4146 & 8749	-255172	248832
▫ 36373	-259464	252587
▫ 31924	-259610	254001
▫ 17644	-258291	254138
▫ 31925	-263279	251968
▫ Domestic 5-29-40	-263486	250398

SOLUTION

Aquifer Model: Unconfined Solution Method: Theis

36553 Change Review, PD



April 9, 2019
15:22 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.

1:18,056

0 800 1,600 3,200 ft
0 250 500 1,000 m

Wells

? Other
• IRR
+ CON
DEW
DOM
FPR
HYD
IND
MUN
REC
STK
THX
? Empty
WWC5 WELLS GMD3

Sections

jason
gWorks.

Report DateTuesday, April 9 2019

Water Rights and Points of Diversion Within 1.00 miles of point defined as:
3597 ft N and 1493 ft W of the SE Corner of Section 4, T 29S, R 40W
Located at: 101.694420 West Longitude and 37.558035 North Latitude
GROUNDWATER ONLY

File Number	Use	ST	SR	Dist (ft)	Q4	Q3	Q2	Q1	FeetN	FeetW	Sec	Twp	Rng	ID	Batt	Auth_Quan	Add_Quan	Unit
A__ 4146	00	IRR	NK	G	4541	--	NW	NW	SE	2500	2358	3	29	40W	2	2300	480.00	480.00	AF
A__ 4734	00	IRR	NK	G	3576	--	SE	SE	SW	-----	-----	4	29	40W	1	1400	320.00	320.00	AF
A__ 8116	00	IRR	NK	G	2604	--	SW	NW	SW	1521	5205	3	29	40W	4	2300	640.00	640.00	AF
A__ 8749	00	IRR	NK	G	4541	--	NW	NW	SE	2500	2358	3	29	40W	3	1600	160.00	160.00	AF
A__ 17644	00	STK	NK	G	4384	--	NE	NE	SE	2537	235	33	28	40W	12	1600	252.57	252.57	AF
A__ 25776	00	IRR	NK	G	2440	--	SW	SE	NW	2670	3750	4	29	40W	5	2300	634.00	634.00	AF
A__ 31924	00	IRR	NK	G	4059	--	NE	NE	SE	2388	1553	33	28	40W	9	2300	935.00	.00	AF
A__ 31925	00	STK	NK	G	4233	--	SW	SW	SW	320	5202	33	28	40W	7	1400	299.98	299.98	AF
A__ 36373	00	STK	NK	G	2631	--	NE	SW	SE	960	1400	33	28	40W	8		24.00	.00	AF
A__ 36552	00	STK	NK	G*	204	--	NE	SW	NE	3398	1539	4	29	40W	3	8962	35.85	35.85	AF
A__ 36553	00	STK	NK	G*	1073	--	--	--	--	4669	1539	4	29	40W	4		53.77	53.77	AF

stacking

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) =	2876.17	.00
Total Vested Amount (AF) =	.00	.00
TOTAL AMOUNT (AF) =	2876.17	.00

Spacing would be MET

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:
101.694420 West Longitude and 37.558035 North Latitude
GROUNDWATER ONLY
WATER USE CORRESPONDENTS:

File Number	Use	ST	SR
A__ 4146	00	IRR	NK G

> DOUGLAS F DOUGLAS
>
> 8817 W ILIFF AVE
> LAKEWOOD CO 80227

>----------

File Number	Use	ST	SR
A__ 4734	00	IRR	NK G

> FAYDEAN FISS
>
> 1500 S MAIN ST
> HUGOTON KS 67951

>----------

File Number	Use	ST	SR
A__ 8116	00	IRR	NK G

> BRIAN PETERSON
>

```
>  PO BOX 914
>  JOHNSON KS 67855
>---------------------------------------
A__    8749 00 IRR NK G
>  DOUGLAS F DOUGLAS
>
>  8817 W ILIFF AVE
>  LAKEWOOD CO 80227
>---------------------------------------
A__   17644 00 STK NK G
>  DUANE & BECKY ZORTMAN
>
>  548 SOUTH ROAD I
>  JOHNSON CITY KS 67855
>---------------------------------------
A__   25776 00 IRR NK G
>   B & B AG FARMS
>  BRANT & BRIAN PETERSON
>  PO BOX 914
>  JOHNSON KS 67855
>---------------------------------------
A__   31924 00 IRR NK G
>   VENTURE LAND INC
>
>  6190 N ROAD G
>  JOHNSON KS 67855
>---------------------------------------
A__   31925 00 STK NK G
>  DUANE & BECKY ZORTMAN
>
>  548 SOUTH ROAD I
>  JOHNSON CITY KS 67855
>---------------------------------------
A__   36373 00 STK NK G
>  DUANE & BECKY ZORTMAN
>
>  548 SOUTH ROAD I
>  JOHNSON CITY KS 67855
>---------------------------------------
A__   36552 00 STK NK G
>  DUANE & BECKY ZORTMAN
>
>  548 SOUTH ROAD I
>  JOHNSON CITY KS 67855
>---------------------------------------
A__   36553 00 STK NK G
>  DUANE & BECKY ZORTMAN
>
>  548 SOUTH ROAD I
>  JOHNSON CITY KS 67855
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