

Kansas Department of Agriculture
 Division of Water Resources
CHANGE: P/D WORKSHEET

| | | | | |
|--------------------------------|--|-----------------------------|-------------------------------|----------------------|
| 1. File Number: 5191 | 2. Status Change Date: <i>4-28-2021</i> | 3. Change Num: C3 | 4. Field Office: 04 | 5. GMD: 03 |
|--------------------------------|--|-----------------------------|-------------------------------|----------------------|

| | |
|--|---|
| 6. Status: <input checked="" type="checkbox"/> Approved <input type="checkbox"/> Denied by DWR/GMD <input type="checkbox"/> Dismiss by Request/Failure to Return | 7. Filing Date of Change: 1/11/2021 |
|--|---|

| | |
|--|---|
| 8a. LANDOWNER, Person ID 61284 New to system <input type="checkbox"/> Add Seq# _____ REBECCA GRAHAM 1457 RD 140 LAKIN, KS 67860-6300 | 8c. LANDOWNER, correspondent Person ID _____ New to system <input type="checkbox"/> Add Seq# _____ |
|--|---|

| | |
|--|--|
| 8b. Landowner(s), Person ID _____ New to system <input type="checkbox"/> Add Seq# _____ | 8d. correspondent, Person ID 61234 New to system <input type="checkbox"/> Add Seq# _____ TRIPLE G FARMS 2156 ROAD 220 DEERFIELD, KS 67838-3821 |
|--|--|

9. Documents and Enclosure(s): DWR Meter(s) Date to Comply: **12/31/2021** N & P Date to Comply: **3/1/2022**

Anti-Reverse Meter Meter Seal Check Valve N & P Form Water Tube Driller Copy H & E Letter
 Conservation Plan Date Required: _____ Date Approved: _____ Date to Comply: _____

10. Use Made of Water From: _____ To: _____

Date Prepared: **2/18/2021** By: **MAM**
 Date Entered: _____ By: _____

File No. **5191** 11. County: FI Basin: **ARKANSAS RIVER** Stream: Formation Code: **211** Special Use:

12. Points of Diversion Rate and Quantity
CHK Authorized Additional
MOD Rate Quantity
DEL gpm af gpm af Overlap PD Files
ENT PDIV Qualifier S T R ID 'N 'W **Comment (AKA Line)**

DEL 74085
MOD 81877 **SWSNW** **12 23 34W 09 2827 3775** **700 218** **700 218** **NONE**

13. Storage: Rate _____ NF Quantity _____ ac/ft Additional Rate _____ NF Additional Quantity _____ ac/ft

14. Limitation: _____ af/yr at _____ gpm (_____ cfs) when combined with file number(s) _____
 Limitation: _____ af/yr at _____ gpm (_____ cfs) when combined with file number(s) _____

15. 5YR Allocation: Allocation Type _____ Start Year _____ 5 YR Amount _____ Amount Unit _____ Base Acres _____ Comment _____

| 16. Place of Use CHK MOD DEL ENT PUSE S T R ID | NE¼ | | | | NW¼ | | | | SW¼ | | | | SE¼ | | | | Total | Owner | Chg? | Overlap Files |
|--|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------|-------|------|---------------|
| | NE ¼ | NW ¼ | SW ¼ | SE ¼ | NE ¼ | NW ¼ | SW ¼ | SE ¼ | NE ¼ | NW ¼ | SW ¼ | SE ¼ | NE ¼ | NW ¼ | SW ¼ | SE ¼ | | | | |
| CHK 23742 | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | | | | | | |

Base Acres: Year: Minimum Reasonable Quantity:
 Comments: *move to existing well vacated by File No. 19401*

Garden City Field Office
4532 W. Jones, Suite B
Garden City, KS 67846



Phone: 620-276-2901
Fax: 620-276-9315
www.agriculture.ks.gov

Mike Beam, Secretary

Laura Kelly, Governor

April 28, 2021

REBECCA GRAHAM
1457 RD 140
LAKIN, KS 67860-6300

RE: Water Right, File No. 2393, 5191, 6562, 19401

Dear Madam:

Enclosed are orders executed by the designee of the Chief Engineer, Division of Water Resources, Kansas Department of Agriculture, approving the applications for change under the above referenced file numbers.

Your attention is directed to the enclosures and to the terms, conditions, and limitations specified in the approval for change. Conditions of these approvals are that an acceptable water flow meter must be installed on the diversion works authorized under the referenced file numbers and meet current specifications. Please return the required notification of completion of the diversion works and installation of the required meter as soon as these actions are completed. Please also note the additional conditions attached to the orders.

Since the orders modify the original documents referred to above, they should be recorded with the Register of Deeds as other instruments affecting real estate.

The abandoned well must be plugged in accordance with the requirements of Article 30 of the Rules and Regulations as adopted by the Kansas Department of Health and Environment

Should you have any questions, please feel free contact this office. If you would prefer, you could arrange an appointment for additional assistance.

Sincerely,

A handwritten signature in blue ink that reads "Michael A. Meyer".

Michael A. Meyer
Water Commissioner

MAM
enclosures
pc: TRIPLE G FARMS
GMD3

CERTIFICATE OF SERVICE

On this 28th day of April 2021, I hereby certify that the foregoing Approval of Application for Change in Point of Diversion, Water Right, File Nos. 2393, 5191, 6562, 19401 dated 28th day of April 2021 was mailed postage prepaid, first class, US mail to the following:

REBECCA GRAHAM
1457 RD 140
LAKIN, KS 67860-6300

Pc:

TRIPLE G FARMS
2156 ROAD 220
DEERFIELD, KS 67838-3821

GROUNDWATER MANAGEMENT DISTRICT NO. 3



Division of Water Resources Staff

Submit completed application to:
 Kansas Department of Agriculture
 Division of Water Resources
 Field Office for your area.

Call for address:

Topeka -- (785) 296-5733
 Stafford -- (620) 234-5311
 Stockton -- (785) 425-6787
 Garden City -- (620) 276-2901
<http://agriculture.ks.gov/dwr>

DWR FIELD OFFICE APPLICATION FOR APPROVAL TO CHANGE THE PLACE OF USE AND/OR THE POINT OF DIVERSION



STATE OF KANSAS

**Filing Fee Must Accompany the Application, K.S.A. 82a-708b(b), as amended.
 Fee Schedule is on the third page of this application form.**

Paragraph Nos. 1, 2, 3 & 5 must be completed. Complete all other applicable portions. If change in point of diversion is greater than 100 feet, or if place of use will be changed, include a topographic map or detailed plat showing the authorized and proposed point(s) of diversion and/or place of use.

RECEIVED

JAN 11 2021

12:12 pm

Garden City Field Office
 Division of Water Resources

File No. 5191

1. Application is hereby made for approval of the Chief Engineer to change the (check one or both):

Place of Use Point of Diversion

under the water right which is the subject of this application in accordance with the conditions described below.

The source of supply is: Groundwater Surface water

2. Name and address of Applicant: TRIPLE G FARMS

2156 ROAD 220, DEERFIELD, KS 67838-3821

Phone Number: () Email address: _____

Name and address of Water Use Correspondent: Same

Phone Number: () Email address: _____

3. The presently authorized place of use is:

Owner of Land --- NAME: REBECCA GRAHAM

ADDRESS: 1457 RD 140, LAKIN, KS 67860-6300

(If there is more than one landowner, attach supplemental sheets as necessary.)

| Sec. | Twp. | Range | NE¼ | | | | NW¼ | | | | SW¼ | | | | SE¼ | | | | TOTAL ACRES | | |
|------|------|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-------------|--|--|
| | | | NE¼ | NW¼ | SW¼ | SE¼ | NE¼ | NW¼ | SW¼ | SE¼ | NE¼ | NW¼ | SW¼ | SE¼ | NE¼ | NW¼ | SW¼ | SE¼ | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |

4. If this application is for a change in place of use, it is proposed that the place of use be changed to:

Owner of Land --- NAME: _____

ADDRESS: _____

(If there is more than one landowner, attach supplemental sheets as necessary.)

| Sec. | Twp. | Range | NE¼ | | | | NW¼ | | | | SW¼ | | | | SE¼ | | | | TOTAL ACRES | | | |
|------|------|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-------------|--|--|--|
| | | | NE¼ | NW¼ | SW¼ | SE¼ | NE¼ | NW¼ | SW¼ | SE¼ | NE¼ | NW¼ | SW¼ | SE¼ | NE¼ | NW¼ | SW¼ | SE¼ | | | | |
| | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | |

For Office Use Only: Code _____ Fee \$200⁰⁰ TR # _____ Receipt Date 1-11-21 Check 8613 # _____

5. **Presently authorized point of diversion:**
 One in the NE Quarter of the SW Quarter of the SW Quarter of Section 12, Township 23 South, Range 34 (W), in FI County, Kansas, 1126 feet North 4176 feet West of Southeast corner of section.
 Authorized Rate No change Authorized Quantity No change Depth of well _____ (feet)
 (DWR use only: Computer ID No. 8 GPS _____ feet North _____ feet West)
 This point will not be changed This point will be changed as follows: No change, point better described with GPS as follows:
Proposed point of diversion: (Complete only if change is requested or if existing point is better described by GPS)
 One in the SW Quarter of the SE NE Quarter of the NW Quarter of Section 12, Township 23 South, Range 34 (W), in FI County, Kansas, 2827 feet North 3775 feet West of Southeast corner of section.
 Proposed Rate No change Proposed Quantity No change Proposed well depth (feet) _____ Existing hole _____
 This point is: Additional Well Geo Center List other water rights that will use this point _____

2827' x 3775' GPS location

6. **Presently authorized point of diversion:**
 One in the _____ Quarter of the _____ Quarter of the _____ Quarter of Section _____, Township _____ South, Range _____ (EW), in _____ County, Kansas, _____ feet North _____ feet West of Southeast corner of section.
 Authorized Rate _____ Authorized Quantity _____ Depth of well _____ (feet)
 (DWR use only: Computer ID No. _____ GPS _____ feet North _____ feet West)
 This point will not be changed This point will be changed as follows: No change, point better described with GPS as follows:
Proposed point of diversion: (Complete only if change is requested or if existing point is better described by GPS)
 One in the _____ Quarter of the _____ Quarter of the _____ Quarter of Section _____, Township _____ South, Range _____ (EW), in _____ County, Kansas, _____ feet North _____ feet West of Southeast corner of section.
 Proposed Rate _____ Proposed Quantity _____ Proposed well depth (feet) _____
 This point is: Additional Well Geo Center List other water rights that will use this point _____

7. The changes herein are desired for the following reasons?
 (please be specific) _____

8. If a well, is the test hole log attached? Yes No

9. The change(s) (was)(will be) completed by?

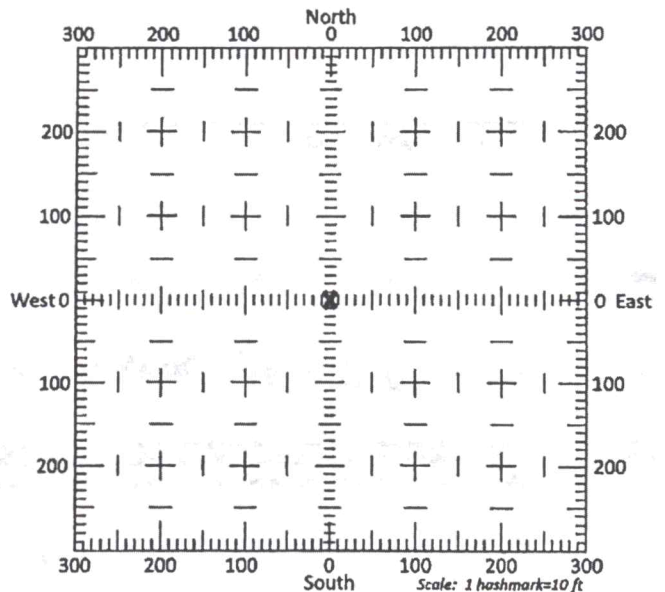
10. If the point of diversion is a well:
 (a) What are you going to do with the old well?

 (b) When will this be done? _____

11. Groundwater Management District recommendation attached?
 Yes No

12. Assisted by mf/GCFO

13a. If the proposed point of diversion will be relocated more than 300 feet but within 2,640 feet of the existing point of diversion, attach a topographic map or aerial photograph. For groundwater sources, show all wells (including domestic) within one-half mile of the proposed point of diversion and the names and mailing addresses of the owners. For surface water sources, show the names and addresses of the landowner(s) one-half mile downstream and one-half mile upstream from your property lines



13b. If the proposed point of diversion will be relocated within 300 feet of the existing point of diversion, indicate its location on the diagram shown above in relation to the existing point of diversion. (PLEASE NOTE: The "X" in center of diagram above represents the presently authorized point of diversion.)

14. If the proposed groundwater point of diversion is 300 or fewer feet from the existing point of diversion, complete the following:
- (a) Does the undersigned represent all owners of the currently authorized place(s) of use identified in this application?
 Yes No (If no, all owners must sign this application.)
 - (b) Will the ownership interest of any owner of the currently authorized place(s) of use identified in this application be adversely affected if this application is approved as requested?
 Yes No (If yes, all owners must sign this application.)
 - (c) If this application is not approved expeditiously, will there be substantial damage to property, public health or safety?
 Yes No (If no, all owners must sign this application.)

If the application proposes a surface water change in point of diversion, a groundwater change in point of diversion greater than 300 feet, or a change in place of use, the application must be signed by all owners of the currently authorized place of use, or their duly authorized agent (attach notarized statement authorizing representation).

I hereby verify, being first duly sworn upon my oath or affirmation and under penalty of perjury, that I am of lawful age and the owner, the spouse of the owner, or a duly authorized agent of the owner(s) to make this application on their behalf, in regards to the water right(s) to which this application pertains. I further verify that the statements contained in this application are true, correct and complete.

Dated at _____, Kansas, this _____ day of January 8, 2021.

| | |
|--------------------------|----------------|
| <u>Rebecca D. Graham</u> | |
| (Owner) | (Spouse) |
| <u>Rebecca D. Graham</u> | |
| (Please Print) | (Please Print) |
| | |
| (Owner) | (Spouse) |
| | |
| (Please Print) | (Please Print) |
| | |
| (Owner) | (Spouse) |
| | |
| (Please Print) | (Please Print) |

State of ~~Kansas~~ Colorado }
 County of Chaffee } SS

I hereby certify that the foregoing application was signed in my presence and sworn to before me this 8th day of January, 2021.

My Commission Expires 8-18-21

Jacqueline Castillo
 Notary Public
 State of Colorado
 Notary ID # 20174034799
 My Commission Expires 8/18/21

Jacqueline Castillo
 Notary Public

ONLY COMPLETE APPLICATIONS WILL BE PROCESSED. To be complete, all of the applicable portions of the application form must be completed with accurate information; maps, if necessary, must be included; signatures of all the appropriate owners' must be affixed to the application and notarized; and the appropriate fee must be paid.

FEE SCHEDULE

Each application to change the place of use or the point of diversion under this section shall be accompanied by the application fee set forth in the schedule below: Make checks payable to: **Kansas Department of Agriculture**

| | |
|---|-------|
| (1) Application to change a point of diversion 300 feet or less | \$100 |
| (2) Application to change a point of diversion more than 300 feet | \$200 |
| (3) Application to change the place of use | \$200 |

SUMMARY ORDER APPROVING APPLICATION FOR CHANGE AND IMPOSING CONDITIONS

This Summary Order is issued under authority of K.S.A. 82a-708b, as amended, and K.A.R. 5-5-1, *et seq.* and other applicable provisions of the *Kansas Water Appropriation Law*, K.S.A. 82a-701 *et seq.*, and rules and regulations promulgated thereunder, With the exception of those conditions expressly contained herein, this Summary Order does not change the terms, conditions and limitations of File No. 5191.

1. A change application was received on January 11, 2021 requesting that the place of use and / or point of diversion authorized under the above-referenced file number be changed as described in the application.
2. On and after the effective date of this summary order, the authorized place(s) of use shall be located substantially as shown on the topographic map accompanying the application to change the place of use. Applicable Not Applicable
3. The change in point of diversion shall not impair existing rights and shall be limited to the same source or sources of water as previously authorized. The point of diversion authorized by this summary order shall be located within a 50 foot radius of the authorized point(s) of diversion. Applicable Not Applicable
4. The point(s) of diversion described herein is administratively corrected to be more accurately described using the Global Positioning System (GPS), as described in the application. Applicable Not Applicable
5. The point(s) of diversion authorized herein shall not actually be located more than _____ feet from the previously authorized point(s) of diversion. Applicable Not Applicable
6. As required by K.A.R. 5-3-5d, if the works for diversion is a well with a diversion rate of 100 gallons per minute or more, a tube or other device suitable for making water level measurements shall be installed, operated and maintained in accordance with K.A.R. 5-6-13. Applicable Not Applicable
7. The owner of the authorized place(s) of use shall properly install an acceptable water flow meter on or before December 31, 2021, or before the first use of water, whichever occurs first. The water flow meter shall be installed, operated and maintained in accordance with K.A.R. 5-1-4 through 5-1-12. As required by K.S.A. 82a-732, as amended, and K.A.R. 5-3-5e, the owner shall maintain records and report the reading of the water flow meter and the total quantity of water diverted annually to the Chief Engineer by March 1 following the end of each calendar year. Applicable Not Applicable
8. Installation of the works for diversion of water shall be completed on or before December 31, 2021, or within any authorized extension of time. By March 1, 2022 the applicant shall notify the Chief Engineer that construction of the works for diversion has been completed, on the form provided by the Chief Engineer, as required by K.A.R. 5-8-4e. Applicable Not Applicable
9. The completed well log shall be submitted with the required notice. Applicable Not Applicable
10. All diversion works into which any type of chemical or other foreign substance will be injected into the water shall be equipped with an in-line, automatic, quick-closing check valve capable of preventing pollution of the source of the water supply. The check valve(s) shall be installed, operated and maintained in accordance with K.A.R. 5-3-5c. Applicable Not Applicable
11. Additional Conditions are attached. Yes No
12. In accordance with K.S.A. 82a-708a, as amended, and K.A.R. 5-5-14, all of the owners of the authorized place(s) of use of water appropriated under the above-referenced file number are responsible for compliance with its terms, conditions and limitations, as amended and/or supplemented by this Summary Order, and with applicable provisions of the *Kansas Water Appropriation Law* and the *Rules and Regulations* promulgated thereunder. Failure to comply with these provisions may result in civil penalties pursuant to K.S.A. 82a-737, as amended, and/or the suspension or revocation and dismissal of the water or appropriation right or any other enforcement actions authorized by law.

Administrative Appeal and Effective Date of Order

If you are aggrieved by this order, pursuant to K.S.A. 82a-1901, you may request an evidentiary hearing before the Chief Engineer or request administrative review by the Secretary of Agriculture. A request for hearing by the Chief Engineer must be filed within 15 days of service of this Order and a request for administrative review by the Secretary must be filed within 30 days pursuant to K.S.A. 77-531. Any request for administrative review must state a basis for review pursuant to K.S.A. 77-527. File any request with Kansas Department of Agriculture, Legal Division, 1320 Research Park Drive, Manhattan, KS 66502. Failure to timely request a hearing or review may preclude review under the Kansas Judicial Review Act.

For Use by Register of Deeds

FOR OFFICE USE ONLY
**APPLICATION APPROVED AND
SUMMARY ORDER ISSUED**

By: Michael A. Meyer
Duly Authorized Designee of the Chief Engineer

(Print Name): MICHAEL A. MEYER
Division of Water Resources - Kansas Department of Agriculture

Date of Issuance: April 28, 2021

State of Kansas)

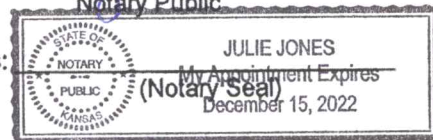
County of Finney) SS

Acknowledged before me on April 28, 2021

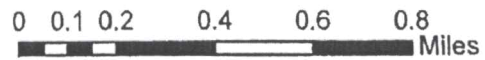
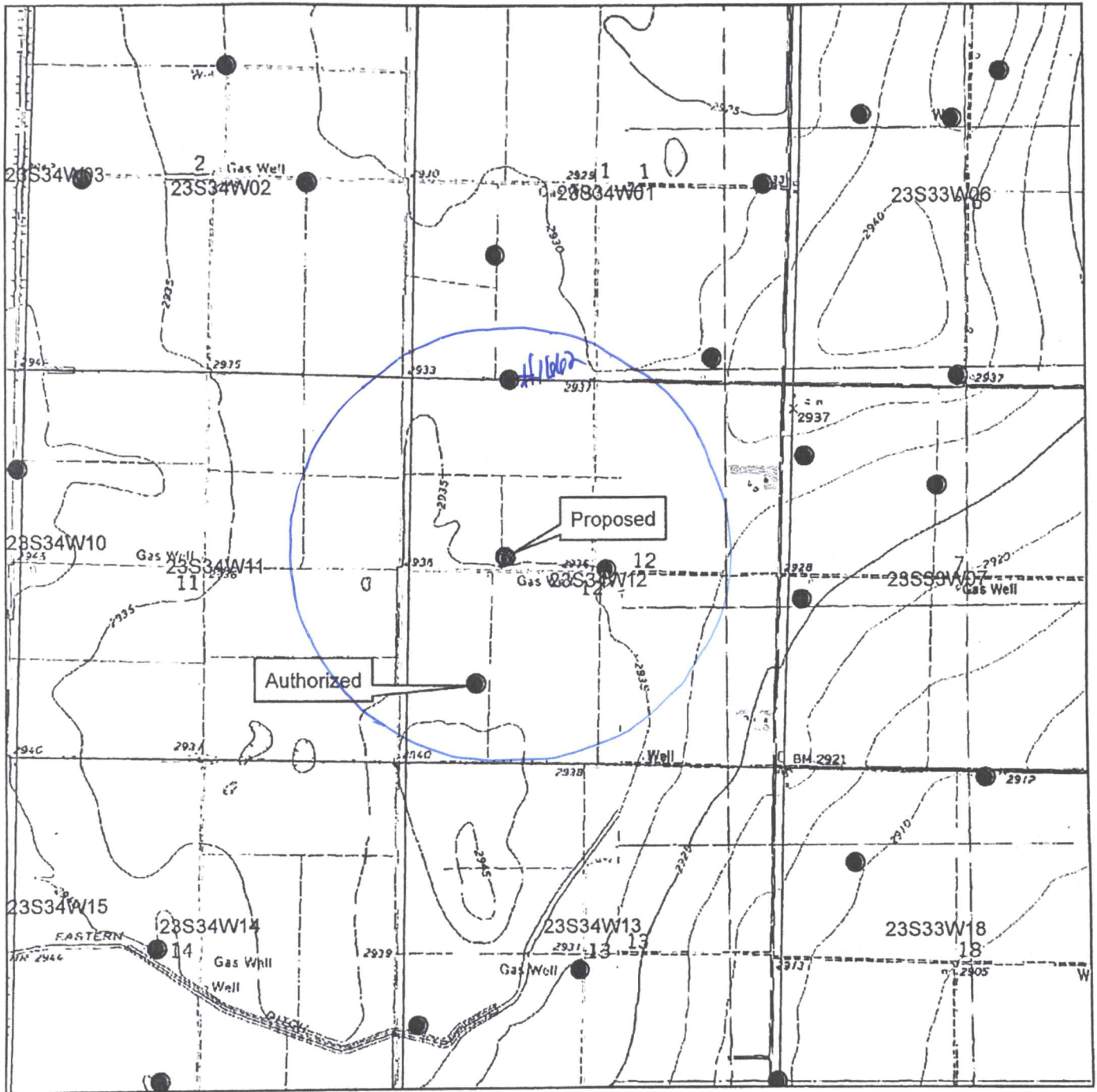
by Michael A. Meyer

Signature: Julie Jones
Notary Public

My commission expires: _____



Change in point of diversion application for water right 5191



- Authorized point of diversion
- Proposed point of diversion

All wells within 1/2 mile are on this map.

X _____

MIDWEST WELL & PUMP

PO BOX 692, Garden City, Kansas 67846

(620)275-1920

Submit for Redrill

Owner-Name: Graham Farms
 Address: 2150 Rd. 220
 City, St. Zip: Deerfield, KS 67838
 GPS: N.38.06317 W.100.99704
 Contact #: Cory 620-272-3074
 Location: SE ¼ 12-23-34 Finney County
 From Old Well: About 2800' South East

Date: 3/20
 Test Hole: 4-19
 Driller: Soukup
 Dig Safe#20097133
 Static Water Level About:180'
 Total Depth: 330' Black Shale

| FROM: | TO: | STRATA: |
|-------|-----|---|
| 0 | 2 | Top Soil |
| 2 | 31 | Soft Brown Clay |
| 31 | 35 | Brown Clay With Gypsum |
| 35 | 40 | Medium To Coarse Sand Small Gravel |
| 40 | 72 | Brown Clay |
| 82 | 96 | Medium To Coarse Sand Small Gravel With Brown Clay Streaks |
| 96 | 104 | Brown Clay With Medium To Coarse Sand Streaks |
| 104 | 105 | Medium Sand |
| 105 | 112 | Blue Sticky Clay |
| 112 | 114 | Coarse Sand Small Gravel |
| 114 | 120 | Brown Clay Few Small Coarse Sand Small Gravel Streaks |
| 120 | 126 | Medium To Coarse Sand Small Gravel |
| 126 | 130 | Brown Clay |
| 130 | 146 | Medium To Coarse Sand Small Gravel Few Very Small Cemented Sand Streaks |
| 146 | 152 | Medium With Brown Clay Streaks |
| 152 | 166 | Medium Sand Some Small Gravel |
| 166 | 197 | Brown Clay Few Small Medium Sand Streaks 90/10 |
| 197 | 200 | Fine To Medium Sand With Brown Clay And Cemented Sand Streaks |
| 200 | 206 | Medium To Coarse Sand Small Gravel |
| 206 | 218 | Brown Clay Few Small Medium Sand Streaks |
| 218 | 219 | Medium Sand |
| 219 | 221 | Brown Clay |
| 221 | 226 | Medium Sand With Brown Clay Streaks |
| 226 | 234 | Soft Sticky Blue Clay |
| 234 | 240 | Brown Sticky Clay |
| 240 | 256 | Light Brown Sticky Clay With Gypsum and cemented Sand Streaks |
| 256 | 264 | Very Fine To Fine Sand Few Very Small Brown Clay Streaks |
| 264 | 284 | Medium To Coarse Sand Small Gravel Few Very Small Brown Clay Streaks |
| 284 | 308 | Medium To Coarse Sand Small Gravel With Brown Clay Streaks 60/40 |
| 308 | 320 | Medium To Coarse Sand Small Gravel White Broken Rock |

D. Engelhaupt
4/26/2021

This analysis of change in points of diversion, File Nos. 2,393; 5,191; 6,562; 19,401

A Theis analysis was used to evaluate the potential impacts of a set of change in point of diversions. The applications propose moving of File No. 2,393 and 6,562 to a new point of diversion located approximately 2400 feet southeast of the current location; moving File No. 19,401 to the point currently authorized by File Nos. 2,393 and 6,562; and moving File No. 5,191 to the point currently authorized by File No. 19,401.

An aquifer test was conducted by John Munson by measuring the drawdown at File 5,191 while pumping Files 2,393; 19,401; 7,334; and 1,662. Using the Theis solution the transmissivity was determined to be 24,540 ft²/day and the storage coefficient to be 0.0002843. The saturated thickness prior to beginning pumping was 119 feet. The current (17,334 ft²/day) and projected 2068 (6,881 ft²/day) transmissivities were estimated using five stratigraphic logs near the location of the pump test, the GMD No. 3 groundwater model projected future saturated thickness, and the calibrated hydraulic conductivities from the model. The transmissivity from the aquifer test was multiplied by the ratio of the estimated future transmissivity to the estimated current (40%) to adjust it to future conditions (9,741 ft²/day).

Pumping the proposed rate and quantity at the new location was compared to pumping the ten-year average use of 5,191 (65 acre-feet) at the last reported rate (90 gallons per minute). Drawdowns were evaluated at the point of diversion authorized by File No. 800. With these assumptions, the drawdown at File No. 800 increases by 11.9 feet, or 24.4% of the projected future saturated thickness (Table 1). If the proposed rate is limited to 664 gallons per minute, the net drawdown is 9.8 feet, or 20.0% of the projected future saturated thickness (Table 2).

Table 1: Theis analysis of drawdown at File No. 800; T = 9,741 ft²/day; S = 0.0002843

| Scenario | Distance (Feet) | Quantity (Acre-Feet) | Rate (GPM) | Drawdown (Feet) | Drawdown (%ST) |
|----------|--------------------|-------------------------|------------|--------------------|-------------------|
| Proposed | 2,337 | 640 | 860 | 13.1 | 26.9% |
| Current | 4,658 | 65.1 | 90 | 1.2 | 2.4% |
| | | | Net: | 11.9 | 24.4% |

Table 2: Theis analysis of drawdown at File No. 800; T = 9,741 ft²/day; S = 0.0002843

| Scenario | Distance (Feet) | Quantity (Acre-Feet) | Rate (GPM) | Drawdown (Feet) | Drawdown (%ST) |
|----------|--------------------|-------------------------|------------|--------------------|-------------------|
| Proposed | 2,337 | 640 | 664 | 10.9 | 22.4% |
| Current | 4,658 | 65.1 | 90 | 1.2 | 2.4% |
| | | | Net: | 9.8 | 20.0% |

Meyer, Mike [KDA]

From: Meyer, Mike [KDA]
Sent: Monday, April 26, 2021 3:18 PM
To: 'Cory Weatherred'
Subject: change application
Attachments: 20210426150512362.pdf

cory, the pump test provided a much higher transmissivity at your point of diversion than what the GMD3 model calculated. transmissivity is the ability of the aquifer to transmit groundwater throughout its entire saturated thickness. therefore, after our calculations, it appears there will be no reduction in annual quantity, but only a reduction in maximum diversion rate of 665 GPM.

if you agree, we would need Ms. Graham to agree to legally reduce Water Right, File Nos. 2393 and 6562 to a total of 665 GPM from 860 GPM total.

Attached are 2 forms that she can sign and date, with a confirmation email back saying agree to legally reduce the water rights to 665 GPM and send the attached back.

let me know if you have questions

Michael A. Meyer, PG
Kansas Department of Agriculture
Division of Water Resources
Garden City Field Office
4532 W Jones Ave, Suite B
Garden City KS 67846
Lat 37.98820, Lon -100.944470
(620)-276-2901
mike.meyer@ks.gov

Meyer, Mike [KDA]

From: Munson, John [KDA]
Sent: Tuesday, April 20, 2021 4:15 PM
To: Meyer, Mike [KDA]
Cc: Engelhaupt, David [KDA]; Beightel, Chris [KDA]
Subject: Graham aquifer test Section 12-23-34 west Finney County
Attachments: pump7334&1662&2393&19401for9day.pdf

Hi Mike,

Attached is a PDF file of the AQTESOLV report of the Graham aquifer test in Section 12-23-34 west in Finney County.

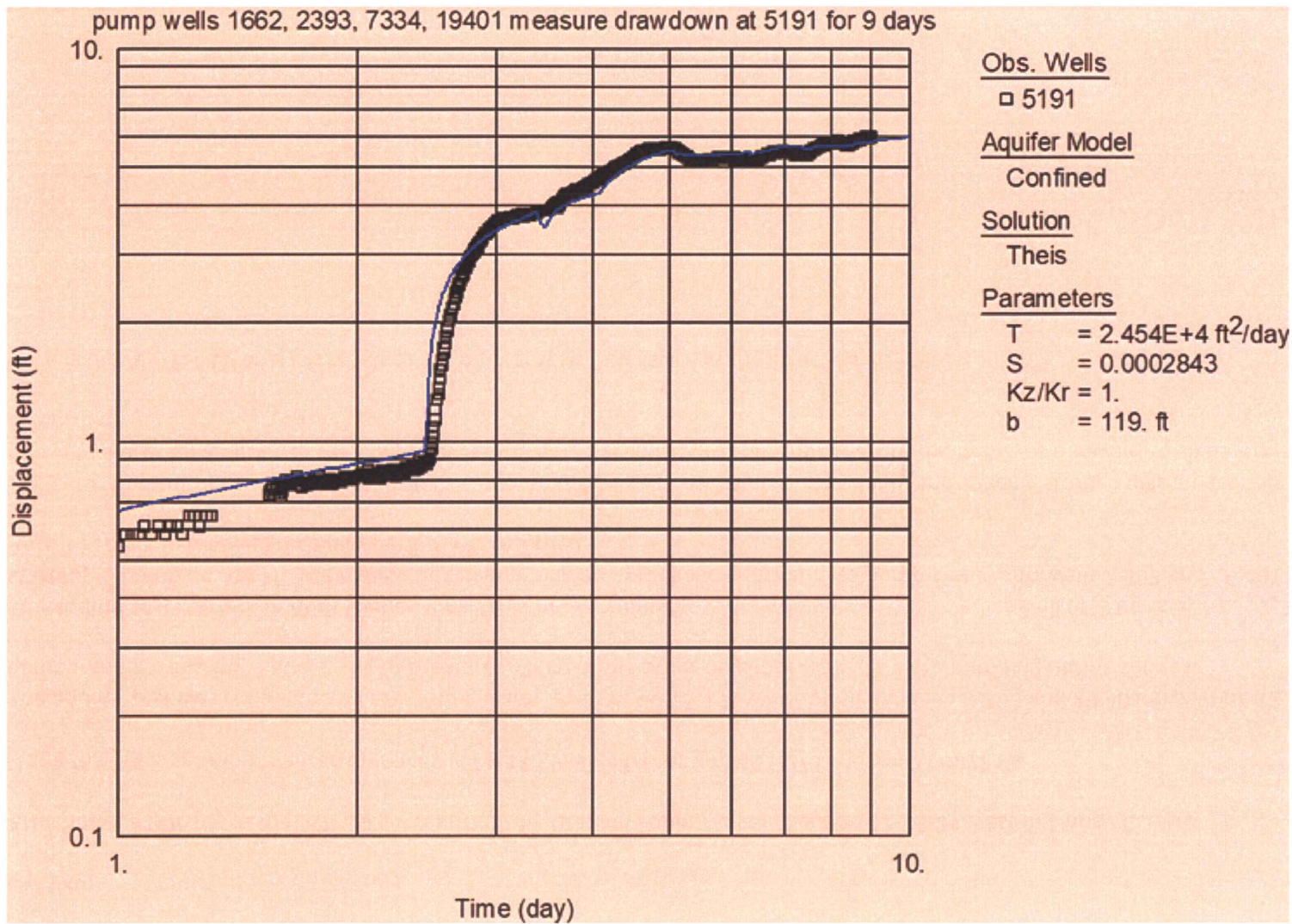
Using the Theis solution the transmissivity is **T = 183,559 gpd/ft** or 24,540 ft²/d and **S = 0.0002843**.

The aquifer test was conducted by measuring water levels at well 5,191 while pumping wells 2,393 and 19,401 in Section 12, Township 23 South, Range 34 West and pumping wells 1,662 and 7,334 to the north. None of the other neighboring wells were pumping during the test.

The aquifer test started on April 5 when well 7,334 began pumping as drawdown was observed at well 5,191 and at wells 2,393 and 19,401 prior to those wells starting to pump on April 7. Well 1,662 began pumping on April 9 and continued to pump along with wells 2,393 and 19,401 when the test was concluded on April 14 so no water level recovery period was recorded.

The saturated thickness of 119 feet used to compute the average hydraulic conductivity and specific storage was an average of the saturated thicknesses of the depth to water taken prior to the test at wells 2,393, 5,191, and 19,401 subtracted from the depth of the wells to shale from the well logs and includes clay layers.

Here is the AQTESOLV analysis result of the aquifer test. Details are in the attached PDF file.



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AQTESOLV for Windows pump wells 1662, 2393, 7334, 19401 measure drawdown at 5191 for 9 days

| Time (day) | Displacement (ft) | Time (day) | Displacement (ft) |
|------------|-------------------|------------|-------------------|
| 2.483 | 0.995 | 6.403 | 5.2 |
| 2.49 | 1.032 | 6.41 | 5.202 |
| 2.497 | 1.09 | 6.417 | 5.176 |
| 2.504 | 1.136 | 6.424 | 5.202 |
| 2.511 | 1.2 | 6.431 | 5.193 |
| 2.518 | 1.278 | 6.438 | 5.208 |
| 2.525 | 1.318 | 6.444 | 5.201 |
| 2.532 | 1.368 | 6.451 | 5.229 |
| 2.539 | 1.445 | 6.458 | 5.213 |
| 2.546 | 1.517 | 6.465 | 5.228 |
| 2.553 | 1.568 | 6.472 | 5.232 |
| 2.56 | 1.613 | 6.479 | 5.233 |
| 2.567 | 1.668 | 6.486 | 5.24 |
| 2.574 | 1.72 | 6.493 | 5.257 |
| 2.581 | 1.782 | 6.5 | 5.266 |
| 2.587 | 1.855 | 6.507 | 5.263 |
| 2.594 | 1.902 | 6.514 | 5.277 |
| 2.601 | 1.955 | 6.521 | 5.286 |
| 2.608 | 2.027 | 6.528 | 5.299 |
| 2.615 | 2.072 | 6.535 | 5.286 |
| 2.622 | 2.106 | 6.542 | 5.314 |
| 2.629 | 2.171 | 6.549 | 5.307 |
| 2.636 | 2.199 | 6.556 | 5.33 |
| 2.643 | 2.245 | 6.563 | 5.327 |
| 2.65 | 2.296 | 6.569 | 5.351 |
| 2.657 | 2.34 | 6.576 | 5.361 |
| 2.664 | 2.4 | 6.583 | 5.338 |
| 2.671 | 2.413 | 6.59 | 5.37 |
| 2.678 | 2.48 | 6.597 | 5.358 |
| 2.685 | 2.503 | 6.604 | 5.375 |
| 2.692 | 2.529 | 6.611 | 5.374 |
| 2.699 | 2.563 | 6.618 | 5.349 |
| 2.706 | 2.617 | 6.625 | 5.374 |
| 2.712 | 2.617 | 6.632 | 5.357 |
| 2.719 | 2.665 | 6.639 | 5.384 |
| 2.726 | 2.688 | 6.646 | 5.354 |
| 2.733 | 2.739 | 6.653 | 5.382 |
| 2.74 | 2.767 | 6.66 | 5.377 |
| 2.747 | 2.797 | 6.667 | 5.378 |
| 2.754 | 2.832 | 6.674 | 5.367 |
| 2.761 | 2.85 | 6.681 | 5.364 |
| 2.768 | 2.881 | 6.688 | 5.372 |
| 2.775 | 2.93 | 6.694 | 5.404 |
| 2.782 | 2.959 | 6.701 | 5.4 |
| 2.789 | 2.974 | 6.708 | 5.417 |
| 2.796 | 2.994 | 6.715 | 5.379 |
| 2.803 | 3.02 | 6.722 | 5.405 |
| 2.81 | 3.036 | 6.729 | 5.423 |
| 2.817 | 3.074 | 6.736 | 5.425 |
| 2.824 | 3.097 | 6.743 | 5.421 |
| 2.831 | 3.112 | 6.75 | 5.44 |
| 2.837 | 3.113 | 6.757 | 5.421 |
| 2.844 | 3.163 | 6.764 | 5.421 |
| 2.851 | 3.208 | 6.771 | 5.405 |
| 2.858 | 3.196 | 6.778 | 5.423 |
| 2.865 | 3.233 | 6.785 | 5.417 |
| 2.872 | 3.277 | 6.792 | 5.437 |
| 2.879 | 3.282 | 6.799 | 5.437 |
| 2.886 | 3.303 | 6.806 | 5.416 |
| 2.893 | 3.36 | 6.813 | 5.43 |
| 2.9 | 3.36 | 6.819 | 5.417 |
| 2.907 | 3.389 | 6.826 | 5.417 |
| 2.914 | 3.388 | 6.833 | 5.442 |
| 2.921 | 3.42 | 6.84 | 5.433 |
| 2.928 | 3.433 | 6.847 | 5.437 |
| 2.935 | 3.46 | 6.854 | 5.431 |
| 2.942 | 3.492 | 6.861 | 5.454 |
| 2.949 | 3.484 | 6.868 | 5.434 |
| 2.956 | 3.513 | 6.875 | 5.444 |
| 2.962 | 3.526 | 6.882 | 5.453 |
| 2.969 | 3.544 | 6.889 | 5.443 |
| 2.976 | 3.562 | 6.896 | 5.457 |

| Time (day) | Displacement (ft) | Time (day) | Displacement (ft) |
|------------|-------------------|------------|-------------------|
| 1.983 | 0.807 | 5.903 | 5.281 |
| 1.99 | 0.813 | 5.91 | 5.276 |
| 1.997 | 0.818 | 5.917 | 5.257 |
| 2.004 | 0.813 | 5.924 | 5.297 |
| 2.011 | 0.818 | 5.931 | 5.289 |
| 2.018 | 0.824 | 5.938 | 5.283 |
| 2.025 | 0.818 | 5.944 | 5.269 |
| 2.032 | 0.813 | 5.951 | 5.279 |
| 2.039 | 0.813 | 5.958 | 5.284 |
| 2.046 | 0.829 | 5.965 | 5.29 |
| 2.053 | 0.824 | 5.972 | 5.279 |
| 2.06 | 0.846 | 5.979 | 5.283 |
| 2.067 | 0.818 | 5.986 | 5.286 |
| 2.074 | 0.807 | 5.993 | 5.281 |
| 2.081 | 0.807 | 6. | 5.298 |
| 2.087 | 0.824 | 6.007 | 5.259 |
| 2.094 | 0.813 | 6.014 | 5.276 |
| 2.101 | 0.818 | 6.021 | 5.253 |
| 2.108 | 0.824 | 6.028 | 5.246 |
| 2.115 | 0.829 | 6.035 | 5.272 |
| 2.122 | 0.807 | 6.042 | 5.245 |
| 2.129 | 0.824 | 6.049 | 5.245 |
| 2.136 | 0.807 | 6.056 | 5.209 |
| 2.143 | 0.841 | 6.063 | 5.218 |
| 2.15 | 0.818 | 6.069 | 5.226 |
| 2.157 | 0.835 | 6.076 | 5.218 |
| 2.164 | 0.824 | 6.083 | 5.205 |
| 2.171 | 0.841 | 6.09 | 5.215 |
| 2.178 | 0.835 | 6.097 | 5.195 |
| 2.185 | 0.835 | 6.104 | 5.215 |
| 2.192 | 0.824 | 6.111 | 5.196 |
| 2.199 | 0.835 | 6.118 | 5.192 |
| 2.206 | 0.824 | 6.125 | 5.205 |
| 2.212 | 0.846 | 6.132 | 5.188 |
| 2.219 | 0.829 | 6.139 | 5.187 |
| 2.226 | 0.835 | 6.146 | 5.209 |
| 2.233 | 0.818 | 6.153 | 5.21 |
| 2.24 | 0.846 | 6.16 | 5.218 |
| 2.247 | 0.824 | 6.167 | 5.208 |
| 2.254 | 0.846 | 6.174 | 5.239 |
| 2.261 | 0.846 | 6.181 | 5.211 |
| 2.268 | 0.846 | 6.188 | 5.231 |
| 2.275 | 0.841 | 6.194 | 5.227 |
| 2.282 | 0.835 | 6.201 | 5.207 |
| 2.289 | 0.829 | 6.208 | 5.21 |
| 2.296 | 0.852 | 6.215 | 5.217 |
| 2.303 | 0.858 | 6.222 | 5.193 |
| 2.31 | 0.846 | 6.229 | 5.228 |
| 2.317 | 0.852 | 6.236 | 5.21 |
| 2.324 | 0.846 | 6.243 | 5.208 |
| 2.331 | 0.858 | 6.25 | 5.212 |
| 2.337 | 0.846 | 6.257 | 5.2 |
| 2.344 | 0.869 | 6.264 | 5.203 |
| 2.351 | 0.852 | 6.271 | 5.191 |
| 2.358 | 0.846 | 6.278 | 5.197 |
| 2.365 | 0.858 | 6.285 | 5.187 |
| 2.372 | 0.863 | 6.292 | 5.18 |
| 2.379 | 0.858 | 6.299 | 5.18 |
| 2.386 | 0.874 | 6.306 | 5.198 |
| 2.393 | 0.874 | 6.313 | 5.191 |
| 2.4 | 0.891 | 6.319 | 5.186 |
| 2.407 | 0.863 | 6.326 | 5.196 |
| 2.414 | 0.874 | 6.333 | 5.183 |
| 2.421 | 0.88 | 6.34 | 5.186 |
| 2.428 | 0.886 | 6.347 | 5.192 |
| 2.435 | 0.88 | 6.354 | 5.197 |
| 2.442 | 0.874 | 6.361 | 5.184 |
| 2.449 | 0.886 | 6.368 | 5.202 |
| 2.456 | 0.895 | 6.375 | 5.207 |
| 2.462 | 0.913 | 6.382 | 5.179 |
| 2.469 | 0.931 | 6.389 | 5.2 |
| 2.476 | 0.952 | 6.396 | 5.175 |

AQTESOLV for Windows pump wells 1662, 2393, 7334, 19401 measure drawdown at 5191 for 9 days

| <u>Time (day)</u> | <u>Displacement (ft)</u> | <u>Time (day)</u> | <u>Displacement (ft)</u> |
|-------------------|--------------------------|-------------------|--------------------------|
| 1.146 | 0.58 | 5.403 | 5.137 |
| 1.167 | 0.61 | 5.41 | 5.155 |
| 1.188 | 0.61 | 5.417 | 5.13 |
| 1.208 | 0.58 | 5.424 | 5.148 |
| 1.229 | 0.65 | 5.431 | 5.158 |
| 1.25 | 0.65 | 5.438 | 5.141 |
| 1.271 | 0.61 | 5.444 | 5.122 |
| 1.292 | 0.65 | 5.451 | 5.115 |
| 1.313 | 0.65 | 5.458 | 5.134 |
| 1.546 | 0.728 | 5.465 | 5.139 |
| 1.553 | 0.739 | 5.472 | 5.141 |
| 1.56 | 0.751 | 5.479 | 5.117 |
| 1.567 | 0.767 | 5.486 | 5.152 |
| 1.574 | 0.734 | 5.493 | 5.169 |
| 1.581 | 0.756 | 5.5 | 5.137 |
| 1.587 | 0.767 | 5.507 | 5.175 |
| 1.594 | 0.734 | 5.514 | 5.176 |
| 1.601 | 0.722 | 5.521 | 5.177 |
| 1.608 | 0.756 | 5.528 | 5.18 |
| 1.615 | 0.751 | 5.535 | 5.166 |
| 1.622 | 0.773 | 5.542 | 5.179 |
| 1.629 | 0.801 | 5.549 | 5.204 |
| 1.636 | 0.784 | 5.556 | 5.211 |
| 1.643 | 0.773 | 5.563 | 5.193 |
| 1.65 | 0.779 | 5.569 | 5.201 |
| 1.657 | 0.79 | 5.576 | 5.187 |
| 1.664 | 0.796 | 5.583 | 5.201 |
| 1.671 | 0.79 | 5.59 | 5.209 |
| 1.678 | 0.818 | 5.597 | 5.23 |
| 1.685 | 0.801 | 5.604 | 5.221 |
| 1.692 | 0.79 | 5.611 | 5.221 |
| 1.699 | 0.773 | 5.618 | 5.214 |
| 1.706 | 0.767 | 5.625 | 5.221 |
| 1.712 | 0.79 | 5.632 | 5.227 |
| 1.719 | 0.79 | 5.639 | 5.239 |
| 1.726 | 0.773 | 5.646 | 5.227 |
| 1.733 | 0.779 | 5.653 | 5.214 |
| 1.74 | 0.79 | 5.66 | 5.242 |
| 1.747 | 0.779 | 5.667 | 5.218 |
| 1.754 | 0.784 | 5.674 | 5.249 |
| 1.761 | 0.779 | 5.681 | 5.241 |
| 1.768 | 0.801 | 5.688 | 5.252 |
| 1.775 | 0.79 | 5.694 | 5.237 |
| 1.782 | 0.796 | 5.701 | 5.237 |
| 1.789 | 0.796 | 5.708 | 5.228 |
| 1.796 | 0.813 | 5.715 | 5.254 |
| 1.803 | 0.79 | 5.722 | 5.256 |
| 1.81 | 0.801 | 5.729 | 5.259 |
| 1.817 | 0.79 | 5.736 | 5.263 |
| 1.824 | 0.796 | 5.743 | 5.249 |
| 1.831 | 0.784 | 5.75 | 5.253 |
| 1.837 | 0.79 | 5.757 | 5.272 |
| 1.844 | 0.807 | 5.764 | 5.259 |
| 1.851 | 0.807 | 5.771 | 5.249 |
| 1.858 | 0.79 | 5.778 | 5.264 |
| 1.865 | 0.784 | 5.785 | 5.253 |
| 1.872 | 0.796 | 5.792 | 5.246 |
| 1.879 | 0.801 | 5.799 | 5.242 |
| 1.886 | 0.801 | 5.806 | 5.267 |
| 1.893 | 0.801 | 5.813 | 5.252 |
| 1.9 | 0.796 | 5.819 | 5.277 |
| 1.907 | 0.796 | 5.826 | 5.248 |
| 1.914 | 0.79 | 5.833 | 5.274 |
| 1.921 | 0.801 | 5.84 | 5.277 |
| 1.928 | 0.813 | 5.847 | 5.274 |
| 1.935 | 0.807 | 5.854 | 5.286 |
| 1.942 | 0.796 | 5.861 | 5.247 |
| 1.949 | 0.813 | 5.868 | 5.29 |
| 1.956 | 0.807 | 5.875 | 5.27 |
| 1.962 | 0.807 | 5.882 | 5.264 |
| 1.969 | 0.801 | 5.889 | 5.262 |
| 1.976 | 0.807 | 5.896 | 5.236 |

| Pumping Period Data | | | |
|---------------------|----------------|------------|----------------|
| Time (day) | Rate (gal/min) | Time (day) | Rate (gal/min) |
| 4.042 | 437.3 | 7.124 | 414.5 |
| 4.125 | 538.5 | 8.337 | 478.6 |

OBSERVATION WELL DATA

No. of observation wells: 1

Observation Well No. 1: 5191

X Location: 0. ft

Y Location: 0. ft

Radial distance from 2393: 2443.634456 ft

Radial distance from 19401: 1789.723762 ft

Radial distance from 7334: 5223.711561 ft

Radial distance from 1662: 4280.709842 ft

Fully Penetrating Well

No. of Observations: 1127

| Observation Data | | | |
|------------------|-------------------|------------|-------------------|
| Time (day) | Displacement (ft) | Time (day) | Displacement (ft) |
| 0.1458 | 0.04 | 5.069 | 5.533 |
| 0.1667 | 0.08 | 5.076 | 5.541 |
| 0.1875 | 0.08 | 5.083 | 5.539 |
| 0.2083 | 0.11 | 5.09 | 5.549 |
| 0.2292 | 0.08 | 5.097 | 5.539 |
| 0.25 | 0.15 | 5.104 | 5.539 |
| 0.2708 | 0.15 | 5.111 | 5.519 |
| 0.2917 | 0.15 | 5.118 | 5.523 |
| 0.3125 | 0.22 | 5.125 | 5.506 |
| 0.3333 | 0.22 | 5.132 | 5.504 |
| 0.3542 | 0.18 | 5.139 | 5.481 |
| 0.375 | 0.22 | 5.146 | 5.461 |
| 0.3958 | 0.22 | 5.153 | 5.454 |
| 0.4167 | 0.26 | 5.16 | 5.424 |
| 0.4375 | 0.29 | 5.167 | 5.423 |
| 0.4583 | 0.29 | 5.174 | 5.392 |
| 0.4792 | 0.26 | 5.181 | 5.398 |
| 0.5 | 0.29 | 5.188 | 5.398 |
| 0.5208 | 0.33 | 5.194 | 5.381 |
| 0.5417 | 0.33 | 5.201 | 5.361 |
| 0.5625 | 0.33 | 5.208 | 5.348 |
| 0.5833 | 0.37 | 5.215 | 5.362 |
| 0.6042 | 0.37 | 5.222 | 5.353 |
| 0.625 | 0.37 | 5.229 | 5.342 |
| 0.6458 | 0.4 | 5.236 | 5.335 |
| 0.6667 | 0.4 | 5.243 | 5.332 |
| 0.6875 | 0.4 | 5.25 | 5.317 |
| 0.7083 | 0.4 | 5.257 | 5.295 |
| 0.7292 | 0.44 | 5.264 | 5.287 |
| 0.75 | 0.48 | 5.271 | 5.281 |
| 0.7708 | 0.44 | 5.278 | 5.281 |
| 0.7917 | 0.48 | 5.285 | 5.257 |
| 0.8125 | 0.48 | 5.292 | 5.253 |
| 0.8333 | 0.48 | 5.299 | 5.233 |
| 0.8542 | 0.48 | 5.306 | 5.243 |
| 0.875 | 0.51 | 5.313 | 5.214 |
| 0.8958 | 0.54 | 5.319 | 5.237 |
| 0.9167 | 0.51 | 5.326 | 5.211 |
| 0.9375 | 0.54 | 5.333 | 5.189 |
| 0.9583 | 0.54 | 5.34 | 5.181 |
| 0.9792 | 0.54 | 5.347 | 5.196 |
| 1. | 0.54 | 5.354 | 5.192 |
| 1.021 | 0.58 | 5.361 | 5.179 |
| 1.042 | 0.58 | 5.368 | 5.166 |
| 1.063 | 0.58 | 5.375 | 5.162 |
| 1.083 | 0.61 | 5.382 | 5.138 |
| 1.104 | 0.58 | 5.389 | 5.135 |
| 1.125 | 0.61 | 5.396 | 5.157 |

AQTESOLV for Windows pump wells 1662, 2393, 7334, 19401 measure drawdown at 5191 for 9 days

| <u>Time (day)</u> | <u>Rate (gal/min)</u> | <u>Time (day)</u> | <u>Rate (gal/min)</u> |
|-------------------|-----------------------|-------------------|-----------------------|
| 5.424 | 606.4 | 8.701 | 624.8 |
| 5.431 | 606.3 | 8.708 | 624.1 |
| 5.438 | 607.4 | 8.715 | 621.6 |
| 5.444 | 607.9 | 8.722 | 622.2 |
| 5.451 | 608.4 | 8.729 | 622.6 |
| 5.458 | 608.9 | 8.736 | 618.4 |
| 5.465 | 610.1 | 8.743 | 615.2 |
| 5.472 | 610.2 | 8.75 | 621.2 |
| 5.479 | 611. | 8.757 | 614.3 |
| 5.486 | 611.3 | 8.764 | 620.1 |
| 5.493 | 611.5 | 8.771 | 620.5 |
| 5.5 | 612. | 8.778 | 622.1 |
| 5.507 | 612.6 | 8.785 | 620.6 |
| 5.514 | 613.7 | 8.792 | 623.9 |
| 5.521 | 613.4 | 8.799 | 629.3 |
| 5.528 | 614. | 8.806 | 628.5 |
| 5.535 | 614.6 | 8.813 | 620.3 |
| 5.542 | 614.6 | 8.819 | 628.5 |
| 5.549 | 615.3 | 8.826 | 630.9 |
| 5.556 | 615.5 | 8.833 | 631. |
| 5.563 | 615. | 8.84 | 631. |
| 5.569 | 615.1 | 8.847 | 631.3 |
| 5.576 | 614.9 | 8.854 | 630.9 |
| 5.583 | 615.6 | 8.861 | 630.3 |
| 5.59 | 616.2 | 8.868 | 629.2 |
| 5.597 | 616.2 | 8.875 | 628.1 |
| 5.604 | 616.3 | 8.882 | 628.9 |
| 5.611 | 615.4 | 8.889 | 628. |
| 5.618 | 615.1 | 8.896 | 623.8 |
| 5.625 | 615.5 | 8.903 | 610.2 |
| 5.632 | 616.6 | 8.91 | 609.4 |
| 5.639 | 616.5 | 8.917 | 609. |
| 5.646 | 616.1 | 8.924 | 610.5 |
| 5.653 | 615.7 | 8.931 | 612.9 |
| 5.66 | 615.5 | 8.938 | 616.1 |
| 5.667 | 615.2 | 8.944 | 617.4 |
| 5.674 | 614.8 | 8.951 | 619.7 |
| 5.681 | 614.4 | 8.958 | 619.7 |
| 5.688 | 614.7 | 8.965 | 617.5 |
| 5.694 | 615.2 | 8.972 | 616. |
| 5.701 | 615. | | |

Pumping Well No. 3: 7334

X Location: 3146.2872 ft
 Y Location: 4169.8968 ft

Casing Radius: 1. ft
 Well Radius: 1. ft

Fully Penetrating Well

No. of pumping periods: 6

| <u>Time (day)</u> | <u>Pumping Period Data</u> | | <u>Rate (gal/min)</u> |
|-------------------|----------------------------|-------------------|-----------------------|
| | <u>Rate (gal/min)</u> | <u>Time (day)</u> | |
| 0. | 550.7 | 3.109 | 517. |
| 0.189 | 521. | 4.132 | 503.1 |
| 2.138 | 534.3 | 5. | 0. |

Pumping Well No. 4: 1662

X Location: 147.636 ft
 Y Location: 4278.1632 ft

Casing Radius: 1. ft
 Well Radius: 1. ft

Fully Penetrating Well

No. of pumping periods: 4

AQTESOLV for Windows pump wells 1662, 2393, 7334, 19401 measure drawdown at 5191 for 9 days

| Time (day) | Rate (gal/min) | Time (day) | Rate (gal/min) |
|------------|----------------|------------|----------------|
| 4.924 | 636.1 | 8.201 | 620.6 |
| 4.931 | 636. | 8.208 | 619.7 |
| 4.938 | 635.6 | 8.215 | 618.8 |
| 4.944 | 636.3 | 8.222 | 618.8 |
| 4.951 | 637. | 8.229 | 619.1 |
| 4.958 | 635. | 8.236 | 615.1 |
| 4.965 | 634.7 | 8.243 | 618.8 |
| 4.972 | 634.9 | 8.25 | 619.7 |
| 4.979 | 633.5 | 8.257 | 617.8 |
| 4.986 | 634. | 8.264 | 617.9 |
| 4.993 | 633.6 | 8.271 | 618.4 |
| 5. | 632.3 | 8.278 | 618.7 |
| 5.007 | 630.5 | 8.285 | 617.8 |
| 5.014 | 630.4 | 8.292 | 619. |
| 5.021 | 630. | 8.299 | 616.1 |
| 5.028 | 629. | 8.306 | 618.2 |
| 5.035 | 629.7 | 8.313 | 618.5 |
| 5.042 | 628.4 | 8.319 | 617.5 |
| 5.049 | 628. | 8.326 | 617.2 |
| 5.056 | 628.1 | 8.333 | 616.5 |
| 5.063 | 627.1 | 8.34 | 617.7 |
| 5.069 | 642.1 | 8.347 | 617.6 |
| 5.076 | 691.9 | 8.354 | 617.5 |
| 5.083 | 292.1 | 8.361 | 617.8 |
| 5.09 | 373.4 | 8.368 | 617.9 |
| 5.097 | 614.8 | 8.375 | 617.6 |
| 5.104 | 614.3 | 8.382 | 617.4 |
| 5.111 | 613.2 | 8.389 | 617.6 |
| 5.118 | 611.5 | 8.396 | 617.9 |
| 5.125 | 612. | 8.403 | 618.6 |
| 5.132 | 613. | 8.41 | 618. |
| 5.139 | 612.8 | 8.417 | 618.3 |
| 5.146 | 612.4 | 8.424 | 618.3 |
| 5.153 | 609.6 | 8.431 | 618.7 |
| 5.16 | 607.8 | 8.438 | 618.7 |
| 5.167 | 609.8 | 8.444 | 618.5 |
| 5.174 | 610.4 | 8.451 | 618.2 |
| 5.181 | 611.1 | 8.458 | 618.8 |
| 5.188 | 609.6 | 8.465 | 619.4 |
| 5.194 | 607.8 | 8.472 | 619.9 |
| 5.201 | 608.9 | 8.479 | 620.2 |
| 5.208 | 607.4 | 8.486 | 620.5 |
| 5.215 | 608.9 | 8.493 | 621.1 |
| 5.222 | 608.5 | 8.5 | 620.9 |
| 5.229 | 608.8 | 8.507 | 621.2 |
| 5.236 | 610.2 | 8.514 | 621.6 |
| 5.243 | 610.2 | 8.521 | 621.1 |
| 5.25 | 609. | 8.528 | 621.2 |
| 5.257 | 608.7 | 8.535 | 620.9 |
| 5.264 | 609.9 | 8.542 | 620.6 |
| 5.271 | 608.4 | 8.549 | 620.3 |
| 5.278 | 609.3 | 8.556 | 620.5 |
| 5.285 | 608.3 | 8.563 | 621.3 |
| 5.292 | 608.5 | 8.569 | 622.9 |
| 5.299 | 608.5 | 8.576 | 623.5 |
| 5.306 | 608.2 | 8.583 | 623.6 |
| 5.313 | 607. | 8.59 | 623.6 |
| 5.319 | 607.6 | 8.597 | 622.6 |
| 5.326 | 607.7 | 8.604 | 622.8 |
| 5.333 | 607.4 | 8.611 | 622. |
| 5.34 | 606.5 | 8.618 | 622.4 |
| 5.347 | 606.9 | 8.625 | 622.5 |
| 5.354 | 607.2 | 8.632 | 622.7 |
| 5.361 | 606.9 | 8.639 | 623.6 |
| 5.368 | 607.5 | 8.646 | 623.6 |
| 5.375 | 606.6 | 8.653 | 623.6 |
| 5.382 | 607.3 | 8.66 | 623.6 |
| 5.389 | 605.6 | 8.667 | 624. |
| 5.396 | 606.8 | 8.674 | 624.3 |
| 5.403 | 606.9 | 8.681 | 625.1 |
| 5.41 | 606.6 | 8.688 | 624.8 |
| 5.417 | 606.8 | 8.694 | 624.6 |

AQTESOLV for Windows pump wells 1662, 2393, 7334, 19401 measure drawdown at 5191 for 9 days

| Time (day) | Rate (gal/min) | Time (day) | Rate (gal/min) |
|------------|----------------|------------|----------------|
| 4.424 | 615.6 | 7.701 | 629.4 |
| 4.431 | 616.9 | 7.708 | 619.9 |
| 4.438 | 617.6 | 7.715 | 626.6 |
| 4.444 | 615.3 | 7.722 | 618.6 |
| 4.451 | 612. | 7.729 | 621.8 |
| 4.458 | 615.4 | 7.736 | 630. |
| 4.465 | 619.2 | 7.743 | 629.9 |
| 4.472 | 620.6 | 7.75 | 631.6 |
| 4.479 | 621.3 | 7.757 | 630.7 |
| 4.486 | 620.9 | 7.764 | 630.4 |
| 4.493 | 624.1 | 7.771 | 630.9 |
| 4.5 | 626. | 7.778 | 631.8 |
| 4.507 | 633.2 | 7.785 | 632. |
| 4.514 | 633.2 | 7.792 | 632.1 |
| 4.521 | 633.6 | 7.799 | 631.8 |
| 4.528 | 631.5 | 7.806 | 631.6 |
| 4.535 | 634.3 | 7.813 | 630.6 |
| 4.542 | 635.5 | 7.819 | 630.9 |
| 4.549 | 635.6 | 7.826 | 630.7 |
| 4.556 | 636.6 | 7.833 | 630.1 |
| 4.563 | 638. | 7.84 | 629.5 |
| 4.569 | 638.6 | 7.847 | 628.5 |
| 4.576 | 639.3 | 7.854 | 628.1 |
| 4.583 | 638.3 | 7.861 | 624.8 |
| 4.59 | 637.8 | 7.868 | 620.5 |
| 4.597 | 637. | 7.875 | 627.1 |
| 4.604 | 637.9 | 7.882 | 627.6 |
| 4.611 | 637.8 | 7.889 | 620.5 |
| 4.618 | 636.2 | 7.896 | 617.8 |
| 4.625 | 637.3 | 7.903 | 615.8 |
| 4.632 | 638.3 | 7.91 | 618.3 |
| 4.639 | 638.6 | 7.917 | 625.6 |
| 4.646 | 638.5 | 7.924 | 626.9 |
| 4.653 | 639. | 7.931 | 629.3 |
| 4.66 | 638.6 | 7.938 | 629.6 |
| 4.667 | 638.2 | 7.944 | 628.8 |
| 4.674 | 637.5 | 7.951 | 630.3 |
| 4.681 | 636.5 | 7.958 | 629.9 |
| 4.688 | 637.5 | 7.965 | 626.2 |
| 4.694 | 640.5 | 7.972 | 628.2 |
| 4.701 | 640.1 | 7.979 | 621.3 |
| 4.708 | 638.6 | 7.986 | 614.6 |
| 4.715 | 635. | 7.993 | 613.1 |
| 4.722 | 638.7 | 8. | 617.7 |
| 4.729 | 638.9 | 8.007 | 617.2 |
| 4.736 | 638.7 | 8.014 | 618.9 |
| 4.743 | 640.5 | 8.021 | 622.5 |
| 4.75 | 640.2 | 8.028 | 626.7 |
| 4.757 | 638.9 | 8.035 | 625.2 |
| 4.764 | 638.5 | 8.042 | 624. |
| 4.771 | 638.8 | 8.049 | 625.1 |
| 4.778 | 638.2 | 8.056 | 621. |
| 4.785 | 638.6 | 8.063 | 620.6 |
| 4.792 | 639.5 | 8.069 | 620.8 |
| 4.799 | 638.6 | 8.076 | 625.4 |
| 4.806 | 637.7 | 8.083 | 625.4 |
| 4.813 | 638. | 8.09 | 623.9 |
| 4.819 | 637.3 | 8.097 | 625.9 |
| 4.826 | 636.9 | 8.104 | 624.4 |
| 4.833 | 637. | 8.111 | 623.2 |
| 4.84 | 636.1 | 8.118 | 617.9 |
| 4.847 | 632.4 | 8.125 | 620.6 |
| 4.854 | 634.4 | 8.132 | 621.3 |
| 4.861 | 635.9 | 8.139 | 618.7 |
| 4.868 | 638. | 8.146 | 623. |
| 4.875 | 637.6 | 8.153 | 621.9 |
| 4.882 | 638.3 | 8.16 | 621.5 |
| 4.889 | 637. | 8.167 | 619.6 |
| 4.896 | 637.1 | 8.174 | 622.5 |
| 4.903 | 636.4 | 8.181 | 618.9 |
| 4.91 | 635.7 | 8.188 | 622.1 |
| 4.917 | 635.9 | 8.194 | 623.5 |

| Time (day) | Rate (gal/min) | Time (day) | Rate (gal/min) |
|------------|----------------|------------|----------------|
| 3.924 | 627.2 | 7.201 | 610.3 |
| 3.931 | 627.7 | 7.208 | 611.6 |
| 3.938 | 625.6 | 7.215 | 610.6 |
| 3.944 | 624.2 | 7.222 | 611.2 |
| 3.951 | 627.5 | 7.229 | 610.2 |
| 3.958 | 625.2 | 7.236 | 615.2 |
| 3.965 | 624.8 | 7.243 | 611.1 |
| 3.972 | 624. | 7.25 | 612.9 |
| 3.979 | 626.4 | 7.257 | 611.6 |
| 3.986 | 627.5 | 7.264 | 609.8 |
| 3.993 | 626.3 | 7.271 | 610.9 |
| 4. | 626.4 | 7.278 | 611. |
| 4.007 | 627.6 | 7.285 | 609.7 |
| 4.014 | 625. | 7.292 | 610.7 |
| 4.021 | 622.6 | 7.299 | 611.6 |
| 4.028 | 622.1 | 7.306 | 610.1 |
| 4.035 | 623.1 | 7.313 | 614.6 |
| 4.042 | 621.6 | 7.319 | 619.4 |
| 4.049 | 623.6 | 7.326 | 615. |
| 4.056 | 622.8 | 7.333 | 615.8 |
| 4.063 | 623.3 | 7.34 | 615.3 |
| 4.069 | 626.4 | 7.347 | 611.3 |
| 4.076 | 626.8 | 7.354 | 607.9 |
| 4.083 | 627.4 | 7.361 | 609.6 |
| 4.09 | 626.5 | 7.368 | 609.4 |
| 4.097 | 628.9 | 7.375 | 608. |
| 4.104 | 629.2 | 7.382 | 617.9 |
| 4.111 | 627.8 | 7.389 | 616.3 |
| 4.118 | 626.2 | 7.396 | 616.6 |
| 4.125 | 627.5 | 7.403 | 612.5 |
| 4.132 | 624.5 | 7.41 | 603.5 |
| 4.139 | 625.3 | 7.417 | 604.8 |
| 4.146 | 625.9 | 7.424 | 604.6 |
| 4.153 | 621.4 | 7.431 | 605.7 |
| 4.16 | 621.3 | 7.438 | 604.9 |
| 4.167 | 621.8 | 7.444 | 603.9 |
| 4.174 | 624.7 | 7.451 | 609.5 |
| 4.181 | 624.1 | 7.458 | 621.4 |
| 4.188 | 621.1 | 7.465 | 623.4 |
| 4.194 | 625.5 | 7.472 | 621.6 |
| 4.201 | 623.3 | 7.479 | 624.5 |
| 4.208 | 623.1 | 7.486 | 625.4 |
| 4.215 | 623.4 | 7.493 | 618.3 |
| 4.222 | 624.4 | 7.5 | 616.7 |
| 4.229 | 625. | 7.507 | 612.3 |
| 4.236 | 624.8 | 7.514 | 617.4 |
| 4.243 | 621.8 | 7.521 | 626.7 |
| 4.25 | 619.4 | 7.528 | 624.2 |
| 4.257 | 624.4 | 7.535 | 625.5 |
| 4.264 | 621.9 | 7.542 | 626.3 |
| 4.271 | 620.5 | 7.549 | 622.9 |
| 4.278 | 620.1 | 7.556 | 627.9 |
| 4.285 | 624. | 7.563 | 627.6 |
| 4.292 | 621.6 | 7.569 | 628.6 |
| 4.299 | 619.8 | 7.576 | 628.8 |
| 4.306 | 619.6 | 7.583 | 629.1 |
| 4.313 | 622.2 | 7.59 | 626.4 |
| 4.319 | 618.2 | 7.597 | 629.9 |
| 4.326 | 620.5 | 7.604 | 630.2 |
| 4.333 | 621.4 | 7.611 | 629.3 |
| 4.34 | 617.8 | 7.618 | 628.5 |
| 4.347 | 619.6 | 7.625 | 627.7 |
| 4.354 | 618. | 7.632 | 628.5 |
| 4.361 | 618.3 | 7.639 | 627.8 |
| 4.368 | 617.7 | 7.646 | 628.8 |
| 4.375 | 615.6 | 7.653 | 628.5 |
| 4.382 | 616.7 | 7.66 | 628.1 |
| 4.389 | 620.8 | 7.667 | 628.5 |
| 4.396 | 617.7 | 7.674 | 627. |
| 4.403 | 620.5 | 7.681 | 628.1 |
| 4.41 | 620.1 | 7.688 | 624.6 |
| 4.417 | 617.1 | 7.694 | 621.7 |

AQTESOLV for Windows pump wells 1662, 2393, 7334, 19401 measure drawdown at 5191 for 9 days

| <u>Time (day)</u> | <u>Rate (gal/min)</u> | <u>Time (day)</u> | <u>Rate (gal/min)</u> |
|-------------------|-----------------------|-------------------|-----------------------|
| 3.424 | 690.3 | 6.701 | 613.7 |
| 3.431 | 690.6 | 6.708 | 615.8 |
| 3.438 | 691.5 | 6.715 | 622. |
| 3.444 | 692.3 | 6.722 | 623.6 |
| 3.451 | 692.9 | 6.729 | 622.2 |
| 3.458 | 691.4 | 6.736 | 625. |
| 3.465 | 652. | 6.743 | 622.6 |
| 3.472 | 630.2 | 6.75 | 609.1 |
| 3.479 | 629.2 | 6.757 | 614.2 |
| 3.486 | 631.7 | 6.764 | 615.5 |
| 3.493 | 632.2 | 6.771 | 610.3 |
| 3.5 | 634.4 | 6.778 | 611.2 |
| 3.507 | 634.7 | 6.785 | 609.9 |
| 3.514 | 635.3 | 6.792 | 612.3 |
| 3.521 | 635.1 | 6.799 | 615.1 |
| 3.528 | 634.6 | 6.806 | 618.9 |
| 3.535 | 634. | 6.813 | 623. |
| 3.542 | 634.4 | 6.819 | 626.5 |
| 3.549 | 631.3 | 6.826 | 629.9 |
| 3.556 | 634.9 | 6.833 | 631.5 |
| 3.563 | 636. | 6.84 | 631.3 |
| 3.569 | 635.5 | 6.847 | 630.9 |
| 3.576 | 633.2 | 6.854 | 629.4 |
| 3.583 | 633.9 | 6.861 | 631.3 |
| 3.59 | 633.3 | 6.868 | 632.2 |
| 3.597 | 630.5 | 6.875 | 631.5 |
| 3.604 | 626.2 | 6.882 | 631.9 |
| 3.611 | 632.8 | 6.889 | 632.5 |
| 3.618 | 633.9 | 6.896 | 632. |
| 3.625 | 634.5 | 6.903 | 630.9 |
| 3.632 | 631.7 | 6.91 | 627.2 |
| 3.639 | 632.8 | 6.917 | 628.8 |
| 3.646 | 631. | 6.924 | 630.2 |
| 3.653 | 633.5 | 6.931 | 632.6 |
| 3.66 | 634.6 | 6.938 | 633. |
| 3.667 | 633. | 6.944 | 632. |
| 3.674 | 633.5 | 6.951 | 631.7 |
| 3.681 | 633. | 6.958 | 630.5 |
| 3.688 | 631.4 | 6.965 | 629.1 |
| 3.694 | 626. | 6.972 | 622.8 |
| 3.701 | 629.9 | 6.979 | 614.2 |
| 3.708 | 622.7 | 6.986 | 609.9 |
| 3.715 | 628. | 6.993 | 610. |
| 3.722 | 626.6 | 7. | 611. |
| 3.729 | 625.4 | 7.007 | 615. |
| 3.736 | 625.4 | 7.014 | 616.1 |
| 3.743 | 624.9 | 7.021 | 615.9 |
| 3.75 | 629.8 | 7.028 | 616.2 |
| 3.757 | 628.8 | 7.035 | 616.5 |
| 3.764 | 628.2 | 7.042 | 617.7 |
| 3.771 | 627.3 | 7.049 | 615.9 |
| 3.778 | 627.9 | 7.056 | 614.9 |
| 3.785 | 627.5 | 7.063 | 615.5 |
| 3.792 | 626.9 | 7.069 | 613.9 |
| 3.799 | 627.7 | 7.076 | 614.6 |
| 3.806 | 626.6 | 7.083 | 614.4 |
| 3.813 | 628.1 | 7.09 | 613.7 |
| 3.819 | 629.1 | 7.097 | 613.4 |
| 3.826 | 629.9 | 7.104 | 612.4 |
| 3.833 | 629. | 7.111 | 616.7 |
| 3.84 | 628.5 | 7.118 | 612.6 |
| 3.847 | 621.5 | 7.125 | 615.6 |
| 3.854 | 623.5 | 7.132 | 614. |
| 3.861 | 619.8 | 7.139 | 615. |
| 3.868 | 619.8 | 7.146 | 617.5 |
| 3.875 | 628.8 | 7.153 | 613. |
| 3.882 | 624.2 | 7.16 | 613.3 |
| 3.889 | 621.8 | 7.167 | 612.2 |
| 3.896 | 621.8 | 7.174 | 610.5 |
| 3.903 | 625.9 | 7.181 | 612.2 |
| 3.91 | 627.3 | 7.188 | 614.5 |
| 3.917 | 626.8 | 7.194 | 616.7 |

| Time (day) | Rate (gal/min) | Time (day) | Rate (gal/min) |
|------------|----------------|------------|----------------|
| 2.924 | 625.5 | 6.201 | 595.6 |
| 2.931 | 625.1 | 6.208 | 596.6 |
| 2.938 | 624.7 | 6.215 | 594.4 |
| 2.944 | 621.8 | 6.222 | 594.1 |
| 2.951 | 619. | 6.229 | 595. |
| 2.958 | 613.9 | 6.236 | 595.5 |
| 2.965 | 620.3 | 6.243 | 595.6 |
| 2.972 | 621. | 6.25 | 595.3 |
| 2.979 | 620.1 | 6.257 | 595.6 |
| 2.986 | 619.3 | 6.264 | 597.8 |
| 2.993 | 619.3 | 6.271 | 596. |
| 3. | 619.7 | 6.278 | 598.3 |
| 3.007 | 618.6 | 6.285 | 597.1 |
| 3.014 | 618.3 | 6.292 | 596.9 |
| 3.021 | 616.5 | 6.299 | 599.1 |
| 3.028 | 617.4 | 6.306 | 620.2 |
| 3.035 | 617.2 | 6.313 | 637.9 |
| 3.042 | 616.3 | 6.319 | 608.3 |
| 3.049 | 615.5 | 6.326 | 603. |
| 3.056 | 614.2 | 6.333 | 601. |
| 3.063 | 614. | 6.34 | 602.5 |
| 3.069 | 614.3 | 6.347 | 602.3 |
| 3.076 | 612.2 | 6.354 | 602.4 |
| 3.083 | 612.3 | 6.361 | 605.1 |
| 3.09 | 611.9 | 6.368 | 604.7 |
| 3.097 | 612.7 | 6.375 | 607. |
| 3.104 | 610.5 | 6.382 | 607.2 |
| 3.111 | 611.1 | 6.389 | 604.1 |
| 3.118 | 611.2 | 6.396 | 605.5 |
| 3.125 | 611. | 6.403 | 605.6 |
| 3.132 | 611.8 | 6.41 | 606.6 |
| 3.139 | 611. | 6.417 | 606.8 |
| 3.146 | 610.8 | 6.424 | 608.9 |
| 3.153 | 610.9 | 6.431 | 607.4 |
| 3.16 | 611.6 | 6.438 | 607. |
| 3.167 | 611.1 | 6.444 | 607.8 |
| 3.174 | 610.7 | 6.451 | 607.9 |
| 3.181 | 611.2 | 6.458 | 605.3 |
| 3.188 | 610.4 | 6.465 | 606.1 |
| 3.194 | 610.8 | 6.472 | 604.9 |
| 3.201 | 610.4 | 6.479 | 604.1 |
| 3.208 | 611.3 | 6.486 | 603.9 |
| 3.215 | 612.8 | 6.493 | 604.1 |
| 3.222 | 612.8 | 6.5 | 602.1 |
| 3.229 | 612.3 | 6.507 | 601. |
| 3.236 | 614. | 6.514 | 608.2 |
| 3.243 | 612.9 | 6.521 | 610.2 |
| 3.25 | 612.5 | 6.528 | 608.8 |
| 3.257 | 612.5 | 6.535 | 613.4 |
| 3.264 | 611.8 | 6.542 | 608. |
| 3.271 | 612.2 | 6.549 | 606.9 |
| 3.278 | 612.3 | 6.556 | 604.6 |
| 3.285 | 611.5 | 6.563 | 602.6 |
| 3.292 | 611.9 | 6.569 | 604.8 |
| 3.299 | 611.5 | 6.576 | 603.9 |
| 3.306 | 612. | 6.583 | 604.3 |
| 3.313 | 611.6 | 6.59 | 606. |
| 3.319 | 612.3 | 6.597 | 606.4 |
| 3.326 | 611.5 | 6.604 | 604.9 |
| 3.333 | 611.4 | 6.611 | 605. |
| 3.34 | 610.9 | 6.618 | 604.7 |
| 3.347 | 611.5 | 6.625 | 608.1 |
| 3.354 | 610.6 | 6.632 | 606.9 |
| 3.361 | 658. | 6.639 | 605.9 |
| 3.368 | 685.8 | 6.646 | 607.6 |
| 3.375 | 685. | 6.653 | 608.4 |
| 3.382 | 685. | 6.66 | 610.9 |
| 3.389 | 686.2 | 6.667 | 616.7 |
| 3.396 | 686.8 | 6.674 | 616.4 |
| 3.403 | 686.5 | 6.681 | 617.9 |
| 3.41 | 688.3 | 6.688 | 613.8 |
| 3.417 | 689.3 | 6.694 | 615.2 |

| Pumping Period Data | | | |
|---------------------|----------------|------------|----------------|
| Time (day) | Rate (gal/min) | Time (day) | Rate (gal/min) |
| 2.431 | 339.9 | 5.708 | 614.7 |
| 2.438 | 643.9 | 5.715 | 614.6 |
| 2.444 | 622. | 5.722 | 614.9 |
| 2.451 | 617.9 | 5.729 | 615.5 |
| 2.458 | 623.3 | 5.736 | 615.4 |
| 2.465 | 629.1 | 5.743 | 615.7 |
| 2.472 | 628.4 | 5.75 | 615.9 |
| 2.479 | 628.6 | 5.757 | 616.8 |
| 2.486 | 630. | 5.764 | 616.4 |
| 2.493 | 628.4 | 5.771 | 615.7 |
| 2.5 | 618.8 | 5.778 | 615.8 |
| 2.507 | 618.3 | 5.785 | 616.5 |
| 2.514 | 620.5 | 5.792 | 617.1 |
| 2.521 | 611.9 | 5.799 | 617.9 |
| 2.528 | 609.4 | 5.806 | 617. |
| 2.535 | 612.6 | 5.813 | 608.4 |
| 2.542 | 619.2 | 5.819 | 608.4 |
| 2.549 | 626.7 | 5.826 | 604.4 |
| 2.556 | 627.7 | 5.833 | 600.9 |
| 2.563 | 628.1 | 5.84 | 609.1 |
| 2.569 | 628.3 | 5.847 | 615.6 |
| 2.576 | 628.2 | 5.854 | 616. |
| 2.583 | 628.2 | 5.861 | 611.8 |
| 2.59 | 627.7 | 5.868 | 613.7 |
| 2.597 | 627.2 | 5.875 | 618.2 |
| 2.604 | 627. | 5.882 | 619.3 |
| 2.611 | 627.6 | 5.889 | 620.5 |
| 2.618 | 627.8 | 5.896 | 620.5 |
| 2.625 | 627.4 | 5.903 | 620.2 |
| 2.632 | 627.5 | 5.91 | 620. |
| 2.639 | 628. | 5.917 | 619.9 |
| 2.646 | 628.2 | 5.924 | 619.6 |
| 2.653 | 627.6 | 5.931 | 620. |
| 2.66 | 627.8 | 5.938 | 620.2 |
| 2.667 | 628.1 | 5.944 | 619.4 |
| 2.674 | 627.9 | 5.951 | 617.7 |
| 2.681 | 627.5 | 5.958 | 616.7 |
| 2.688 | 627.6 | 5.965 | 615.7 |
| 2.694 | 627.9 | 5.972 | 615.1 |
| 2.701 | 627.1 | 5.979 | 614.2 |
| 2.708 | 626.9 | 5.986 | 613.2 |
| 2.715 | 626.8 | 5.993 | 612.3 |
| 2.722 | 627.7 | 6. | 610.8 |
| 2.729 | 627.5 | 6.007 | 607. |
| 2.736 | 626.2 | 6.014 | 606.6 |
| 2.743 | 625.2 | 6.021 | 605.8 |
| 2.75 | 625.3 | 6.028 | 597.6 |
| 2.757 | 626.1 | 6.035 | 591.1 |
| 2.764 | 626. | 6.042 | 590. |
| 2.771 | 626.5 | 6.049 | 590.8 |
| 2.778 | 625.3 | 6.056 | 592.7 |
| 2.785 | 625.3 | 6.063 | 595.3 |
| 2.792 | 625.6 | 6.069 | 595.7 |
| 2.799 | 626. | 6.076 | 595.5 |
| 2.806 | 626.7 | 6.083 | 595.7 |
| 2.813 | 627.4 | 6.09 | 595.7 |
| 2.819 | 627.5 | 6.097 | 592.6 |
| 2.826 | 625.4 | 6.104 | 594.3 |
| 2.833 | 624.6 | 6.111 | 596.1 |
| 2.84 | 623.8 | 6.118 | 594.4 |
| 2.847 | 624.7 | 6.125 | 595.2 |
| 2.854 | 625.7 | 6.132 | 595.6 |
| 2.861 | 626.1 | 6.139 | 595.2 |
| 2.868 | 625.6 | 6.146 | 598.4 |
| 2.875 | 625.4 | 6.153 | 597.1 |
| 2.882 | 624.9 | 6.16 | 599.1 |
| 2.889 | 624.9 | 6.167 | 597.3 |
| 2.896 | 625.8 | 6.174 | 596.5 |
| 2.903 | 626.3 | 6.181 | 595.4 |
| 2.91 | 625.7 | 6.188 | 596.2 |
| 2.917 | 625.5 | 6.194 | 596. |

| Time (day) | Rate (gal/min) | Time (day) | Rate (gal/min) |
|------------|----------------|------------|----------------|
| 5.299 | 591.1 | 8.576 | 614.7 |
| 5.306 | 591.5 | 8.583 | 618. |
| 5.313 | 589.8 | 8.59 | 619.7 |
| 5.319 | 588.8 | 8.597 | 619.9 |
| 5.326 | 592.1 | 8.604 | 618.6 |
| 5.333 | 591.9 | 8.611 | 618.1 |
| 5.34 | 592. | 8.618 | 617.8 |
| 5.347 | 590. | 8.625 | 617.9 |
| 5.354 | 591.7 | 8.632 | 618.7 |
| 5.361 | 592.8 | 8.639 | 618.9 |
| 5.368 | 591.6 | 8.646 | 618.8 |
| 5.375 | 593.2 | 8.653 | 618.5 |
| 5.382 | 591. | 8.66 | 618.6 |
| 5.389 | 591.4 | 8.667 | 615.8 |
| 5.396 | 594.4 | 8.674 | 612.7 |
| 5.403 | 594.2 | 8.681 | 610.1 |
| 5.41 | 593.6 | 8.688 | 615.4 |
| 5.417 | 594.9 | 8.694 | 619. |
| 5.424 | 594.4 | 8.701 | 619. |
| 5.431 | 595.2 | 8.708 | 617.9 |
| 5.438 | 592.2 | 8.715 | 614.4 |
| 5.444 | 595.3 | 8.722 | 595.7 |
| 5.451 | 595.1 | 8.729 | 606.1 |
| 5.458 | 597.9 | 8.736 | 605. |
| 5.465 | 602.1 | 8.743 | 596.2 |
| 5.472 | 601.5 | 8.75 | 605.8 |
| 5.479 | 602. | 8.757 | 614.3 |
| 5.486 | 603.3 | 8.764 | 614.3 |
| 5.493 | 603. | 8.771 | 606.8 |
| 5.5 | 601. | 8.778 | 607.8 |
| 5.507 | 599.2 | 8.785 | 613.9 |
| 5.514 | 603.5 | 8.792 | 611. |
| 5.521 | 599.9 | 8.799 | 613.6 |
| 5.528 | 592.9 | 8.806 | 618.1 |
| 5.535 | 596.1 | 8.813 | 612.8 |
| 5.542 | 600.1 | 8.819 | 618. |
| 5.549 | 596.4 | 8.826 | 608.4 |
| 5.556 | 597.4 | 8.833 | 604.8 |
| 5.563 | 601.2 | 8.84 | 604.3 |
| 5.569 | 597.3 | 8.847 | 603.6 |
| 5.576 | 597.1 | 8.854 | 612.3 |
| 5.583 | 595.2 | 8.861 | 614.9 |
| 5.59 | 592.5 | 8.868 | 610.2 |
| 5.597 | 593.8 | 8.875 | 616.1 |
| 5.604 | 596.5 | 8.882 | 617.1 |
| 5.611 | 602.2 | 8.889 | 620. |
| 5.618 | 602.6 | 8.896 | 624.1 |
| 5.625 | 603. | 8.903 | 631.8 |
| 5.632 | 597. | 8.91 | 631.3 |
| 5.639 | 596.3 | 8.917 | 630.8 |
| 5.646 | 601.1 | 8.924 | 630.2 |
| 5.653 | 604.6 | 8.931 | 629.2 |
| 5.66 | 601.8 | 8.938 | 628.8 |
| 5.667 | 603.8 | 8.944 | 628.7 |
| 5.674 | 605.1 | 8.951 | 627.7 |
| 5.681 | 603. | 8.958 | 627.4 |
| 5.688 | 599.9 | 8.965 | 627.7 |
| 5.694 | 604.7 | 8.972 | 627.4 |
| 5.701 | 605.3 | | |

Pumping Well No. 2: 19401

X Location: 410.1 ft
 Y Location: 1742.1048 ft

Casing Radius: 1. ft
 Well Radius: 1. ft

Fully Penetrating Well

No. of pumping periods: 943

| Time (day) | Rate (gal/min) | Time (day) | Rate (gal/min) |
|------------|----------------|------------|----------------|
| 4.799 | 574.4 | 8.076 | 617.6 |
| 4.806 | 578.8 | 8.083 | 619.3 |
| 4.813 | 578.6 | 8.09 | 618.4 |
| 4.819 | 579.3 | 8.097 | 616.3 |
| 4.826 | 578.7 | 8.104 | 614.6 |
| 4.833 | 578.2 | 8.111 | 614.9 |
| 4.84 | 579.7 | 8.118 | 615.2 |
| 4.847 | 581.4 | 8.125 | 614.2 |
| 4.854 | 579.8 | 8.132 | 613.5 |
| 4.861 | 576.3 | 8.139 | 611.3 |
| 4.868 | 575.2 | 8.146 | 613.1 |
| 4.875 | 574.7 | 8.153 | 610.5 |
| 4.882 | 575.2 | 8.16 | 611.5 |
| 4.889 | 577.2 | 8.167 | 609.2 |
| 4.896 | 576.2 | 8.174 | 602.2 |
| 4.903 | 579.4 | 8.181 | 610.5 |
| 4.91 | 580.7 | 8.188 | 607.9 |
| 4.917 | 579.4 | 8.194 | 607.1 |
| 4.924 | 581. | 8.201 | 614.1 |
| 4.931 | 580.9 | 8.208 | 607.6 |
| 4.938 | 580.9 | 8.215 | 603.7 |
| 4.944 | 578.1 | 8.222 | 609.5 |
| 4.951 | 576. | 8.229 | 608.6 |
| 4.958 | 579.1 | 8.236 | 608. |
| 4.965 | 578.6 | 8.243 | 607.4 |
| 4.972 | 574.7 | 8.25 | 607.3 |
| 4.979 | 576.8 | 8.257 | 603.6 |
| 4.986 | 574.4 | 8.264 | 602.4 |
| 4.993 | 576. | 8.271 | 610.6 |
| 5. | 576.5 | 8.278 | 603.3 |
| 5.007 | 578. | 8.285 | 609.8 |
| 5.014 | 578. | 8.292 | 606.7 |
| 5.021 | 579. | 8.299 | 606.8 |
| 5.028 | 579.8 | 8.306 | 609. |
| 5.035 | 578.5 | 8.313 | 610. |
| 5.042 | 578.8 | 8.319 | 606.6 |
| 5.049 | 578.7 | 8.326 | 609. |
| 5.056 | 578.4 | 8.333 | 607.7 |
| 5.063 | 581. | 8.34 | 611.7 |
| 5.069 | 386.2 | 8.347 | 610.2 |
| 5.076 | 4.127 | 8.354 | 610. |
| 5.083 | 643.3 | 8.361 | 611.3 |
| 5.09 | 669.3 | 8.368 | 611. |
| 5.097 | 614.6 | 8.375 | 612.1 |
| 5.104 | 611.2 | 8.382 | 612.5 |
| 5.111 | 609.8 | 8.389 | 613.3 |
| 5.118 | 606.8 | 8.396 | 613. |
| 5.125 | 609.6 | 8.403 | 614. |
| 5.132 | 606.4 | 8.41 | 614.9 |
| 5.139 | 605.8 | 8.417 | 613.8 |
| 5.146 | 605.5 | 8.424 | 614.6 |
| 5.153 | 605.4 | 8.431 | 613. |
| 5.16 | 607.1 | 8.438 | 612.5 |
| 5.167 | 606.1 | 8.444 | 612.7 |
| 5.174 | 604.5 | 8.451 | 612.6 |
| 5.181 | 602.9 | 8.458 | 613.1 |
| 5.188 | 602.7 | 8.465 | 611.2 |
| 5.194 | 597.7 | 8.472 | 611.6 |
| 5.201 | 597.9 | 8.479 | 613. |
| 5.208 | 599.5 | 8.486 | 612.7 |
| 5.215 | 597.7 | 8.493 | 609.3 |
| 5.222 | 596.4 | 8.5 | 611.4 |
| 5.229 | 595.9 | 8.507 | 610.5 |
| 5.236 | 593.4 | 8.514 | 610.8 |
| 5.243 | 594.5 | 8.521 | 612.4 |
| 5.25 | 591.3 | 8.528 | 614.2 |
| 5.257 | 589.8 | 8.535 | 615. |
| 5.264 | 592.4 | 8.542 | 616.8 |
| 5.271 | 590.9 | 8.549 | 616.6 |
| 5.278 | 590.2 | 8.556 | 616.7 |
| 5.285 | 588.7 | 8.563 | 616. |
| 5.292 | 591.3 | 8.569 | 616.8 |

AQTESOLV for Windows pump wells 1662, 2393, 7334, 19401 measure drawdown at 5191 for 9 days

| Time (day) | Rate (gal/min) | Time (day) | Rate (gal/min) |
|------------|----------------|------------|----------------|
| 4.299 | 591. | 7.576 | 621.4 |
| 4.306 | 591.3 | 7.583 | 625.3 |
| 4.313 | 590.8 | 7.59 | 626.3 |
| 4.319 | 591.5 | 7.597 | 622.8 |
| 4.326 | 590.4 | 7.604 | 622.2 |
| 4.333 | 590.7 | 7.611 | 624.1 |
| 4.34 | 591.3 | 7.618 | 622.2 |
| 4.347 | 591.1 | 7.625 | 623.6 |
| 4.354 | 590.6 | 7.632 | 624. |
| 4.361 | 590.6 | 7.639 | 624.5 |
| 4.368 | 590.6 | 7.646 | 623.9 |
| 4.375 | 591.2 | 7.653 | 623.1 |
| 4.382 | 591.3 | 7.66 | 625.2 |
| 4.389 | 590.2 | 7.667 | 625.9 |
| 4.396 | 590.3 | 7.674 | 626.6 |
| 4.403 | 589.8 | 7.681 | 625.3 |
| 4.41 | 591.1 | 7.688 | 624. |
| 4.417 | 592. | 7.694 | 625.5 |
| 4.424 | 592.5 | 7.701 | 621.5 |
| 4.431 | 592. | 7.708 | 619.3 |
| 4.438 | 591.3 | 7.715 | 619.1 |
| 4.444 | 592.7 | 7.722 | 620.5 |
| 4.451 | 594.1 | 7.729 | 617.2 |
| 4.458 | 593.9 | 7.736 | 621.5 |
| 4.465 | 591.9 | 7.743 | 621.1 |
| 4.472 | 591.7 | 7.75 | 619.2 |
| 4.479 | 592. | 7.757 | 621.8 |
| 4.486 | 591.2 | 7.764 | 623.9 |
| 4.493 | 589.8 | 7.771 | 623.7 |
| 4.5 | 590.4 | 7.778 | 623.9 |
| 4.507 | 588.6 | 7.785 | 622.9 |
| 4.514 | 588.6 | 7.792 | 624.2 |
| 4.521 | 587.3 | 7.799 | 624.1 |
| 4.528 | 586.5 | 7.806 | 620.6 |
| 4.535 | 585.2 | 7.813 | 624.9 |
| 4.542 | 581.5 | 7.819 | 626. |
| 4.549 | 585.7 | 7.826 | 625.1 |
| 4.556 | 586.2 | 7.833 | 626.6 |
| 4.563 | 581. | 7.84 | 627. |
| 4.569 | 580. | 7.847 | 629. |
| 4.576 | 580.8 | 7.854 | 631.5 |
| 4.583 | 585.3 | 7.861 | 628.1 |
| 4.59 | 585.1 | 7.868 | 628.5 |
| 4.597 | 585.6 | 7.875 | 624.8 |
| 4.604 | 584.6 | 7.882 | 623.4 |
| 4.611 | 585.2 | 7.889 | 633.5 |
| 4.618 | 585.7 | 7.896 | 633.1 |
| 4.625 | 584.9 | 7.903 | 635.4 |
| 4.632 | 583.1 | 7.91 | 634.2 |
| 4.639 | 580.5 | 7.917 | 622.4 |
| 4.646 | 579.1 | 7.924 | 616.1 |
| 4.653 | 577.5 | 7.931 | 613.9 |
| 4.66 | 577.5 | 7.938 | 611.4 |
| 4.667 | 577.1 | 7.944 | 616.3 |
| 4.674 | 579.4 | 7.951 | 625.3 |
| 4.681 | 580.9 | 7.958 | 625.3 |
| 4.688 | 575.6 | 7.965 | 617.2 |
| 4.694 | 572.4 | 7.972 | 622.9 |
| 4.701 | 574.8 | 7.979 | 626.7 |
| 4.708 | 571. | 7.986 | 630. |
| 4.715 | 574.8 | 7.993 | 632.3 |
| 4.722 | 575.8 | 8. | 630.3 |
| 4.729 | 577.4 | 8.007 | 627. |
| 4.736 | 578.1 | 8.014 | 623.7 |
| 4.743 | 574. | 8.021 | 620.6 |
| 4.75 | 574.3 | 8.028 | 621.6 |
| 4.757 | 579.4 | 8.035 | 620.1 |
| 4.764 | 579.6 | 8.042 | 619.7 |
| 4.771 | 578.3 | 8.049 | 616.8 |
| 4.778 | 578.4 | 8.056 | 617.8 |
| 4.785 | 576.9 | 8.063 | 618. |
| 4.792 | 574.5 | 8.069 | 619.4 |

AQTESOLV for Windows pump wells 1662, 2393, 7334, 19401 measure drawdown at 5191 for 9 days

| Time (day) | Rate (gal/min) | Time (day) | Rate (gal/min) |
|------------|----------------|------------|----------------|
| 3.799 | 575. | 7.076 | 629.1 |
| 3.806 | 580.3 | 7.083 | 628.5 |
| 3.813 | 583.3 | 7.09 | 628.1 |
| 3.819 | 590.2 | 7.097 | 628.6 |
| 3.826 | 589. | 7.104 | 627.7 |
| 3.833 | 592.4 | 7.111 | 628.9 |
| 3.84 | 588.8 | 7.118 | 628.7 |
| 3.847 | 597. | 7.125 | 627.5 |
| 3.854 | 590.6 | 7.132 | 626.8 |
| 3.861 | 596.4 | 7.139 | 624.9 |
| 3.868 | 596.7 | 7.146 | 624. |
| 3.875 | 594.5 | 7.153 | 624.1 |
| 3.882 | 593.3 | 7.16 | 623.2 |
| 3.889 | 589.5 | 7.167 | 625.4 |
| 3.896 | 591.7 | 7.174 | 624.1 |
| 3.903 | 590.6 | 7.181 | 625.2 |
| 3.91 | 589.8 | 7.188 | 623.9 |
| 3.917 | 592.5 | 7.194 | 621.5 |
| 3.924 | 593.7 | 7.201 | 626.6 |
| 3.931 | 594.9 | 7.208 | 625.4 |
| 3.938 | 596. | 7.215 | 625.4 |
| 3.944 | 597.5 | 7.222 | 625.9 |
| 3.951 | 596.6 | 7.229 | 625.2 |
| 3.958 | 596.7 | 7.236 | 623.5 |
| 3.965 | 595.5 | 7.243 | 623.9 |
| 3.972 | 595.3 | 7.25 | 623.5 |
| 3.979 | 593.9 | 7.257 | 623.2 |
| 3.986 | 593.3 | 7.264 | 622.9 |
| 3.993 | 592.2 | 7.271 | 622. |
| 4. | 592.4 | 7.278 | 622.2 |
| 4.007 | 592.3 | 7.285 | 623.2 |
| 4.014 | 591.6 | 7.292 | 625.3 |
| 4.021 | 592.7 | 7.299 | 622.9 |
| 4.028 | 592.8 | 7.306 | 625. |
| 4.035 | 592.7 | 7.313 | 618.1 |
| 4.042 | 592.8 | 7.319 | 616.6 |
| 4.049 | 592.5 | 7.326 | 618.8 |
| 4.056 | 592.4 | 7.333 | 617.8 |
| 4.063 | 591.1 | 7.34 | 619.3 |
| 4.069 | 590.8 | 7.347 | 619.7 |
| 4.076 | 591.9 | 7.354 | 624.9 |
| 4.083 | 592.4 | 7.361 | 626.1 |
| 4.09 | 593.3 | 7.368 | 623.7 |
| 4.097 | 592.4 | 7.375 | 624.5 |
| 4.104 | 591.9 | 7.382 | 617.2 |
| 4.111 | 592.3 | 7.389 | 621.6 |
| 4.118 | 592.8 | 7.396 | 619.3 |
| 4.125 | 591.5 | 7.403 | 625.7 |
| 4.132 | 590.6 | 7.41 | 629. |
| 4.139 | 590.6 | 7.417 | 628.1 |
| 4.146 | 590. | 7.424 | 627.8 |
| 4.153 | 592.1 | 7.431 | 629. |
| 4.16 | 592.3 | 7.438 | 628.8 |
| 4.167 | 590.7 | 7.444 | 627.2 |
| 4.174 | 589.2 | 7.451 | 623.7 |
| 4.181 | 590. | 7.458 | 608. |
| 4.188 | 591.5 | 7.465 | 605.3 |
| 4.194 | 588.2 | 7.472 | 608.9 |
| 4.201 | 588.7 | 7.479 | 608. |
| 4.208 | 588.2 | 7.486 | 612.8 |
| 4.215 | 588.3 | 7.493 | 619. |
| 4.222 | 586.9 | 7.5 | 613.6 |
| 4.229 | 587.1 | 7.507 | 622. |
| 4.236 | 586.6 | 7.514 | 615.3 |
| 4.243 | 586.3 | 7.521 | 601.7 |
| 4.25 | 587.7 | 7.528 | 606.5 |
| 4.257 | 587. | 7.535 | 604.7 |
| 4.264 | 587.5 | 7.542 | 597.8 |
| 4.271 | 588.6 | 7.549 | 607.7 |
| 4.278 | 589.8 | 7.556 | 612.5 |
| 4.285 | 588.8 | 7.563 | 622.5 |
| 4.292 | 589.4 | 7.569 | 623.1 |

| Time (day) | Rate (gal/min) | Time (day) | Rate (gal/min) |
|------------|----------------|------------|----------------|
| 3.299 | 565.5 | 6.576 | 627.5 |
| 3.306 | 564.8 | 6.583 | 628.4 |
| 3.313 | 565.5 | 6.59 | 628.1 |
| 3.319 | 564.9 | 6.597 | 628.4 |
| 3.326 | 565.7 | 6.604 | 629.5 |
| 3.333 | 566.1 | 6.611 | 629.5 |
| 3.34 | 567.1 | 6.618 | 630. |
| 3.347 | 568. | 6.625 | 629. |
| 3.354 | 570.8 | 6.632 | 628.6 |
| 3.361 | 129.5 | 6.639 | 630.5 |
| 3.368 | 0.76 | 6.646 | 630.1 |
| 3.375 | 0.652 | 6.653 | 629.7 |
| 3.382 | 0.652 | 6.66 | 629. |
| 3.389 | 0.652 | 6.667 | 627.2 |
| 3.396 | 0.652 | 6.674 | 627.7 |
| 3.403 | 0.652 | 6.681 | 628.1 |
| 3.41 | 0.652 | 6.688 | 628.5 |
| 3.417 | 0.652 | 6.694 | 628.2 |
| 3.424 | 0.652 | 6.701 | 628.7 |
| 3.431 | 0.652 | 6.708 | 627.3 |
| 3.438 | 0.652 | 6.715 | 626. |
| 3.444 | 0.652 | 6.722 | 625.7 |
| 3.451 | 0.652 | 6.729 | 626.4 |
| 3.458 | 79.4 | 6.736 | 626.6 |
| 3.465 | 645.8 | 6.743 | 627.4 |
| 3.472 | 615.6 | 6.75 | 632.3 |
| 3.479 | 596. | 6.757 | 630.6 |
| 3.486 | 593. | 6.764 | 628.2 |
| 3.493 | 594.8 | 6.771 | 631.7 |
| 3.5 | 593.2 | 6.778 | 631.3 |
| 3.507 | 594.4 | 6.785 | 631.6 |
| 3.514 | 595.9 | 6.792 | 630.6 |
| 3.521 | 603. | 6.799 | 629.1 |
| 3.528 | 601.5 | 6.806 | 623.9 |
| 3.535 | 597.1 | 6.813 | 622.3 |
| 3.542 | 595.2 | 6.819 | 623.5 |
| 3.549 | 607.2 | 6.826 | 621.8 |
| 3.556 | 598.5 | 6.833 | 620. |
| 3.563 | 593.7 | 6.84 | 621.1 |
| 3.569 | 592.3 | 6.847 | 622.9 |
| 3.576 | 603.4 | 6.854 | 624.1 |
| 3.583 | 604. | 6.861 | 620.5 |
| 3.59 | 601.1 | 6.868 | 620.6 |
| 3.597 | 604.8 | 6.875 | 621.8 |
| 3.604 | 605.9 | 6.882 | 620.6 |
| 3.611 | 597.5 | 6.889 | 620.9 |
| 3.618 | 595.4 | 6.896 | 620. |
| 3.625 | 595.4 | 6.903 | 621. |
| 3.632 | 599.6 | 6.91 | 621.2 |
| 3.639 | 595.7 | 6.917 | 622.6 |
| 3.646 | 599.2 | 6.924 | 622.9 |
| 3.653 | 594.4 | 6.931 | 621.4 |
| 3.66 | 591.7 | 6.938 | 619.3 |
| 3.667 | 598.3 | 6.944 | 619.7 |
| 3.674 | 592.9 | 6.951 | 619.7 |
| 3.681 | 592.1 | 6.958 | 620.2 |
| 3.688 | 597.8 | 6.965 | 623.2 |
| 3.694 | 598. | 6.972 | 625.3 |
| 3.701 | 595. | 6.979 | 628.5 |
| 3.708 | 585.9 | 6.986 | 631. |
| 3.715 | 587.4 | 6.993 | 630.8 |
| 3.722 | 592.1 | 7. | 631.8 |
| 3.729 | 578.6 | 7.007 | 630.2 |
| 3.736 | 588.1 | 7.014 | 630. |
| 3.743 | 591.5 | 7.021 | 630.3 |
| 3.75 | 582.5 | 7.028 | 631.1 |
| 3.757 | 578.2 | 7.035 | 630.8 |
| 3.764 | 579.1 | 7.042 | 629.5 |
| 3.771 | 582.2 | 7.049 | 628.9 |
| 3.778 | 576.1 | 7.056 | 629.4 |
| 3.785 | 580.5 | 7.063 | 629.8 |
| 3.792 | 584.1 | 7.069 | 630. |

AQTESOLV for Windows pump wells 1662, 2393, 7334, 19401 measure drawdown at 5191 for 9 days

| Time (day) | Rate (gal/min) | Time (day) | Rate (gal/min) |
|------------|----------------|------------|----------------|
| 2.799 | 563.6 | 6.076 | 613.3 |
| 2.806 | 562.7 | 6.083 | 612.8 |
| 2.813 | 562.1 | 6.09 | 612.9 |
| 2.819 | 562.9 | 6.097 | 611.8 |
| 2.826 | 564.4 | 6.104 | 610. |
| 2.833 | 564.5 | 6.111 | 611.8 |
| 2.84 | 565. | 6.118 | 614.4 |
| 2.847 | 563.1 | 6.125 | 614.4 |
| 2.854 | 561.9 | 6.132 | 615.8 |
| 2.861 | 561.9 | 6.139 | 616.3 |
| 2.868 | 562.4 | 6.146 | 613.4 |
| 2.875 | 563.3 | 6.153 | 615.2 |
| 2.882 | 566.5 | 6.16 | 616.7 |
| 2.889 | 566. | 6.167 | 616.4 |
| 2.896 | 562.6 | 6.174 | 617.2 |
| 2.903 | 562.4 | 6.181 | 616.5 |
| 2.91 | 564.3 | 6.188 | 617.4 |
| 2.917 | 563.2 | 6.194 | 617.5 |
| 2.924 | 563.8 | 6.201 | 617.3 |
| 2.931 | 561.8 | 6.208 | 614.3 |
| 2.938 | 561.1 | 6.215 | 616.9 |
| 2.944 | 557. | 6.222 | 616.9 |
| 2.951 | 562.9 | 6.229 | 616.5 |
| 2.958 | 566.1 | 6.236 | 615.4 |
| 2.965 | 566.2 | 6.243 | 614.7 |
| 2.972 | 564.8 | 6.25 | 614. |
| 2.979 | 562.2 | 6.257 | 614.1 |
| 2.986 | 562.7 | 6.264 | 614.2 |
| 2.993 | 562.2 | 6.271 | 614.3 |
| 3. | 561.3 | 6.278 | 614.8 |
| 3.007 | 561.1 | 6.285 | 613.5 |
| 3.014 | 560.6 | 6.292 | 612.4 |
| 3.021 | 559.8 | 6.299 | 615.8 |
| 3.028 | 560.6 | 6.306 | 187.5 |
| 3.035 | 560. | 6.313 | 82.33 |
| 3.042 | 559.1 | 6.319 | 618.7 |
| 3.049 | 555.9 | 6.326 | 607.5 |
| 3.056 | 555.6 | 6.333 | 609. |
| 3.063 | 556.4 | 6.34 | 608.7 |
| 3.069 | 554.8 | 6.347 | 608.5 |
| 3.076 | 557.5 | 6.354 | 610. |
| 3.083 | 556.7 | 6.361 | 610.3 |
| 3.09 | 555.7 | 6.368 | 611. |
| 3.097 | 554.6 | 6.375 | 611.3 |
| 3.104 | 556.2 | 6.382 | 611.7 |
| 3.111 | 557. | 6.389 | 613. |
| 3.118 | 556.9 | 6.396 | 612.9 |
| 3.125 | 556.9 | 6.403 | 614. |
| 3.132 | 556.6 | 6.41 | 614.4 |
| 3.139 | 556.4 | 6.417 | 615.1 |
| 3.146 | 557.2 | 6.424 | 616.2 |
| 3.153 | 556.7 | 6.431 | 616.7 |
| 3.16 | 555.7 | 6.438 | 617.9 |
| 3.167 | 555.7 | 6.444 | 618.7 |
| 3.174 | 555.7 | 6.451 | 618.5 |
| 3.181 | 554.2 | 6.458 | 619.7 |
| 3.188 | 555.1 | 6.465 | 620.1 |
| 3.194 | 554.3 | 6.472 | 620.9 |
| 3.201 | 555.8 | 6.479 | 621.9 |
| 3.208 | 553.8 | 6.486 | 622.4 |
| 3.215 | 562.9 | 6.493 | 622.9 |
| 3.222 | 563.7 | 6.5 | 623. |
| 3.229 | 565.8 | 6.507 | 622.7 |
| 3.236 | 563.4 | 6.514 | 620.9 |
| 3.243 | 563.6 | 6.521 | 619.9 |
| 3.25 | 565.2 | 6.528 | 622.3 |
| 3.257 | 564. | 6.535 | 620.7 |
| 3.264 | 566.9 | 6.542 | 623. |
| 3.271 | 564.8 | 6.549 | 624. |
| 3.278 | 565.6 | 6.556 | 626.3 |
| 3.285 | 565.4 | 6.563 | 627. |
| 3.292 | 565.5 | 6.569 | 627.2 |

PUMPING WELL DATA

No. of pumping wells: 4

Pumping Well No. 1: 2393

X Location: 1893.0216 ft

Y Location: 1545.2568 ft

Casing Radius: 1. ft

Well Radius: 1. ft

Fully Penetrating Well

No. of pumping periods: 943

| Pumping Period Data | | | |
|---------------------|----------------|------------|----------------|
| Time (day) | Rate (gal/min) | Time (day) | Rate (gal/min) |
| 2.431 | 557.4 | 5.708 | 604.5 |
| 2.438 | 662.5 | 5.715 | 606.7 |
| 2.444 | 613.5 | 5.722 | 606.5 |
| 2.451 | 604.9 | 5.729 | 606. |
| 2.458 | 599.9 | 5.736 | 607.2 |
| 2.465 | 593.6 | 5.743 | 607.3 |
| 2.472 | 591.2 | 5.75 | 604.2 |
| 2.479 | 588.2 | 5.757 | 602.5 |
| 2.486 | 585.3 | 5.764 | 602.2 |
| 2.493 | 583.5 | 5.771 | 604.3 |
| 2.5 | 585.8 | 5.778 | 608. |
| 2.507 | 584.4 | 5.785 | 596.6 |
| 2.514 | 582.7 | 5.792 | 600.8 |
| 2.521 | 585. | 5.799 | 600.5 |
| 2.528 | 585.3 | 5.806 | 597.1 |
| 2.535 | 582.3 | 5.813 | 610.5 |
| 2.542 | 576.3 | 5.819 | 611.7 |
| 2.549 | 564.7 | 5.826 | 616.2 |
| 2.556 | 566.1 | 5.833 | 615.2 |
| 2.563 | 564.5 | 5.84 | 607.5 |
| 2.569 | 565.2 | 5.847 | 601.2 |
| 2.576 | 566.7 | 5.854 | 598.5 |
| 2.583 | 566.7 | 5.861 | 597.5 |
| 2.59 | 567.2 | 5.868 | 601.3 |
| 2.597 | 566. | 5.875 | 608.6 |
| 2.604 | 566.4 | 5.882 | 603.7 |
| 2.611 | 566.2 | 5.889 | 607.3 |
| 2.618 | 565.1 | 5.896 | 607.6 |
| 2.625 | 563.2 | 5.903 | 607.4 |
| 2.632 | 564.5 | 5.91 | 606.7 |
| 2.639 | 564.8 | 5.917 | 607. |
| 2.646 | 566.4 | 5.924 | 607.5 |
| 2.653 | 565. | 5.931 | 605.2 |
| 2.66 | 563.3 | 5.938 | 603. |
| 2.667 | 563.9 | 5.944 | 607. |
| 2.674 | 564.7 | 5.951 | 610.6 |
| 2.681 | 563.7 | 5.958 | 607.7 |
| 2.688 | 562.6 | 5.965 | 610.3 |
| 2.694 | 563. | 5.972 | 613.4 |
| 2.701 | 563.5 | 5.979 | 615.2 |
| 2.708 | 562.7 | 5.986 | 616.5 |
| 2.715 | 562.7 | 5.993 | 617.3 |
| 2.722 | 560.5 | 6. | 615.1 |
| 2.729 | 560.5 | 6.007 | 616.6 |
| 2.736 | 561.6 | 6.014 | 615.4 |
| 2.743 | 562.2 | 6.021 | 613.5 |
| 2.75 | 561.9 | 6.028 | 613.9 |
| 2.757 | 561.1 | 6.035 | 613.9 |
| 2.764 | 561.4 | 6.042 | 615. |
| 2.771 | 559.9 | 6.049 | 614.1 |
| 2.778 | 560.7 | 6.056 | 613.4 |
| 2.785 | 561.8 | 6.063 | 613.4 |
| 2.792 | 563.3 | 6.069 | 613.6 |

D. Engelhaupt
3/22/2021

This analysis of change in points of diversion, File Nos. 2,393; 5,191; 6,562; 19,401

A This analysis was used to evaluate the potential impacts of a set of change in point of diversions. The applications propose moving of File No. 2,393 and 6,562 to a new point of diversion located approximately 2400 feet southeast of the current location; moving File No. 19,401 to the point currently authorized by File Nos. 2,393 and 6,562; and moving File No. 5,191 to the point currently authorized by File No. 19,401. The 2068 projected saturated thickness (49 feet) and transmissivity (1,693 ft²/day) from the GMD No. 3 groundwater model were used. The specific storage was assumed to be 10⁻⁵, which results in a storage coefficient of 0.0005. Pumping the proposed rate and quantity at the new location was compared to pumping the ten-year average use of 5,191 (65 acre-feet) at the last reported rate (90 gallons per minute). Drawdowns were evaluated at the point of diversion authorized by File No. 800. With these assumptions, the drawdown at File No. 800 increases by 52.8 feet, or 107.9% of the projected future saturated thickness.

Table 2: This analysis of drawdown at File No. 800; T = 1,693 ft²/day; S = 0.0005

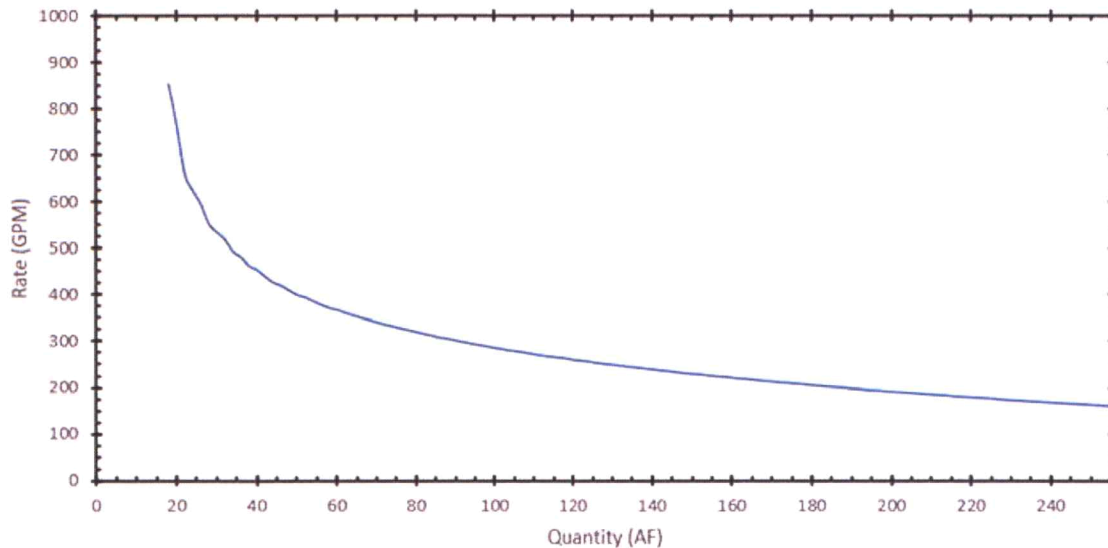
| Scenario | Distance (Feet) | Quantity (Acre-Feet) | Rate (GPM) | Drawdown (Feet) | Drawdown (%ST) |
|----------|--------------------|-------------------------|------------|--------------------|-------------------|
| Proposed | 2,337 | 640.0 | 860 | 57.6 | 117.8% |
| Current | 4,658 | 65.1 | 90 | 4.8 | 9.9% |
| | | | Net: | 52.8 | 107.9% |

Meyer, Mike [KDA]

From: Engelhaupt, David [KDA]
Sent: Monday, March 22, 2021 3:01 PM
To: McColloch, Austin [KDA]; Meyer, Mike [KDA]
Subject: RE: Theis - Graham Files
Attachments: Theis_2393.pdf; Theis2393.xlsb

Mike and Austin,

Report is attached. Since I know the next question will be “what will pass?”, I’ve found that answer too. The graph below plots the rate that it would pass at for a given authorized quantity. I’ve also attached the supporting excel file so you can get the rate accurately without having to read it off the graph. Enter a quantity in F2 and the allowable rate is calculated in K2.



Regards,

David Engelhaupt, P.E.
Technical Services Supervisor
Kansas Department of Agriculture
Division of Water Resources
(785) 564-6680

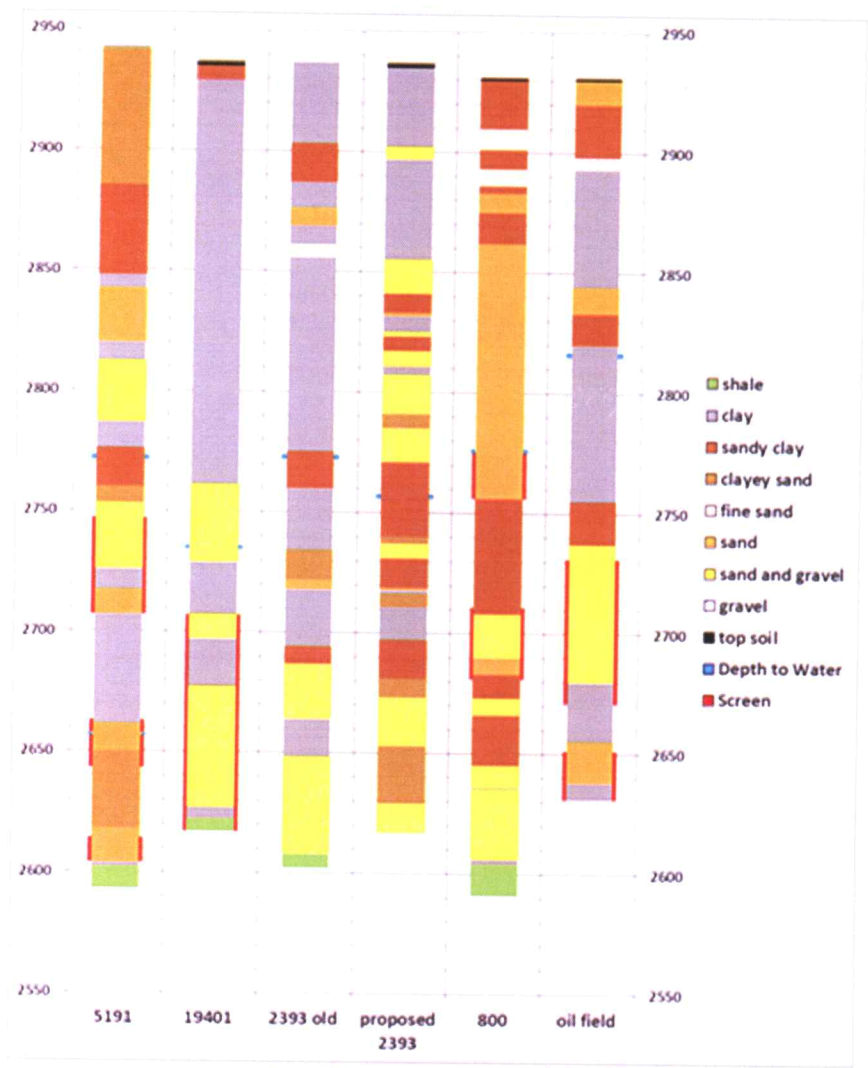
From: McColloch, Austin [KDA] <Austin.McColloch@ks.gov>
Sent: Monday, March 15, 2021 3:47 PM
To: Engelhaupt, David [KDA] <David.Engelhaupt@ks.gov>
Cc: Meyer, Mike [KDA] <Mike.Meyer@ks.gov>
Subject: Theis - Graham Files

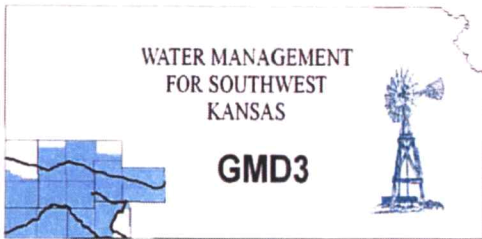
David,

Can we get a theis run on this proposed change. Attached are the applications, along with GMD3 analysis pulled from the web. We have not received an official recommendation back from them yet.

Thanks,

Austin McColloch
Ph: (620) 276-2901





Southwest Kansas
Groundwater Management District No. 3
2009 E. Spruce Street
Garden City, Kansas 67846
(620) 275-7147 phone (620) 275-1431 fax
www.gmd3.org

March 17, 2021

Michael A. Meyer
Division of Water Resources
4532 W Jones Ave., Suite B
Garden City, Kansas 67846

RE: Applications for Change in Point of Diversion
Water Right, File Nos. 2393, 5191, 6562 & 19401

Dear Mike:

We have completed a review of the applications for the above referenced water rights. The proposed changes in points of diversion are in accordance with current area rules, K.A.R. 5-23-3, as it pertains to distance moved and minimum spacing to neighboring wells.

Well evaluations were conducted again to estimate possible effects of the proposal on the supply of other wells with water rights prior to the proposal per K.S.A. 82a-708b, and the draft revised management program. Under K.S.A. 82a-708b, an applicant requesting a change in point of diversion must demonstrate to the chief engineer that any proposed change is reasonable and will not impair. The enclosed report is an analysis performed by the GMD on behalf of our membership. Under this analysis, the proposed change is considered to be reasonable and unlikely to impair if either the net in-season well-to-well effect of the proposed change is less than a strict maximum allowable threshold (2.5 ft in cases where saturated thickness is between 100-125 ft), or if no well with a net well-to-well effect exceeding the threshold is identified as critical. Critical wells are identified as wells that are expected to either lose or greatly diminish water supply over the next 25 years. The attached review information is based on a Theis analysis using inputs from the GMD3 aquifer model, which is considered to be the best information on well and aquifer data readily and easily available to the public. If either the applicant or the neighbors believe they have better data that might change the result of the analysis, they should contact GMD3. Conclusions of the well analysis may change if better information on well and aquifer data can be made available.

Every neighboring well within 1 mile of the proposed move was evaluated. Evaluations showed multiple neighboring wells exceeded the net effect above the maximum allowable threshold and required further evaluations. The main effects would be from the new proposed well under water rights 2393 & 6562. The analysis shows that if that well was limited to a quantity of 267AF and a rate of 500gpm, the neighboring wells would no longer be considered critical. The highest effects appear to be on the domestic well in the NW corner of 18-23-33. Our office did not receive any responses from the neighbor notices that were sent out. Therefore, GMD3 sees this move as reasonable and therefore recommend that the application be approved with the limitation on the new well. If aquifer conditions change or there is a change to the water right in the future, we would be happy to evaluate the effects at that time.

Thank you for the opportunity to review the applications and to provide a recommendation. If you have any questions, please don't hesitate to contact us.

Sincerely,

Jason L. Norquest
Assistant Manager

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Garden City Field Office
Division of Water Resources

GMD3 Change Review

File No(s): 2393, 5191, 6562 & 19401.

DWR office: GC.

App filed to change: PDs.

Is Landowner(s) correct in WRIS: Rebecca Graham.

If NO, is documentation included?

Is Water Use Correspondent correct in WRIS? .

If NO, is documentation included?

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

Point of diversion ID No(s) being changed.

| | ft. North | ft. West | |
|-------------------|-----------|----------|---|
| Authorized PD | | | |
| Proposed PD | | | |
| Difference | 0 | 0 | |
| $a^2 + b^2 = c^2$ | 0 | 0 | 0 |

GPS for proposed PD: Lat: 38.06317 Long: -100.99704.

Is proposed PD stacking on existing WRs? No change in current stacking. 2393 & 6562 moving together and 5191 & 19401 remain separate but moving to new (current) wells.

Is Proposed PU overlapping existing WRs? No change.

Neighboring certified well(s) notified: .

Name Paul A Pfeifer (274, 18700 & domestic).

Address 6090 W 6 Mile RD.

Zip Holcomb, KS 67851.

Email: grandmaster.mike@yahoo.com. Phone: 620-640-2772.

Name Fred D Cormack Jr (599).

Address PO Box 1006.

Zip Holcomb, KS 67851.

Email: poorfarmer@wsbnet.org. Phone: 620-290-0307.

Name Russell Komlofske (800).

Address 4500 N IBP RD.

Zip Holcomb, KS 67851.

Email: rkomlofske65@gmail.com. Phone: 620-272-5087.

Name The Garden City Co (7193DE, 35059).

Address PO Box 597.

Zip Garden City, KS 67846.

Email: troy.dumler@sbcglobal.net. Phone: 620-276-3246.

Domestic well(s) notified: .

Name Franz Weibe (NE NE 12-23-34).

GMD3 Change Review

Address 8405 N Big Lowe RD.
Zip Holcomb, KS 67851.

Name Paula A Pfeifer Trust (NW NW 18-23-33).
Address 6090 W 6 Mile RD.
Zip Holcomb, KS 67851.

Base Acres: .

Perfected Acres: .

Irr. Return-Flow %

2393 & 6562 moving to a new well. Authorized a combined 640AF.

Current well: Ten year average reported use (2010-2019): 247.826AF, 650gpm reported in 2018. GMD3 inspection in 2020 calculated flow at 526gpm.

5191, authorized 218AF @ 700gpm, moving to the well location vacated by 19401.

Current well: Ten year average reported use: 75.169AF, 90gpm reported in 2018. GMD3 inspection in 2020 calculated flow at 44gpm. THIS WELL WILL BE ABANDONED.

19401, 294AF @ 950gpm, moving to well location vacated by 2393 & 6562.

Current well: Ten year average reported use: 199.9AF, 575gpm reported in 2018. GMD3 inspection in 2016 calculated flow at 562gpm.

Is a waiver needed: All proposed moves less than half mile and appears to meet spacing to neighboring wells. Analysis shows the proposed new well would have effects above our guidelines and would need to be limited to mitigate the effects in the area. The biggest effect was to a domestic well in the NW corner of 18-23-33. We did not receive any comments from neighbors.

Recommendation: Appears current area rules are met, however the proposed move as proposed would have possible adverse effects to other wells in area and be considered critical. By limiting the new well to 267AF @ 500gpm would mitigate the effects.



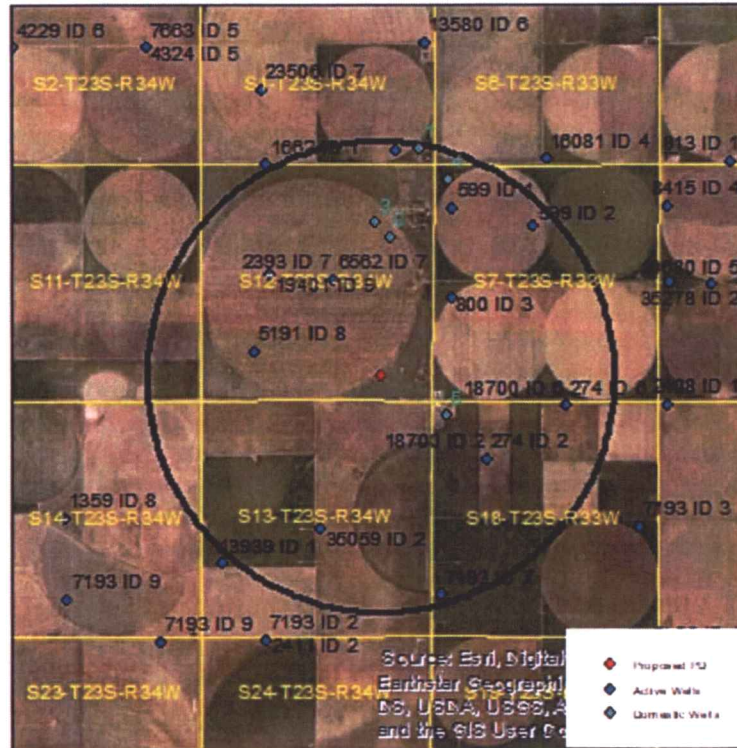
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Division of Water Resources

Evaluation of proposed move for Water Right Nos 2393, 5191, 6562, and 19401

Proposed: Move water right nos. 2393 & 6562 to a new well location a distance of 2,392 ft to the southeast. Move water right no. 19401 to the well location currently authorized by water right nos. 2393 & 6562. Move water right no. 5191 to the well location currently authorized by water right no. 19401.



Wells within 1 mile: 7334, 800, 599 ID 1, 599 ID 2, 274 & 18700 ID2, 274 & 18700 ID 6, 7193, 35059, and 5 domestic wells, numbered on the above map.

The saturated thickness at the proposed well location is estimated to be 106 ft, based upon the driller’s log and an observation well in section 7-23-33. For saturated thickness between 100 ft and 125 ft, the drawdown allowance is 2.5 ft.

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

$S = 0.259$, $T = 4387.6 \text{ ft}^2/\text{day}$, $t_{p_{\text{current}}} = 170 \text{ days}$, $Q_{\text{current}} = 100 \text{ gpm}$, $t_{p_{\text{proposed}}} = 168 \text{ days}$, $Q_{\text{proposed}} = 860 \text{ gpm}$ (Note that this evaluation is treated as if the well shutting off, 5191, is moving to the new well location.)

Theis drawdowns were calculated as follows:

- 7334: Drawdown from current location = 0.52 ft
- Drawdown from proposed location = 4.62 ft
- Net drawdown = 4.1 ft

800: Drawdown from current location = 0.58 ft
Drawdown from proposed location = 7.18 ft
Net drawdown = **6.6 ft**

599 ID 1: Drawdown from current location = 0.52 ft
Drawdown from proposed location = 5.29 ft
Net drawdown = **4.8 ft**

599 ID 2: Drawdown from current location = 0.44 ft
Drawdown from proposed location = 4.77 ft
Net drawdown = **4.3 ft**

274 & 18700 ID 2: Drawdown from current location = 0.50 ft
Drawdown from proposed location = 6.29 ft
Net drawdown = **5.8 ft**

274 & 18700 ID 6: Drawdown from current location = 0.43 ft
Drawdown from proposed location = 5.19 ft
Net drawdown = **4.8 ft**

7193: Drawdown from current location = 0.44 ft
Drawdown from proposed location = 4.62 ft
Net drawdown = **4.2 ft**

35059: Drawdown from current location = 0.61 ft
Drawdown from proposed location = 5.64 ft
Net drawdown = **5.0 ft**

Domestic 1: Drawdown from current location = 0.50 ft
Drawdown from proposed location = 4.58 ft
Net drawdown = **4.1 ft**

Domestic 2: Drawdown from current location = 0.63 ft
Drawdown from proposed location = 6.20 ft
Net drawdown = **5.6 ft**

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Domestic 3: Drawdown from current location = 0.63 ft
Drawdown from proposed location = 5.84 ft
Net drawdown = **5.2 ft**

Domestic 4: Drawdown from current location = 0.50 ft
Drawdown from proposed location = 4.87 ft
Net drawdown = **4.4 ft**

Domestic 5: Drawdown from current location = 0.58 ft
Drawdown from proposed location = 8.75 ft
Net drawdown = **8.2 ft**

Net drawdown exceeds the drawdown allowance of 2.5 ft for all wells within 1 mile of the proposed location. Critical well analysis is necessary on those wells.

Critical Well Evaluation:

7334:

Water Column = 106 ft

DP = 4.1 ft (Net drawdown from the proposal indicated above)

DE = 41.3 ft (Water level decline from 2021 through 2046 based upon GMD3 model)

DD = 11.3 ft (S = 0.2197, T = 75,760 gpd/ft, Q = 472 gpm, tp = 72 days, efficiency = 70%)

DT = 61.5 ft

Economic Drawdown Constraint (EDC) = $0.4 * 106 \text{ ft} = 42.4 \text{ ft}$

Physical Drawdown Constraint (PDC) = $106 \text{ ft} - 60 \text{ ft} = 46 \text{ ft}$

Total drawdown of 61.5 ft is greater than the EDC and PDC, so this well is **critical**.

800:

Water Column = 117 ft

DP = 6.6 ft (Net drawdown from the proposal indicated above)

DE = 32.4 ft (Water level decline from 2021 through 2046 based upon GMD3 model)

DD = 37.9 ft ($S = 0.1696$, $T = 29,654$ gpd/ft, $Q = 444$ gpm, $tp = 100$ days, efficiency = 70%)

DT = 76.9 ft

Economic Drawdown Constraint (EDC) = $0.4 * 117$ ft = 46.8 ft

Physical Drawdown Constraint (PDC) = 117 ft – 60 ft = 57 ft

Total drawdown of 76.9 ft exceeds both the EDC and PDC, so this well is **critical**.

599 ID 1:

Water Column = 117 ft

DP = 4.8 ft (Net drawdown from the proposal indicated above)

DE = 32.4 ft (Water level decline from 2021 through 2046 based upon GMD3 model)

DD = 0 ft (Well has not reported use in over 10 years)

DT = 37.2 ft

Economic Drawdown Constraint (EDC) = $0.4 * 117$ ft = 46.8 ft

Physical Drawdown Constraint (PDC) = 117 ft – 60 ft = 57 ft

Total drawdown of 37.2 ft is less than both the EDC and PDC, so this well is **not critical**.

599 ID 2:

Water Column = 117 ft

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

DE = 32.4 ft (Water level decline from 2021 through 2046 based upon GMD3 model)

DD = 47.0 ft ($S = 0.1696$, $T = 29,654$ gpd/ft, $Q = 552$ gpm, $tp = 96$ days, efficiency = 70%)

DT = 83.7 ft

Economic Drawdown Constraint (EDC) = $0.4 * 117$ ft = 46.8 ft

Physical Drawdown Constraint (PDC) = 117 ft – 60 ft = 57 ft

Total drawdown of 83.7 ft exceeds both the EDC and PDC, so this well is **critical**.

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274 & 18700 ID 2:

Water Column = 111 ft

DP = 5.8 ft (Net drawdown from the proposal indicated above)

DE = 39.8 ft (Water level decline from 2021 through 2046 based upon GMD3 model)

DD = 18.1 ft (S = 0.2651, T = 62,525 gpd/ft, Q = 457 gpm, tp = 55 days, efficiency = 70%)

DT = 63.7 ft

Economic Drawdown Constraint (EDC) = $0.4 * 111 \text{ ft} = 44.4 \text{ ft}$

Physical Drawdown Constraint (PDC) = $111 \text{ ft} - 60 \text{ ft} = 51 \text{ ft}$

Total drawdown of 63.7 ft is greater than both the EDC and PDC, so this well is **critical**.

274 & 18700 ID 6:

Water Column = 132 ft

DP = 4.8 ft (Net drawdown from the proposal indicated above)

DE = 39.8 ft (Water level decline from 2021 through 2046 based upon GMD3 model)

DD = 20.3 ft (S = 0.2651, T = 62,525 gpd/ft, Q = 507 gpm, tp = 58 days, efficiency = 70%)

DT = 64.9 ft

Economic Drawdown Constraint (EDC) = $0.4 * 132 \text{ ft} = 52.8 \text{ ft}$

Physical Drawdown Constraint (PDC) = $132 \text{ ft} - 60 \text{ ft} = 72 \text{ ft}$

Total drawdown of 64.9 ft is greater than the EDC, so this well is **critical**.

7193:

Water Column = 117 ft

DP = 4.2 ft (Net drawdown from the proposal indicated above)

DE = 39.8 ft (Water level decline from 2021 through 2046 based upon GMD3 model)

DD = 20.1 ft (S = 0.2651, T = 62,525 gpd/ft, Q = 496 gpm, tp = 75 days, efficiency = 70%)

DT = 64.1 ft

Economic Drawdown Constraint (EDC) = $0.4 * 117 \text{ ft} = 46.8 \text{ ft}$

Physical Drawdown Constraint (PDC) = $117 \text{ ft} - 60 \text{ ft} = 57 \text{ ft}$

Total drawdown of 64.1 ft is greater than both the EDC and PDC, so this well is **critical**.

Domestic 1:

Water Column = 126 ft

DP = 4.1 ft

DE = 41.3 ft

DT = 45.4 ft

Economic Drawdown Constraint (EDC) = $0.4 * 126 \text{ ft} = 50.4 \text{ ft}$

Physical Drawdown Constraint (PDC) = $126 \text{ ft} - 20 \text{ ft} = 106 \text{ ft}$

Total drawdown of 45.4 ft is less than both the EDC and the PDC, so this well is **not critical**.

Domestic 2:

Water Column = 122 ft

DP = 5.6 ft

DE = 37.8 ft

DT = 43.4 ft

Economic Drawdown Constraint (EDC) = $0.4 * 122 \text{ ft} = 48.8 \text{ ft}$

Physical Drawdown Constraint (PDC) = $122 \text{ ft} - 20 \text{ ft} = 102 \text{ ft}$

Total drawdown of 43.4 ft is less than both the EDC and the PDC, so this well is **not critical**.

Domestic 3:

Water Column = 122 ft (note: Driller's log shows a water column of 61 ft. This well was drilled in 1976 and does not appear to be drilled to the bottom of local aquifer formation, so the water column on nearby domestic 2 was used for evaluation.)

DP = 5.2 ft

DE = 37.8 ft

DT = 43.0 ft

Economic Drawdown Constraint (EDC) = $0.4 * 122 \text{ ft} = 48.8 \text{ ft}$

Physical Drawdown Constraint (PDC) = $122 \text{ ft} - 20 \text{ ft} = 102 \text{ ft}$

Total drawdown of 43.0 ft is less than both the EDC and the PDC, so this well is **not critical**.

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Domestic 4:

Water Column = 130 ft

DP = 4.4 ft

DE = 32.4 ft

DT = 36.8 ft

Economic Drawdown Constraint (EDC) = $0.4 * 130 \text{ ft} = 52.0 \text{ ft}$

Physical Drawdown Constraint (PDC) = $130 \text{ ft} - 20 \text{ ft} = 110 \text{ ft}$

Total drawdown of 36.8 ft is less than both the EDC and PDC, so this well is **not critical**.

Domestic 5:

Water Column = 111 ft

DP = 8.2 ft

DE = 39.8 ft

DT = 48.0 ft

Economic Drawdown Constraint (EDC) = $0.4 * 111 \text{ ft} = 44.4 \text{ ft}$

Physical Drawdown Constraint (PDC) = $111 \text{ ft} - 20 \text{ ft} = 91 \text{ ft}$

Total drawdown of 48.0 ft is greater than the EDC, so this well is **critical**.

Conclusion:

The proposed moves are located in an area with rapidly depleting aquifer and if the new well is operated at the proposed rate and quantity, it is likely to create noticeable effects on neighboring critical wells. GMD3 staff recommends a rate limitation of 500 gpm and a quantity limitation of 267 AF at the proposed new well location. This rate and quantity would produce the following net effects on neighboring critical wells:

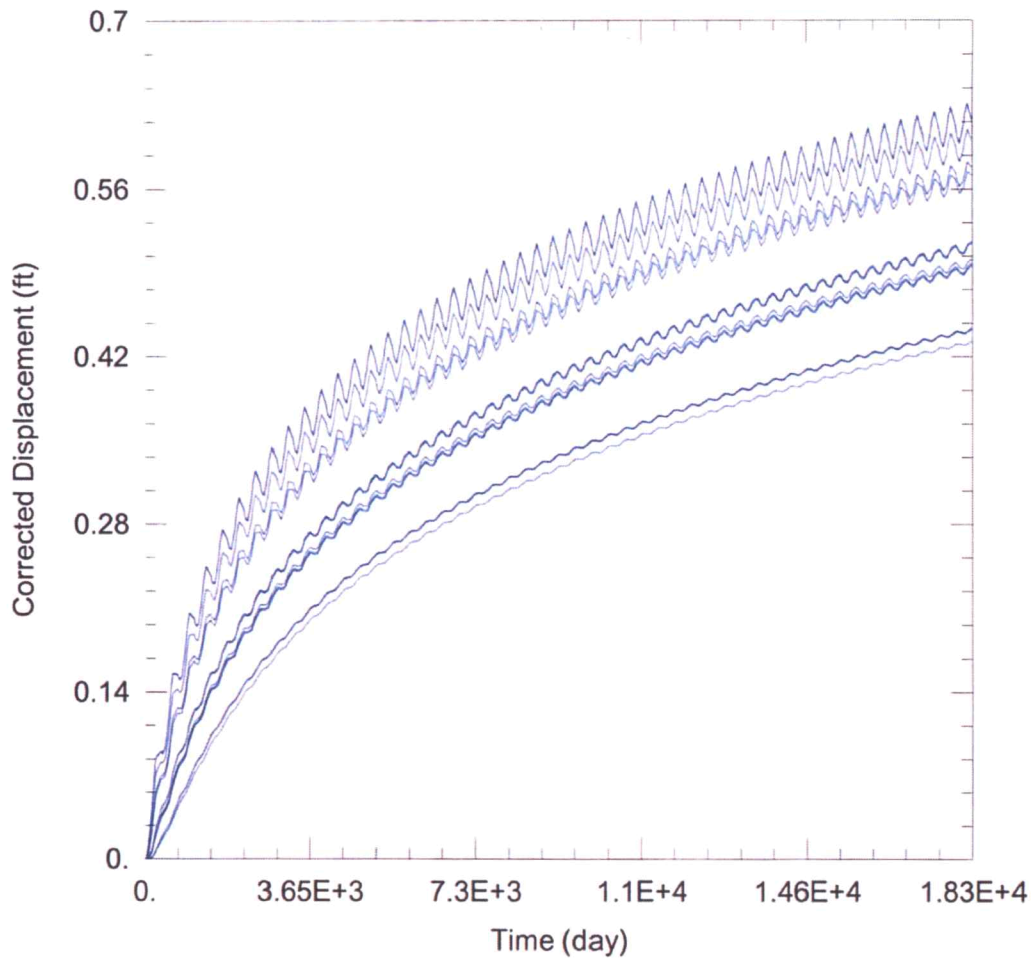
| | |
|------------------------------|------------------------------|
| 7334: | Net Drawdown = 1.4 ft |
| 800: | Net Drawdown = 2.5 ft |
| 599 ID 2: | Net Drawdown = 1.6 ft |
| 274 & 18700 ID 2: | Net Drawdown = 2.2 ft |
| 274 & 18700 ID 6: | Net Drawdown = 1.8 ft |
| 7193: | Net Drawdown = 1.5 ft |
| Domestic 5: | Net Drawdown = 3.3 ft |

Note that while this effect on Domestic 5 would exceed the 2.5 ft drawdown allowance, the well would not be considered critical with a 3.3 ft drawdown effect.

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Division of Water Resources**



WELL TEST ANALYSIS

Data Set: C:\Users\trevora\Documents\2021_Moves\2393_5191_6562_19401\2393 Current.aqt
 Date: 02/25/21 Time: 15:10:57

PROJECT INFORMATION

Company: GMD 3
 Project: 2393+
 Location: Finney County
 Test Well: 2393+

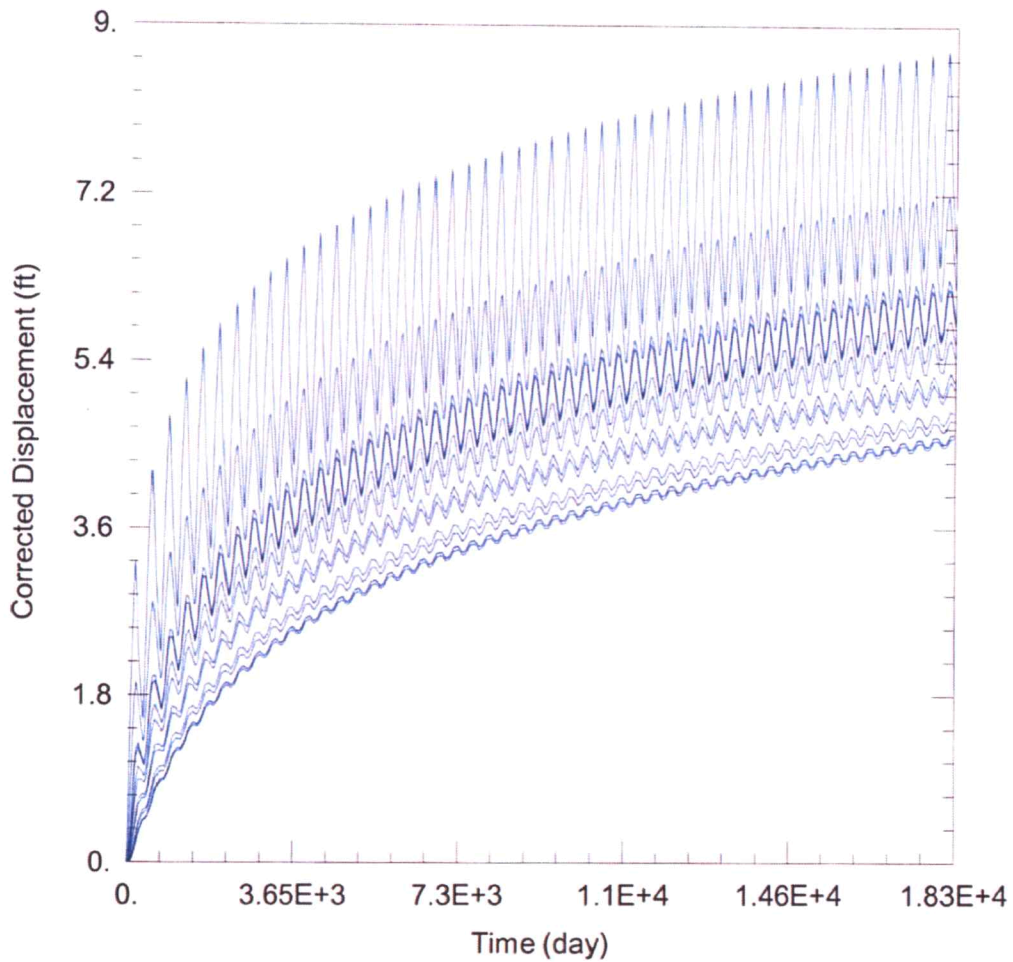
WELL DATA

Pumping Wells

| Well Name | X (ft) | Y (ft) |
|-----------|--------|--------|
| 5191 | -59750 | 433252 |

Observation Wells

| Well Name | X (ft) | Y (ft) |
|-------------------|--------|--------|
| □ | -59750 | 433252 |
| □ 7334 | -56527 | 437773 |
| □ 800 | -55262 | 434474 |
| □ 599 ID1 | -55243 | 436453 |
| □ 599 ID2 | -53433 | 436065 |
| □ 274 & 18700 ID2 | -54490 | 430852 |
| □ 274 & 18700 ID6 | -52717 | 432055 |
| □ 7193 | -55520 | 427802 |
| □ 35059 | -58242 | 429300 |
| □ Domestic 1 | -56002 | 437781 |
| □ Domestic 2 | -56672 | 435802 |
| □ Domestic 3 | -56994 | 436132 |
| □ Domestic 4 | -55363 | 437120 |



WELL TEST ANALYSIS

Data Set: C:\Users\trevora\Documents\2021_Moves\2393_5191_6562_19401\2393 Proposed.aqt
 Date: 02/04/21 Time: 14:37:32

PROJECT INFORMATION

Company: GMD 3
 Project: 2393+
 Location: Finney County
 Test Well: 2393+

RECEIVED
MAR 18 2021
 Garden City Field Office
 Division of Water Resources

WELL DATA

Pumping Wells

| Well Name | X (ft) | Y (ft) |
|-----------|--------|--------|
| 5191 | -56892 | 432703 |

Observation Wells

| Well Name | X (ft) | Y (ft) |
|-------------------|--------|--------|
| □ | -56892 | 432703 |
| □ 7334 | -56527 | 437773 |
| □ 800 | -55262 | 434474 |
| □ 599 ID1 | -55243 | 436453 |
| □ 599 ID2 | -53433 | 436065 |
| □ 274 & 18700 ID2 | -54490 | 430852 |
| □ 274 & 18700 ID6 | -52717 | 432055 |
| □ 7193 | -55520 | 427802 |
| □ 35059 | -58242 | 429300 |
| □ Domestic 1 | -56002 | 437781 |
| □ Domestic 2 | -56672 | 435802 |
| □ Domestic 3 | -56994 | 436132 |
| □ Domestic 4 | -55363 | 437120 |

Meyer, Mike [KDA]

From: Meyer, Mike [KDA]
Sent: Wednesday, February 24, 2021 7:19 AM
To: Jason Norquest
Subject: RE: graham

good morning

I will extend the deadline to **March 8th** to provide a recommendation for this pending application. I am sure we will hear from the owner or driller soon asking about the approval.

thank you

Mike

From: Jason Norquest <norquest@gmd3.org>
Sent: Wednesday, February 24, 2021 7:15 AM
To: Meyer, Mike [KDA] <Mike.Meyer@ks.gov>
Subject: RE: graham

EXTERNAL: This email originated from outside of the organization. Do not click any links or open any attachments unless you trust the sender and know the content is safe.

Got caught up with other things. I think it would be best if I could get another week or week and half for Graham, please.

Jason Norquest

Assistant Manager, GMD3

Cell: 620-271-1289

Office: 620-275-7147

www.gmd3.org

From: Meyer, Mike [KDA] <Mike.Meyer@ks.gov>
Sent: Tuesday, February 23, 2021 9:24 AM

To: Jason Norquest <norquest@gmd3.org>

Subject: RE: graham

no we didn't as all meets spacing and received no objections. if you need an extension let me know today.

Mike

From: Jason Norquest <norquest@gmd3.org>

Sent: Tuesday, February 23, 2021 9:22 AM

To: Meyer, Mike [KDA] <Mike.Meyer@ks.gov>

Subject: RE: graham

EXTERNAL: This email originated from outside of the organization. Do not click any links or open any attachments unless you trust the sender and know the content is safe.

Did you run any Theis on neighboring well? Possible concerns with a domestic well to SE and other wells. Would be looking at recommending limit. I still can't get a response from them but will keep trying.

Jason Norquest

Assistant Manager, GMD3

Cell: 620-271-1289

Office: 620-275-7147

www.gmd3.org

From: Meyer, Mike [KDA] <Mike.Meyer@ks.gov>

Sent: Tuesday, February 23, 2021 9:06 AM

To: Jason Norquest <norquest@gmd3.org>

Subject: graham

let me know what you are doing with these apps (extension or not) or I am moving on... 😊

Mike

Meyer, Mike [KDA]

From: Meyer, Mike [KDA]
Sent: Friday, January 29, 2021 8:08 AM
To: 'Norquest, Jason (Norquest@gmd3.org)'
Subject: Request for recommendation, File Nos. 2393, 5191, 6562, 19401
Attachments: 20210129075442368.pdf

good morning sir

attached are 4 applications from Rebecca Graham requesting to change the point of diversion. these are a sequence of moves. there will be one new well drilled, and the other 3 wells are hopscotching. I was not involved in the drafting of these, so don't know why for sure the sequence.

Please review and provide a recommendation within 15 days. there has been no comments from owners except Roger Unruh phone call to make sure he understands the proposal and that authority is moving away and meets current rules. roger has a pending application north of these proposals also that is out for comment from neighbors.

thank you and have a good day

Mike

Garden City Field Office
4532 W. Jones, Suite B
Garden City, KS 67846



Phone: 620-276-2901
Fax: 620-276-9315
www.agriculture.ks.gov

Mike Beam, Secretary

Laura Kelly, Governor

January 29, 2021

SOUTHWEST KANSAS GROUNDWATER
MANAGEMENT DISTRICT NO. 3
2009 E SPRUCE ST
GARDEN CITY KS 67846

Re: Water Right, File Nos. 2393, 5191, 6562, 19401

Dear Mr. Norquest:

This is to advise you that Rebecca Graham, has filed applications for approval of the Chief Engineer, Division of Water Resources, Kansas Department of Agriculture, to change the point of diversion.

We are delaying action on the change applications to allow you time to review and provide a recommendation. Please submit a recommendation within 15 days from the date of this letter.

Thank you and as always feel free to contact this office at any time.

Sincerely,

A handwritten signature in blue ink that reads "Michael A. Meyer". The signature is fluid and cursive, with a long horizontal flourish extending to the right.

Michael A. Meyer
Water Commissioner

MAM
Enclosures

Garden City Field Office
4532 W. Jones, Suite B
Garden City, KS 67846

Mike Beam, Secretary



Phone: 620-276-2901
Fax: 620-276-9315
www.agriculture.ks.gov

Laura Kelly, Governor

January 15, 2021

TRACIE ADAMS
8355 BIG LOWE RD
HOLCOMB KS 67851-9003

RE: Water Right, File No. 2393, 5191, 6562, 19401

Dear Madam:

This is to advise you that Rebecca Graham has filed an application for approval of the Chief Engineer, Division of Water Resources, Kansas Department of Agriculture, to point of diversion under the above referenced application. An irrigation well is proposed to be relocated.

You can find the complete application posted by water right file number as referenced above at www.agriculture.ks.gov/divisions-programs/dwr/water-appropriation/notices

You are notified on this proposed point of diversion (well) so that you may furnish this office with any comments or other information you may want to submit. Such comments or other information must be received in this office within 15 days from the date of this letter.

Should you have any questions, please feel free to call this office. If you would prefer, an appointment could be arranged for additional assistance. Please refer to the file number when you contact us if you wish to discuss a specific file.

Sincerely,


Michael A. Meyer
Water Commissioner

MAM

Pc:

Groundwater Management District No. 3

SCANNED

Garden City Field Office
4532 W. Jones, Suite B
Garden City, KS 67846

Mike Beam, Secretary



Phone: 620-276-2901
Fax: 620-276-9315
www.agriculture.ks.gov

Laura Kelly, Governor

January 15, 2021

SCOTT LEE CORMACK
1205 S PENNSYLVANIA AVE
CHEROKEE, OK 73728-4024

RE: Water Right, File No. 2393, 5191, 6562, 19401

Dear Sir:

This is to advise you that Rebecca Graham has filed an application for approval of the Chief Engineer, Division of Water Resources, Kansas Department of Agriculture, to point of diversion under the above referenced application. An irrigation well is proposed to be relocated.

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Sincerely,

A handwritten signature in black ink, appearing to read "Michael A. Meyer".

Michael A. Meyer
Water Commissioner

MAM

Pc:

Groundwater Management District No. 3

SCANNED

Garden City Field Office
4532 W. Jones, Suite B
Garden City, KS 67846

Mike Beam, Secretary



Phone: 620-276-2901
Fax: 620-276-9315
www.agriculture.ks.gov

Laura Kelly, Governor

January 15, 2021

RUSSELL KOMLOFSKE
4500 N IBP RD
HOLCOMB, KS 67851-9023

RE: Water Right, File No. 2393, 5191, 6562, 19401

Dear Sir:

This is to advise you that Rebecca Graham has filed an application for approval of the Chief Engineer, Division of Water Resources, Kansas Department of Agriculture, to point of diversion under the above referenced application. An irrigation well is proposed to be relocated.

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Sincerely,

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Michael A. Meyer
Water Commissioner

MAM

Pc:

Groundwater Management District No. 3

SCANNED

Garden City Field Office
4532 W. Jones, Suite B
Garden City, KS 67846

Mike Beam, Secretary



Phone: 620-276-2901
Fax: 620-276-9315
www.agriculture.ks.gov

Laura Kelly, Governor

January 15, 2021

PFEIFER DIVERSIFIED INVESTMENT LP
Attn: PAUL PFEIFER
6090 W 6 MILE RD
HOLCOMB, KS 67851-9077

RE: Water Right, File No. 2393, 5191, 6562, 19401

Dear Sir:

This is to advise you that Rebecca Graham has filed an application for approval of the Chief Engineer, Division of Water Resources, Kansas Department of Agriculture, to point of diversion under the above referenced application. An irrigation well is proposed to be relocated.

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Michael A. Meyer
Water Commissioner

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Groundwater Management District No. 3

Garden City Field Office
4532 W. Jones, Suite B
Garden City, KS 67846

Mike Beam, Secretary



Phone: 620-276-2901
Fax: 620-276-9315
www.agriculture.ks.gov

Laura Kelly, Governor

January 15, 2021

ROGER G & RANDALL UNRUH
625 S COWGILL DR
GARDEN CITY, KS 67846-8911

RE: Water Right, File No. 2393, 5191, 6562, 19401

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Michael A. Meyer
Water Commissioner

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Pc:

Groundwater Management District No. 3

SCANNED

Garden City Field Office
4532 W. Jones, Suite B
Garden City, KS 67846

Mike Beam, Secretary



Phone: 620-276-2901
Fax: 620-276-9315
www.agriculture.ks.gov

Laura Kelly, Governor

January 15, 2021

FRANZ WIEBE
8405 N. BIG LOWE RD
HOLCOMB, KS 67851-9004

RE: Water Right, File No. 2393, 5191, 6562, 19401

Dear Sir:

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Pc:

Groundwater Management District No. 3