Kansas Department of Agriculture
Division of Water Resources
PERMIT OF NEW APPLICATION WORKSHEET

1. File Number:	2. Status Change Date:	3. Field Office:	4. GMD:
49,742	3/24/2017	**01**	**0**

5. Status: ☒ Approved ☐ Denied by DWR/GMD ☐ Dismiss by Request/Failure to Return

6. Enclosures: ☒ Check Valve ☒ N of C Form ☒ Water Tube ☒ Driller Copy ☒ Meter

7a. Applicant(s) — Person ID **34423**
New to system ☐ — Add Seq# _____

NEMAHA RWD 04
PO BOX 160
WETMORE KS 66550

7c. Landowner(s) — Person ID _____
New to system ☐ — Add Seq# _____

7b. Landowner(s) — Person ID _____
New to system ☐ — Add Seq# _____

7a.

7d. Misc. — Person ID _____
New to system ☐ — Add Seq# _____

DOUGLAS S HELMKE PG
KANSAS RURAL WATER ASSN
6847 SE 29TH ST
TECUMSEH KS 66542-9571

8. WUR Correspondent — Person ID _____
New to system ☐ — Add Seq# _____
Overlap File (s) WUC — Notarized WUC Form ☐
Agree ☐ Yes ☐ No

7a.

9. Use of Water: Changing? ☐ Yes ☒ No
☒ Groundwater ☐ Surface Water
☐ IRR ☐ REC ☐ DEW ☒ MUN
☐ STK ☐ SED ☐ DOM ☐ CON
☐ HYD DRG ☐ WTR PWR ☐ ART RECHRG
☐ IND SIC: _____ ☐ OTHER: _____

10. Completion Date: **12/31/2018** 11. Perfection Date: **12/31/2037** 12. Exp Date: _____

13. Conservation Plan Required? ☐ Yes ☒ No Date Required: _____ Date Approved: _____ Date to Comply: _____

14. Water Level Measuring Device? ☐ Yes ☒ No Date to Comply: _____ Date WLMD Installed: _____

Date Prepared: **3/8/2017** By: **DWS**
Date Entered: 3/29/2017 By: LM

File No. **49,742**	15. Formation Code: **100**	Drainage Basin: **DELAWARE RIVER**	County: **NM**	Special Use:	Stream:

16. Points of Diversion

17. Rate and Quantity

T MOD DEL ENT	PDIV	Qualifier	S	T	R	ID	'N	'W	Authorized Rate gpm	Authorized Quantity mgy	Additional Rate gpm	Additional Quantity mgy	Overlap PD Files
MOD	**85804**	**SE NW NW**	**35**	**4**	**14E**	**2**	**3962**	**4186**	**300**	**65.17**	**300**	**36.073**	**NONE**

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

19. Limitation: **91.673** mg/yr at _____ gpm (_____ cfs) when combined with file number(s) **40,883 AND 40,884**

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

20. Meter Required? ☒ Yes ☐ No To be installed by **12/31/2018** Date Acceptable Meter Installed _____

21. Place of Use

T MOD DEL ENT	PUSE	S	T	R	ID	NE¼				NW¼				SW¼				SE¼				Total	Owner	Chg? **NO**	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				
√	**5716**	**35**	**4**	**13E**	**3**	**WITHIN BOUNDARIES OF RWD #4, NEMAHA CO. & CITY OF GOFF, KANSAS AND THEIR IMMEDIATE VICINITIES**																	**7a.**	**No**	**see below**

Comments: **PU OVERLAP WITH 40,883; 40,884; 49,742; AND 49,743**

KANSAS DEPARTMENT OF AGRICULTURE
Division of Water Resources
M E M O R A N D U M

TO: Files **DATE:** March 8, 2017

FROM: Doug Schemm **RE:** Applications, File Nos. 49,742 and 49,743

Nemaha County Rural Water District No. 4 (RWD #4) has filed the referenced applications to appropriate groundwater for municipal use. Each application is requesting 65.17 million gallons (200 acre-feet) of groundwater, from a single one well, and a rate of diversion of 300 gallons per minute. Both wells are located in the Northwest Quarter of Section 35, Township 4 South, Range 14 East, Nemaha County. The wells are located on property owned by Lori A Milligan, and a RWD #4 representative has signed the application forms stating they have access to the points of diversion. The applicant was assisted by Douglas S. Helmke with the Kansas Rural Water Association.

There are no other files overlapping either of the points of diversion, however RWD #4 currently has two senior water rights, Appropriation of Water, File Nos. 40,883 and 40,884, which overlap in place of use. Both File No. 40,883 and 40,884 are authorized 27.8 million gallons, for an authorized total quantity of water of 55.6 million gallons when combined.

The applicant has supplied supporting data to document population growth and completed a Municipal Supplemental Information Sheet that project a water demand of 91.673 million gallons by 2036. Population growth is expected to continue at 3% per year and reach 1,392 by the year 2036. In addition, the applicant is selling large quantities of water to industrial, bulk, and stock customers. The applicant provided a calculated value of 112 gpcd on their supplemental sheet. The Kansas Municipal Water Use report indicates an average of 128 gpcd. Therefore, an estimated quantity of water (20 year projection) can be determined as follows:

1,392 population x 128 gpcd x 365 days/year	=	65.034 million gallons
Water sold to industry, stock, and bulk customers	=	26.639 million gallons
	Total =	91.673 million gallons

As noted above, the applicant's current water rights have a total authorized quantity of 55.6 million gallons. Mr. Helmke on behalf of the applicant noted the justified quantity of 91.673 million gallons in his January 18, 2017 cover letter, and stated that the pending applications should be limited to this justified quantity. Therefore, the senior Application, File No. 49,742 will provide for 36.073 million gallons of additional water (91.673 mgy justified – 55.6 mgy authorized), while Application, File No. 49,743 will not provide any additional quantity of water when limited to senior files. However, the new proposed wells will provide the applicant with greater flexibility in their water supply sources, and assist in addressing potential water quality issues.

Based on the geographical location of the wells, and test hole lithology, it appears that the source of supply is groundwater from glacial drift deposits. This is also consistent with the source of water for other area wells. The test holes show similar lithology, with clay and silt extending from ground surface to depths of over 100 feet, underlain by fine sands, with shale bedrock encountered at 158 feet below ground surface. No static water levels were provided on the test hole logs.

The test hole logs indicate saturated thicknesses of approximately 20 feet and 30 feet, respectively. A review of Nemaha County bulletin and the Cenozoic deposits map, show these wells are located within an extensive buried glacial valley that generally trends northwest to southeast through this region. With surface elevation of approximately 1,100 feet for the test holes and bedrock at 158 feet depth, this would equate to a bedrock elevation of 942 feet, which is in agreement with the bedrock map in the bulletin. This supportive information, along with a review of area wells and geologic maps, allows for an accurate determine of the extent of the local aquifer, which is a critical component of safe yield assessment in glacial aquifers.

Per the requirements in K.A.R. 5-3-11, safe yield is determined by the extent of the unconfined aquifer (glacial deposits), within a two-mile circle radius of the point of diversion, which establishes the area of consideration. To maintain consistency with previous applications in this area of the state, sourcing glacial deposits, the area of consideration was determined by including all areas in the two-mile circle where sand and gravel deposits exceeded 10 feet in thickness. It appears that the glacial deposits extend across the entire two-mile circle for both files. For File No. 49,742 this evaluation provided an area of consideration of 8,042 acres, a potential recharge of 4.9 inches, and 100% of recharge available for appropriation, resulting in a safe yield of 3,283.8 acre-feet. Existing water rights have appropriated 352 acre-feet, providing a difference of 2,931.8 acre-feet available for appropriation, and the application requesting 200 acre-feet complies with safe yield.

For File No. 49,743, located approximately 1,400 feet Southeast of File No. 49,742, the same safe yield evaluation was conducted and provided the same safe yield of 3,283.8 acre-feet. Existing water rights have appropriated 552 acre-feet (including the senior pending application), providing a difference of 2,731.8 acre-feet available for appropriation, and the application requesting 200 acre-feet (0 additional quantity) complies with safe yield.

The applicant listed the same two domestic wells within one-half mile of the proposed wells for both applications and nearby well owner letters were mailed out on February 21, 2017. No responses of any kind were received. The WRIS database shows the nearest domestic well to be over 1,200 feet away, while the nearest permitted well is over 5,000 feet away for both files. The proposed points of diversion meet minimum well spacing requirements to all other wells, and to each other for the source of supply.

In accordance with K.S.A. 82a-706c, the Chief Engineer retains full authority to require any water user to install meters, gages, or other measuring devices, which devices he or she or his or her agents may read at any time. Water flowmeter requirements are further described in K.A.R. 5-1-4 through K.A.R. 5-1-12. If any chemical or foreign substance is injected into the water pumped under these permits, check valves will also need to be installed.

Katie Tietsort, Water Commissioner of the Topeka Field Office, recommended approval of the referenced applications in a March 7, 2017 e-mail. Based on the above discussion, the area is open to new appropriations, the applications meet safe yield and well spacing criteria, approval will provide the applicant with additional water and flexibility in water sources, and approval of the applications will not impair senior water rights nor prejudicially or unreasonably affect the public interest, it is recommended that the referenced applications be approved.

Douglas W. Schemm
Environmental Scientist
Topeka Field Office

1320 Research Park Drive
Manhattan, Kansas 66502
(785) 564-6700

Kansas
Department of Agriculture
agriculture.ks.gov

900 SW Jackson, Room 456
Topeka, Kansas 66612
(785) 296-3556

Jackie McClaskey, Secretary

Governor Sam Brownback

March 30, 2017

NEMAHA RWD 04
% STEVEN HERMESCH
PO BOX 160
WETMORE KS 66550

FILE COPY

RE: Appropriation of Water, File Nos. 49,742 and 49,743

Dear Mr. Hermesch:

There are enclosed permits to appropriate water authorizing you to proceed with construction of the proposed diversion works (except those dams and stream obstructions regulated by K.S.A. 82a-301 through 305a), to divert such unappropriated water as may be available from the sources and at the locations specified in these permits, and to use it for the purpose and at the location described in these permits.

Your attention is directed to the enclosures and to the terms, conditions, and limitations specified in these permits. Water meters are required and you must install them prior to water being put to beneficial use in order for you to maintain accurate records of water use. The meters should be used to provide the information required on the annual water use reports.

Failure to notify the Chief Engineer of the Division of Water Resources of the completion of the diversion works within the time allowed, or within any authorized extension of time thereof, will result in the dismissal of these permits. Enclosed are forms which may be used to notify the Chief Engineer that the proposed diversion works have been completed for each file.

All requests for extensions of time to complete diversion works, or to perfect appropriations, must be submitted to the Chief Engineer before the expiration of time originally set forth in these permits to complete diversion works or to perfect an appropriation. If for any reason, you require an extension of time, you must request it before the expiration of time set forth in these permits. Failure to comply with this regulation will result in the dismissal of your permits or your water rights. Any request for an extension of time shall be accompanied by the required statutory fee, which is currently $100.00 per file number. There is also enclosed an information sheet setting forth the procedure to obtain Certificates of Appropriation which will establish the extent of your water rights. If you have any questions, please contact our office. If you wish to discuss a specific file, please have the file number ready so that we may help you more efficiently.

Sincerely,

Brent A. Turney, P.G.
Change Application Unit Supervisor
Water Appropriation Program

BAT:dws
Enclosures

pc: Topeka Field Office
Douglas S. Helmke, P.G. - KRWA

THE STATE OF KANSAS

KANSAS DEPARTMENT OF AGRICULTURE
Jackie McClaskey, Secretary of Agriculture

DIVISION OF WATER RESOURCES
David W. Barfield, Chief Engineer

APPROVAL OF APPLICATION
and
PERMIT TO PROCEED

(This Is Not a Certificate of Appropriation)

This is to certify that I have examined Application, **File No. 49,742** of the applicant

NEMAHA RWD 04
PO BOX 160
WETMORE KS 66550

for a permit to appropriate water for beneficial use, together with the maps, plans and other submitted data, and that the application is hereby approved and the applicant is hereby authorized, subject to vested rights and prior appropriations, to proceed with the construction of the proposed diversion works (except those dams and stream obstructions regulated by K.S.A. 82a-301 through 305a, as amended), and to proceed with all steps necessary for the application of the water to the approved and proposed beneficial use and otherwise perfect the proposed appropriation subject to the following terms, conditions and limitations:

1. That the priority date assigned to such application is **December 15, 2016.**

2. That the water sought to be appropriated shall be used for municipal use within the boundaries of Rural Water District No. 4, Nemaha County, Kansas and the City of Goff, Kansas and their immediate vicinities.

3. That the authorized source from which the appropriation shall be made is groundwater, to be withdrawn by means of one (1) well located in the Southeast Quarter of the Northwest Quarter of the Northwest Quarter (SE¼ NW¼ NW¼) of Section 35, more particularly described as being near a point 3,962 feet North and 4,186 feet West of the Southeast corner of said section, in Township 4 South, Range 14 East, Nemaha County, Kansas, located substantially as shown on the topographic map accompanying the application.

4. That the appropriation sought shall be limited to a maximum diversion rate not in excess of **300 gallons per minute (0.67 c.f.s.)** and to a quantity not to exceed **65.17 million gallons** (200 acre-feet) of water for any calendar year.

5. That installation of works for diversion of water shall be completed on or before **December 31, 2018** or within any authorized extension thereof. The applicant shall notify the Chief Engineer and pay the statutorily required field inspection fee of $400.00 when construction of the works has been completed. Failure to timely submit the notice and the fee will result in revocation of the permit. Any request for an extension of time shall be submitted prior to the expiration of the deadline and shall be accompanied by the required statutory fee of $100.00.

6. That the proposed appropriation shall be perfected by the actual application of water to the proposed beneficial use on or before **December 31, 2037** or any authorized extension thereof. Any request for an extension of time shall be submitted prior to the expiration of the deadline and shall be accompanied by the required statutory fee of $100.00.

7. That the applicant shall not be deemed to have acquired a water appropriation for a quantity in excess of the amount approved herein nor in excess of the amount found by the Chief Engineer to have been actually used for the approved purpose during one calendar year subsequent to approval of the application and within the time specified for perfection or any authorized extension thereof.

8. That the use of water herein authorized shall not be made so as to impair any use under existing water rights nor prejudicially and unreasonably affect the public interest.

9. That the right of the appropriator shall relate to a specific quantity of water and such right must allow for a reasonable raising or lowering of the static water level and for the reasonable increase or decrease of the streamflow at the appropriator's point of diversion.

10. That this permit does not constitute authority under K.S.A. 82a-301 through 305a to construct any dam or other obstruction; nor does it grant any right-of-way, or authorize entry upon or injury to, public or private property.

11. That all diversion works constructed under the authority of this permit into which any type of chemical or other foreign substance will be injected into the water pumped from the diversion works shall be equipped with an in-line, automatic quick-closing, check valve capable of preventing pollution of the source of the water supply. The type of valve installed shall meet specifications adopted by the Chief Engineer and shall be maintained in an operating condition satisfactory to the Chief Engineer.

12. That all wells with a diversion rate of 100 gallons per minute or more drilled under the authority of this permit shall have a tube or other device installed in a manner acceptable to, and in accordance with specifications adopted by, the Chief Engineer. This tube or device shall be suitable for making water level measurements and shall be maintained in a condition satisfactory to the Chief Engineer.

13. That an acceptable water flow meter shall be installed and maintained on the diversion works authorized by this permit in accordance with Kansas Administrative Regulations 5-1-4 through 5-1-12 adopted by the Chief Engineer. This water flow meter shall be used to provide an accurate quantity of water diverted as required for the annual water use report (including the meter reading at the beginning and end of the report year).

14. That the applicant shall maintain accurate and complete records from which the quantity of water diverted during each calendar year may be readily determined and the applicant shall file an annual water use report with the Chief Engineer by March 1 following the end of each calendar year. Failure to file the annual water use report by the due date shall cause the applicant to be subject to a civil penalty.

15. That no water user shall engage in nor allow the waste of any water diverted under the authority of this permit.

16. That failure without cause to comply with provisions of the permit and its terms, conditions and limitations will result in the forfeiture of the priority date, revocation of the permit and dismissal of the application.

17. That the right to appropriate water under authority of this permit is subject to any minimum desirable streamflow requirements identified and established pursuant to K.S.A. 82a-703c for the source of supply to which this water right applies.

18. That the permit holder shall submit a progress report to the office of the Chief Engineer by March 1, following the tenth full calendar year after the permit was issued. The progress report must be submitted on a form prescribed by the Chief Engineer, and shall compare annual water use projected in the original application with the actual annual water use for the prior 10 years. The progress report must document compliance with the approved conservation plan, contain sufficient details to determine the extent of perfection of the water right during the previous ten years, and demonstrate how the water right, in association with other water rights, meets the municipal use need.

19. That the quantity of water approved under this permit is further limited to the quantity which combined with Appropriation of Water, File Nos. 40,883 and 40,884, will provide **a total not to exceed 91.673 million gallons** of water per calendar year for municipal use as described herein.

This Order shall become a final agency action, as defined by K.S.A. 77-607(b), without further notice to the parties, if a request for hearing or a petition for administrative review is not filed as set forth below.

Request for Hearing. According to K.A.R. 5-14-3(c), any party who desires a hearing must submit a request within 15 days after the date shown on the Certificate of Service attached to this Order. Filing a request for a hearing will give you the opportunity to submit additional facts for consideration, contest any findings made by the Chief Engineer, or present any other information you believe should be considered in this matter. A timely-filed request for hearing will stay the deadline for requesting administrative review of this Order pending the outcome of the hearing.

Petition for Review. The applicant, if aggrieved by this Order, may petition for administrative review, pursuant to K.S.A. 82a-711(c) and K.S.A. 82a-1901(a). The petition must be filed within 30 days after the date shown on the Certificate of Service attached to this Order and must set forth the basis for the review, unless stayed by the timely filing of a request for hearing.

Any request for hearing or petition for administrative review shall be in writing and shall be submitted to the attention of: Chief Legal Counsel, Kansas Department of Agriculture, 1320 Research Park Drive, Manhattan, Kansas 66502, Fax: (785) 564-6777.

Ordered this 24th day of March, 2017, in Topeka, Shawnee County, Kansas.

Lane P. Letourneau

Lane P. Letourneau, P.G.
Program Manager
Water Appropriation Program
Division of Water Resources
Kansas Department of Agriculture

State of Kansas)
) SS
County of Riley)

The foregoing instrument was acknowledged before me this 24th day of March, 2017, by Lane P. Letourneau, P.G., Program Manager, Division of Water Resources, Kansas Department of Agriculture.

Danielle Wilson

Notary Public

STATE OF KANSAS NOTARY PUBLIC
DANIELLE WILSON
My Appointment Expires
August 23, 2020

CERTIFICATE OF SERVICE

On this 30th day of March, 2017, I hereby certify that the foregoing Approval of Application and Permit to Proceed, File No. 49,742, dated March 24, 2017 was mailed postage prepaid, first class, US mail to the following:

NEMAHA RWD 04
PO BOX 160
WETMORE KS 66550

With photocopies to:

DOUGLAS S HELMKE PG
KANSAS RURAL WATER ASSN
6847 SE 29TH ST
TECUMSEH KS 66542-9571

Topeka Field Office

Danielle Wilson

Division of Water Resources

APPLICATION COMPLETE
3 / 8 / 2017
Reviewer DJS

THE STATE OF KANSAS

KANSAS DEPARTMENT OF AGRICULTURE
Jackie McClaskey, Secretary of Agriculture

DIVISION OF WATER RESOURCES
David W. Barfield, Chief Engineer

WATER RESOURCES RECEIVED
JAN 19 2017
KS DEPT OF AGRICULTURE

File Number 49,742
This item to be completed by the Division of Water Resources.

WATER RESOURCES RECEIVED
DEC 15 2016
12:32
KS DEPT OF AGRICULTURE

APPLICATION FOR PERMIT TO APPROPRIATE WATER FOR BENEFICIAL USE

Filing Fee Must Accompany the Application
(Please refer to Fee Schedule attached to this application form.)

To the Chief Engineer of the Division of Water Resources, Kansas Department of Agriculture, 1320 Research Park Drive, Manhattan, KS 66502:

1. Name of Applicant (Please Print): NEMAHA RWD 04

   Address: PO BOX 160

   City: WETMORE State: KS Zip Code 66550

   Telephone Number: (785) 866-2600 nemaharwd4@gmail.com

2. The source of water is: ☐ surface water in _____ (stream)

   OR ☒ groundwater in DELAWARE RIVER BASIN (drainage basin)

   Certain streams in Kansas have minimum target flows established by law or may be subject to administration when water is released from storage for use by water assurance district members. If your application is subject to these regulations on the date we receive your application, you will be sent the appropriate form to complete and return to the Division of Water Resources.

3. The maximum quantity of water desired is 200 acre-feet OR **65.17 MILLION** gallons per calendar year, to be diverted at a maximum rate of **300** gallons per minute OR _____ cubic feet per second.

   Once your application has been assigned a priority, the requested maximum rate of diversion and maximum requested quantity of water under that priority number can **NOT** be increased. Please be certain your requested maximum rate of diversion and maximum quantity of water are appropriate and reasonable for your proposed project and are in agreement with the Division of Water Resources' requirements.

4. The water is intended to be appropriated for **(Check use intended):**

(a) ☐ Artificial Recharge	(b) ☐ Irrigation	(c) ☐ Recreational	(d) ☐ Water Power
(e) ☐ Industrial	(f) ☒ Municipal	(g) ☐ Stockwatering	(h) ☐ Sediment Control
(i) ☐ Domestic	(j) ☐ Dewatering	(k) ☐ Hydraulic Dredging	(l) ☐ Fire Protection
(m) ☐ Thermal Exchange	(n) ☐ Contamination Remediation		

YOU **MUST** COMPLETE AND ATTACH ADDITIONAL DIVISION OF WATER RESOURCES FORM(S) PROVIDING INFORMATION TO SUBSTANTIATE YOUR REQUEST FOR THE AMOUNT OF WATER FOR THE INTENDED USE REFERENCED ABOVE.

For Office Use Only:
F.O. 1 *GMD* 0 *Meets K.A.R. 5-3-1 (YES / NO) Use* MUN *Source* (G) S *County* NM *By* AJW *Date* 12/16/16
Code ~~REG~~ REZ *Fee $* 300 *TR #* _____ *Receipt Date* 12/16/16 *Check #* 5740

DWR 1-100 (Revised 02/16/2011)

SCANNED
12/21/2016 LLM

File No. 49,742

5. The location of the proposed wells, pump sites or other works for diversion of water is:

Note: For the application to be accepted, the point of diversion location must be described to at least a 10 acre tract, unless you specifically request a 60 day period of time in which to locate the site within a specifically described, minimal legal quarter section of land.

per feet Distances * DWS low R 2/21/17

(A) One ~~in~~ the ~~NOT THE CENTER OF~~ ~~E quarter~~ SE¼ HALF of the ~~W quarter~~ NW¼ HALF of the **NW** quarter of Section 35, more particularly described as being near a point 3,962 feet North and 4,186 feet West of the Southeast corner of said section, in Township 4 South, Range 14 EAST, NEMAHA County, Kansas.

(B) One in the _____ quarter of the _____ quarter of the _____ quarter of Section _____, more particularly described as being near a point _____ feet North and _____ feet West of the Southeast corner of said section, in Township _____ South, Range _____ East/West (circle one), _____ County, Kansas.

(C) One in the _____ quarter of the _____ quarter of the _____ quarter of Section _____, more particularly described as being near a point _____ feet North and _____ feet West of the Southeast corner of said section, in Township _____ South, Range _____ East/West (circle one), _____ County, Kansas.

(D) One in the _____ quarter of the _____ quarter of the _____ quarter of Section _____, more particularly described as being near a point _____ feet North and _____ feet West of the Southeast corner of said section, in Township _____ South, Range _____ East/West (circle one), _____ County, Kansas.

If the source of supply is groundwater, a separate application shall be filed for each proposed well or battery of wells, except that a single application may include up to four wells within a circle with a quarter (¼) mile radius in the same local source of supply which do not exceed a maximum diversion rate of 20 gallons per minute per well.

A battery of wells is defined as two or more wells connected to a common pump by a manifold; or not more than four wells in the same local source of supply within a 300 foot radius circle which are being operated by pumps not to exceed a total maximum diversion rate of 800 gallons per minute and which supply water to a common distribution system.

6. The owner of the point of diversion, if other than the applicant is (please print):

Lori A Milligan 436 Sixth St. Wetmore, KS 66550 785 608 3698
(name, address and telephone number)

You must provide evidence of legal access to, or control of, the point of diversion from the landowner or the landowner's authorized representative. Provide a copy of a recorded deed, lease, easement or other document with this application. In lieu thereof, you may sign the following sworn statement:

I have legal access to, or control of, the point of diversion described in this application from the landowner or the landowner's authorized representative. I declare under penalty of perjury that the foregoing is true and correct.

Executed on December 13, 2016. _____
Applicant's Signature

7. The proposed project for diversion of water will consist of 1 (ONE) ~~BATTERY OF~~ WELL~~S~~
(number of wells, pumps or dams, etc.)

and (was)(will be) completed (by) SUMMER 2017.
(Month/Day/Year - each was or will be completed)

8. The first actual application of water for the proposed beneficial use was or is estimated to be SUMMER 2017.
(Mo/Day/Year)

File No. 49,742

9. Will pesticide, fertilizer, or other foreign substance be injected into the water pumped from the diversion works?

   ☒ Yes ☐ No If "yes", a check valve shall be required.

   All chemigation safety requirements must be met including a chemigation permit and reporting requirements.

10. If you are planning to impound water, please contact the Division of Water Resources for assistance, prior to submitting the application. Please attach a reservoir area capacity table and inform us of the total acres of surface drainage area above the reservoir.

    Have you also made an application for a permit for construction of this dam and reservoir with the Division of Water Resources? ☐ Yes ☐ No

    - If yes, show the Water Structures permit number here _____
    - If no, explain here why a Water Structures permit is not required _____

    GROUNDWATER WELLS

11. The application must be supplemented by a U.S.G.S. topographic map, aerial photograph or a detailed plat showing the following information. On the topographic map, aerial photograph, or plat, identify the center of the section, the section lines or the section corners and show the appropriate section, township and range numbers. Also, please show the following information:

    (a) The location of the proposed point(s) of diversion (wells, stream-bank installations, dams, or other diversion works) should be plotted as described in Paragraph No. 5 of the application, showing the North-South distance and the East-West distance from a section line or southeast corner of section.

    (b) If the application is for groundwater, please show the location of any existing water wells of any kind within ½ mile of the proposed well or wells. Identify each existing well as to its use and furnish the name and mailing address of the property owner or owners. If there are no wells within ½ mile, please advise us.

    (c) If the application is for surface water, the names and addresses of the landowner(s) ½ mile downstream and ½ mile upstream from your property lines must be shown.

    (d) The location of the proposed place of use should be shown by crosshatching on the topographic map, aerial photograph or plat.

    (e) Show the location of the pipelines, canals, reservoirs or other facilities for conveying water from the point of diversion to the place of use.

    A 7.5 minute U.S.G.S. topographic map may be obtained by providing the section, township and range numbers to: Kansas Geological Survey, 1930 Constant, Campus West, University of Kansas, Lawrence, Kansas 66047.

12. List any application, appropriation of water, water right, or vested right file number that covers the same diversion points or any of the same place of use described in this application. Also list any other recent modifications made to existing permits or water rights in conjunction with the filing of this application.

    Appropriation of Water, File Nos. 40,883 AND 40,884 OVERLAP IN PLACE OF USE AND OTHER NEW APPLICATION

WATER RESOURCES RECEIVED
JAN 19 2017
KS DEPT OF AGRICULTURE

WATER RESOURCES RECEIVED
DEC 15 2016
KS DEPT OF AGRICULTURE

SCANNED

File No. 49,742

13. Furnish the following well information if the proposed appropriation is for the use of groundwater. If the well has not been completed, give information obtained from test holes, if available.

Information below is from: ☐ Test holes ☐ Well as completed ☐ Drillers log attached

Well location as shown in paragraph No.	(A)	(B)	(C)	(D)
Date Drilled				
Total depth of well				
Depth to water bearing formation				
Depth to static water level				
Depth to bottom of pump intake pipe				

14. The relationship of the applicant to the proposed place where the water will be used is that of OWNER.
(owner, tenant, agent or otherwise)

15. The owner(s) of the property where the water is used, if other than the applicant, is (please print):

- NA -
(name, address and telephone number)

- NA -
(name, address and telephone number)

16. The undersigned states that the information set forth above is true to the best of his/her knowledge and that this application is submitted in good faith.

Dated at Wetmore, Kansas, this 13 day of December (month), 2016 (year).

Carol Steinlage
(Applicant Signature)

48-1082326
APPLICANT(S) SOCIAL SECURITY IDENTIFICATION NUMBER(S)

By Steven Hermesch
(Agent or Officer Signature)

515-56-0041
and/or
APPLICANT(S) TAXPAYER I.D. NO.(S)

Steven Hermesch
(Agent or Officer - Please Print)

Assisted by DWS TOPEKA FO Date: 12/7/2016
(office/title)

(Date)

Kansas Department of Agriculture
Division of Water Resources
David W. Barfield, Chief Engineer
1320 Research Park Drive
Manhattan, Kansas 66502

Re: Application File No. 49,742

Minimum Desirable Streamflow

Dear Sir:

I understand that a Minimum Desirable Streamflow requirement has been established by the legislature for the source of supply to which the above referenced application applies.

I understand that diversion of water pursuant to this application will be subject to regulation any time Minimum Desirable Streamflow requirements are not being met.

I also understand that if this application is approved, there could be times, as determined by the Division of Water Resources, when I would not be allowed to divert water. I realize that this could affect the economics of my decision to appropriate water.

I am aware of the above factors, and with the knowledge thereof, request that the Division of Water Resources proceed with processing and approval, if possible, of the above referenced application.

Signature of Applicant

Steven Hermesch
(Print Applicant's Name)

State of Kansas)
) ss
County of Nemaha)

I hereby certify that the foregoing instrument was signed in my presence and sworn to before me this 13 day of December, 2016.

Carol J. Steinlage
Notary Public

My Commission Expires: 3-24-2019

CAROL J. STEINLAGE
Notary Public, State of Kansas
My Appointment Expires
3-24-2019

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WATER RESOURCES
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DEC 15 2016
KS DEPT OF AGRICULTURE

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DWR 1-100.171 (Revised 03/27/2008)

MINIMUM DESIRABLE STREAMFLOW FORM TO BE USED WHEN APPLICABLE WHEN FILING AN APPLICATION FOR PERMIT TO APPROPRIATE WATER FOR BENEFICIAL USE

The Kansas Legislature has established minimum desirable streamflows for the streams listed below. If your proposed diversion of water is going to be from one of these watercourses or adjacent alluvial aquifers, please complete the back side of this page and submit it along with your application for permit to appropriate water.

Arkansas River
Big Blue River
Chapman Creek
Chikaskia River
Cottonwood River
Delaware River
Little Arkansas River
Little Blue River
Marais des Cygnes River
Medicine Lodge River
Mill Creek (Wabaunsee Co. area)
Neosho River
Ninnescah River
North Fork Ninnescah River
Rattlesnake Creek
Republican River
Saline River
Smoky Hill River
Solomon River
South Fork Ninnescah
Spring River
Walnut River
Whitewater River

49.742

Schemm, Doug

From: Tietsort, Katie
Sent: Tuesday, March 7, 2017 10:32 AM
To: Schemm, Doug
Subject: RE: nEMAHA RWD 4

Doug,

Thank you for carefully reviewing the source, extent of the buried glacial channel, and nearby wells related to these applications. Based upon your review, impairment should not occur and these applications should be approved. TFO has no objections.

Thanks, Katie

Katie Tietsort

Kansas Department of Agriculture
6531 SE Forbes Ave Ste B
Topeka, KS 66619
katie.tietsort@ks.gov
Phone 785-296-5733

From: Schemm, Doug
Sent: Monday, March 6, 2017 12:29 PM
To: Tietsort, Katie <Katie.Tietsort@ks.gov>
Subject: nEMAHA RWD 4

Terrane Resources Co.

P.O. Box 173 Stafford, KS 67578 620-234-5200

KANSAS GROUND WATER: STRAIGHT UP FROM THE ROCKS!

03 March, 2017

Mr. Brent Turney, P.G.
Division of Water Resources
Kansas Dept. of Agriculture
1320 Research Park Drive
Manhattan, Kansas 66502

Re: Files #49,742 and #79,743

Dear Mr. Turney,

This letter is written on behalf of Nemaha Co. RWD #4 and to provide information pertaining to the processing of the above files. The data attached is provided to help delineate the area around the proposed applications.

When we met with Doug Schemm to look at the potential safe yield for the area he had concerns as the whether there was glacial drift aquifer present within the entire 2 mile radius circle around the proposed well sites. As a result of a test drilling program to identify well sites and data review for the area it appears the glacial drift aquifer is present for the entire area. It is thinner to the NE of the proposed locations but it is still present.

You will find an aerial map labeled "Nemaha County RWD No. 4 Test Wells". This map shows the locations of the test holes and test wells installed by the district. We have included copies of our field notes and logs from the drilling contractor for the wells.

The next map is labeld "NM RWD Area Wells" and shows an approximately 2.5 mile radius circle drawn around a point centered between the two proposed well sites. This map shows the wells listed in the KGS WWC-5 database and we have provided copies of the well logs for each of the identified well sites. Some are out side of the circle but are included to show the extent of the galacial drift aquifer.

There are a few well sites identified and circled in the northern part of the circle and NE of the circle. These wells are shown in the data submitted from KGS GW Series #2 Bulletin, "Geohydroogy of Nemaha County, Northeastern Kansas".

TERRANE RESOURCES CO.
LITHOLOGIC LOG AND WELL DESIGN

PROJECT: NM RWD #4 DATE: 27 Oct 16 Thurs BORING I.D. TH1-16

Drlg. Cont. Strader Rig Roger + Chris Drlg. Method MR 6" Prj. Geo. Ned Marks Haverkamp Site

TIME OF DAY	DRILLED INTRERVAL	RECOVERY	FORMATION DEPTHS		WELL SCHEMATIC
10:30			0-6	Topsoil + Clay, grey, Fe stain	
			6-16	SAG, vf-vc, w/pebbles, some Clay grey-org more coarse + Clay w/depth	
			16-17	Clay, brn, sandy	
			17-59	Clay, blue-grey, firm, w/some SAG pieces	
			59-83	Clay, grey, soft, w/some 2's boulders	
			83-85	Sand, vf-M, grey, much Ls	
			85-95	Clay, silty, firm w/some pebbles	
			95-147	Silt grey w/some Clay strks, soft, some sand (124-147) more sand w/depth few cuttings	
			147-170	Sand, vf-med, grey, loose, more coarse w/depth	
			170-172	Ls, hard	
			172-174	Shale, red	
13:50					
				Set 2" Screen + Casing w/centralizer	
			149-169	Screen 20' saw cut ≈.040	
			+2.80-149	Casing 151.8'	
14:30			-169	GP Borehole bridged	
15:35	Pulled Casing + Screen			Reamed hole w/ 6" roller bit	
				Reset screen + casing	
			150-170	Screen 20' saw cut ≈.040	
			143-170	GP	
			122-143	Grout 3/8 chip 3 sks Holeplug	
			25-122	Sand	
18:20			0-2.5	Grout 4.5 sks 3/8 chip	
18:45					
18:55	Air on	V. muddy			
19:00	Air off	Standing + clear			
				28 Oct 16 Fri	
07:00	Air on	27 gpm	Muddy + silty		
10:25	Air off	After Sampling	mostly clear		
10:40	SWL	51.28' BTOC		170	
		-2.80 TOC=MP		-48.48	
		48.48' BLS		121.52' ST	
11:00	moved to Millsaps Site				
				31 Oct 16	
	SWL 51.00' BTOC (From Lead)				

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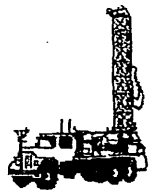
STRADER'S
BLUE VALLEY DRILLING, LLC

Roger Strader
Office: (402) 673-3465

14734 US Hwy 77
Pickrell, NE 68422



Well Contractor's License #39022

WELL COMPLETION

Name Nemaha RWD #4 **Date** October 27, 2016

Address PO Box 160

City/State/Zip Wermore, KS 66550 **Phone** 785-866-2600

#1-16

Location of Water Well — Section — Township — Range

County: Nemaha, KS ____1/4 ____1/4 ____ ____N ____ ☐ E ☐ W

Well is ____ ft. from ☐ north ☐ south section line. ____ ft. from ☐ east ☐ west section line. Ground Elevation ____ ft

Distance and Direction from nearest town (or) street address (or) Block, Lot and Addition: ____

Well use Piezometer #1-16 ☒ New ☐ Replacement Distance to Old Well ____ ft

Old Well Last Used ____ Old Well Abandoned ☐ Yes ☐ No (Date ____)

GPS: ____

Depth of completed well 170 ft.

Method drilled Straight rotary

Bore hole diameter 6 in.

Static water level 51 ft.

Yield / Pumping Water Level

____ gpm at ____ ft. lift

____ gpm at ____ ft. lift

____ gpm at ____ ft. lift

Hrs. Development 3

Method Air

Blank Casing: Material PVC

Grade 200# ID 2

OD ____ Thickness ____

0 to 150 & ____ to ____

Screen: Material ____

Grade ____ ID ____

OD ____ Thickness ____

150 to 170 & ____ to ____

Slot Size .040 Type Saw slot

Trade Name ____

Joints: ☐ Welded ☐ Glued ☒ Threaded

Casing Guides ____

Bottom Cap: 2" PVC

Gravel Pack and Grout Intervals

____ to ____ with ____

____ to ____ with ____

____ to ____ with ____

____ to ____ with ____

____ to ____ with ____

____ to ____ with ____

____ to ____ with ____

____ to ____ with ____

____ to ____ with ____

DEPTH IN FEET FROM	TO	FORMATION
0	6	Clay - brown, yellow
6	15	Sand - fine to medium brown
15	16	Sand - coarse brown
16	17	Clay - brown
17	59	Clay - gray
59	83	Clay - softer gray
83	85	Sand - fine to medium gray
85	95	Clay - gray
95	124	Silt - gray
124	147	Sand/silt - very fine
147	163	Sand - fine gray
163	170	Sand - fine to coarse gray
170	172	Limestone - white
172	174	Shale - red

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Disinfection: ☐ Yes ☐ No Was a chemical / bacteriological analysis obtained? ☐ Yes ☐ No (Date ____)

Pump: Installed ☐ Yes ☐ No Recommended pump setting ____ ft. Recommended pumping rate ____ GPM

Pump Installer ____

Remarks ____

TERRANE RESOURCES CO.
LITHOLOGIC LOG AND WELL DESIGN

PROJECT: NMRWD #4 DATE: 28 Oct 16 (Fri) BORING I.D. TH2-16

Drlg. Cont. Strader Drlg Drlg. Method MR 6" Prj. Geo. Ned Mercks

Milligan Site 142'N + 375' W of SE Corn, NW¼

TIME OF DAY	DRILLED INTRERVAL	RECOVERY	FORMATION DEPTHS		WELL SCHEMATIC
13:00			0-2	Topsoil black	
			2-4	Silt, drk brn	
			4-6	Clay, grey	
			6-14	Clay, brn	
			14-17	Clay, grey w/ Fe Stain	
			17-18	Sand, grey, vf-med	
			18-20	Clay, blue-grey	
			20-30	Silt, brn, very soft w/some brn clay	
			30-36	Sand, vf-vc, pebbles, grey-blue, Loose, some clay	
			36-41	Clay, blue-grey, firm, w/some pebbles	
			41-54	Clay, SAA, w/Stks of Sand, vf-vc many pebbles, compacted	
			54-86	Clay, blue-grey, w/ Sand Stks vf-med - coarse, many boulders	
			86-95	Silt, grey some vf Sand w/ pebbles	
			95-135	Sand, vf-fine, some med, silty	
			135-154	Sand, vf-med, grey-lt grey	
			154-165	Shale	
			Pulled	Drill string + hole Sloughed to 38'	
	Plans are to set		surface	Casing tomorrow + flush out hole	
				5.5' SWL in borehole	
18:30	Dept loc + ret model				
				29 Oct 16 Sat	
10:30	Crew arrived + set		40 of Surface Casing	8" Casing SWL 2.0' BLS	
12:15	Cleaning out borehole				
14:45			TD 165'		
				Set 2" Screen + Casing	
			154-157	grout 15 sks 3/8 chips	
15:15			133.5-153.5	Screen 20' Saw cut = 0.040 Slot	
15:30			95-153.5	GP	
			39-95	Grout 9.5 sks 3/8 Chips Hole plug	
16:00			Pulled 8" Surface		
			24-39	½ Grout + ½ gravel pack 24 bks grout Very Large Void	
			0-24	Grout 3/8 chips 14 sks?	
16:40					
17:25	Began air lifting		27 gpm	Mud Sand	
18:25	Refueled, less Sand		but increase on Startup		
14:25	SAA				
20:25	Sampled	MP=TOC=3.00'	SWL 32.00' BTOC		

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31 Oct 16 26.20' SWL BTOC from LEO

SWL 26.20 − 2.00 = 24.20 BLS

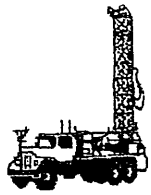
154 − 24.20 = 129.80' ST

SCANNED

STRADER'S
BLUE VALLEY DRILLING, LLC

Roger Strader
Office: (402) 673-3465

14734 US Hwy 77
Pickrell, NE 68422



WELL COMPLETION

Well Contractor's License #39022

Name Nemaha RWD #4 Date October 29, 2016

Address PO Box 160

City/State/Zip Wetmore, KS 66550 Phone 785-866-2600

#2-16

Location of Water Well: Section Township Range

County: Nemaha, KS ____1/4 ____1/4 ____ ____N ____ ☐ E ☐ W

Well is ____ ft. from ☐ north ☐ south section line. ____ ft. from ☐ east ☐ west section line. Ground Elevation ____ ft

Distance and Direction from nearest town (or) street address (or) Block, Lot and Addition: ____

Well use Piezometer #2-16 ☒ New ☐ Replacement Distance to Old Well ____ ft

Old Well Last Used ____ Old Well Abandoned ☐ Yes ☐ No (Date ____

GPS: ____

Depth of completed well 153 ft.
Method drilled Straight rotary
Bore hole diameter 6 in.
Static water level ____ ft.

Yield / Pumping Water Level

____ gpm at ____ ft. lift
____ gpm at ____ ft. lift
____ gpm at ____ ft. lift

Hrs. Development ____
Method ____

Blank Casing: Material PVC
Grade ____ ID 2
OD ____ Thickness ____
0 to 133 & ____ to ____

Screen: Material ____
Grade ____ ID 2
OD ____ Thickness ____
133 to 153 & ____ to ____
Slot Size .040 Type Saw slot
Trade Name ____
Joints: ☐ Welded ☐ Glued ☒ Threaded
Casing Guides ____
Bottom Cap: 2" PVC

Gravel Pack and Grout Intervals

____ to ____ with ____
____ to ____ with ____
____ to ____ with ____
____ to ____ with ____
____ to ____ with ____
____ to ____ with ____
____ to ____ with ____
____ to ____ with ____
____ to ____ with ____

DEPTH IN FEET FROM	TO	FORMATION
0	3	Top soil
3	14	Clay - brown - yellow
14	17	Clay - gray
17	18	Sand - fine gray
18	30	Clay - silty brown
30	36	Sand - fine to coarse gray
		(static water level 2')
36	52	Clay - gray
52	54	Sand - fine to medium gray
54	57	Clay - gray
57	58	Sand - fine gray
58	86	Clay - gray
86	95	Silt - gray
95	154	Sand - fine gray
154	165	Shale

Disinfection: ☐ Yes ☐ No Was a chemical / bacteriological analysis obtained? ☐ Yes ☐ No (Date ____)

Pump: Installed ☐ Yes ☐ No Recommended pump setting ____ ft. Recommended pumping rate ____ GPM

Pump Installer ____

Remarks ____

TERRANE RESOURCES CO.
LITHOLOGIC LOG AND WELL DESIGN

(Page 1)

PROJECT: NMRWD #4 **DATE:** 28 Nov 16 (Monday) **BORING I.D.** TW3-16

Drlg. Cont. Strader Drlg, Roger + Chris **Drlg. Method** MR 6" (TH) **Prj. Geo.** Neb Markel

≈20' E of TH2-16

TIME OF DAY	DRILLED INTRERVAL	RECOVERY	FORMATION DEPTHS		WELL SCHEMATIC
11:00	Crew on loc + digging pits + Rigging up				
			0-5	T.S, black silty	
			5-32	Clay, gray-brn	
			32-37	S+G, vf-vc w/boulders	
				reamed to 14" to set Surface.	
				To many boulders, lost hole	
16:10		Pulled drill string			
			0-36	Open hole	
			33-36	1/2 yd gravel pack	
			20-33	1/2 grout + gravel pack	
			0-20	grout 3/8 chips 20 sks?	
				29 Nov Tues	
	moved ≈30 E				
10:30	Rigged up		+ began drilling 6" test hole		
				Lost hole due to boulders	
				30 Nov Wed	
			0-25	Grout 3/8 chips	
	moved location 242' E of TH2-16 + rigged up				
15:00			0-3.5	T.S. Black, silty + Loamy	
			3.5-8.0	Clay, brn	
			8.0-17.0	Clay, Tan, w/Fe stain	
			17-18	Sand, vf-vc, gray loose	
			18-27	Clay, blue-gray-brn w/ depth	
			27-33	S+G vf-vc, gray, loose, some pebbles	
			33-40	Clay, gray-brn, firm	
			40-45	Clay, gray-brn, w/some vari-colored S+G strks	
			45-52	Silt, soft, w/some vf-sand, gray	
			52-60	Clay, firm, w/interbedded S+G strks gray, silty	
			60-80	Clay, gray, firm, w/some S+G + Ls pebbles	
16:30				interbedded 67-68' hard layer	
			80-100	Silt, soft, w/some vf sand + Clay strks	
			100-105	Sand, vf-med, gray	
			105-119	Silt, soft w/some vf sand, gray	
			119-126	Sand, vf-f, gray, loose	
			126-131	Silt, soft, sandy, gray	
			131-153	Sand vf-med, loose, gray some silt	
			153-156	Clay, gray	

TERRANE RESOURCES CO.
LITHOLOGIC LOG AND WELL DESIGN

(Page 2)

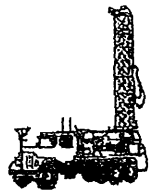
PROJECT: NMRWD #4 **DATE:** 30 Nov 16 (Wed) **BORING I.D.** TW3-16

Drlg. Cont. Stryder Drlg Roger + Chris **Drlg. Method** MR 6"→11" 242' E of TH2-16 **Prj. Geo.** Ned Mavki

TIME OF DAY	DRILLED INTREVAL	RECOVERY	FORMATION DEPTHS		WELL SCHEMATIC
				Cont from Page #1	
			156-158	SAG, vf-vc, LS, w/some pebbles	
			158-160	Clay-shale firm	
			160-166	Shale, gray firm	
18:10	Shut down for the day plan to ream out to 11" tomorrow				
				01 Dec 16 Thurs	
	Crew on loc + reamed borehole out to 11"				
				Set 5" screen + casing + centralizers	
16:55			134-154	Screen, 20' 0.032 slot	
			+2' - 134	Casing	
				Circ w/fresh water	
			120-155	Gravel Pack 10-20 Best Sand 23 sks (50#) + 2 sks 12-20	
			108-120	grout 3/8 chips 5 sks	
			94-108	grout " " 7 sks	
			40-90	fill sand	
			2-40	grout 3/8 chips 33 sks	
19:00 hrs	Discussed development plans				
19:30	Dept loc			02-Dec 16 Fri	
	Crew on loc Cut casing to 2.0' AGL				
	SWL 32.30' BTC before bailing				
11:15	Began bailing muddy + silty, much sand			Carol + Leo on loc	
13:30	trace of sand finished bailing			Carol + Leo off loc	
14:00	Ran pump to finish Development				
17:25	Well developed to max production of 95.8 gpm mostly clear				

Roger Strader
Office: (402) 673-3465

STRADER'S
BLUE VALLEY DRILLING, LLC
14734 US Hwy 77
Pickrell, NE 68422



WELL COMPLETION

Well Contractor's License #39022

Name Nemaha County Rural Water District #4 Date December 1, 2016

Address PO Box 160

City/State/Zip Wetmore, KS 66550 Phone 785-866-2600

#3-16

Location of Water Well Section Township Range

County: Nemaha, KS ____1/4 ____1/4 ____ ____N ____ ☐ E ☐ W

Well is ____ ft. from ☐ north ☐ south section line. ____ ft. from ☐ east ☐ west section line. Ground Elevation ____ ft.

Distance and Direction from nearest town (or) street address (or) Block, Lot and Addition: ____

Well use Test well #3-16 ☒ New ☐ Replacement Distance to Old Well ____ ft.

Old Well Last Used ____ Old Well Abandoned ☐ Yes ☐ No (Date ____)

GPS: ____

Depth of completed well 154 ft.

Method drilled Straight rotary

Bore hole diameter 11 in.

Static water level ____ ft.

Yield / Pumping Water Level

____ gpm at ____ ft. lift

____ gpm at ____ ft. lift

____ gpm at ____ ft. lift

Hrs. Development ____

Method ____

Blank Casing: Material PVC

Grade 200# ID 5.03

OD 5.56 Thickness .265

0 to 134 & ____ to ____

Screen: Material PVC

Grade 200# ID 5.03

OD 5.56 Thickness .265

134 to 154 & ____ to ____

Slot Size .032 Type Saw slot

Trade Name ____

Joints: ☐ Welded ☐ Glued ☒ Threaded

Casing Guides per Ned

Bottom Cap: 5" PVC

Gravel Pack and Grout Intervals

____ to ____ with per Ned

____ to ____ with ____

____ to ____ with ____

____ to ____ with ____

____ to ____ with ____

____ to ____ with ____

____ to ____ with ____

____ to ____ with ____

DEPTH IN FEET FROM	TO	FORMATION
0	3	Top soil
3	17	Clay - brown
17	18	Sand - fine brown
18	27	Clay - gray
27	33	Sand - fine gray
33	43	Clay - gray
43	45	Clay - gray streaks fine gray sand
45	52	Silt - gray
52	90	Clay - gray
90	119	Silt - gray
119	126	Sand - fine gray
126	131	Silt - gray
131	153	Sand - fine gray
153	156	Clay - gray
156	158	Sand - native limestone
158		Shale - gray

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Disinfection: ☒ Yes ☐ No Was a chemical / bacteriological analysis obtained? ☐ Yes ☐ No (Date ____)

Pump: Installed ☐ Yes ☒ No Recommended pump setting ____ ft. Recommended pumping rate ____ GPM

Pump Installer ____

SCANNED

Remarks ____

TERRANE RESOURCES CO.
LITHOLOGIC LOG AND WELL DESIGN

PROJECT: NM RWD #4 DATE: 05 Dec 16 BORING I.D. TH4-16

Drlg. Cont. Strader Drlg Drlg. Method MR 6" Prj. Geo. Ned Mann
Roger + Chris ~1450' WNW of TW3-16

TIME OF DAY	DRILLED INTRERVAL	RECOVERY	FORMATION DEPTHS		WELL SCHEMATIC
11:30			0-5	Top Soil, Loamy	
			5-12	Clay, brn, sandy	
			12-24	Clay, grey, Fe stain	
			24-53	Clay, blue-grey, firm, w/thin Stg strks w/pebbles + hard layers	
				Boulders @ 39 + 42'	
			53-55	Clay, sandy w/ vf grey sand	
			55-92	Clay, blue-grey, firm, w/ Stg strks + pebbles	
			92-115	Silt, grey, soft	
			115-135	Sand, vf-med, w/much silt + some clay, grey, soft	
			135-152	Sand, vf-med, some clay, grey w/white specks, some silt + clay loose	
			152-153	Silt, soft	
			153-158	Sand, vf-vc, loose, grey, taking water Ls + quartz pieces	
14:10			158-164	Shale, grey	
14:50					
				Ran 2" screen + Casing	
			138-158	Screen 20' SawCut ≈0.040	
			+2.25-138	Casing	
15:40			132-158	Gpack sand	
16:05			109-132	Grout 3/8 chip 5 sks	
16:15			76-109	Grout sand blend 50/50 6 sks grout	
16:27			2-76	Grout 3/8 chips 6.5 sks may have bridged	
16:37					
17:17	Air on	V. muddy 40gpm			
17:29	Air off	starting to clear		40 gpm	
				06-Dec 16 Tues	
09:05	Began Airlifting				
12:52	Sampled			SWL 33.00 BTOC	
				- 2.25 = TOC = MP	
				30.75' BLS	

RECEIVED
WATER RESOURCES
MAR 10 2017
KS DEPT OF AGRICULTURE

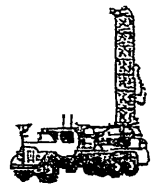
SCANNED

Roger Strader
Office: (402) 673-3465

STRADER'S
BLUE VALLEY DRILLING, LLC

14734 US Hwy 77
Pickrell, NE 68422

WELL COMPLETION



Well Contractor's License #39022

Name Nemaha County Rural Water District #4 Date December 5, 2016

Address PO Box 160

City/State/Zip Wetmore, KS 66550 Phone 785-866-2600

#4-16
Location of Water Well Section Township Range
County: Nemaha, KS ____1/4 ____1/4 ____ ____N ____ ☐ E ☐ W
Well is ____ ft. from ☐ north ☐ south section line. ____ ft. from ☐ east ☐ west section line. Ground Elevation ____ ft.
Distance and Direction from nearest town (or) street address (or) Block, Lot and Addition: ____

Well use #4-16 Piezometer ☒ New ☐ Replacement Distance to Old Well ____ ft.
Old Well Last Used ____ Old Well Abandoned ☐ Yes ☐ No (Date ____)
GPS: ____

Depth of completed well 158 ft.
Method drilled Straight rotary
Bore hole diameter 6 in.
Static water level ____ ft.
Yield / Pumping Water Level
____ gpm at ____ ft. lift
____ gpm at ____ ft. lift
____ gpm at ____ ft. lift
Hrs. Development ____
Method Air
Blank Casing: Material 2" PVC
Grade ____ ID ____
OD ____ Thickness ____
0 to 138 & ____ to ____
Screen: Material 2" PVC
Grade ____ ID ____
OD ____ Thickness ____
138 to 158 & ____ to ____
Slot Size ____ Type ____
Trade Name ____
Joints: ☐ Welded ☐ Glued ☒ Threaded
Casing Guides per Ned
Bottom Cap: 2" PVC
Gravel Pack and Grout Intervals
____ to ____ with per Ned
____ to ____ with ____
____ to ____ with ____
____ to ____ with ____
____ to ____ with ____
____ to ____ with ____
____ to ____ with ____
____ to ____ with ____

DEPTH IN FEET FROM	TO	FORMATION
0	5	Top soil
5	24	Clay - brown, yellow, gray
24	53	Clay - gray
53	55	Clay - sandy gray
55	92	Clay - gray
92	135	Silt - gray
135	152	Sand - fine gray
152	153	Silt - gray
153	158	Sand - medium to coarse gray
158		Shale - gray

WATER RESOURCES RECEIVED
MAR 10 2017
KS DEPT OF AGRICULTURE

Disinfection: ☒ Yes ☐ No Was a chemical / bacteriological analysis obtained? ☐ Yes ☐ No (Date ____)
Pump: Installed ☐ Yes ☐ No Recommended pump setting ____ ft. Recommended pumping rate ____ GPM
Pump Installer ____

Remarks ____

SCANNED

TERRANE RESOURCES CO.
LITHOLOGIC LOG AND WELL DESIGN

PROJECT: NMRWD #4 DATE: 20 Dec 16 Tues BORING I.D. TH 5-16

Drlg. Cont. Strader Drlg Drlg. Method MR 6" Prj. Geo.
Roger + Chris 32.5 NE of TH 4-16

TIME OF DAY	DRILLED INTRERVAL	RECOVERY	FORMATION DEPTHS	Snow covered ground	WELL SCHEMATIC
11:00	ON loc + Rigging up			Steve H + Ron H on loc	
12:50			0-5	Top soil, Loamy	
			5-12	Sand, Clayey, brn	
			12-24	Clay, grey, w/Fe stain	
			24-38	Clay, Sandy, blue-grey firm w/ Strks of Stg + pebbles	
			38-42	Stg, vf-vc, w/pebbles	
			42-94	Clay, blue-grey, w/ Stg Strks pebbles, firm	
				Boulders @ 72', 81', 89-90'	
			94-137	Silt, grey, soft, some boulders	
			137-143	Sand, vf-med, grey, w/white Ls pieces firm	
			143-155	Silt, w/much vf Sand + some Clay	
			155-159	Sand, vf-med, grey w/ Ls pieces w/pebbles	
			159-	Shale, grey	
15:47				Pulled Drill string	
				Lost Sand interval in bottom Plugged	
16:30					
			102-139	Gravel Pack	
16:57			86-102	Grout 3/8 chips 3 sks	
17:18			62-86	Sand	
			53-62	Grout 3/8 chips 3 sks	
			41-53	Gravel Pack	
			20-41	Grout 3/8 chips 9 sks	
17:40					

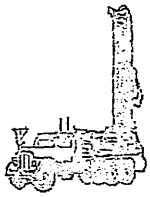
WATER RESOURCES
RECEIVED
MAR 10 2017
KS DEPT OF AGRICULTURE

SCANNED

Roger Strader
Office: (402) 673-3465

STRADER'S
BLUE VALLEY DRILLING, LLC
14734 US Hwy 77
Pickrell, NE 68422

WELL LOG



Well Contractor's License #39022

Name Nemaha County RWD #4 Date December 21, 2016

Address PO Box 160

City/State/Zip Wetmore, KS 66550 Phone 785-866-2600

Location of Water Well
County: _____ ____1/4 ____1/4 Section ____ Township ____N Range ____

DEPTH FROM	IN FEET TO	FORMATION	TIME	PIT LEVEL
		Test hole #5-16		
0	3	Top soil		
3	8	Clay - brown & yellow		
8	13	Sand - fine to coarse brown		
13	17	Clay - brown		
17	20	Clay - gray & brown		
20	38	Clay - gray		
38	42	Sand - fine to coarse gray		
42	94	Clay - gray		
94	137	Silt - gray		
137	143	Sand - fine gray		
143	155	Silt - sandy gray		
155	159	Sand - fine to medium gray		
159	161	Shale - gray		

TERRANE RESOURCES CO.
LITHOLOGIC LOG AND WELL DESIGN

PROJECT: NMRWD #4 DATE: 21Dec16 Wed BORING I.D. TW 6-16

Drlg. Cont. Strader Drlg Drlg. Method MR 6"-11" Prj. Geo. Ned Mirsky
Roger + Chris SW of TH 4-16

TIME OF DAY	DRILLED INTRERVAL	RECOVERY	FORMATION DEPTHS	33.0' SW of TH 4-16	WELL SCHEMATIC
10:20	Crew on log + rig up				
11:30			0-4	TS, Lozmy silt	
			4-8	Clzy, brn, much silt Fe Stain	
			8-14	Silt, brn, clayey	
			14-24	Clzy, brn-grzy, firm, Fe Stain	
				More yell-grzy w/depth Fe Stain	
				Firm	
			24-28	Clzy, grzy-brn, mix, firm	
			28-59	Clzy, grzy, firm, Boulders 32', 35-37	
			59-61	Sand, Vf w/some coarse grzy	
			61-71	Clzy, grzy, firm w/some S+G	
			71-82	Clzy, grzy, firm w/some S+G Strks Boulders @ 74' 79-82'	
			82-90	Clzy SAA, Boulders @ 88-89'	
			90-92	Clzy, green-grzy, firm	
			92-134	Silt grzy, soft, w/some Vf sand + some thin Clzy strks	
			134-138	Silt grzy, sandy	
			138-152	Sand, Vf-med, grzy	
			152-157.5	Sand Vf-med grzy w/white Ls pieces + some VC	
			157.5-167	Shale, grzy, firm Ls Str 155'	
14:51					
15:05				Began Reaming to 11"	
				Stopped @ 8' for the day	
				22 Dec 16 Thurs	
10:45	Reaming				
16:00				Rzn Screen + Casing 5" + Centralizers	
			138-158	Screen, 20' 0.032 slot	
			+1.70-138	Casing	
16:40			134-160	Gravel Pack Sand 10-20	
17:05			124-134	Grout 3/8 chips 5 sks	
17:20			89-124	GP Sand	
17:35			51-89	Grout 3/8 chips 5 sks.	
18:10			27-51	Gravel Pack	
18:22			6-27	Grout 3/8 chips	

TERRANE RESOURCES CO.
LITHOLOGIC LOG AND WELL DESIGN

Page 2

PROJECT: NM RWD #4 DATE: 23 Dec 16 Fri BORING I.D. TW 6-16

Drlg. Cont. Strader Drlg Drlg. Method Prj. Geo.
Roger + Chris

TIME OF DAY	DRILLED INTRERVAL	RECOVERY	FORMATION DEPTHS		WELL SCHEMATIC
10:45	Crew pumping off pit + Rigging up to bail				
	Shortly Called Roger on the way down + He will				
	Not be able to set pump today				
11:10	Began Bailing	Bails			
		1-5	Very Muddy + Silty		
		5-10	less mud + silt starting to thin		
		10-20	Water coming out chard of bailer		
			trace of Sand		
			Starting to make gravel		
			Set 4" PVC to 169', inside Screen BTOC		
		20-30	trace Sand standing to clear		
		Discussed setting pump w/ Roger			
		Plan to set it next week			
15:30	SWL	30.75' BTOC			
		-1.70 TOC = MP			
		29.05' BLS			

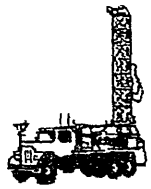
WATER RESOURCES
RECEIVED
MAR 10 2017
KS DEPT OF AGRICULTURE

SCANNED

STRADER'S
BLUE VALLEY DRILLING, LLC

Roger Strader
Office: (402) 673-3465

14734 US Hwy 77
Pickrell, NE 68422



Well Contractor's License #39022

WELL COMPLETION

Name Nemaha County RWD #4 Date December 22, 2016

Address PO Box 160

City/State/Zip Wetmore, KS 66550 Phone 785-866-2600

Location of Water Well: County: Nemaha, KS ____1/4 ____1/4 Section ____ Township ____N Range ____ ☐ E ☐ W

Well is ____ft. from ☐ north ☐ south section line. ____ft. from ☐ east ☐ west section line. Ground Elevation ____ft.

Distance and Direction from nearest town (or) street address (or) Block, Lot and Addition: ____

Well use 5" test well 6-16 ☒ New ☐ Replacement Distance to Old Well ____ft.

Old Well Last Used ____ Old Well Abandoned ☐ Yes ☐ No (Date ____)

GPS: ____

Depth of completed well 159 ft.

Method drilled Straight rotary

Bore hole diameter 11 in.

Static water level ____ ft.

Yield / Pumping Water Level

____ gpm at ____ ft. lift

____ gpm at ____ ft. lift

____ gpm at ____ ft. lift

Hrs. Development 2

Method Bailer

Blank Casing: Material PVC

Grade 200# ID 5.02

OD ____ Thickness ____

0 to 139 & ____ to ____

Screen: Material PVC

Grade 200# ID 5.02

OD ____ Thickness ____

139 to 159 & ____ to ____

Slot Size .032 Type Saw slot

Trade Name ____

Joints: ☐ Welded ☐ Glued ☒ Threaded

Casing Guides Per Ned

Bottom Cap: 5" PVC

Gravel Pack and Grout Intervals

____ to ____ with Per Ned

____ to ____ with ____

____ to ____ with ____

____ to ____ with ____

____ to ____ with ____

____ to ____ with ____

____ to ____ with ____

____ to ____ with ____

DEPTH IN FEET FROM	TO	FORMATION
0	8	Clay - brown
8	14	Silt - brown
14	24	Clay - brown & yellow
24	28	Clay - gray & brown
28	59	Clay - gray
59	61	Sand - fine gray
61	90	Clay - gray
90	91	Clay - green
91	92	Clay - gray
92	134	Silt - gray
134	138	Silt - sandy gray
138	152	Sand - fine gray
152	157.5	Sand - fine to medium gray
157.5	159	Shale - gray

WATER RESOURCES RECEIVED
MAR 10 2017
KS DEPT OF AGRICULTURE

Disinfection: ☒ Yes ☐ No Was a chemical / bacteriological analysis obtained? ☐ Yes ☐ No (Date ____)

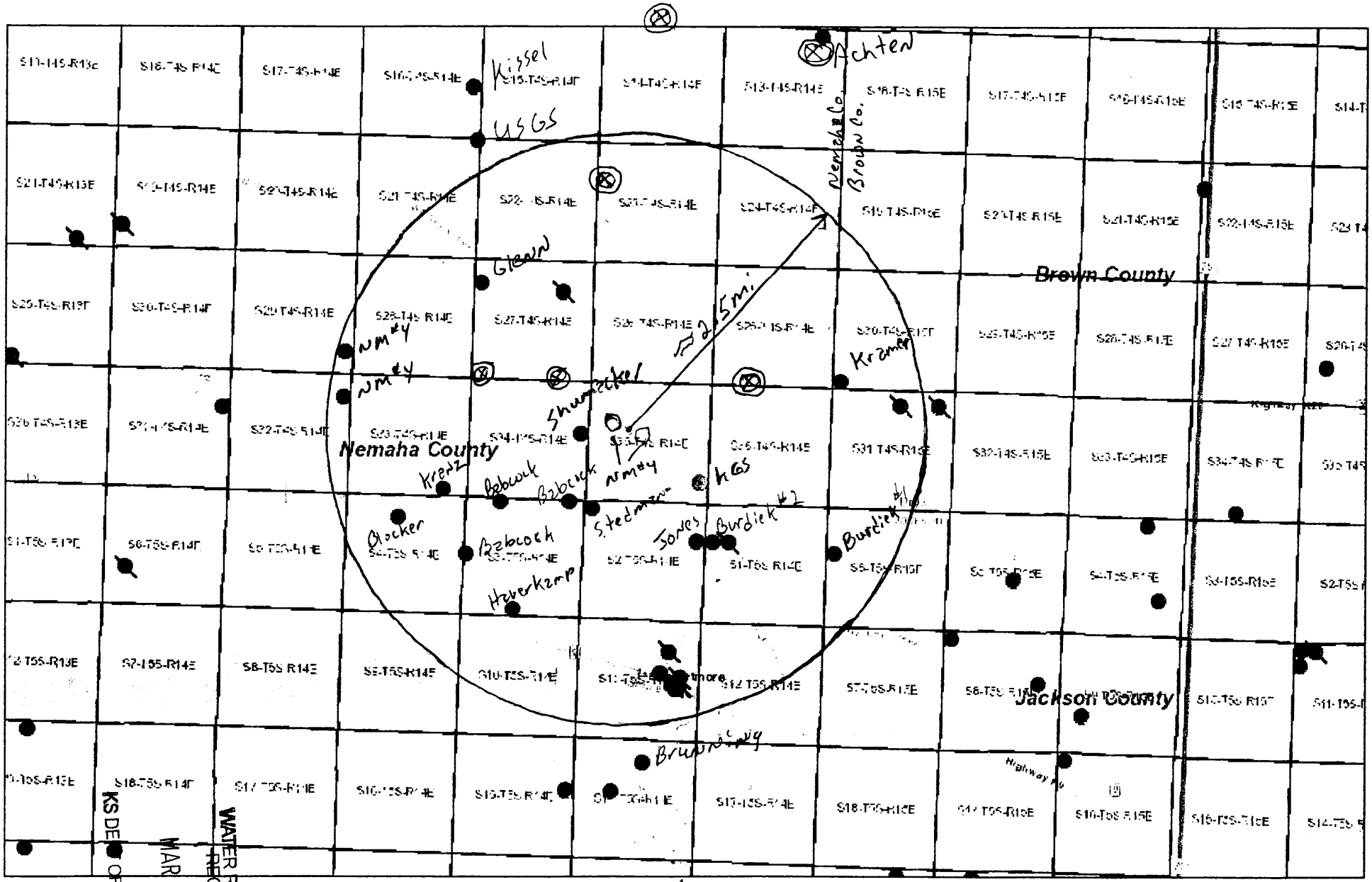
Pump: Installed ☐ Yes ☐ No Recommended pump setting ____ft. Recommended pumping rate ____GPM

Pump Installer ____

Remarks ____

SCANNED

NM RWD #4 Area Wells



February 13, 17

Well data from KGS GWA2 Plate 3

1:72,224

0 0.5 1 2 mi

0 1 2 4 km

Sources: Esri, HERE, DeLorme, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand),

Kansas Geological Survey
http://maps.kgs.ku.edu/wwc5

CORRECTION(S) TO WATER WELL RECORD (WWC-5)
(to rectify lacking or incorrect information)

County: Nemaha

Location listed as:	**Location changed to:**
Section-Township-Range: None Given	13 - 4S - 14E
Fraction (¼ ¼ ¼):	NW NE NE

Other changes: Initial statements: _____

Changed to: _____

Comments: _____

verification method: Latitude & longitude, conversion tool on KGS website, and Wetmore 1:24,000 topo. map.

initials: DRL date: 2/16/2006

submitted by: Kansas Geological Survey, Data Resources Library, 1930 Constant Ave., Lawrence, KS 66047-3726
to: Kansas Dept of Health & Environment, Bureau of Water, 1000 SW Jackson, Suite 420, Topeka, KS 66612-1367.

Achten

Achter

WATER WELL RECORD **Form WWC-5** Division of Water Resources; App. No.

1 LOCATION OF WATER WELL: County: Nemaha	Fraction: ¼ ¼ ¼	Section Number	Township Number T S	Range Number R (E)/W

Distance and direction from nearest town or city street address of well if located within city?

Global Positioning Systems (decimal degrees, min. of 4 digits)
Latitude: N 39° 42' 34.8"
Longitude: W 95° 47' 33.7"
Elevation:
Datum:
Data Collection Method:

2 WATER WELL OWNER: George Achter
RR#, St. Address, Box # : 2480 804th Rd.
City, State, ZIP Code : Whetmore, KS 66550

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:

N / W / E / S; NW, NE, SW, SE

4 DEPTH OF COMPLETED WELL 60 ft.

Depth(s) Groundwater Encountered (1) 42 ft. (2) 47 ft. (3) ..... ft.
WELL'S STATIC WATER LEVEL 38.5 ft. below land surface measured on mo/day/yr. 1-6-06
Pump test data: Well water was ..... ft. after ..... hours pumping ..... gpm
Est. Yield 10 gpm: Well water was ..... ft. after ..... hours pumping ..... gpm

WELL WATER TO BE USED AS: 1 Domestic 2 Irrigation 3 Feedlot 4 Industrial 5 Public water supply 6 Oil field water supply 7 Domestic (lawn & garden) 8 Air conditioning 9 Dewatering 10 Monitoring well 11 Injection well 12 Other (Specify below) pasture

Was a chemical/bacteriological sample submitted to Department? Yes ..... No X ; If yes, mo/day/yrs Sample was submitted ..... Water well disinfected? Yes X No .....

5 TYPE OF CASING USED: 1 Steel (2 PVC) 3 RMP (SR) 4 ABS 5 Wrought Iron 6 Asbestos-Cement 7 Fiberglass 8 Concrete tile 9 Other (specify below)

CASING JOINTS: Glued X Clamped ..... Welded ..... Threaded .....

Blank casing diameter 5 in. to 40 ft., Diameter ..... in. to ..... ft., Diameter ..... in. to ..... ft.
Casing height above land surface 4.8 in., Weight 2.65 lbs./ft. Wall thickness or guage No. SDR 21

TYPE OF SCREEN OR PERFORATION MATERIAL:
1 Steel 2 Brass 3 Stainless Steel 4 Galvanized Steal 5 Fiberglass 6 Concrete tile (7 PVC) 8 RM (SR) 9 ABS 10 Asbestos-Cement 11 Other (Specify) ..... 12 None used (open hole)

SCREEN OR PERFORATION OPENINGS ARE:
1 Continuous slot 2 Louvered shutter 3 Mill slot 4 Key punched 5 Guazed wrapped 6 Wire wrapped 7 Torch cut (8 Saw Cut) 9 Drilled holes 10 Other (specify) ..... 11 None (open hole)

SCREEN-PERFORATED INTERVALS: From 40 ft. to 60 ft., From ..... ft. to ..... ft.
From ..... ft. to ..... ft., From ..... ft. to ..... ft.

GRAVEL PACK INTERVALS: From 21 ft. to 60 ft., From ..... ft. to ..... ft.
From ..... ft. to ..... ft., From ..... ft. to ..... ft.

KANSAS DEPARTMENT OF AGRICULTURE
RECEIVED
MAR 10 2017
WATER RESOURCES

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout (3 Bentonite) 4 Other .....
Grout Intervals: From 0 ft. to 21 ft., From ..... ft. to ..... ft., From ..... ft. to ..... ft.

What is the nearest source of possible contamination:
1 Septic tank 2 Sewer lines 3 Watertight sewer lines 4 Lateral lines 5 Cess pool 6 Seepage pit 7 Pit privy 8 Sewage lagoon 9 Feedyard 10 Livestock pens 11 Fuel storage 12 Fertilizer Storage (13 Insecticide Storage) (14 Abandoned water well) 15 Oil well/gas well 16 Other (specify below) .....
Direction from well? East How many feet? 15

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	3	No sample	34	35	shale - dk red
3	10	Sandy clay - Brn	35	38	limestone - lt. Brn
10	19	clay - lt. Brn	38	40	shale - lt. gray
19	21	Sandy gravel - Brn	40	41	shale - red
21	22	shale - Brn	41	42	shale - lt. gray
22	24	limestone - lt. Brn	42	46	limestone - Brn
24	26	shale - lt. Brn	46	47	Shale - yellow brn.
26	31	shale - lt. gray	47	52	limestone - Brn
31	31.5	limestone - lt. gray	52	53	shale
31.5	34	shale - lt. gray	53	60	shale - Black

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 1-6-06 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 308 This Water Well Record was completed on (mo/day/year) 1-10-06 under the business name of Bischick Drilling Co. by (signature) [signature]

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of $5.00 for each constructed well. Visit us at http://www.kdhe.state.ks.us/geo/waterwells.

KSA 82a-1212

SCANNED

CORRECTION(S) TO WATER WELL RECORD (WWC-5)
(to rectify lacking or incorrect information)

County: Nemaha

Location listed as:	**Location changed to:**
Section-Township-Range: 16-4S-14E	16-4S-14E
Fraction (¼ ¼ ¼): SE NW SE	NE NE SE

Other changes: Initial statements: _____

Changed to: _____

Comments: _____

verification method: Written & legal descriptions, and aerial photo showing building locations.

initials: DRL date: 2/4/2005

submitted by: Kansas Geological Survey, Data Resources Library, 1930 Constant Ave., Lawrence, KS 66047-3726
to: Kansas Dept of Health & Environment, Bureau of Water, 1000 SW Jackson, Suite 420, Topeka, KS 66612-1367.

1955e1

Kissel

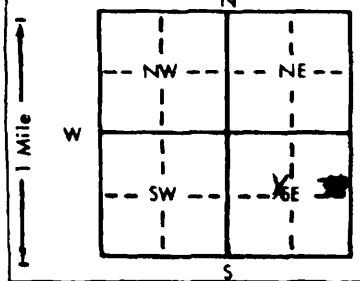
WATER WELL RECORD Form WWC-5 KSA 82a-1212

1 LOCATION OF WATER WELL:	Fraction	Section Number	Township Number	Range Number
County: Nemaha	SE ¼ NW ¼ SE ¼	16	T 4 (S)	R 14 (E) W

Distance and direction from nearest town or city street address of well if located within city? 1½ W 4½ N of Wetmore

2 WATER WELL OWNER: John Kissel
RR#, St. Address, Box # : RFD
City, State, ZIP Code : Wetmore 66550
Board of Agriculture, Division of Water Resources Application Number:

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:



4 DEPTH OF COMPLETED WELL 190 ft. ELEVATION:
Depth(s) Groundwater Encountered 1. 87 ft. 2. ft. 3. ft.
WELL'S STATIC WATER LEVEL 68 ft. below land surface measured on mo/day/yr 5-3-84
Pump test data: Well water was ft. after hours pumping gpm
Est. Yield 9 gpm: Well water was ft. after hours pumping gpm
Bore Hole Diameter 12 in. to ft., and in. to ft.
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Lawn and garden only 10 Observation well
Was a chemical/bacteriological sample submitted to Department? Yes No; If yes, mo/day/yr sample was submitted
Water Well Disinfected? Yes No

5 TYPE OF BLANK CASING USED: 5 Wrought iron 8 Concrete tile CASING JOINTS: Glued ✓ Clamped
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded
2 PVC 4 ABS 7 Fiberglass Threaded
Blank casing diameter 5 in. to 0-80 ft., Dia 5 in. to 90-175 ft., Dia 5 in. to 185-190 ft.
Casing height above land surface 24 in., weight 2.82 lbs./ft. Wall thickness or gauge No. .250
TYPE OF SCREEN OR PERFORATION MATERIAL: 7 PVC 10 Asbestos-cement
1 Steel 3 Stainless steel 5 Fiberglass 8 RMP (SR) 11 Other (specify)
2 Brass 4 Galvanized steel 6 Concrete tile 9 ABS 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE: 5 Gauzed wrapped 8 Saw cut 11 None (open hole)
1 Continuous slot 3 Mill slot 6 Wire wrapped 9 Drilled holes
2 Louvered shutter 4 Key punched 7 Torch cut 10 Other (specify)
SCREEN-PERFORATED INTERVALS: From 80 ft. to 90 ft., From ft. to ft.
From 175 ft. to 185 ft., From ft. to ft.
GRAVEL PACK INTERVALS: From 10 ft. to 190 ft., From ft. to ft.
From ft. to ft., From ft. to ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout 3 Bentonite 4 Other
Grout Intervals: From 0 ft. to 10 ft., From ft. to ft., From ft. to ft.
What is the nearest source of possible contamination:
1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 14 Abandoned water well
2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 15 Oil well/Gas well
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer storage 16 Other (specify below)
13 Insecticide storage
Direction from well? How many feet?

FROM	TO	LITHOLOGIC LOG	FROM	TO	LITHOLOGIC LOG
0	4	Topsoil	66	67	Fine Sand, blue
4	10	Clay brown	67	74	Clay, blue
10	15	Fine Sand yellow	74	75	Fine Sand, blue
15	27	Clay brown	75	80	Clay blue
27	33	Fine Sand Course Sand	80	87	Fine Sand Course Sand
33	34	boulders	87	110	Clay blue
34	38	fine sand yellow	110	135	fine silt blue
38	48	Clay blue	135	174	Clay blue
48	49	boulders	174	177	Fine Sand blue
49	54	Clay blue	177	190	Clay blue
54	56	fine Sand yellow			
56	57	boulders			
57	59	fine Sand Course Sand			
59	60	boulders			
60	66	Clay blue			

WATER RESOURCES RECEIVED
MAR 10 2017
KS DEPT OF AGRICULTURE

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 5-3-84 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 182 This Water Well Record was completed on (mo/day/yr) 6-6-84 under the business name of Strader Drlg Co Inc. by (signature) Dale Strader

INSTRUCTIONS: Use typewriter or ball point pen, *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Division of Environment, Environmental Geology Section, Topeka, KS 66620. Send one to WATER WELL OWNER and retain one for your records.

SCANNED

OFFICE USE ONLY T R E/W SEC. ¼ ¼ ¼

USGS

WATER WELL RECORD Form WWC-5

Division of Water Resources App. No.

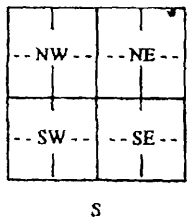
1 LOCATION OF WATER WELL: County: Nemaha | Fraction: ¼ NE ¼ NE ¼ NE ¼ | Section Number: 21 | Township No.: T 4 S | Range Number: R 14 ☑E ☐W

Street/Rural Address of Well Location; if unknown, distance & direction from nearest town or intersection: If at owner's address, check here ☐.
72 Rd. and V Rd.

Global Positioning System (GPS) information:
Latitude: 39.41781 (in decimal degrees)
Longitude: -95.50736 (in decimal degrees)
Elevation: 1178
Datum: ☑ WGS 84, ☐ NAD 83, ☐ NAD 27
Collection Method:
☐ GPS unit (Make/Model: Garmin St Pilot 3)
☐ Digital Map/Photo, ☐ Topographic Map, ☐ Land Survey
Est. Accuracy: ☑ <3 m, ☐ 3-5 m, ☐ 5-15 m, ☐ >15 m

2 WATER WELL OWNER:
RR#, Street Address, Box #: United States Geological Survey
City, State, ZIP Code : 4821 Quail Crest Place, Lawrence, KS 66049

3 LOCATE WELL WITH AN "X" IN SECTION BOX:



4 DEPTH OF COMPLETED WELL 73 ft.
Depth(s) Groundwater Encountered (1) 63 ft. (2) ..... ft. (3) ..... ft.
WELL'S STATIC WATER LEVEL 63 ft. below land surface measured on mo/day/yr 9/12/10
Pump test data: Well water was ..... ft. after ..... hours pumping ..... gpm
EST. YIELD ..... gpm. Well water was ..... ft. after ..... hours pumping ..... gpm
Bore Hole Diameter 8.25 in. to 73 ft., and ..... in. to ..... ft.
WELL WATER TO BE USED AS: ☐ Public water supply ☐ Geothermal ☐ Injection well
☐ Domestic ☐ Feedlot ☐ Oil field water supply ☐ Dewatering ☐ Other (Specify below)
☐ Irrigation ☐ Industrial ☐ Domestic-lawn & garden ☑ Monitoring well
Was a chemical/bacteriological sample submitted to Department? ☐ Yes ☑ No
If yes, mo/day/yr sample was submitted .....
Water well disinfected? ☐ Yes ☑ No

5 TYPE OF CASING USED: ☐ Steel ☑ PVC ☐ Other .....
CASING JOINTS: ☐ Glued ☐ Clamped ☐ Welded ☑ Threaded
Casing diameter 2.5 in. to 73 ft., Diameter ..... in. to ..... ft., Diameter ..... in. to ..... ft.
Casing height above land surface 30 in., Weight ..... lbs./ft., Wall thickness or gauge No. schedule 80
TYPE OF SCREEN OR PERFORATION MATERIAL:
☐ Steel ☐ Stainless Steel ☑ PVC ☐ Other (Specify) .....
☐ Brass ☐ Galvanized Steel ☐ None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
☐ Continuous slot ☑ Mill slot ☐ Gauze wrapped ☐ Torch cut ☐ Drilled holes ☐ None (open hole)
☐ Louvered shutter ☐ Key punched ☐ Wire wrapped ☐ Saw cut ☐ Other (specify) .....
SCREEN-PERFORATED INTERVALS: From 63 ft. to 73 ft., From ..... ft. to ..... ft.
From ..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From 61 ft. to 73 ft., From ..... ft. to ..... ft.
From ..... ft. to ..... ft., From ..... ft. to ..... ft.

6 GROUT MATERIAL: ☐ Neat cement ☐ Cement grout ☑ Bentonite ☐ Other .....
Grout Intervals: From Surface ft. to 61 ft., From ..... ft. to ..... ft., From ..... ft. to ..... ft.
What is the nearest source of possible contamination:
☐ Septic tank ☐ Lateral lines ☐ Pit privy ☐ Livestock pens ☐ Insecticide storage ☐ Other (specify below)
☐ Sewer lines ☐ Cesspool ☐ Sewage lagoon ☐ Fuel storage ☐ Abandoned water well
☐ Watertight sewer lines ☐ Seepage pit ☐ Feedyard ☐ Fertilizer storage ☐ Oil well/gas well
Direction from well ..... Distance from well .....

FROM	TO	LITHOLOGIC LOG	FROM	TO	LITHO. LOG (cont.) or PLUGGING INTERVALS
0	23	Brown Clay			
23	50	Blue-Grey clay			
50	73	Blue-Grey clay with 1/8" gravels			

WATER RESOURCES RECEIVED
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7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was ☑ constructed, ☐ reconstructed, or ☐ plugged under my jurisdiction and was completed on (mo/day/year) 9/12/10 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 823 This Water Well Record was completed on (mo/day/year) 9/21/10 under the business name of United States Geological Survey by (signature) [signature]

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks and check the correct answers. Send three copies (white, blue, pink) to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one copy to WATER WELL OWNER and retain one for your records. Include fee of $5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html.

KSA 82a-1212

Check: ☑ White Copy, ☐ Blue Copy, ☐ Pink Copy

SCANNED

Glenn

WATER WELL RECORD Form WWC-5 KSA 82a-1212

1 LOCATION OF WATER WELL:	Fraction	Section Number	Township Number	Range Number
County: Nemaha	SW ¼ NW ¼ NW ¼	27	T 4 S	R 14 E

Distance and direction from nearest town or city street address of well if located within city?
2 west & 2½ North Wetmore Ks

2 WATER WELL OWNER: Ruth Glenn
RR#, St. Address, Box # : Rt 1
City, State, ZIP Code : Wetmore Ks 66550
Board of Agriculture, Division of Water Resources
Application Number:

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:
N / W / E / S; NW, NE, SW, SE; 1 Mile

4 DEPTH OF COMPLETED WELL 43 ft. ELEVATION:
Depth(s) Groundwater Encountered 1. 22.5 ft. 2. ft. 3. ft.
WELL'S STATIC WATER LEVEL 22.5 ft. below land surface measured on mo/day/yr 10-28-87
Pump test data: Well water was ft. after hours pumping gpm
Est. Yield 20 gpm: Well water was ft. after hours pumping gpm
Bore Hole Diameter 9 in. to 43 ft., and in. to ft.
WELL WATER TO BE USED AS: (1) Domestic 2 Irrigation 3 Feedlot 4 Industrial 5 Public water supply 6 Oil field water supply 7 Lawn and garden only 8 Air conditioning 9 Dewatering 10 Observation well 11 Injection well 12 Other (Specify below)
Was a chemical/bacteriological sample submitted to Department? Yes ..... No. X ; If yes, mo/day/yr sample was submitted
Water Well Disinfected? Yes X No

5 TYPE OF BLANK CASING USED: (2) PVC 1 Steel 3 RMP (SR) 4 ABS 5 Wrought iron 6 Asbestos-Cement 7 Fiberglass 8 Concrete tile 9 Other (specify below)
CASING JOINTS: Glued X Clamped Welded Threaded
Blank casing diameter 5 in. to 23 ft., Dia in. to ft., Dia in. to ft.
Casing height above land surface 20 in., weight 2.843 lbs./ft. Wall thickness or gauge No. 40.265

TYPE OF SCREEN OR PERFORATION MATERIAL: (7) PVC 1 Steel 2 Brass 3 Stainless steel 4 Galvanized steel 5 Fiberglass 6 Concrete tile 8 RMP (SR) 9 ABS 10 Asbestos-cement 11 Other (specify) 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE: (8) Saw cut 1 Continuous slot 2 Louvered shutter 3 Mill slot 4 Key punched 5 Gauzed wrapped 6 Wire wrapped 7 Torch cut 9 Drilled holes 10 Other (specify) 11 None (open hole)
SCREEN-PERFORATED INTERVALS: From 23 ft. to 43 ft., From ft. to ft.
From ft. to ft., From ft. to ft.
GRAVEL PACK INTERVALS: From 16 ft. to 43 ft., From ft. to ft.
From ft. to ft., From ft. to ft.

6 GROUT MATERIAL: (1) Neat cement 2 Cement grout 3 Bentonite 4 Other
Grout Intervals: From 5 ft. to 16 ft., From ft. to ft., From ft. to ft.
What is the nearest source of possible contamination:
1 Septic tank 2 Sewer lines 3 Watertight sewer lines 4 Lateral lines 5 Cess pool 6 Seepage pit 7 Pit privy 8 Sewage lagoon 9 Feedyard 10 Livestock pens 11 Fuel storage 12 Fertilizer storage 13 Insecticide storage 14 Abandoned water well 15 Oil well/Gas well 16 Other (specify below) Not Known
Direction from well? How many feet?

FROM	TO	LITHOLOGIC LOG	FROM	TO	LITHOLOGIC LOG
0	2	Top Soil			
2	17	sandy clay red Bo			
17	38	sand & gravel Bo			
38	43	sandy clay gray			

WATER RESOURCES RECEIVED
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7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 10-28-87 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 308 This Water Well Record was completed on (mo/day/yr) 11-2-87 under the business name of Bieschick Drilling Co by (signature) Ray Bieschick

INSTRUCTIONS: Use typewriter or ball point pen, PLEASE PRESS FIRMLY and PRINT clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Division of Environment, Environmental Geology Section, Topeka, KS 66620. Send one to WATER WELL OWNER and retain one for your records.

OFFICE USE ONLY T R E/W SEC. ¼ ¼ ¼

SCANNED

NMOY North

WATER WELL RECORD Form WWC-5 KSA 82a-1212

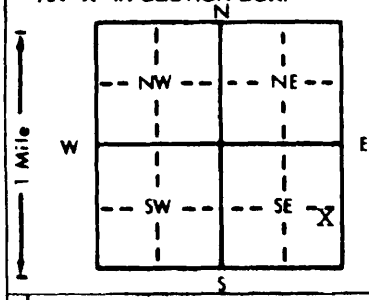
1 LOCATION OF WATER WELL:	Fraction	Section Number	Township Number	Range Number
County: NEMAHA	X NE¼ SE ¼ SE ¼	29	T 4 S	R 14E E/W

Distance and direction from nearest town or city street address of well if located within city?

2 WATER WELL OWNER: Nemaha Co. RWD #4
RR#, St. Address, Box # : P.O. Box AC WELL #2 - North
City, State, ZIP Code : Wetmore, KS 66550

Board of Agriculture, Division of Water Resources
Application Number:

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:



4 DEPTH OF COMPLETED WELL 177' ft. ELEVATION:
Depth(s) Groundwater Encountered 1. ft. 2. ft. 3. ft.
WELL'S STATIC WATER LEVEL 110' ft. below land surface measured on mo/day/yr
Pump test data: Well water was 131.02 ft. after 12 hours pumping 351 gpm
Est. Yield 235 gpm: Well water was 134.52 ft. after 24 hours pumping 351 gpm
Bore Hole Diameter 36" in. to ft., and in. to ft.

WELL WATER TO BE USED AS: 1 Domestic 2 Irrigation 3 Feedlot 4 Industrial 5 Public water supply 6 Oil field water supply 7 Lawn and garden only 8 Air conditioning 9 Dewatering 10 Monitoring well 11 Injection well 12 Other (Specify below)

Was a chemical/bacteriological sample submitted to Department? Yes No; If yes, mo/day/yr sample was submitted
Water Well Disinfected? Yes X No

5 TYPE OF BLANK CASING USED: 1 Steel 2 PVC 3 RMP (SR) 4 ABS 5 Wrought iron 6 Asbestos-Cement 7 Fiberglass 8 Concrete tile 9 Other (specify below)

CASING JOINTS: Glued Clamped Welded X Threaded

Blank casing diameter 12" in. to 0-142 ft., Dia 12" in. to 172-177 ft., Dia in. to ft.
Casing height above land surface 24 in., weight 49.56 lbs./ft. Wall thickness or gauge No. .375

TYPE OF SCREEN OR PERFORATION MATERIAL: JOHNSON .060 slott
1 Steel 2 Brass 3 Stainless steel 4 Galvanized steel 5 Fiberglass 6 Concrete tile 7 PVC 8 RMP (SR) 9 ABS 10 Asbestos-cement 11 Other (specify) 12 None used (open hole)

SCREEN OR PERFORATION OPENINGS ARE: 1 Continuous slot 2 Louvered shutter 3 Mill slot 4 Key punched 5 Gauzed wrapped 6 Wire wrapped 7 Torch cut 8 Saw cut 9 Drilled holes 10 Other (specify) 11 None (open hole)

SCREEN-PERFORATED INTERVALS: From 142 ft. to 172 ft., From ft. to ft.
From ft. to ft., From ft. to ft.

GRAVEL PACK INTERVALS: From 130 ft. to 177 ft., From ft. to ft.
From ft. to ft., From ft. to ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout 3 Bentonite 4 Other Fill sand

Grout Intervals: From 0 ft. to 25 ft., From 82 ft. to 130 ft., From 25 ft. to 82 ft.

What is the nearest source of possible contamination:
1 Septic tank 2 Sewer lines 3 Watertight sewer lines 4 Lateral lines 5 Cess pool 6 Seepage pit 7 Pit privy 8 Sewage lagoon 9 Feedyard 10 Livestock pens 11 Fuel storage 12 Fertilizer storage 13 Insecticide storage 14 Abandoned water well 15 Oil well/Gas well 16 Other (specify below) creek

Direction from well? North How many feet? 600'

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	2	Top Soil			
2	31	Clay-Brown & Yellow-Gravels & Rocks			
31	42	Clay-very sandy-Yellow			
42	48	Gravel-Dirty w/ Clay			
48	49	Clay-Brown			
49	140	Clay-Blue Grey-w/ Gravel			
140	161	Sand-Medium to Coarse Blue			
161	164	Boulders-Very Coarse-Gravel & Blue Clay			
164	177	Clay-Blue w/ Boulders			
177	178	Sand-Fine Blue			
178	187	Clay-Blue Grey			

WATER RESOURCES RECEIVED
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7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 4-21-95 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 182 This Water Well Record was completed on (mo/day/yr) 4-22-95 under the business name of STRADER DRILLING CO., INC. by (signature)

INSTRUCTIONS: Use typewriter or ball point pen. PLEASE PRESS FIRMLY and PRINT clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Topeka, Kansas 66620-0001. Telephone: 913-296-5545. Send one to WATER WELL OWNER and retain one for your records.

OFFICE USE ONLY T R E/W SEC. ¼ ¼ ¼

SCANNED

NM #4 South

WATER WELL RECORD Form WWC-5 KSA 82a-1212

1 LOCATION OF WATER WELL: County: NEMAHA | Fraction: SE ¼ NE ¼ NE ¼ | Section Number: 32 | Township Number: T 4 S | Range Number: R 14E E/W

Distance and direction from nearest town or city street address of well if located within city?

2 WATER WELL OWNER: Nemaha Co. RWD #4
RR#, St. Address, Box # : P.O. Box AC WELL #1 - South
City, State, ZIP Code : Wetmore, KS 66550
Board of Agriculture, Division of Water Resources Application Number:

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX: N / W / E / S; NW, NE (X), SW, SE; 1 Mile

4 DEPTH OF COMPLETED WELL 117' ft. ELEVATION:
Depth(s) Groundwater Encountered 1. ft. 2. ft. 3. ft.
WELL'S STATIC WATER LEVEL 48'-1" ft. below land surface measured on mo/day/yr
Pump test data: Well water was 61.25 ft. after 12 hours pumping 351 gpm
Est. Yield 235 gpm: Well water was 68.23 ft. after 24 hours pumping 351 gpm
Bore Hole Diameter 36" in. to ft., and in. to ft.
WELL WATER TO BE USED AS: 1 Domestic 2 Irrigation 3 Feedlot 4 Industrial 5 Public water supply 6 Oil field water supply 7 Lawn and garden only 8 Air conditioning 9 Dewatering 10 Monitoring well 11 Injection well 12 Other (Specify below)
Was a chemical/bacteriological sample submitted to Department? Yes ..... No ..... ; If yes, mo/day/yr sample was submitted
Water Well Disinfected? Yes X No

5 TYPE OF BLANK CASING USED: 1 Steel 2 PVC 3 RMP (SR) 4 ABS 5 Wrought iron 6 Asbestos-Cement 7 Fiberglass 8 Concrete tile 9 Other (specify below)
CASING JOINTS: Glued Clamped Welded X Threaded
Blank casing diameter 12" in. to 0-82 ft., Dia 12" in. to 112-117 ft., Dia in. to ft.
Casing height above land surface 24 in., weight 49.56 lbs./ft. Wall thickness or gauge No. .375
TYPE OF SCREEN OR PERFORATION MATERIAL: JOHNSON .050 slot 1 Steel 2 Brass 3 Stainless steel 4 Galvanized steel 5 Fiberglass 6 Concrete tile 7 PVC 8 RMP (SR) 9 ABS 10 Asbestos-cement 11 Other (specify) 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE: 1 Continuous slot 2 Louvered shutter 3 Mill slot 4 Key punched 5 Gauzed wrapped 6 Wire wrapped 7 Torch cut 8 Saw cut 9 Drilled holes 10 Other (specify) 11 None (open hole)
SCREEN-PERFORATED INTERVALS: From 82 ft. to 112 ft., From ft. to ft.
From ft. to ft., From ft. to ft.
GRAVEL PACK INTERVALS: From 73 ft. to 117 ft., From ft. to ft.
From ft. to ft., From ft. to ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout 3 Bentonite 4 Other Fill sand
Grout Intervals: From 0 ft. to 25' ft., From 25 ft. to 73 ft., From 25 ft. to 73 ft.
What is the nearest source of possible contamination: 1 Septic tank 2 Sewer lines 3 Watertight sewer lines 4 Lateral lines 5 Cess pool 6 Seepage pit 7 Pit privy 8 Sewage lagoon 9 Feedyard 10 Livestock pens 11 Fuel storage 12 Fertilizer storage 13 Insecticide storage 14 Abandoned water well 15 Oil well/Gas well 16 Other (specify below) creek
Direction from well? south How many feet? 100'

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	12	Top Soil & Tan Clay			
12	43	Black Silty Clay			
43	47	Fine Sand			
47	67	Black Clay			
67	69	Grey Clay			
79	90	Fine Sand & Pebbles			
90	105	Fine SAnd, pebbles & cobbles			
105	112	Fine Sand and fine gravel			
112	122	Black Clay			

WATER RESOURCES RECEIVED
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KS DEPT OF AGRICULTURE

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 4-14-95 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 182 This Water Well Record was completed on (mo/day/yr) 6-22-95 under the business name of STRADER DRILLING CO., INC. by (signature) Dale Asbeen

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Topeka, Kansas 66620-0001. Telephone: 913-296-5545. Send one to WATER WELL OWNER and retain one for your records.

OFFICE USE ONLY T R E/W SEC. ¼ ¼ ¼

SCANNED

27 addon Shumaker VD

WATER WELL RECORD Form WWC-5 KSA 82a-1212

1 LOCATION OF WATER WELL: Fraction: ~~CNE~~ SE¼ - SE¼ - NE¼ ~~NE¼ NE¼ NE¼~~ | Section Number: 34 | Township Number: T 4 (S) | Range Number: R 14 (E) W

County: Nemaha

Distance and direction from nearest town or city? .5W 2N OF Wetmore

Street address of well if located within city?

2 WATER WELL OWNER: Alan Shumaker

RR#, St. Address, Box # : RT 1

City, State, ZIP Code : Wetmore, Ks. 66550

Board of Agriculture, Division of Water Resources Application Number:

3 DEPTH OF COMPLETED WELL 175 ft. Bore Hole Diameter 12 in. to 175 ft., and ____ in. to ____ ft.

Well Water to be used as: 1 Domestic 2 Irrigation 3 Feedlot 4 Industrial 5 Public water supply 6 Oil field water supply 7 Lawn and garden only 8 Air conditioning 9 Dewatering 10 Observation well 11 Injection well 12 Other (Specify below)

Well's static water level 52 ft. below land surface measured on May month 22 day 1980 year

Pump Test Data: Well water was ____ ft. after ____ hours pumping ____ gpm

Est. Yield 200 gpm: Well water was ____ ft. after ____ hours pumping ____ gpm

4 TYPE OF BLANK CASING USED: 1 Steel 2 PVC 3 RMP (SR) 4 ABS 5 Wrought iron 6 Asbestos-Cement 7 Fiberglass 8 Concrete tile 9 Other (specify below)

Casing Joints: Glued ✓ Clamped ____ Welded ____ Threaded ____

Blank casing dia 5 in. to 0-153 ft., Dia ____ in. to ____ ft., Dia ____ in. to ____ ft.

Casing height above land surface 24 in., weight 2.64 lbs./ft. Wall thickness or gauge No. 258

TYPE OF SCREEN OR PERFORATION MATERIAL: 1 Steel 2 Brass 3 Stainless steel 4 Galvanized steel 5 Fiberglass 6 Concrete tile 7 PVC 8 RMP (SR) 9 ABS 10 Asbestos-cement 11 Other (specify) 12 None used (open hole)

Screen or Perforation Openings Are: 1 Continuous slot 2 Louvered shutter 3 Mill slot 4 Key punched 5 Gauzed wrapped 6 Wire wrapped 7 Torch cut 8 Saw cut 9 Drilled holes 10 Other (specify) 11 None (open hole)

Screen-Perforation Dia 5 in. to ____ ft., Dia ____ in. to ____ ft., Dia ____ in to ____ ft.

Screen-Perforated Intervals: From 153 ft. to 175 ft., From ____ ft. to ____ ft.

From ____ ft. to ____ ft., From ____ ft. to ____ ft.

Gravel Pack Intervals: From 15 ft. to 175 ft., From ____ ft. to ____ ft.

From ____ ft. to ____ ft., From ____ ft. to ____ ft.

5 GROUT MATERIAL: 1 Neat cement 2 Cement grout 3 Bentonite 4 Other ____

Grouted Intervals: From 5 ft. to 15 ft., From ____ ft. to ____ ft., From ____ ft. to ____ ft.

What is the nearest source of possible contamination: 1 Septic tank 2 Sewer lines 3 Lateral lines 4 Cess pool 5 Seepage pit 6 Pit privy 7 Sewage lagoon 8 Feed yard 9 Livestock pens 10 Fuel storage 11 Fertilizer storage 12 Insecticide storage 13 Watertight sewer lines 14 Abandoned water well 15 Oil well/Gas well 16 Other (specify below)

Direction from well N How many feet 122 ? Water Well Disinfected? Yes ✓ No ____

Was a chemical/bacteriological sample submitted to Department? Yes ____ No ✓ If yes, date sample was submitted ____ month ____ day ____ year: Pump Installed? Yes ✓ No ____

If Yes: Pump Manufacturer's name Jacuzzi Model No. 754B HP 3/4 Volts 230

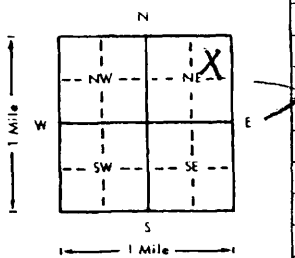
Depth of Pump Intake 140 ft. Pumps Capacity rated at 10 gal./min.

Type of pump: 1 Submersible 2 Turbine 3 Jet 4 Centrifugal 5 Reciprocating 6 Other

6 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on May month 28 day 1980 year and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 182

This Water Well Record was completed on June month 2 day 1980 year under the business name of STRADER DRLG Co Inc by (signature) Dale Ashren

7 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:



ELEVATION: 1130

FROM	TO	LITHOLOGIC LOG	FROM	TO	LITHOLOGIC LOG
0	4	Top Soil			
4	130	Clay, brown, blue			
130	155	Fine Sand			
155	195	Fine Sand, Course Sand			

WATER RESOURCES RECEIVED MAR 10 2017 KS DEPT OF AGRICULTURE

Depth(s) Groundwater Encountered 1. 130 ft. 2. ____ ft. 3. ____ ft. 4. ____ ft. (Use a second sheet if needed)

INSTRUCTIONS: Use typewriter or ball point pen, *please press firmly* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Division of Environment, Water Well Contractors, Topeka, KS 66620. Send one to WATER WELL OWNER and retain one for your records.

OFFICE USE ONLY T 4 R 14 (E) W SEC. 34 NE¼ NE¼ NE¼

SCANNED

KGS

WATER WELL RECORD Form WWC-5 KSA 82a-1212

LOCATION OF WATER WELL:	Fraction	Section Number	Township Number	Range Number
City: Nemaha	NE ¼ SE ¼ SE ¼	35	T 4 S	R 14 E/W

Distance and direction from nearest town or city street address of well if located within city?
1¼ mile N. of Wetmore

WATER WELL OWNER: KGS
RR#, St. Address, Box # :
City, State, ZIP Code :

Board of Agriculture, Division of Water Resources
Application Number:

LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX: N / NW / NE / W / E / SW / SE / S — X in SE

4 DEPTH OF COMPLETED WELL ~~156~~ 155 ft. ELEVATION: ~1092

Depth(s) Groundwater Encountered 1. ~~23~~ 23.7 ft. 2. ft. 3. ft.

WELL'S STATIC WATER LEVEL ~~23~~ 23.7 ft. below land surface measured on mo/day/yr 3/13/87

Pump test data: Well water was ft. after hours pumping gpm

Est. Yield gpm: Well water was ft. after hours pumping gpm

Bore Hole Diameter 6¼ in. to ~~156~~ 155 ft., and in. to ft.

WELL WATER TO BE USED AS: 1 Domestic 2 Irrigation 3 Feedlot 4 Industrial 5 Public water supply 6 Oil field water supply 7 Lawn and garden only 8 Air conditioning 9 Dewatering 10 Observation well 11 Injection well (12) Other (Specify below) Monitoring research

Was a chemical/bacteriological sample submitted to Department? Yes No X; If yes, mo/day/yr sample was submitted Water Well Disinfected? Yes No X

TYPE OF BLANK CASING USED: 1 Steel (2) PVC 3 RMP (SR) 4 ABS 5 Wrought iron 6 Asbestos-Cement 7 Fiberglass 8 Concrete tile 9 Other (specify below)

CASING JOINTS: Glued Clamped Welded Threaded ~~Teflon Tape~~

casing diameter 2 in. to ~~156~~ 155 ft., Dia in. to ft., Dia in. to ft.

casing height above land surface 2 ft. 10 in., weight lbs./ft. Wall thickness or gauge No. Sch. 80

TYPE OF SCREEN OR PERFORMATION MATERIAL: 1 Steel 2 Brass 3 Stainless steel 4 Galvanized steel 5 Fiberglass 6 Concrete tile (7) PVC 8 RMP (SR) 9 ABS 10 Asbestos-cement 11 Other (specify) 12 None used (open hole)

SCREEN OR PERFORATION OPENINGS ARE: 1 Continuous slot (3) Mill slot - 01 2 Louvered shutter 4 Key punched 5 Gauzed wrapped 6 Wire wrapped 7 Torch cut 8 Saw cut 9 Drilled holes 10 Other (specify) 11 None (open hole)

SCREEN-PERFORATED INTERVALS: From 136 ft. to ~~156~~ 155 ft., From ft. to ft.
From ft. to ft., From ft. to ft.

GRAVEL PACK INTERVALS: From ~~130~~ 125 ft. to ~~156~~ 155 ft., From ft. to ft.
From ft. to ft., From ft. to ft.

GROUT MATERIAL: (1) Neat cement 2 Cement grout 3 Bentonite 4 Other
Intervals: From 0 ft. to ~~130~~ 125 ft., From ft. to ft., From ft. to ft.

What is the nearest source of possible contamination: 1 Septic tank 2 Sewer lines 3 Watertight sewer lines 4 Lateral lines 5 Cess pool 6 Seepage pit 7 Pit privy 8 Sewage lagoon 9 Feedyard 10 Livestock pens 11 Fuel storage 12 Fertilizer storage 13 Insecticide storage 14 Abandoned water well 15 Oil well/Gas well 16 Other (specify below)
Direction from well? How many feet?

FROM	TO	LITHOLOGIC LOG
0	3	Brown to black Top Soil
3	25	Brown and tan slightly Sandy silty clay with some gravel
25	90	gray silty clay with sand and gravel to silty fine sand
90	147	gray clayey silt with occasional sand and gravel
147	154.5	medium to coarse sand with some gravel
154.5	155	gray limestone

FROM	TO	LITHOLOGIC LOG

WATER RESOURCES RECEIVED
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CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) ~~12/18/86~~ 12/4-17/86, but not developed then and this record is true to the best of my knowledge and belief. Kansas Well Contractor's License No. This Water Well Record was completed on (mo/day/yr) 12/18/86 ~~12/87~~ 7/88 and the business name of KGS; M Kleinschmidt Mgr. & Miller by (signature)

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Office of Oil Field and Environmental Geology, Regulation and Permitting Section, Topeka, Kansas 66620-7500, Telephone: 913-862-9360. Send one copy to WATER WELL OWNER and retain one for your records.

SCANNED

STATE USE ONLY T R E/W SEC. ¼ ¼ ¼ ¼

Kramer

WATER WELL RECORD Form WWC-5 KSA 82a-1212

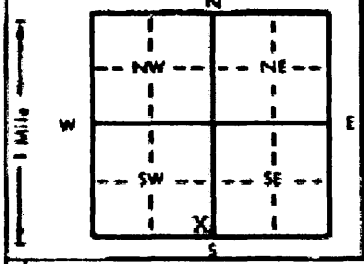
1 LOCATION OF WATER WELL:	Fraction	Section Number	Township Number	Range Number
County: BROWN	SW ¼ SW ¼ SW ¼	30	T 4 S	R 15 E/W

Distance and direction from nearest town or city street address of well if located within city?
14 miles west, 1/8 north of Horton

2 WATER WELL OWNER: Don Kramer
RR#, St. Address, Box # : Rt. 2 Box 97
City, State, ZIP Code : Goff, KS 66428

Board of Agriculture, Division of Water Resources
Application Number:

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:



4 DEPTH OF COMPLETED WELL 80' ft. ELEVATION
Depth(s) Groundwater Encountered 1. ft. 2. ft. 3. ft.
WELL'S STATIC WATER LEVEL 29' ft. below land surface measured on mo/day/yr 11/22/99
Pump test data: Well water was ft. after hours pumping gpm
Est. Yield 7 gpm: Well water was ft. after hours pumping gpm
Bore Hole Diameter 12" in. to ft., and in. to ft.
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Lawn and garden only 10 Monitoring well
Was a chemical/bacteriological sample submitted to Department? Yes No X ; If yes, mo/day/yr sample was submitted
Water Well Disinfected? Yes X No

5 TYPE OF BLANK CASING USED: 5 Wrought iron 8 Concrete tile CASING JOINTS: Glued X Clamped
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded
2 PVC 4 ABS 7 Fiberglass Threaded
Blank casing diameter 5" in. to 0-64 ft., Dia 5" in. to 74-80 ft., Dia in. to ft.
Casing height above land surface 24" in., weight 2.82 lbs./ft. Wall thickness or gauge No. .258

TYPE OF SCREEN OR PERFORATION MATERIAL: 7 PVC 10 Asbestos-cement
1 Steel 3 Stainless steel 5 Fiberglass 8 RMP (SR) 11 Other (specify)
2 Brass 4 Galvanized steel 6 Concrete tile 9 ABS 12 None used (open hole)

SCREEN OR PERFORATION OPENINGS ARE: 5 Gauzed wrapped 8 Saw cut 11 None (open hole)
1 Continuous slot 3 Mill slot 6 Wire wrapped 9 Drilled holes
2 Louvered shutter 4 Key punched 7 Torch cut 10 Other (specify)

SCREEN-PERFORATED INTERVALS: From 64 ft. to 74 ft., From ft. to ft.
From ft. to ft., From ft. to ft.
GRAVEL PACK INTERVALS: From 24 ft. to 80 ft., From ft. to ft.
From ft. to ft., From ft. to ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout 3 Bentonite 4 Other
Grout Intervals: From 4 ft. to 24 ft., From ft. to ft., From ft. to ft.

What is the nearest source of possible contamination:
1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 14 Abandoned water well
2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 15 Oil well/Gas well
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer storage 16 Other (specify below)
13 Insecticide storage Drainage ditch
Direction from well? SOUTH How many feet? 50'

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	20	Clay-Brown			
20	22	Fine Sand-Brown			
22	64	Clay-Blue			
64	69	FS-Cs-Med-Pea Chert ¼x½			
69	70	Shale-Yellow			
70	71	Limestone-Grey			
71	80	Shale-Grey			

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7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 11/22/99 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 182 This Water Well Record was completed on (mo/day/yr) 12-6-99 under the business name of STRADER DRILLING CO., INC. by (signature) Dale Strader

INSTRUCTIONS: Use typewriter or ball point pen PLEASE PRESS FIRMLY and PRINT clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Topeka, Kansas 66620-0001, Telephone 913-296-5545. Send one to WATER WELL OWNER and retain one for your records.

OFFICE USE ONLY T R E/W SEC. ¼ ¼ ¼

SCANNED

Burdick 41

WATER WELL RECORD Form WWC-5

Division of Water Resources App. No. _____ Well ID _____

☐ Original Record ☐ Correction ☐ Change in Well Use

1 LOCATION OF WATER WELL: County: JACKSON | Fraction: SW¼SW¼NW¼ ¼ | Section Number: 6 | Township Number: T 5 S | Range Number: R 15 ☒ E ☐ W

2 WELL OWNER: Last Name: BURDIEK First: RONALD
Business:
Address: 664 X ROAD
Address:
City: WETMORE State: KS ZIP 66550

Street or Rural Address where well is located (if unknown, distance and direction from nearest town or intersection): If at owner's address, check here: ☐

3 LOCATE WELL WITH "X" IN SECTION BOX: N / W / E / S; NW, NE, SW, SE; 1 mile

4 DEPTH OF COMPLETED WELL: 206 ft.
Depth(s) Groundwater Encountered: 1) ..... ft. 2) ..... ft. 3) ..... ft., or 4) ☐ Dry Well
WELL'S STATIC WATER LEVEL: 83 ft.
☒ below land surface, measured on (mo-day-yr) 9/30/13
☐ above land surface, measured on (mo-day-yr).....
Pump test data: Well water was ..... ft. after..... hours pumping ..... gpm
Well water was ..... ft. after..... hours pumping ..... gpm
Estimated Yield: 75 gpm
Bore Hole Diameter: 12 in. to 206 ft. and ..... in. to ..... ft.

5 Latitude: 39° 38.849 N (decimal degrees)
Longitude: 95° 47.263 W (decimal degrees)
Datum: ☐ WGS 84 ☐ NAD 83 ☐ NAD 27
Source for Latitude/Longitude:
☐ GPS (unit make/model: .....) (WAAS enabled? ☐ Yes ☐ No)
☐ Land Survey ☐ Topographic Map
☐ Online Mapper: .....

6 Elevation: .....ft. ☐ Ground Level ☐ TOC
Source: ☐ Land Survey ☐ GPS ☐ Topographic Map ☐ Other .....

7 WELL WATER TO BE USED AS:
1. Domestic: ☐ Household ☐ Lawn & Garden ☒ Livestock
2. ☐ Irrigation
3. ☐ Feedlot
4. ☐ Industrial
5. ☐ Public Water Supply: well ID .....
6. ☐ Dewatering: how many wells? .....
7. ☐ Aquifer Recharge: well ID .....
8. ☐ Monitoring: well ID .....
9. Environmental Remediation: well ID ..... ☐ Air Sparge ☐ Soil Vapor Extraction ☐ Recovery ☐ Injection
10. ☐ Oil Field Water Supply: lease .....
11. Test Hole: well ID ..... ☐ Cased ☐ Uncased ☐ Geotechnical
12. Geothermal: how many bores? ..... a) Closed Loop ☐ Horizontal ☐ Vertical b) Open Loop ☐ Surface Discharge ☐ Inj. of Water
13. ☐ Other (specify): .....

Was a chemical/bacteriological sample submitted to KDHE? ☐ Yes ☒ No If yes, date sample was submitted: .....
Water well disinfected? ☒ Yes ☐ No

8 TYPE OF CASING USED: ☐ Steel ☒ PVC ☐ Other ..... CASING JOINTS: ☒ Glued ☐ Clamped ☐ Welded ☐ Threaded
Casing diameter 5 in. to 186 ft., Diameter ..... in. to ..... ft., Diameter ..... in. to ..... ft.
Casing height above land surface 18 in. Weight 2.9 lbs./ft. Wall thickness or gauge No. .265

TYPE OF SCREEN OR PERFORATION MATERIAL:
☐ Steel ☐ Stainless Steel ☐ Fiberglass ☒ PVC ☐ Other (Specify) .....
☐ Brass ☐ Galvanized Steel ☐ Concrete tile ☐ None used (open hole)

SCREEN OR PERFORATION OPENINGS ARE:
☐ Continuous Slot ☐ Mill Slot ☐ Gauze Wrapped ☐ Torch Cut ☐ Drilled Holes ☐ Other (Specify) .....
☐ Louvered Shutter ☐ Key Punched ☐ Wire Wrapped ☒ Saw Cut ☐ None (Open Hole)

SCREEN-PERFORATED INTERVALS: From 186 ft. to 206 ft., From ..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From 25 ft. to 206 ft., From ..... ft. to ..... ft., From ..... ft. to ..... ft.

9 GROUT MATERIAL: ☐ Neat cement ☐ Cement grout ☒ Bentonite ☐ Other .....
Grout Intervals: From 5 ft. to 25 ft., From ..... ft. to ..... ft., From ..... ft. to ..... ft.

Nearest source of possible contamination:
☐ Septic Tank ☐ Lateral Lines ☐ Pit Privy ☐ Livestock Pens ☐ Insecticide Storage
☐ Sewer Lines ☐ Cess Pool ☐ Sewage Lagoon ☐ Fuel Storage ☐ Abandoned Water Well
☐ Watertight Sewer Lines ☐ Seepage Pit ☐ Feedyard ☐ Fertilizer Storage ☐ Oil Well/Gas Well
☐ Other (Specify) .... NONE PRESENT
Direction from well? ..... Distance from well? ..... ft.

10 FROM	TO	LITHOLOGIC LOG	FROM	TO	LITHO. LOG (cont.) or PLUGGING INTERVALS
0	2	TOPSOIL	207	208	GRAY SHALE
2	11	BROWN CLAY			
11	12	SAND (FINE) YELLOW			
12	13	ROCKS			
13	18	SAND (FINE) YELLOW			
18	37	YELLOW CLAY			
37	184	BLUE CLAY			
184	205	SAND (FINE-MED.) BLUE			
205	207	BLUE CLAY			

Notes:

WATER RESOURCES RECEIVED
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11 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was ☒ constructed, ☐ reconstructed, or ☐ plugged under my jurisdiction and was completed on (mo-day-year) 9/30/13 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 578 This Water Well Record was completed on (mo-day-year) 10/1/2013 under the business name of BLUE VALLEY DRILLING INC by: Driller

INSTRUCTIONS: Send one copy to WATER WELL OWNER and retain one copy for your records. Submit fee of $5.00 for each constructed well along with one (white) copy to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone (785) 296-3565.

Visit us at http://www.kdheks.gov/waterwell/index.html KSA 82a-1212 Revised 9/10/2012

SCANNED

Burdiek #2

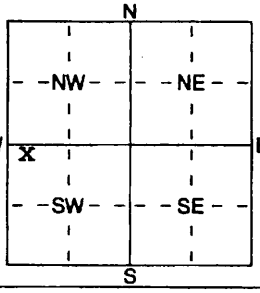
WATER WELL RECORD Form WWC-5 KSA 82a-1212 ID No.

1 LOCATION OF WATER WELL:	Fraction	Section Number	Township Number	Range Number
County: Nemaha County	NW ¼ SW ¼ NW ¼	1	T 5 S	R 14E E/W

Distance and direction from nearest town or city street address of well if located within city?
½ North of Wetmore

2 WATER WELL OWNER: Ron Burdiek
RR#, St. Address, Box # : R.R. 1 Box 214
City, State, ZIP Code : Wetmore,Ks. 66550
Board of Agriculture, Division of Water Resources Application Number:

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:



4 DEPTH OF COMPLETED WELL 181' ft. ELEVATION:
Depth(s) Groundwater Encountered 1 ..... ft. 2 ..... ft. 3 ..... ft.
WELL'S STATIC WATER LEVEL 77' ft. below land surface measured on mo/day/yr 7-9-03
Pump test data: Well water was ..... ft. after ..... hours pumping ..... gpm
Est. Yield 100+ gpm: Well water was ..... ft. after ..... hours pumping ..... gpm
WELL WATER TO BE USED AS: 1 Domestic 2 Irrigation 3 Feedlot 4 Industrial 5 Public water supply 6 Oil field water supply 7 Domestic (lawn & garden) 8 Air conditioning 9 Dewatering 10 Monitoring well 11 Injection well 12 Other (Specify below)
Was a chemical/bacteriological sample submitted to Department? Yes ..... No X ; If yes, mo/day/yrs sample was submitted
Water Well Disinfected? Yes X No

5 TYPE OF BLANK CASING USED: 1 Steel 2 PVC 3 RMP (SR) 4 ABS 5 Wrought iron 6 Asbestos-Cement 7 Fiberglass 8 Concrete tile 9 Other (specify below)
CASING JOINTS: Glued X Clamped ..... Welded ..... Threaded .....
Blank casing diameter XXX 5" in. to ..... ft., Dia ..... in. to ..... ft., Dia ..... in. to ..... ft.
Casing height above land surface 24" in., weight 2.82 lbs./ft. Wall thickness or guage No. .258

TYPE OF SCREEN OR PERFORATION MATERIAL: 1 Steel 2 Brass 3 Stainless Steel 4 Galvanized Steel 5 Fiberglass 6 Concrete tile 7 PVC 8 RMP (SR) 9 ABS 10 Asbestos-Cement 11 Other (Specify) 12 None used (open hole)

SCREEN OR PERFORATION OPENINGS ARE: 1 Continuous slot 2 Louvered shutter 3 Mill slot 4 Key punched 5 Guazed wrapped 6 Wire wrapped 7 Torch cut 8 Saw cut 9 Drilled holes 10 Other (specify) 11 None (open hole)

SCREEN-PERFORATED INTERVALS: From 161' ft. to 181' ft., From ..... ft. to ..... ft.
From ..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From 25' ft. to 181' ft., From ..... ft. to ..... ft.
From ..... ft. to ..... ft., From ..... ft. to ..... ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout 3 Bentonite 4 Other .....
Grout Intervals: From 4' ft. to 25' ft., From ..... ft. to ..... ft., From ..... ft. to ..... ft.

What is the nearest source of possible contamination:
1 Septic tank 2 Sewer lines 3 Watertight sewer lines 4 Lateral lines 5 Cess pool 6 Seepage pit 7 Pit privy 8 Sewage lagoon 9 Feedyard 10 Livestock pens 11 Fuel storage 12 Fertilizer storage 13 Insecticide storage 14 Abandoned water well 15 Oil well/Gas well 16 Other (specify below) Feedlot
Direction from well? South How many feet? 90'

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	1	top soil			
1	24	yellow clay			
24	38	yellow clay grey mix			
38	133	grey clay			
133	155	very fine sand or silt grey			
155	175	grey fine sand			
175	181	grey shale			

WATER RESOURCES RECEIVED
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KS DEPT OF AGRICULTURE

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 7-16-03 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's Licence No 182 This Water Well Record was completed on (mo/day/yr) 7-16-03 under the business name of Strader Drilling Co., INc. by (signature) Jim Strader

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of $5.00 for each constructed well.

SCANNED

29

Map had dot ~~with~~ Jones VJD

USE TYPEWRITER OR BALL POINT PEN—PRESS FIRMLY, PRINT CLEARLY.

WATER WELL RECORD
KSA 82a-1201-1215

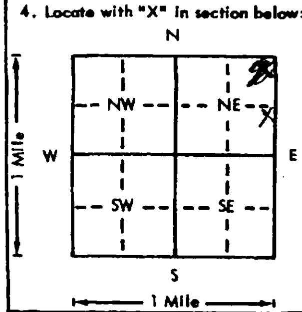
Kansas Department of Health and Environment-Division of Environment (Water well Contractors) Topeka, Kansas 66620

NE-SE-NE ADA

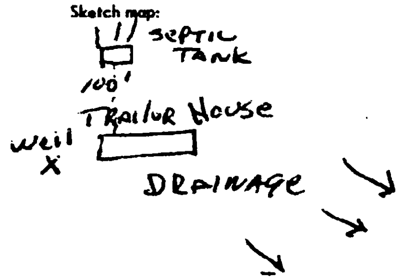
1. Location of well:	County: NemaHA	Fraction: ~~NE 1/4 NE 1/4 NE 1/4~~ NE-SE-NE	Section number: ~~35~~ 2	Township number: T ~~4~~ 5 S	Range number: R 14 (E)/W

2. Distance and direction from nearest town or city: 1 N of Wetmore	3. Owner of well: Dale Jones
Street address of well location if in city:	R.R. or street: RR1
	City, state, zip code: Wetmore, Ks.

4. Locate with "X" in section below:



Sketch map:



6. Bore hole dia. 12 in. Completion date 3-9-76
Well depth 175 ft.

7. __ Cable tool ✓ Rotary __ Driven __ Dug __ Hollow rod __ Jetted __ Bored __ Reverse rotary

8. Use: ✓ Domestic __ Public supply __ Industry __ Irrigation __ Air conditioning __ Stock __ Lawn __ Oil field water __ Other

9. Casing: Material PVC Height: (Above) or below
Threaded ____ Welded ____ Surface 24 in.
RMP ____ PVC 92 Weight 2.58 lbs./ft.
Dia. 5 in. to 175 ft. depth Wall Thickness: inches or
Dia. ____ in. to ____ ft. depth gage No. .258

5. Type and color of material	From	To
Top Soil	0	5
Brown Clay	5	49
Blue Clay	49	150
Fine Silty Sand	150	160
Fine Sand - Course Sand	160	175

(Use a second sheet if needed)

10. Screen: Manufacturer's name Pumpco
Type PVC Dia. 5"
(Slot)/gauze .025 Length 10
Set between 165 ft. and 175 ft.
____ ft. and ____ ft.
Gravel pack? ✓ Size range of material D30 x D20

11. Static water level: mo./day/yr.
100 ft. below land surface Date 3-9-76

12. Pumping level below land surfaces: Air Test
____ ft. after ____ hrs. pumping ____ g.p.m.
____ ft. after ____ hrs. pumping ____ g.p.m.
Estimated maximum yield 50 g.p.m.

13. Water sample submitted: mo./day/yr.
__ Yes ✓ No Date ____

14. Well head completion: Capped
__ Pitless adapter 24 Inches above grade

15. Well grouted? ✓
With: ✓ Neat cement ____ Bentonite ____ Concrete
Depth: From 0 ft. to 15 ft.

16. Nearest source of possible contamination:
ft. 100 Direction N Type Septic Tank
Well disinfected upon completion? ____ Yes ____ No

17. Pump: ✓ Not installed
Manufacturer's name ____
Model number ____ HP ____ Volts ____
Length of drop pipe ____ ft. capacity ____ g.p.m.
Type:
__ Submersible __ Turbine
__ Jet __ Reciprocating
__ Centrifugal __ Other

18. Elevation: 1136 DK
Topography:
✓ Hill
__ Slope
__ Upland
__ Valley

19. Remarks: Owner will Instal Slab

20. Water well contractor's certification:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Business name: Strader Drlg Co Inc. License No. 182
Address: RT1 Holton, Ks
Signed: Dale Askren Date 2-10-76
Authorized representative

T 4 R 14 (E) Sec 35 1/4 NE 1/4 NE 1/4 NE

WATER RESOURCES RECEIVED MAR 10 2017 KS DEPT OF AGRICULTURE

Forward the white, blue and pink copies to the Department of Health and Environment

Form WWC-5

BR 3 [illegible] 2 103

SCANNED

MI-1023

50 Wetmore

Stedman

WATER WELL RECORD Form WWC-5 KSA 82a-1212

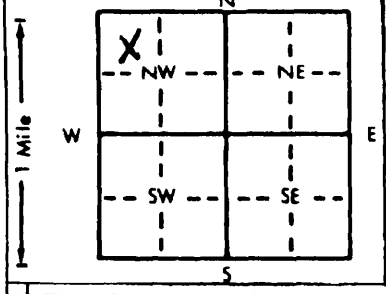
1 LOCATION OF WATER WELL:	Fraction	Section Number	Township Number	Range Number
County: Nemaha	NW ¼ NW ¼ NW ¼	2	T 5 (S)	R 14 (E) W

Distance and direction from nearest town or city street address of well if located within city? 1/2 N 1/2 W OF WETMORE

2 WATER WELL OWNER: R.J. STEDMAN
RR#, St. Address, Box # : Box 231
City, State, ZIP Code : WETMORE 66550

Board of Agriculture, Division of Water Resources
Application Number:

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:



4 DEPTH OF COMPLETED WELL 200 ft. ELEVATION: 1153 Ran

Depth(s) Groundwater Encountered 1. 190 ft. 2. ft. 3. ft.

WELL'S STATIC WATER LEVEL 120 ft. below land surface measured on mo/day/yr 6-11-82

Pump test data: Well water was ft. after hours pumping gpm

Est. Yield 150 gpm: Well water was ft. after hours pumping gpm

Bore Hole Diameter in. to ft., and in. to ft.

WELL WATER TO BE USED AS: 1 Domestic 2 Irrigation 3 Feedlot 4 Industrial 5 Public water supply 6 Oil field water supply 7 Lawn and garden only 8 Air conditioning 9 Dewatering 10 Observation well 11 Injection well 12 Other (Specify below)

Was a chemical/bacteriological sample submitted to Department? Yes No ✓; If yes, mo/day/yr sample was submitted Water Well Disinfected? Yes No

5 TYPE OF BLANK CASING USED: 1 Steel 2 PVC 3 RMP (SR) 4 ABS 5 Wrought iron 6 Asbestos-Cement 7 Fiberglass 8 Concrete tile 9 Other (specify below)

CASING JOINTS: Glued ✓ Clamped Welded Threaded

Blank casing diameter 5 in. to 0-190 ft., Dia in. to ft., Dia in. to ft.

Casing height above land surface 24 in., weight 2.82 lbs./ft. Wall thickness or gauge No. .258

TYPE OF SCREEN OR PERFORATION MATERIAL: 1 Steel 2 Brass 3 Stainless steel 4 Galvanized steel 5 Fiberglass 6 Concrete tile 7 PVC 8 RMP (SR) 9 ABS 10 Asbestos-cement 11 Other (specify) 12 None used (open hole)

SCREEN OR PERFORATION OPENINGS ARE: 1 Continuous slot 2 Louvered shutter 3 Mill slot 4 Key punched 5 Gauzed wrapped 6 Wire wrapped 7 Torch cut 8 Saw cut 9 Drilled holes 10 Other (specify) 11 None (open hole)

SCREEN-PERFORATED INTERVALS: From 190 ft. to 200 ft., From ft. to ft.
From ft. to ft., From ft. to ft.

GRAVEL PACK INTERVALS: From 20 ft. to 200 ft., From ft. to ft.
From ft. to ft., From ft. to ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout 3 Bentonite 4 Other

Grout Intervals: From 0 ft. to 10 ft., From ft. to ft., From ft. to ft.

What is the nearest source of possible contamination:
1 Septic tank 2 Sewer lines 3 Watertight sewer lines 4 Lateral lines 5 Cess pool 6 Seepage pit 7 Pit privy 8 Sewage lagoon 9 Feedyard 10 Livestock pens 11 Fuel storage 12 Fertilizer storage 13 Insecticide storage 14 Abandoned water well 15 Oil well/Gas well 16 Other (specify below)

Direction from well? NE How many feet? 160

FROM	TO	LITHOLOGIC LOG	FROM	TO	LITHOLOGIC LOG
0	2	TOP SOIL			
2	10	SANDY CLAY, BROWN			
10	45	CLAY BROWN			
45	158	CLAY BLUE			
158	176	FINE SILT BLUE			
176	182	CLAY, BLUE			
182	189	FINE SAND COURSE SAND			
189	195	CHERT 1/8 x 1/4 x 1/2			
195	200	SHALE, GREY			

WATER RESOURCES RECEIVED
MAR 10 2017
KS DEPT OF AGRICULTURE

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 6-11-82 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 182 This Water Well Record was completed on (mo/day/yr) 7-1-82 under the business name of Strader Drilling Co., Inc. by (signature) Dale Baker

INSTRUCTIONS: Use typewriter or ball point pen, PLEASE PRESS FIRMLY and PRINT clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Division of Environment, Environmental Geology Section, Topeka, KS 66620. Send one to WATER WELL OWNER and retain one for your records.

SCANNED

OFFICE USE ONLY T 5 R 14 E W SEC. 2

Babcock 143

WATER WELL RECORD Form WWC-5

1082194

Division of Water Resources App. No.

Well ID: Babcock 12-(

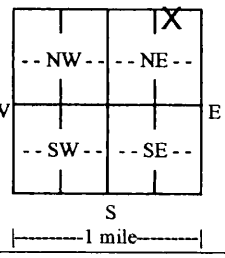
☑ Original Record ☐ Correction ☐ Change in Well Use

1 LOCATION OF WATER WELL: County: Nemaha | Fraction: NE ¼ NW ¼ NE ¼ NE ¼ | Section Number: 3 | Township Number: T 5 S | Range Number: R 14 ☑ E ☐ W

2 WELL OWNER: Last Name: Babcock First: Kenneth
Business:
Address: 1858 220th St
Address:
City: Hiawatha State: KS ZIP: 66434

Street or Rural Address where well is located (if unknown, distance and direction from nearest town or intersection): If at owner's address, check here: ☐
3/4 mile west of Wetmore on HY9, 1 1/4 mile north, 700 feet west. well is on south side of road.

3 LOCATE WELL WITH "X" IN SECTION BOX:



4 DEPTH OF COMPLETED WELL: 210 ft.
Depth(s) Groundwater Encountered: 1) 180 ft. 2) ..... ft. 3) 110 ft., or 4) ☐ Dry Well
WELL'S STATIC WATER LEVEL: 110 ft.
☑ below land surface, measured on (mo-day-yr) 03/01/2012
☐ above land surface, measured on (mo-day-yr).....
Pump test data: Well water was ..... ft. after..... hours pumping ..... gpm
Well water was ..... ft. after..... hours pumping ..... gpm
Estimated Yield: 60 gpm
Bore Hole Diameter: 14 in. to 210 ft. and ..... in. to ..... ft.

5 Latitude: 39.6528050 (decimal degrees)
Longitude: 95.8290550 (decimal degrees)
Datum: ☐ WGS 84 ☑ NAD 83 ☐ NAD 27
Source for Latitude/Longitude:
☑ GPS (unit make/model: Garmin) (WAAS enabled? ☐ Yes ☑ No)
☐ Land Survey ☐ Topographic Map
☐ Online Mapper: .....

6 Elevation: 1193 ft. ☑ Ground Level ☐ TOC
Source: ☐ Land Survey ☐ GPS ☐ Topographic Map ☑ Other KOLAR

7 WELL WATER TO BE USED AS:
1. Domestic: ☐ Household ☐ Lawn & Garden ☐ Livestock
2. ☐ Irrigation
3. ☐ Feedlot
4. ☐ Industrial
5. ☐ Public Water Supply: well ID .....
6. ☐ Dewatering: how many wells? .....
7. ☐ Aquifer Recharge: well ID .....
8. ☐ Monitoring: well ID .....
9. Environmental Remediation: well ID ..... ☐ Air Sparge ☐ Soil Vapor Extraction ☐ Recovery ☐ Injection
10. ☐ Oil Field Water Supply: lease .....
11. Test Hole: well ID Babcock 12-03 ☑ Cased ☐ Uncased ☐ Geotechnical
12. Geothermal: how many bores? ..... a) Closed Loop ☐ Horizontal ☐ Vertical b) Open Loop ☐ Surface Discharge ☐ Inj. of Water
13. ☐ Other (specify): .....

Was a chemical/bacteriological sample submitted to KDHE? ☐ Yes ☑ No If yes, date sample was submitted: .....
Water well disinfected? ☑ Yes ☐ No

8 TYPE OF CASING USED: ☐ Steel ☑ PVC ☐ Other ..... CASING JOINTS: ☑ Glued ☐ Clamped ☐ Welded ☐ Threaded
Casing diameter 8 in. to 210 ft., Diameter ..... in. to ..... ft., Diameter ..... in. to ..... ft.
Casing height above land surface 24 in. Weight ..... lbs./ft. Wall thickness or gauge No. SDR21
TYPE OF SCREEN OR PERFORATION MATERIAL:
☐ Steel ☐ Stainless Steel ☐ Fiberglass ☑ PVC ☐ Other (Specify) .....
☐ Brass ☐ Galvanized Steel ☐ Concrete tile ☐ None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
☐ Continuous Slot ☑ Mill Slot ☐ Gauze Wrapped ☐ Torch Cut ☐ Drilled Holes ☐ Other (Specify) .....
☐ Louvered Shutter ☐ Key Punched ☐ Wire Wrapped ☐ Saw Cut ☐ None (Open Hole)
SCREEN-PERFORATED INTERVALS: From 190 ft. to 210 ft., From ..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From 25 ft. to 210 ft., From ..... ft. to ..... ft., From ..... ft. to ..... ft.

9 GROUT MATERIAL: ☐ Neat cement ☐ Cement grout ☑ Bentonite ☐ Other .....
Grout Intervals: From 5 ft. to 25 ft., From ..... ft. to ..... ft., From ..... ft. to ..... ft.
Nearest source of possible contamination:
☐ Septic Tank ☐ Lateral Lines ☐ Pit Privy ☐ Livestock Pens ☐ Insecticide Storage
☐ Sewer Lines ☐ Cess Pool ☐ Sewage Lagoon ☐ Fuel Storage ☐ Abandoned Water Well
☐ Watertight Sewer Lines ☐ Seepage Pit ☐ Feedyard ☐ Fertilizer Storage ☐ Oil Well/Gas Well
☐ Other (Specify) .....
Direction from well? ..... Distance from well? ..... ft.

10 FROM	TO	LITHOLOGIC LOG	FROM	TO	LITHO. LOG (cont.) or PLUGGING INTERVALS
Attached	Attached	Attached			

WATER RESOURCES RECEIVED
MAR 1 0 2017
KS DEPT OF AGRICULTURE

Notes:

11 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was ☑ constructed, ☐ reconstructed, or ☐ plugged under my jurisdiction and was completed on (mo-day-year) 03/01/2012 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 779 This Water Well Record was completed on (mo-day-year) 05/22/2012 under the business name of Drill-Well, LLC

Send one copy to WATER WELL OWNER and retain one for your records. Fee of $5.00 for each constructed well.
KS Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-3565.
Visit us at http://www.kdheks.gov/waterwell/index.html KSA 82a-1212

SCANNED

Babcock 143

Form	WWC5
Contractor	Drill-Well, LLC
Well Owner	Kenneth Babcock
Doc ID	1082194

Litholgy

0	5	no sample
5	13	silty clay brown
13	16	sandy clay light brown
16	23	silty clay grayish brown
23	87	silty clay gray
87	88	sand C - VC
88	127	silty clay gray
127	136	sand M - VC with clay layers
136	139	silty clay gray
139	148	sand/silty sand VF
148	160	silty clay gray
160	165	sand M - C with clay layers
165	180	silty clay gray
180	185	sand VF some silt
185	204	sand VF
204	206	sand M - VC
206	210	gravel/some chert

Babcock 2 of 3

WATER WELL RECORD Form WWC-5

1092270

Division of Water Resources App. No. 000

Well ID

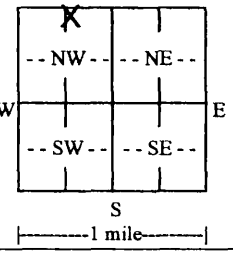
☑ Original Record ☐ Correction ☐ Change in Well Use

1 LOCATION OF WATER WELL: County: Nemaha	Fraction: NW ¼ NW ¼ NE ¼ NW ¼	Section Number: 3	Township Number: T 5 S	Range Number: R 14 ☑ E ☐ W

2 WELL OWNER: Last Name: Babcock First: Ken
Business:
Address: 601 S. 23rd St.
Address:
City: Hiawatha State: KS ZIP: 66434

Street or Rural Address where well is located (if unknown, distance and direction from nearest town or intersection): If at owner's address, check here: ☐

3 LOCATE WELL WITH "X" IN SECTION BOX:



4 DEPTH OF COMPLETED WELL: 230 ft.
Depth(s) Groundwater Encountered: 1) 108 ft. 2) ..... ft. 3) ..... ft., or 4) ☐ Dry Well
WELL'S STATIC WATER LEVEL: 108 ft.
☑ below land surface, measured on (mo-day-yr) 6/14/2012
☐ above land surface, measured on (mo-day-yr).....
Pump test data: Well water was ..... ft. after..... hours pumping ..... gpm
Well water was ..... ft. after..... hours pumping ..... gpm
Estimated Yield: 500 gpm
Bore Hole Diameter: 15 in. to 238 ft. and ..... in. to ..... ft.

5 Latitude: 39.65258 (decimal degrees)
Longitude: 95.84001 (decimal degrees)
Datum: ☑ WGS 84 ☐ NAD 83 ☐ NAD 27
Source for Latitude/Longitude:
☐ GPS (unit make/model: .....)
(WAAS enabled? ☐ Yes ☐ No)
☐ Land Survey ☐ Topographic Map
☐ Online Mapper: .....

6 Elevation: 1186 ft. ☑ Ground Level ☐ TOC
Source: ☐ Land Survey ☐ GPS ☐ Topographic Map ☑ Other KOLAR

7 WELL WATER TO BE USED AS:
1. Domestic: ☐ Household ☐ Lawn & Garden ☐ Livestock
2. ☑ Irrigation
3. ☐ Feedlot
4. ☐ Industrial
5. ☐ Public Water Supply: well ID .....
6. ☐ Dewatering: how many wells? .....
7. ☐ Aquifer Recharge: well ID .....
8. ☐ Monitoring: well ID .....
9. Environmental Remediation: well ID ..... ☐ Air Sparge ☐ Soil Vapor Extraction ☐ Recovery ☐ Injection
10. ☐ Oil Field Water Supply: lease .....
11. Test Hole: well ID ..... ☐ Cased ☐ Uncased ☐ Geotechnical
12. Geothermal: how many bores? ..... a) Closed Loop ☐ Horizontal ☐ Vertical b) Open Loop ☐ Surface Discharge ☐ Inj. of Water
13. ☐ Other (specify): .....

Was a chemical/bacteriological sample submitted to KDHE? ☐ Yes ☑ No If yes, date sample was submitted: .....
Water well disinfected? ☑ Yes ☐ No

8 TYPE OF CASING USED: ☐ Steel ☑ PVC ☐ Other ..... CASING JOINTS: ☑ Glued ☐ Clamped ☐ Welded ☐ Threaded
Casing diameter 10 in. to 230 ft., Diameter ..... in. to ..... ft., Diameter ..... in. to ..... ft.
Casing height above land surface 18 in. Weight ..... lbs./ft. Wall thickness or gauge No. SDR32

TYPE OF SCREEN OR PERFORATION MATERIAL:
☐ Steel ☐ Stainless Steel ☐ Fiberglass ☑ PVC ☐ Other (Specify) .....
☐ Brass ☐ Galvanized Steel ☐ Concrete tile ☐ None used (open hole)

SCREEN OR PERFORATION OPENINGS ARE:
☐ Continuous Slot ☑ Mill Slot ☐ Gauze Wrapped ☐ Torch Cut ☐ Drilled Holes ☐ Other (Specify) .....
☐ Louvered Shutter ☐ Key Punched ☐ Wire Wrapped ☐ Saw Cut ☐ None (Open Hole)

SCREEN-PERFORATED INTERVALS: From 110 ft. to 230 ft., From ..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From 30 ft. to 230 ft., From ..... ft. to ..... ft., From ..... ft. to ..... ft.

9 GROUT MATERIAL: ☐ Neat cement ☐ Cement grout ☑ Bentonite ☐ Other .....
Grout Intervals: From 0 ft. to 20 ft., From ..... ft. to ..... ft., From ..... ft. to ..... ft.

Nearest source of possible contamination:
☐ Septic Tank ☐ Lateral Lines ☐ Pit Privy ☐ Livestock Pens ☐ Insecticide Storage
☐ Sewer Lines ☐ Cess Pool ☐ Sewage Lagoon ☐ Fuel Storage ☐ Abandoned Water Well
☐ Watertight Sewer Lines ☐ Seepage Pit ☐ Feedyard ☐ Fertilizer Storage ☐ Oil Well/Gas Well
☐ Other (Specify) .....
Direction from well? ..... Distance from well? ..... ft.

10 FROM	TO	LITHOLOGIC LOG	FROM	TO	LITHO. LOG (cont.) or PLUGGING INTERVALS
0	5	Topsoil			
5	24	Tan Clay			
24	140	Grey Clay			
140	156	Grey Clay with Fine Gravel			
156	215	Grey Clay with Medium Sand			
215	226	Medium Gravel			
226	227	Limestone			
227	229	Grey Shale			
229	230	Limestone			

WATER RESOURCES RECEIVED
MAR 10 2017
KS DEPT OF AGRICULTURE

Notes:

11 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was ☑ constructed, ☐ reconstructed, or ☐ plugged under my jurisdiction and was completed on (mo-day-year) 6/14/2012 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 760 This Water Well Record was completed on (mo-day-year) 7/16/2012 under the business name of Associated Drilling, Inc.

Send one copy to WATER WELL OWNER and retain one for your records. Fee of $5.00 for each constructed well.
KS Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-3565.
Visit us at http://www.kdheks.gov/waterwell/index.html KSA 82a-1212

SCANNED

Babcock 3 of 3

WATER WELL RECORD Form WWC-5

1082206

Division of Water Resources App. No.

Well ID: Babcock 12-(

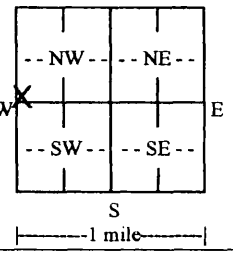
☑ Original Record ☐ Correction ☐ Change in Well Use

1 LOCATION OF WATER WELL: County: Nemaha | Fraction: SW ¼ SW ¼ SW ¼ NW ¼ | Section Number: 3 | Township Number: T 5 S | Range Number: R 14 ☑ E ☐ W

2 WELL OWNER: Last Name: Babcock First: Kenneth
Business:
Address: 1858 220th St.
Address:
City: Hiawatha State: KS ZIP: 66434

Street or Rural Address where well is located (if unknown, distance and direction from nearest town or intersection): If at owner's address, check here: ☐
1 3/4 mile west of Wetmore on HY9, 1/2 mile north. well is about 200 feet east into field

3 LOCATE WELL WITH "X" IN SECTION BOX:



4 DEPTH OF COMPLETED WELL: 152 ft.
Depth(s) Groundwater Encountered: 1) 81 ft. 2) ..... ft. 3) ..... ft., or 4) ☐ Dry Well
WELL'S STATIC WATER LEVEL: 80 ft.
☑ below land surface, measured on (mo-day-yr) 04/02/2012
☐ above land surface, measured on (mo-day-yr) .....
Pump test data: Well water was ..... ft. after ..... hours pumping ..... gpm
Well water was ..... ft. after ..... hours pumping ..... gpm
Estimated Yield: 30 gpm
Bore Hole Diameter: 14 in. to 152 ft. and ..... in. to ..... ft.

5 Latitude: 39.646 (decimal degrees)
Longitude: 95.845 (decimal degrees)
Datum: ☐ WGS 84 ☑ NAD 83 ☐ NAD 27
Source for Latitude/Longitude:
☑ GPS (unit make/model: Garmin .....)
(WAAS enabled? ☐ Yes ☑ No)
☐ Land Survey ☐ Topographic Map
☐ Online Mapper: .....

6 Elevation: 1203 ft. ☑ Ground Level ☐ TOC
Source: ☐ Land Survey ☐ GPS ☐ Topographic Map ☑ Other KOLAR

7 WELL WATER TO BE USED AS:
1. Domestic: ☐ Household ☐ Lawn & Garden ☐ Livestock
2. ☐ Irrigation
3. ☐ Feedlot
4. ☐ Industrial
5. ☐ Public Water Supply: well ID .....
6. ☐ Dewatering: how many wells? .....
7. ☐ Aquifer Recharge: well ID .....
8. ☐ Monitoring: well ID .....
9. Environmental Remediation: well ID ..... ☐ Air Sparge ☐ Soil Vapor Extraction ☐ Recovery ☐ Injection
10. ☐ Oil Field Water Supply: lease .....
11. Test Hole: well ID Babcock 12-05 ☑ Cased ☐ Uncased ☐ Geotechnical
12. Geothermal: how many bores? ..... a) Closed Loop ☐ Horizontal ☐ Vertical b) Open Loop ☐ Surface Discharge ☐ Inj. of Water
13. ☐ Other (specify): .....

Was a chemical/bacteriological sample submitted to KDHE? ☐ Yes ☑ No If yes, date sample was submitted: .....
Water well disinfected? ☑ Yes ☐ No

8 TYPE OF CASING USED: ☐ Steel ☑ PVC ☐ Other ..... CASING JOINTS: ☑ Glued ☐ Clamped ☐ Welded ☐ Threaded
Casing diameter 8 in. to 152 ft., Diameter ..... in. to ..... ft., Diameter ..... in. to ..... ft.
Casing height above land surface 24 in. Weight ..... lbs./ft. Wall thickness or gauge No. SDR21

TYPE OF SCREEN OR PERFORATION MATERIAL:
☐ Steel ☐ Stainless Steel ☐ Fiberglass ☑ PVC ☐ Other (Specify) .....
☐ Brass ☐ Galvanized Steel ☐ Concrete tile ☐ None used (open hole)

SCREEN OR PERFORATION OPENINGS ARE:
☐ Continuous Slot ☑ Mill Slot ☐ Gauze Wrapped ☐ Torch Cut ☐ Drilled Holes ☐ Other (Specify) .....
☐ Louvered Shutter ☐ Key Punched ☐ Wire Wrapped ☐ Saw Cut ☐ None (Open Hole)

SCREEN-PERFORATED INTERVALS: From 112 ft. to 152 ft., From ..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From 25 ft. to 152 ft., From ..... ft. to ..... ft., From ..... ft. to ..... ft.

9 GROUT MATERIAL: ☐ Neat cement ☐ Cement grout ☑ Bentonite ☐ Other .....
Grout Intervals: From 5 ft. to 25 ft., From ..... ft. to ..... ft., From ..... ft. to ..... ft.

Nearest source of possible contamination:
☐ Septic Tank ☐ Lateral Lines ☐ Pit Privy ☐ Livestock Pens ☐ Insecticide Storage
☐ Sewer Lines ☐ Cess Pool ☐ Sewage Lagoon ☐ Fuel Storage ☐ Abandoned Water Well
☐ Watertight Sewer Lines ☐ Seepage Pit ☐ Feedyard ☐ Fertilizer Storage ☐ Oil Well/Gas Well
☐ Other (Specify) .....
Direction from well? ..... Distance from well? ..... ft.

10 FROM	TO	LITHOLOGIC LOG	FROM	TO	LITHO. LOG (cont.) or PLUGGING INTERVALS
Attached	Attached	Attached			

WATER RESOURCES RECEIVED
MAR 10 2017
KS DEPT OF AGRICULTURE

Notes:

11 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was ☑ constructed, ☐ reconstructed, or ☐ plugged under my jurisdiction and was completed on (mo-day-year) 04/02/2012 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 779 This Water Well Record was completed on (mo-day-year) 05/22/2012 under the business name of Drill-Well, LLC

Send one copy to WATER WELL OWNER and retain one for your records. Fee of $5.00 for each constructed well.
KS Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-3565.
Visit us at http://www.kdheks.gov/waterwell/index.html KSA 82a-1212

SCANNED

Babcock 373

Form	WWC5
Contractor	Drill-Well, LLC
Well Owner	Kenneth Babcock
Doc ID	1082206

Litholgy

0	5	no sample
5	15	silty clay brown
15	25	silty clay light brown & light gray
25	29	silty clay grayish brown
29	81	silty clay gray
81	88	sand & gravel
88	97	silty clay gray
97	98	sand F
98	105	silty clay gray
105	112	white chert, some sand & gravel
112	126	silty clay gray
126	129	sand & gravel VC
129	137	sand & gravel VC w/some clay layers
137	148	silty clay gray
148	163	sand F-C
163		limestone

Kranz

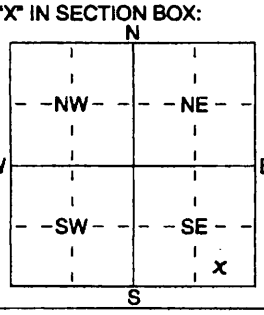
WATER WELL RECORD Form WWC-5 KSA 82a-1212 ID No.

1 LOCATION OF WATER WELL: County: Nemaha	Fraction: SW ¼ SE ¼ SE ¼	Section Number: 33	Township Number: T 4 S	Range Number: R 14E E/W

Distance and direction from nearest town or city street address of well if located within city?
1 3/4 west 1 north of wetmore

2 WATER WELL OWNER: Howard Kranz
RR#, St. Address, Box # : Rt 1 Box 49
City, State, ZIP Code : Wetmore, Ks. 66550
Board of Agriculture, Division of Water Resources Application Number:

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:



4 DEPTH OF COMPLETED WELL 200' ft. ELEVATION:
Depth(s) Groundwater Encountered 1 ft. 2 ft. 3 ft.
WELL'S STATIC WATER LEVEL 132 ft. below land surface measured on mo/day/yr 10-10-03
Pump test data: Well water was ft. after hours pumping gpm
Est. Yield 30 gpm: Well water was ft. after hours pumping gpm
WELL WATER TO BE USED AS: 1 Domestic 2 Irrigation 3 Feedlot 4 Industrial 5 Public water supply 6 Oil field water supply 7 Domestic (lawn & garden) 8 Air conditioning 9 Dewatering 10 Monitoring well 11 Injection well 12 Other (Specify below)
Was a chemical/bacteriological sample submitted to Department? Yes ..... No x ; If yes, mo/day/yrs sample was submitted
Water Well Disinfected? Yes x No

5 TYPE OF BLANK CASING USED: 1 Steel 2 PVC 3 RMP (SR) 4 ABS 5 Wrought iron 6 Asbestos-Cement 7 Fiberglass 8 Concrete tile 9 Other (specify below)
CASING JOINTS: Glued x Clamped Welded Threaded
Blank casing diameter 5" in. to 24" ft., Dia in. to ft., Dia in. to ft.
Casing height above land surface 24" in., weight 2.82 lbs./ft. Wall thickness or guage No. .258

TYPE OF SCREEN OR PERFORATION MATERIAL: 1 Steel 2 Brass 3 Stainless Steel 4 Galvanized Steel 5 Fiberglass 6 Concrete tile 7 PVC 8 RMP (SR) 9 ABS 10 Asbestos-Cement 11 Other (Specify) 12 None used (open hole)

SCREEN OR PERFORATION OPENINGS ARE: 1 Continuous slot 2 Louvered shutter 3 Mill slot 4 Key punched 5 Guazed wrapped 6 Wire wrapped 7 Torch cut 8 Saw cut 9 Drilled holes 10 Other (specify) 11 None (open hole)

SCREEN-PERFORATED INTERVALS: From 171 ft. to 181 ft., From ft. to ft.
From ft. to ft., From ft. to ft.
GRAVEL PACK INTERVALS: From 25 ft. to 200 ft., From ft. to ft.
From ft. to ft., From ft. to ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout 3 Bentonite 4 Other
Grout Intervals: From ft. to 3 ft., From 25 ft. to ft., From ft. to ft.

What is the nearest source of possible contamination: 1 Septic tank 2 Sewer lines 3 Watertight sewer lines 4 Lateral lines 5 Cess pool 6 Seepage pit 7 Pit privy 8 Sewage lagoon 9 Feedyard 10 Livestock pens 11 Fuel storage 12 Fertilizer storage 13 Insecticide storage 14 Abandoned water well 15 Oil well/Gas well 16 Other (specify below) pond
Direction from well? NorthEast How many feet? 55'

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	1	top soil			
1	11	clay brown sandy			
11	28	clay yellow sandy			
28	36	clay tan grey mix			
36	54	clay grey			
54	57	fine/course sand grey			
57	151	clay grey pebbles			
151	157	clay grey silty			
157	164	fine/sand grey			
164	~~170~~ 170	fine/course sand boulders			
170	175	course sand med pea grey boulders			
175	181	pea grey boulders			
181	200	shale grey			

WATER RESOURCES RECEIVED
MAR 10 2017
KS DEPT OF AGRICULTURE

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 10-30-03 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's Licence No 182 This Water Well Record was completed on (mo/day/yr) 10-30-03 under the business name of Straden Drilling Co. Inc. by (signature) Jim Straden

INSTRUCTIONS: Use typewriter or ball point pen. PLEASE PRESS FIRMLY and PRINT clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of $5.00 for each constructed well.

SCANNED

Blocker

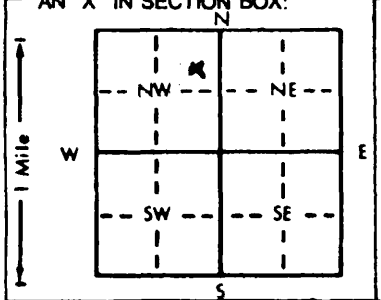
WATER WELL RECORD Form WWC-5 KSA 82a-1212

1 LOCATION OF WATER WELL:	Fraction	Section Number	Township Number	Range Number
County: Nemaha	SE ¼ NE ¼ NW ¼	4	T 5 S	R 14 E

Distance and direction from nearest town or city street address of well if located within city?
1½ EAST & 1 North Wetmore, KS.

2 WATER WELL OWNER: Joe Blocker
RR#, St. Address, Box # : Rt 1 Box 50
City, State, ZIP Code : Wetmore, Ks. 66550
Board of Agriculture, Division of Water Resources
Application Number:

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:



4 DEPTH OF COMPLETED WELL 50' ft. ELEVATION:
Depth(s) Groundwater Encountered 1. 32'6" ft. 2. ft. 3. ft.
WELL'S STATIC WATER LEVEL 32'6" ft. below land surface measured on mo/day/yr 9-6-90
Pump test data: Well water was ft. after hours pumping gpm
Est. Yield 20 gpm: Well water was ft. after hours pumping gpm
Bore Hole Diameter 9 in. to ft., and in. to ft.
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
(1) Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Lawn and garden only 10 Monitoring well
Was a chemical/bacteriological sample submitted to Department? Yes No X; If yes, mo/day/yr sample was submitted
Water Well Disinfected? Yes X No

5 TYPE OF BLANK CASING USED: 5 Wrought iron 8 Concrete tile CASING JOINTS: Glued X Clamped
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded
(2) PVC 4 ABS 7 Fiberglass Threaded
Blank casing diameter 5' in. to 40 ft., Dia in. to ft., Dia in. to ft.
Casing height above land surface 1.8 in., weight 2.843 lbs./ft. Wall thickness or gauge No. SDR21
TYPE OF SCREEN OR PERFORATION MATERIAL: (7) PVC 10 Asbestos-cement
1 Steel 3 Stainless steel 5 Fiberglass 8 RMP (SR) 11 Other (specify)
2 Brass 4 Galvanized steel 6 Concrete tile 9 ABS 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE: 5 Gauzed wrapped 8 Saw cut 11 None (open hole)
(1) Continuous slot 3 Mill slot 6 Wire wrapped 9 Drilled holes
2 Louvered shutter 4 Key punched 7 Torch cut 10 Other (specify)
SCREEN-PERFORATED INTERVALS: From 40 ft. to 50 ft., From ft. to ft.
From ft. to ft., From ft. to ft.
GRAVEL PACK INTERVALS: From 30 ft. to 50 ft., From ft. to ft.
From ft. to ft., From ft. to ft.

6 GROUT MATERIAL: (1) Neat cement 2 Cement grout 3 Bentonite 4 Other
Grout Intervals: From 5 ft. to 21 ft., From ft. to ft., From ft. to ft.
What is the nearest source of possible contamination:
1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 14 Abandoned water well
2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 15 Oil well/Gas well
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer storage 16 Other (specify below)
13 Insecticide storage None Known
Direction from well? How many feet?

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	4	NS			
4	13.5	SANDY CLAY BROWN			
13.5	39	SAND BROWN VF-F			
39	41	SAND BROWN VF-gravel			
41	50	SAND BROWN VF-med			

WATER RESOURCES RECEIVED
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7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 9-6-90 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 308 This Water Well Record was completed on (mo/day/yr) 9-6-90 under the business name of Rieschick Drilling Co by (signature) Roy Rieschick

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Topeka, Kansas 66620-7320. Telephone: 913-296-5545. Send one to WATER WELL OWNER and retain one for your records.

OFFICE USE ONLY T R E/W SEC. ¼ ¼ ¼

SCANNED

48 (a.c.

Haverkamp V.D

WATER WELL RECORD Form WWC-5 KSA 82a-1212

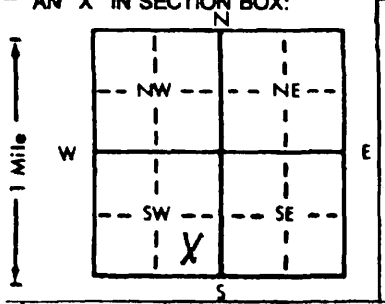
1 LOCATION OF WATER WELL: County: Nemaha	Fraction: SE ¼ SE ¼ SW ¼	Section Number: 3	Township Number: T 5 (S)	Range Number: R 14 (E) W

Distance and direction from nearest town or city street address of well if located within city?
3/4 m NW of Wetmore

2 WATER WELL OWNER: Avitus Haverkamp
RR#, St. Address, Box # : RR 1
City, State, ZIP Code : Wetmore, Kansas 66550

Board of Agriculture, Division of Water Resources
Application Number:

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:



4 DEPTH OF COMPLETED WELL 85 ft. ELEVATION: 1131 RM

Depth(s) Groundwater Encountered 1. 66 ft. 2. ft. 3. ft.

WELL'S STATIC WATER LEVEL 60 ft. below land surface measured on mo/day/yr 12-7-81

Pump test data: Well water was ft. after hours pumping gpm

Est. Yield 100 gpm: Well water was ft. after hours pumping gpm

Bore Hole Diameter 12 in. to 85 ft., and in. to ft.

WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Lawn and garden only 10 Observation well

Was a chemical/bacteriological sample submitted to Department? Yes No; If yes, mo/day/yr sample was submitted Water Well Disinfected? (Yes) No

5 TYPE OF BLANK CASING USED: 5 Wrought iron 8 Concrete tile CASING JOINTS: Glued ✓ Clamped
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded
2 PVC 4 ABS 7 Fiberglass Threaded

Blank casing diameter 5 in. to 0-75 ft., Dia in. to ft., Dia in. to ft.

Casing height above land surface 24 in., weight 2.82 lbs./ft. Wall thickness or gauge No. -258

TYPE OF SCREEN OR PERFORATION MATERIAL:
1 Steel 3 Stainless steel 5 Fiberglass 7 PVC 10 Asbestos-cement
2 Brass 4 Galvanized steel 6 Concrete tile 8 RMP (SR) 11 Other (specify)
9 ABS 12 None used (open hole)

SCREEN OR PERFORATION OPENINGS ARE:
1 Continuous slot 3 Mill slot 5 Gauzed wrapped 8 Saw cut 11 None (open hole)
2 Louvered shutter 4 Key punched 6 Wire wrapped 9 Drilled holes
7 Torch cut 10 Other (specify)

SCREEN-PERFORATED INTERVALS: From 75 ft. to 85 ft., From ft. to ft.
From ft. to ft., From ft. to ft.

GRAVEL PACK INTERVALS: From 10 ft. to 85 ft., From ft. to ft.
From ft. to ft., From ft. to ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout 3 Bentonite 4 Other

Grout Intervals: From 0 ft. to 10 ft., From ft. to ft., From ft. to ft.

What is the nearest source of possible contamination:
1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 14 Abandoned water well
2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 15 Oil well/Gas well
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer storage 16 Other (specify below)
13 Insecticide storage

Direction from well? SW How many feet? 300

FROM	TO	LITHOLOGIC LOG	FROM	TO	LITHOLOGIC LOG
0	4	Top Soil			
4	26	Clay, brown			
26	28	Fine Sand, Course Sand			
28	66	Clay, blue			
66	72	Fine Sand - grey			
72	80	Fine Sand, Course Sand, grey			
80	85	Chert ¼ x ⅛ - grey			

WATER RESOURCES RECEIVED
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7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 12-7-81 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 182 This Water Well Record was completed on (mo/day/yr) 1-5-82 under the business name of Strader Drlg. Co., Inc by (signature) Dale Askren

INSTRUCTIONS: Use typewriter or ball point pen, PLEASE PRESS FIRMLY and PRINT clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Division of Environment, Environmental Geology Section, Topeka, KS 66620. Send one to WATER WELL OWNER and retain one for your records.

OFFICE USE ONLY T 5 R 14 (E) W SEC. 3 SE¼ SE¼ SW¼

SCANNED

Brunning

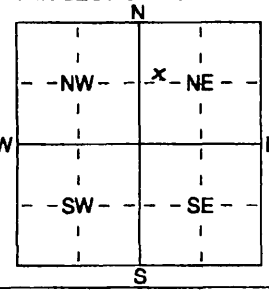
WATER WELL RECORD Form WWC-5 KSA 82a-1212 ID No.

1 LOCATION OF WATER WELL:	Fraction	Section Number	Township Number	Range Number
County: Nemaha	SW ¼ NW ¼ NE ¼	14	T 5 S	R 14E E/W

Distance and direction from nearest town or city street address of well if located within city?
3/4 South of Wetmore

2 WATER WELL OWNER: Gary Brunning
RR#, St. Address, Box # : Box 75
City, State, ZIP Code : Wetmore, Ks. 66550
Board of Agriculture, Division of Water Resources Application Number:

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:



4 DEPTH OF COMPLETED WELL 97' ft. ELEVATION:
Depth(s) Groundwater Encountered 1 ..... ft. 2 ..... ft. 3 ..... ft.
WELL'S STATIC WATER LEVEL 45' ft. below land surface measured on mo/day/yr 10-8-03
Pump test data: Well water was ..... ft. after ..... hours pumping ..... gpm
Est. Yield 75+ gpm: Well water was ..... ft. after ..... hours pumping ..... gpm
WELL WATER TO BE USED AS: 1 Domestic 2 Irrigation 3 Feedlot 4 Industrial 5 Public water supply 6 Oil field water supply 7 Domestic (lawn & garden) 8 Air conditioning 9 Dewatering 10 Monitoring well 11 Injection well 12 Other (Specify below)
Was a chemical/bacteriological sample submitted to Department? Yes ..... No x; If yes, mo/day/yrs sample was submitted
Water Well Disinfected? Yes x No

5 TYPE OF BLANK CASING USED: 1 Steel 2 PVC 3 RMP (SR) 4 ABS 5 Wrought iron 6 Asbestos-Cement 7 Fiberglass 8 Concrete tile 9 Other (specify below)
CASING JOINTS: Glued x Clamped ..... Welded ..... Threaded .....
Blank casing diameter 5" in. to ..... ft., Dia ..... in. to ..... ft., Dia ..... in. to ..... ft.
Casing height above land surface 24" in., weight 2.82 lbs./ft. Wall thickness or guage No. .258
TYPE OF SCREEN OR PERFORATION MATERIAL: 1 Steel 2 Brass 3 Stainless Steel 4 Galvanized Steel 5 Fiberglass 6 Concrete tile 7 PVC 8 RMP (SR) 9 ABS 10 Asbestos-Cement 11 Other (Specify) ..... 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE: 1 Continuous slot 2 Louvered shutter 3 Mill slot 4 Key punched 5 Guazed wrapped 6 Wire wrapped 7 Torch cut 8 Saw cut 9 Drilled holes 10 Other (specify) ..... 11 None (open hole)
SCREEN-PERFORATED INTERVALS: From 78 ft. to 88 ft., From ..... ft. to ..... ft.
From ..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From 30 ft. to 97 ft., From ..... ft. to ..... ft.
From ..... ft. to ..... ft., From ..... ft. to ..... ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout 3 Bentonite 4 Other .....
Grout Intervals: From 3 ft. to 30 ft., From ..... ft. to ..... ft., From ..... ft. to ..... ft.
What is the nearest source of possible contamination: 1 Septic tank 2 Sewer lines 3 Watertight sewer lines 4 Lateral lines 5 Cess pool 6 Seepage pit 7 Pit privy 8 Sewage lagoon 9 Feedyard 10 Livestock pens 11 Fuel storage 12 Fertilizer storage 13 Insecticide storage 14 Abandoned water well 15 Oil well/Gas well 16 Other (specify below) .....
Direction from well? South How many feet? 63'

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	4	top soil			
4	7	clay brown/sandy			
7	13	clay yellow sandy			
13	21	clay yellow brown sandy			
21	24	clay brown sandy pebbles			
24	59	clay grey			
59	69	fine sand grey brown			
69	82	fine/course sand grey brown			
82	88	course sand med pea grey and brown			
88	97	grey shale			

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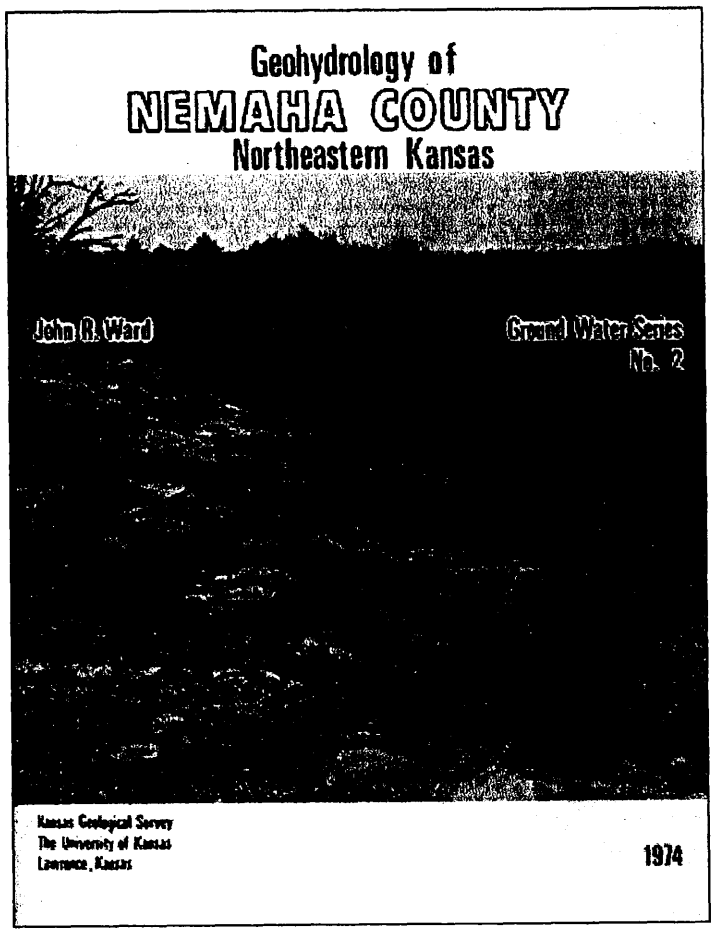
7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 10-30-03 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's Licence No 182 This Water Well Record was completed on (mo/day/yr) 10-30-03 under the business name of Strader Drilling Co., Inc. by (signature)

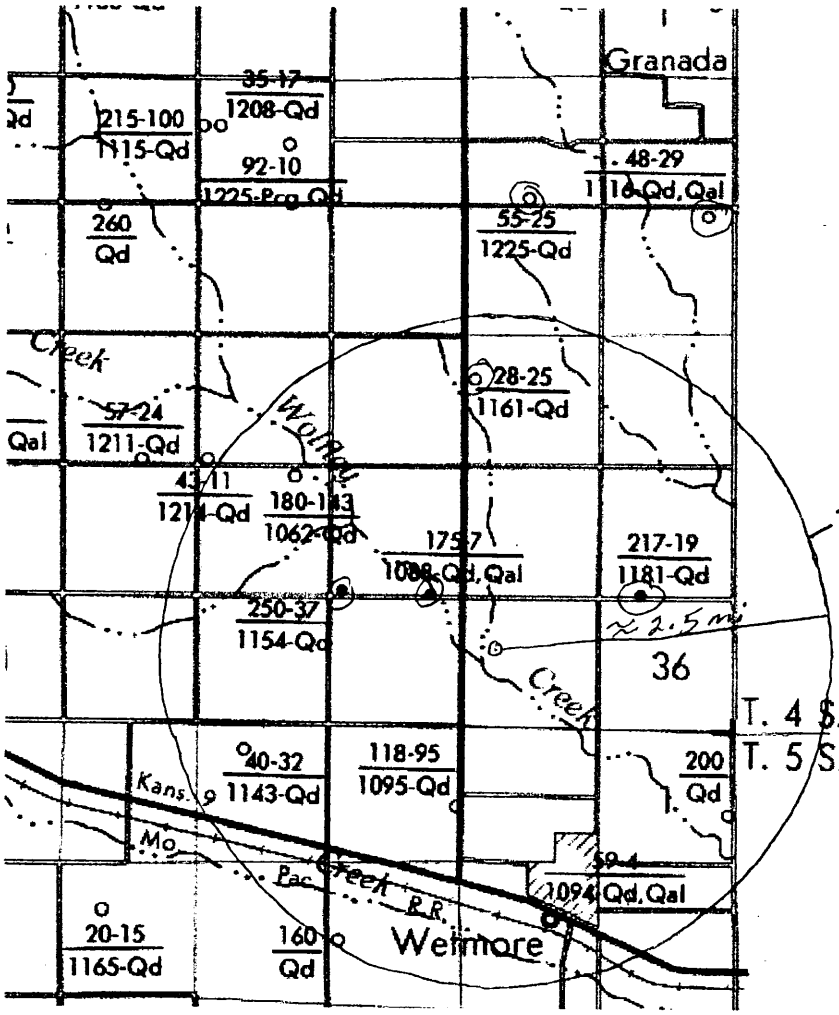
INSTRUCTIONS: Use typewriter or ball point pen. PLEASE PRESS FIRMLY and PRINT clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of $5.00 for each constructed well.

SCANNED

Geohydrology of Nemaha County, Northeastern Kansas

by John R. Ward





≈ 2.5 mi Radius Circle Centered Between Apps #49,742 #49,743

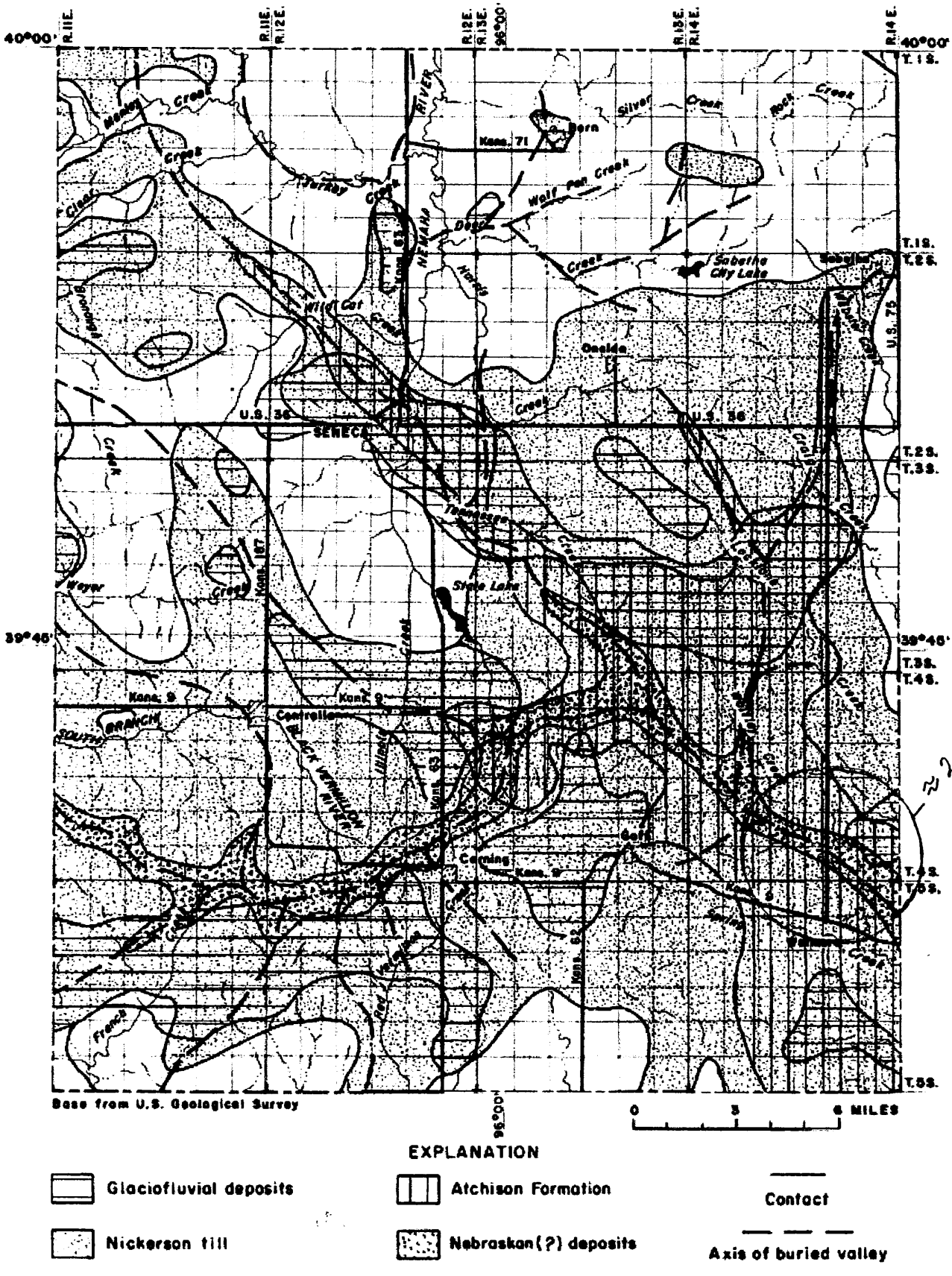
88-11
1291-Qd

Upper left number is depth of well or test hole, in feet below land surface; second number (when shown) is depth to water level, in feet below land surface (D indicates dry hole). Lower left number is altitude of water level, in feet above mean sea level; second symbol is aquifier (see list below)

Qal - Alluvium and terrace deposits
Qd - Glacial drift
Pc - Chase Group
Pcg - Council Grove Group
Pw - Wabaunsee Group

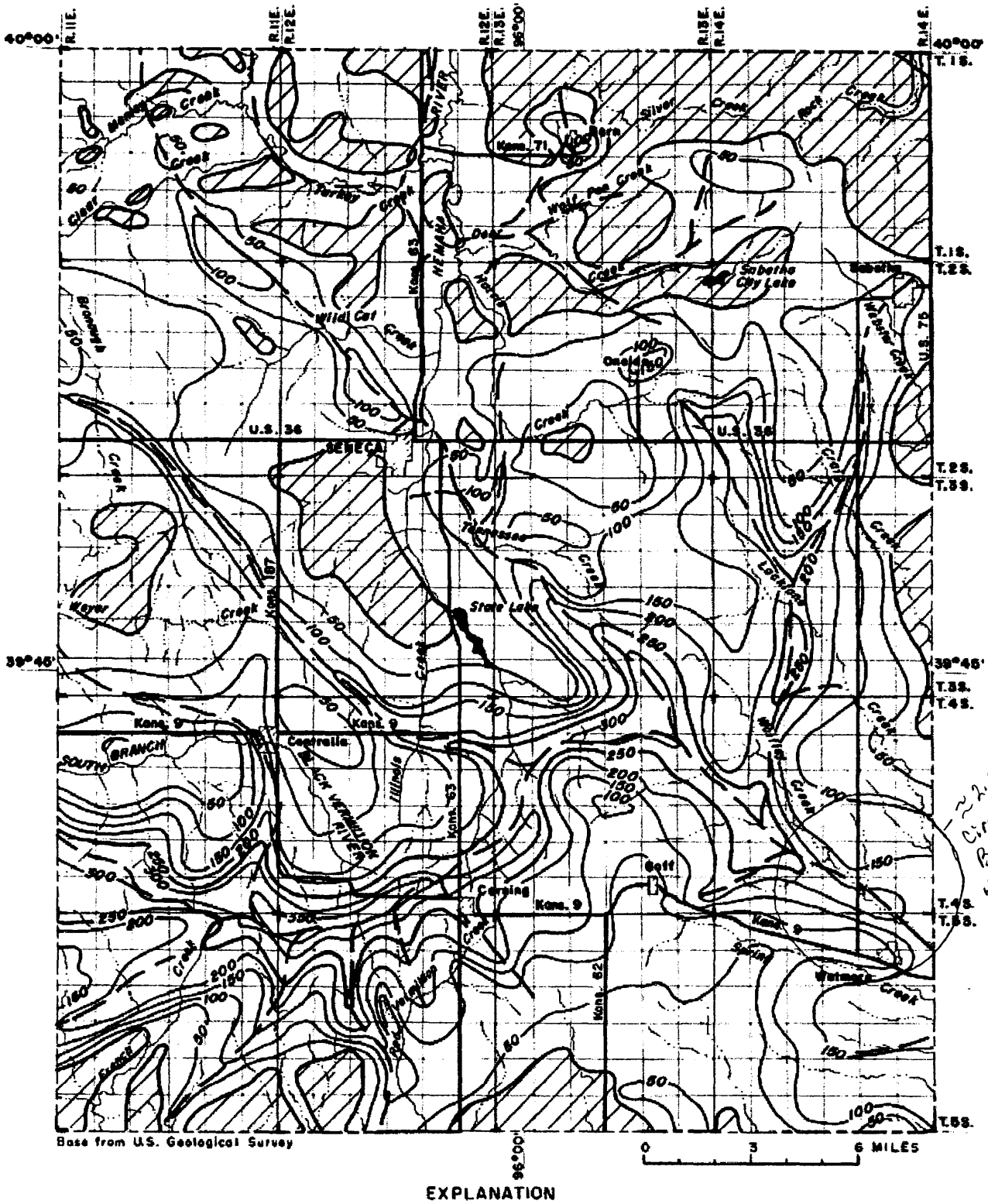
Ground Water Series No. 2

Plate 3



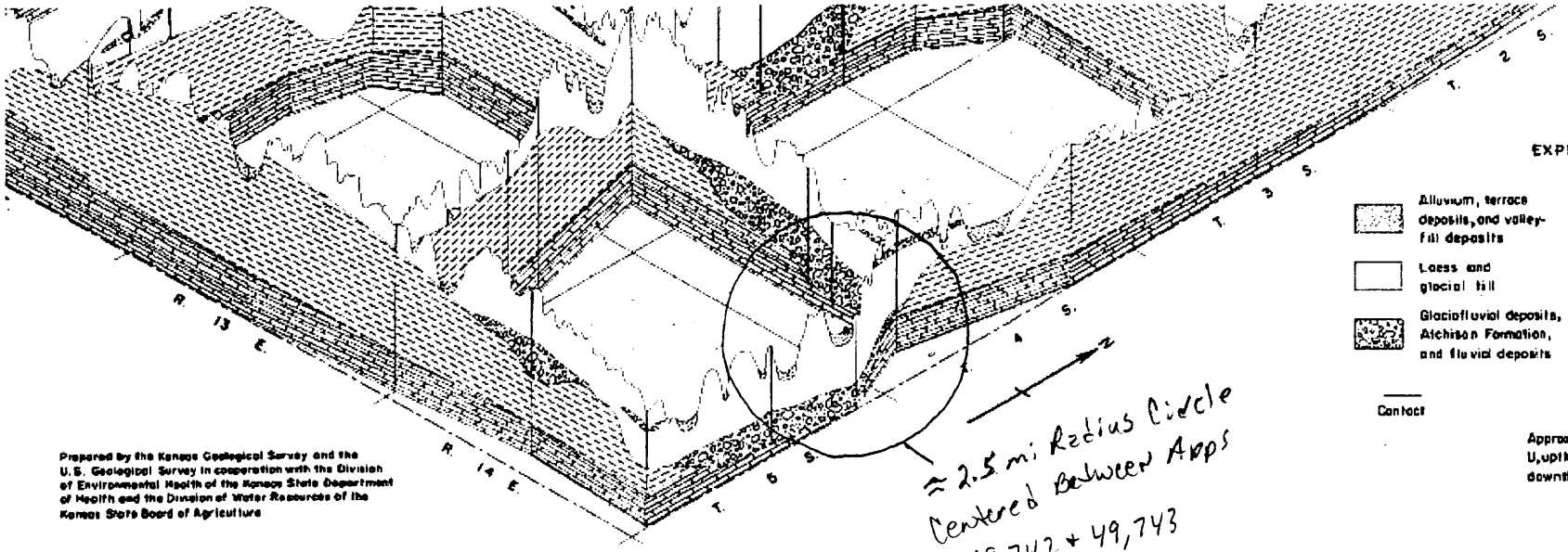
≈ 2.5 mi Radius Circle Centered Between Apps #49,742 + #49,74

Figure 4--Areal distribution of the four oldest Pleistocene units.



~2.5 mi Radius Circle Centered Between Apps #49,742 & #49,743

Figure 5--Saturated thickness of unconsolidated deposits, 1968-72.



Prepared by the Kansas Geological Survey and the U.S. Geological Survey in cooperation with the Division of Environmental Health of the Kansas State Department of Health and the Division of Water Resources of the Kansas State Board of Agriculture

EXPLANATION

- Alluvium, terrace deposits, and valley-fill deposits
- Loess and glacial till
- Glaciofluvial deposits, Atchison Formation, and fluvial deposits
- Permian rocks
- Pennsylvanian rocks
- Contact
- Fault — Approximately located. U, upthrown side; D, downthrown side
- Test hole — Vertical lines indicate test holes, intersection of profiles, and change in direction of profiles

FENCE DIAGRAM SHOWING CORRELATION OF STRATIGRAPHY IN NEMAHA COUNTY, NORTHEASTERN KANSAS

Ground Water Series No.2

Plate 2

KANSAS
RURAL
WATER
association
Quality water, quality life

P.O. Box 226 • Seneca, KS 66538 • 785/336-3760
FAX 785/336-2751 • http://www.krwa.net

January 18, 2017

Alex Whitesell
Kansas Department of Agriculture - Division of Water Resources
1320 Research Park Drive
Manhattan, Kansas 66502-5000

RE: Application
File Nos. 49,742 & 49,743

Dear Mr. Whitesell:

Please find enclosed the required Municipal Application Supplemental Information Sheet which justifies the total quantity of water requested under the referenced file numbers. Please make a copy of the enclosures and attach the copies to the second application.

The population served has increased 2.94%, compounded annually, from 1996 to 2015. (See enclosed Population Projection Worksheet). If this rate of growth continues, the projected population will be 1392 in 2036. This population multiplied by the last five years' average GPCD of 128 gallons for Rural Water District No. 4, Nemaha County, including some growth in possible livestock confinement operations, justifies 91.673 m.g.y. in 2036. Upon approval of the permits, limitations of the total quantity authorized should show this total quantity.

Detailed maps of the well locations will be submitted soon to complete the applications.

If staff have any additional questions, I can be reached by telephone at 785/640-4701, by e-mail at dhelmke@krwa.net or by writing to 6847 SE 29th Street, Tecumseh, Kansas 66542-9571.

Sincerely,

Douglas S. Helmke

Douglas S. Helmke, L.G.
Water Rights / Source Water Specialist
Kansas Rural Water Association

DSH
c: KRWA
Carol Steinlage, Manager

Population Projection Worksheet

Rural [redacted]er District No. 4, Nemaha County
File Nos. 49,742 & 49,743

	Year	Population
Past Beginning	1996	450
Past Ending	2015	780
Past Compound Growth Rate	2.94%	
	Year	**Population**
Current *	2016	780
Projection for	2036	**1392**

The Kansas Water Appropriation Act sets forth that all requests (quantity and rate) to appropriate water for beneficial use must be reasonable. To project a municipality's population based on historic data, the above worksheet calculates the past compounded growth rate based on the past populations and the years in which those populations occurred.

* For a 20-Year Projection, the population value used should be that for the end of the previous calendar year (ie., the beginning value of the first year of the period projected).

DOUGLAS S. HELMKE LICENSED Douglas S. Helmke 72 JANUARY 17, 2017 KANSAS GEOLOGIST

WATER RESOURCES
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JAN 20 2017

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Applicant's Name (Please Print) RURAL WATER DISTRICT No. 4, NEMAHA COUNTY

MUNICIPAL (PUBLIC WATER SUPPLY) APPLICATION SUPPLEMENTAL INFORMATION SHEET

Application File Number 49,742 & 49,743 (assigned by DWR)

SECTION 1: PRESENT WATER USE SUMMARY (IF NO PREVIOUS MUNICIPAL WATER USE HAS BEEN UTILIZED, PROCEED TO SECTION 3)
NOTE: WORKSHEET FOR WATER PUMPED, PURCHASED, AND SOLD BY YOUR WATER DISTRIBUTION SYSTEM.

2015

Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Raw Water Diverted Under Your Rights	Water Purchased From All Sources	Water Sold to Other Public Water Suppliers	Water Sold to Your Industrial, Stock, and Bulk Customers	Water Sold to Your Residential and Commercial Customers	Other Metered Water	Remaining Water Used (See Below Explanation)
34,188,000	0	2,414,000	0	25,796,000	527,000	5,451,000
TOTAL WATER = Columns 1 + 2		ACCOUNTED FOR WATER = Columns 3 + 4 + 5 + 6				UNACCOUNTED FOR WATER

UNACCOUNTED FOR WATER = TOTAL WATER - ACCOUNTED FOR WATER

Column 1: The amount of raw water diverted from all of your points of diversion.

Column 2: The amount of water purchased wholesale from all other public water supply systems or the Kansas Water Office.

Column 3: The amount of water sold wholesale to all other public water supply systems.

Column 4: The amount of water sold retail to all industrial, pasture, stockwater, feedlot, and bulk water service connections. Include the amount of water sold to all farmsteads using at least 200,000 gallons of water per year.

Column 5: The amount of water sold retail to your residential and commercial customers and to industries and farmsteads using less than 200,000 gallons of water per year.

Column 6: The amount of water used that is metered at individual service connections and supplied free, such as for public service, treatment processes, and connections receiving free water.

Column 7: The amount of remaining water used. The gallons reported in this column are found by adding the numbers in Columns 1 and 2 and subtracting the numbers in Columns 3, 4, 5, and 6.

UNACCOUNTED FOR WATER

Use the following to calculate your distribution system's Unaccounted For Water:
Start with the amount in Column 1 and add the amount in Column 2, then subtract the amounts in Columns 3, 4, 5, and 6 leaving an amount of water representing your unaccounted for water to enter in Column 7.

Use the following to calculate the percent Unaccounted For Water versus the Total Water of your system:

Percent Unaccounted For Water = Unaccounted For Water / Total Water (Columns 1,2) x 100

If this number exceeds 20%, please explain the large amount of unaccounted for water and describe any steps being taken to reduce it.

DOUGLAS S. HELMICK LICENSED 72 JANUARY 17, 2017 KANSAS GEOLOGIST

KS DEPT OF AGRICULTURE WATER RESOURCES RECEIVED JAN 20 2017

SECTION 2: PAST WATER USE
COMPLETE THE FOLLOWING TABLE FROM YOUR PAST WATER USE RECORDS.

	Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
	Raw Water Diverted Under Your Rights	Water Purchased From All Sources	Water Sold to Other Public Water Suppliers	Water Sold to Your Industrial, Stock, and Bulk Customers	Water Sold to Your Residential and Commercial Customers	Other Metered Water	Remaining Water Used (See Above Explanation)
20 years ago 1996	18,118,000	0	5,148,000	0	5,432,000	0	7,538,000
15 years ago 2001	19,731,000	0	4,688,000	0	14,004,000	0	1,039,000
10 years ago 2006	28,052,000	0	3,772,000	0	18,983,000	0	5,297,000
5 years ago 2011	30,534,000	0	3,094,000	0	23,320,000	0	4,120,000
	TOTAL WATER = Columns 1 + 2		ACCOUNTED FOR WATER = Columns 3 + 4 + 5 + 6				UNACCOUNTED FOR WATER

SCANNED

FILE NOS. 49,742 + 49,743

SECTION 3: PROJECTED FUTURE WATER NEEDS

PLEASE COMPLETE THE FOLLOWING TABLE SHOWING YOUR FUTURE WATER REQUIREMENTS FOR THE NEXT 20 YEARS:

	Column 1 Raw Water Diverted Under Your Rights	Column 2 Water Purchased From All Sources	Column 3 Water Sold to Other Public Water Suppliers	Column 4 Water Sold to Your Industrial, Stock, and Bulk Customers	Column 5 Water Sold to Your Residential and Commercial Customers	Column 6 Other Metered Water	Column 7 Remaining Water Used (See Explanation on other side)
Year 5	59,097,000	0	3,000,000	9,792,000	42,095,000	0	4,210,000
Year 10	68,790,000	0	3,000,000	12,240,000	48,682,000	0	4,868,000
Year 15	79,564,000	0	3,000,000	14,688,000	56,251,000	0	5,625,000
Year 20	91,673,000	0	3,000,000	17,136,000	65,034,000	0	6,503,000
	TOTAL WATER = Columns 1 + 2		ACCOUNTED FOR WATER = Columns 3 + 4 + 5 + 6				UNACCOUNTED FOR WATER

SECTION 4: POPULATION AND SERVICE CONNECTIONS

ESTIMATE THE NUMBER OF PERSONS DIRECTLY SERVED BY YOUR WATER DISTRIBUTION SYSTEM

PAST POPULATION - PROVIDE INFORMATION BELOW:
(CENSUS BUREAU INFORMATION)

LAST 20 YEARS		POPULATION
20 years ago	1996	450
15 years ago	2001	500
10 years ago	2006	560
5 years ago	2011	595
Last Year	2015	780

PROJECTED FUTURE POPULATION

ESTIMATE FUTURE POPULATION AND SUBSTANTIATE NUMBERS ON SEPARATE ATTACHMENTS

NEXT 20 YEARS		POPULATION
Year 5	2021	901
Year 10	2026	1042
Year 15	2031	1204
Year 20	2036	1392

Provide number of current active service connections:

235 Residential

0 Commercial

0 Industrial

21/7 Pasture/ Stockwater/ ~~Feedlot~~

1 Other (specify) CITY OF GOFF (126 PERSONS) (65 GPCD)

332 Total

SECTION 5: PRESENT GALLONS PER PERSON PER DAY

CALCULATE YOUR GALLONS PER PERSON PER DAY

Water in Columns 5, 6, and 7 ÷ Population ÷ 365 Days/Year = Gallons per Person per Day

31,744,000 (Amount of water in Columns 5, 6, and 7 of Section 1) ÷ 780 (Population from Last Year of Section 4) ÷ 365 Days/Year = 112 GALLONS PER PERSON PER DAY.

SECTION 6: AREA TO BE SERVED

Describe the area to be served or provide the legal description of the location where the water is to be used including any other city of water supply system (i.e. Rural Water District):

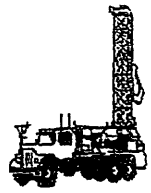
WITHIN THE BOUNDARIES OF RURAL WATER DISTRICT NO. 4, NEMAHA COUNTY, AND WITHIN THE CITY OF GOFF AND IMMEDIATE VICINITY.

You may attach additional information you believe will assist in informing the Division of the need for your request.

STRADER'S
BLUE VALLEY DRILLING, LLC

Roger Strader
Office: (402) 673-3465

14734 US Hwy 77
Pickrell, NE 68422



Well Contractor's License #39022

WELL COMPLETION

Name Nemaha County RWD #4 **Date** December 22, 2016

Address PO Box 160

City/State/Zip Wetmore, KS 66550 **Phone** 785-866-2600

Location of Water Well — Section — Township — Range

County: Nemaha, KS ____1/4 ____1/4 ____ ____N ____ ☐ E ☐ W

Well is ____ ft. from ☐ north ☐ south section line. ____ ft. from ☐ east ☐ west section line. Ground Elevation ____ ft.

Distance and Direction from nearest town (or) street address (or) Block, Lot and Addition: ____

Well use 5" test well 6-16 ☒ New ☐ Replacement Distance to Old Well ____ ft.

Old Well Last Used ____ Old Well Abandoned ☐ Yes ☐ No (Date ____)

GPS: ____

Depth of completed well 159 ft.

Method drilled Straight rotary

Bore hole diameter 11 in.

Static water level ____ ft.

Yield / Pumping Water Level

____ gpm at ____ ft. lift

____ gpm at ____ ft. lift

____ gpm at ____ ft. lift

Hrs. Development 2

Method Bailer

Blank Casing: Material PVC

Grade 200# ID 5.02

OD ____ Thickness ____

0 to 139 & ____ to ____

Screen: Material PVC

Grade 200# ID 5.02

OD ____ Thickness ____

139 to 159 & ____ to ____

Slot Size .032 Type Saw slot

Trade Name ____

Joints: ☐ Welded ☐ Glued ☒ Threaded

Casing Guides Per Ned

Bottom Cap: 5" PVC

Gravel Pack and Grout Intervals

____ to ____ with Per Ned

____ to ____ with ____

____ to ____ with ____

____ to ____ with ____

____ to ____ with ____

____ to ____ with ____

____ to ____ with ____

____ to ____ with ____

____ to ____ with ____

DEPTH IN FEET FROM	TO	FORMATION
0	8	Clay - brown
8	14	Silt - brown
14	24	Clay - brown & yellow
24	28	Clay - gray & brown
28	59	Clay - gray
59	61	Sand - fine gray
61	90	Clay - gray
90	91	Clay - green
91	92	Clay - gray
92	134	Silt - gray
134	138	Silt - sandy gray
138	152	Sand - fine gray
152	157.5	Sand - fine to medium gray
157.5	159	Shale - gray

195' Sand

WATER RESOURCES RECEIVED
JAN 19 2017
KS DEPT OF AGRICULTURE

Disinfection: ☒ Yes ☐ No Was a chemical / bacteriological analysis obtained? ☐ Yes ☐ No (Date ____)

Pump: Installed ☐ Yes ☐ No Recommended pump setting ____ ft. Recommended pumping rate ____ GPM

Pump Installer ____

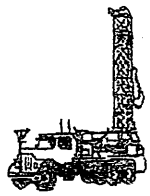
Remarks ____

Roger Strader
Office: (402) 673-3465

STRADER'S
BLUE VALLEY DRILLING, LLC

14734 US Hwy 77
Pickrell, NE 68422

WELL COMPLETION



Well Contractor's License #39022

Name Nemaha County Rural Water District #4 Date December 1, 2016

Address PO Box 160

City/State/Zip Wetmore, KS 66550 Phone 785-866-2600

#3-16

Location of Water Well: Section Township Range

County: Nemaha, KS ____1/4 ____1/4 ____ ____ N ____ ☐ E ☐ W

Well is ____ ft. from ☐ north ☐ south section line. ____ ft. from ☐ east ☐ west section line. Ground Elevation ____ ft.

Distance and Direction from nearest town (or) street address (or) Block, Lot and Addition: ____

Well use Test well #3-16 ☒ New ☐ Replacement Distance to Old Well ____ ft.

Old Well Last Used ____ Old Well Abandoned ☐ Yes ☐ No (Date ____)

GPS: ____

Depth of completed well 154 ft.

Method drilled Straight rotary

Bore hole diameter 11 in.

Static water level ____ ft.

Yield / Pumping Water Level

____ gpm at ____ ft. lift

____ gpm at ____ ft. lift

____ gpm at ____ ft. lift

Hrs. Development ____

Method ____

Blank Casing: Material PVC

Grade 200# ID 5.03

OD 5.56 Thickness .265

0 to 134 & ____ to ____

Screen: Material PVC

Grade 200# ID 5.03

OD 5.56 Thickness .265

134 to 154 & ____ to ____

Slot Size .032 Type Saw slot

Trade Name ____

Joints: ☐ Welded ☐ Glued ☒ Threaded

Casing Guides per Ned

Bottom Cap: 5" PVC

Gravel Pack and Grout Intervals

____ to ____ with per Ned

____ to ____ with ____

____ to ____ with ____

____ to ____ with ____

____ to ____ with ____

____ to ____ with ____

____ to ____ with ____

____ to ____ with ____

____ to ____ with ____

DEPTH IN FEET FROM	TO	FORMATION
0	3	Top soil
3	17	Clay - brown
17	18	Sand - fine brown
18	27	Clay - gray
27	33	Sand - fine gray
33	43	Clay - gray
43	45	Clay - gray streaks fine gray sand
45	52	Silt - gray
52	90	Clay - gray
90	119	Silt - gray
119	126	Sand - fine gray
126	131	Silt - gray
131	153	Sand - fine gray
153	156	Clay - gray
156	158	Sand - native limestone
158		Shale - gray

31' Sand

WATER RESOURCES RECEIVED
JAN 19 2017
KS DEPT OF AGRICULTURE

Disinfection: ☒ Yes ☐ No Was a chemical / bacteriological analysis obtained? ☐ Yes ☐ No (Date ____)

Pump: Installed ☐ Yes ☒ No Recommended pump setting ____ ft. Recommended pumping rate ____ GPM

Pump Installer ____

Remarks ____

49,742.
meets safe
yield

Analysis Results

The selected PD is in an area to new appropriations.
The safe yield, based on the variables listed below is 3,283.82 AF.
Total prior appropriation in the circle is 752.00 AF. ~400 = 352 AF
Total quantity of water available for appropriation is 2,531.82 AF.
2,931.8

Safe Yield Variables

The area used for the analysis is set at 8,042 acres.
Potential annual recharge of the area is estimated to be 4.9 inches.
The percent of recharge available for appropriation is 100%.

Authorized Quantity values are as of 20-FEB-2017 and are based on Appropriated and Vested ground water right and possible stream nodes for GMD #2. Domestic, Term and Temporary water rights have been excluded.

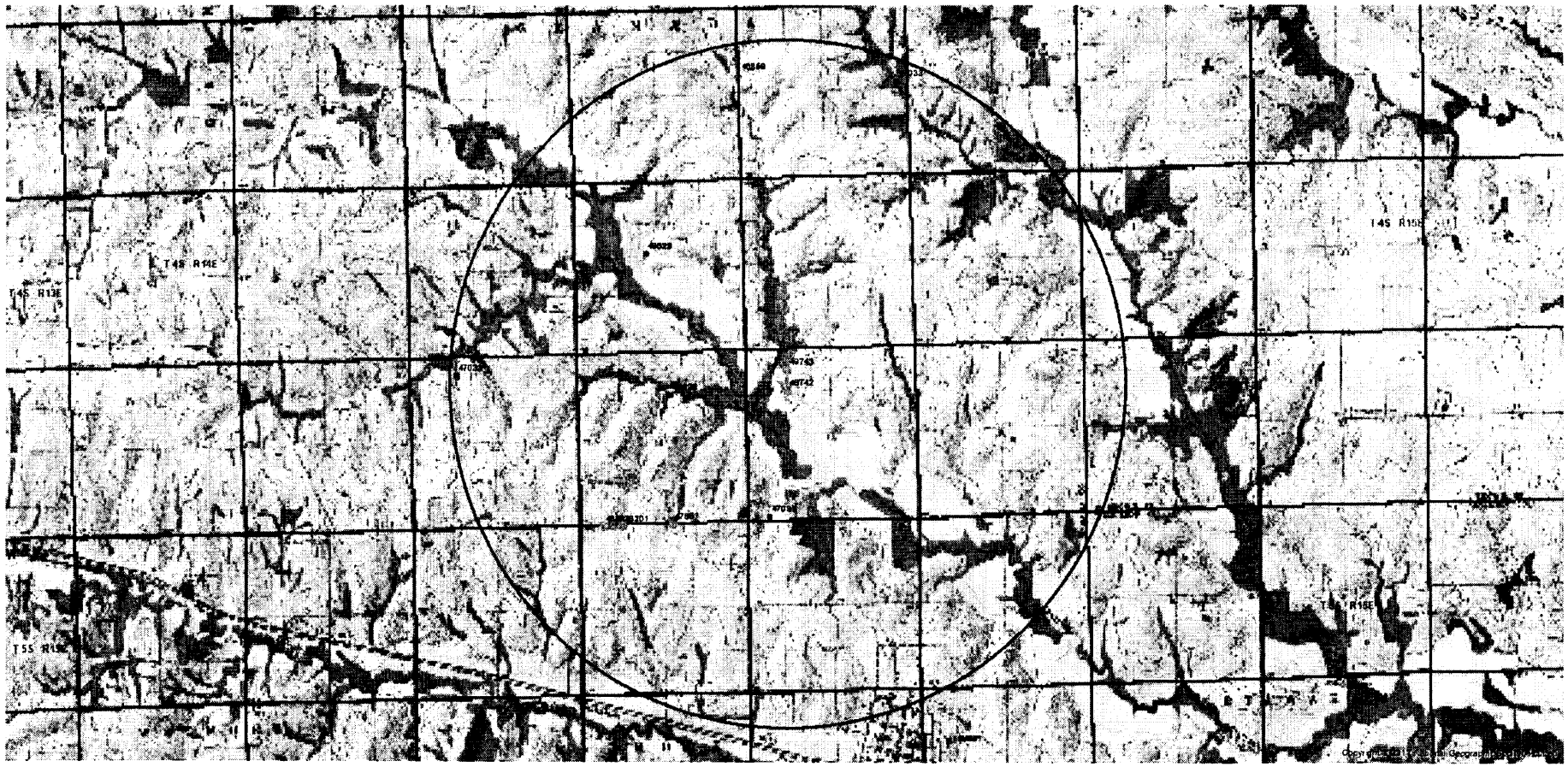
There are 4 water right(s) and 6 point(s) of diversion within the circle.

File	Number	Use	ST	SR	Q4	Q3	Q2	Q1	FeetN	FeetW	Sec	Twp	Rng	ID	Qind	Auth_Quant	Add_Quant	Tacres	Nacres
A	47997 00	IRR	KE	G		NW	NW	NE	5200	2250	03	05	14E	1	WR	352.00	352.00	320.00	320.00
A	48201 00	IRR	KE	G		NW	NE	NW	5175	3815	03	05	14E	2	WR	352.00	0.00	320.00	0.00
Same		IRR	KE	G		NE	NW	NW	5175	4405	03	05	14E	3	WR				
Same		IRR	KE	G		NE	NW	NW	5175	4110	03	05	14E	4	WR				
A	49742 00	MUN	AY	G				NW	3960	3960	35	04	14E	2	WR	200.00	200.00		
A	49743 00	MUN	AY	G				NW	4620	3960	35	04	14E	3	WR	200.00	200.00		

#49,742

Safe Yield Report Sheet
Proposed Water Right Application
Point of Diversion in SESENWNW 35-04S-14E
FILE NO. 49,742 (3,962'N & 4,186'W)

==========



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#49,742

Report Date Tuesday, February 21 2017

Water Rights and Points of Diversion Within 2.00 miles of point defined as:
3962 ft N and 4186 ft W of the SE Corner of Section 35, T 4S, R 14E
Located at: 95.822332 West Longitude and 39.663785 North Latitude
GROUNDWATER ONLY

File Number	Use	ST	SR	Dist (ft)	Q4	Q3	Q2	Q1	FeetN	FeetW	Sec	Twp	Rng	ID	Batt	Auth_Quan	Add_Quan	Unit
A__ 47997 00	IRR	KE	G	5297	--	NW	NW	NE	5200	2250	3	5	14E	1		352.00	352.00	AF
A__ 48201 00	IRR	KE	G	6679	--	NE	NW	NW	5175	4110	3	5	14E	4	G 2	352.00	.00	AF
Same				6446	--	NW	NE	NW	5175	3815	3	5	14E	2	B 2			
Same				6917	--	NE	NW	NW	5175	4405	3	5	14E	3	B 2			
A__ 49742 00	MUN	AY	G	226	--	--	--	NW	3960	3960	35	4	14E	2		200.00	200.00	AF
A__ 49743 00	MUN	AY	G	696	--	--	--	NW	4620	3960	35	4	14E	3		200.00	200.00	AF

Total Net Quantities Authorized:	Direct	Storage
Total Requested Amount (AF) =	400.00	.00
Total Permitted Amount (AF) =	352.00	.00
Total Inspected Amount (AF) =	.00	.00
Total Pro_Cert Amount (AF) =	.00	.00
Total Certified Amount (AF) =	.00	.00
Total Vested Amount (AF) =	.00	.00
TOTAL AMOUNT (AF) =	752.00	.00

An * after the source of supply indicates a pending application for change for the file number.
An * after the ID indicates a 15 AF exemption was granted for the file number.
A "G" in the Batt column indicates the GEO CTR of a battery. A "B" indicates a well in the battery.
The number in the Batt column is the number of wells in the battery.

Water Rights and Points of Diversion Within 2.00 miles of point defined as:
95.822332 West Longitude and 39.663785 North Latitude
GROUNDWATER ONLY
WATER USE CORRESPONDENTS:

File Number Use ST SR

A__ 47997 00 IRR KE G
> KENNETH C & NANCY S BABCOCK
>
> 1858 220TH ST
> HIAWATHA KS 66434
>----------

A__ 48201 00 IRR KE G
> KENNETH C & NANCY S BABCOCK
>
> 1858 220TH ST
> HIAWATHA KS 66434
>----------

A__ 49742 00 MUN AY G
> NEMAHA RWD 04
>
> PO BOX 160
> WETMORE KS 66550
>----------

A__ 49743 00 MUN AY G
> NEMAHA RWD 04

>

> PO BOX 160

> WETMORE KS 66550

>----------

==========

Topeka Field Office
6531 SE Forbes Ave., Suite B
Topeka, Kansas 66619

Kansas
Department of Agriculture
Division of Water Resources

Phone: (785) 296-5733
Fax: (785) 862-2460
www.agriculture.ks.gov

Jackie McClaskey, Secretary
David W. Barfield, Chief Engineer
Katherine A. Tietsort, Water Commissioner

Sam Brownback, Governor

February 21, 2017

ALLAN SHUMAKER
753 W ROAD
WETMORE KS 66550-8415

Re: Pending Applications, File Nos. 49,742 and 49,743

Dear Sir or Madam:

This is to advise you that Nemaha Rural Water District No. 4 has filed the applications referred to above for permits to appropriate groundwater for municipal use. Application, File No. 49,742 is requesting to appropriate 65.17 million gallons (200 acre-feet) of groundwater per calendar year to be diverted at a maximum rate of 300 gallons per minute from one (1) well located in the Southeast Quarter of the Northwest Quarter of the Northwest Quarter of Section 35; and Application, File No. 49,743 is also requesting to appropriate 65.17 million gallons (200 acre-feet) of groundwater per calendar year to be diverted at a maximum rate of 300 gallons per minute from one (1) well located in the Southeast Quarter of the Southeast Quarter of the Northwest Quarter of Section 35, both in Township 4 South, Range 14 East, in Nemaha County, Kansas.

A map is enclosed indicating the locations of the proposed wells. Records in this office indicate that you may have a well or wells in this vicinity and you are being notified of receipt of these applications in order that you may be fully informed of the proposed locations of the applicant's points of diversion and proposed use of water. Consideration will be given to comments or other information which you desire to submit to this office within **15 days** from the date of this letter. You may also contact me at (785) 296-3495 with any questions or comments.

Sincerely,

Doug Schemm

Doug Schemm
Environmental Scientist
Topeka Field Office

Enclosure

pc: Nemaha County RWD No. 4
Douglas Helmke, P.G. KRWA

Topeka Field Office
6531 SE Forbes Ave., Suite B
Topeka, Kansas 66619

Kansas
Department of Agriculture
Division of Water Resources

Phone: (785) 296-5733
Fax: (785) 862-2460
www.agriculture.ks.gov

Jackie McClaskey, Secretary
David W. Barfield, Chief Engineer
Katherine A. Tietsort, Water Commissioner

Sam Brownback, Governor

February 21, 2017

LORI MILLIGAN FARLEY
PO BOX 134
WETMORE KS 66550-0134

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A map is enclosed indicating the locations of the proposed wells. Records in this office indicate that you may have a well or wells in this vicinity and you are being notified of receipt of these applications in order that you may be fully informed of the proposed locations of the applicant's points of diversion and proposed use of water. Consideration will be given to comments or other information which you desire to submit to this office within **15 days** from the date of this letter. You may also contact me at (785) 296-3495 with any questions or comments.

Sincerely,

Doug Schemm

Doug Schemm
Environmental Scientist
Topeka Field Office

Enclosure

pc: Nemaha County RWD No. 4
Douglas Helmke, P.G. KRWA

1320 Research Park Drive
Manhattan, Kansas 66502
(785) 564-6700

Kansas
Department of Agriculture
agriculture.ks.gov

900 SW Jackson, Room 456
Topeka, Kansas 66612
(785) 296-3556

Jackie McClaskey, Secretary

Governor Sam Brownback

December 27, 2016

FILE COPY

NEMAHA RWD 4
PO BOX 160
WETMORE KS 66550

Re: Pending Applications,
File Nos. 49,742 and 49,743

Dear Sir or Madam:

After a preliminary review of your above referenced applications for permits to appropriate water received in this office on December 15, 2016, they are being returned to you for additional information. In your original applications, you requested a 60-day period of time in which to determine the precise locations for your points of diversion within specified quarter section tracts of land described as the Northwest Quarter (NW¼) of Section 35, in Township 4 South, Range 14 East, Nemaha County, Kansas.

Once you've determined the precise locations for your points of diversion, complete the rest of Paragraph No. 5 for each of your applications by providing the description for the 10-acre tract location of the point of diversion as well as the feet distances North and West of the Southeast corner of the Section. The locations of the points of diversion must also be plotted on the topographical map(s) included. In the case of a battery of wells, please provide the description of the location of the proposed geographic center of the well battery, as well as **the location for each of the individual wells comprising the battery of wells**.

The locations of all other water wells of every kind within one-half mile (½) of the points of diversion must be plotted on the topographical map(s) as well. Each well should be identified as to its use (e.g. domestic, irrigation, industrial, etc.) and must **include the name and mailing address of the well owner**. A signed statement should be included on the map(s) declaring that all wells within one-half mile (½) of the points of diversion have been plotted, or it should declare that none exist. Please provide this information once you have established your points of diversion.

Paragraph No. 13 of the application requests well information so the source of supply of the proposed wells may be determined. Pursuant to K.A.R. 5-3-4d, this office requires a stratigraphic log of wells or test holes within 300 feet of the proposed points of diversion. Please supply the indicated information and test hole logs or driller's logs with the returned applications. Also, the enclosed "Minimum Desirable Streamflow" form must be signed and notarized, and the enclosed "Municipal Use Supplemental Sheet" form must be completed. These forms should be returned with your application as well.

(over)

In order to retain their priority of filing, the original applications and attachments must be returned to this office with the requested information on or before **February 15, 2017**, or within any authorized extension of time thereof. According to law, default in refiling of the completed applications and attachments within the time allowed shall constitute forfeiture of priority date and dismissal of the applications.
If you have any questions, please contact me at (785) 564-6631 or by email at alexander.whitesell@ks.gov. If you wish to discuss a specific file, please have the file number ready so that I may help you more efficiently.

Sincerely,

Alex Whitesell
Environmental Scientist
Water Appropriation Program

enclosures
pc:

KANSAS
RURAL
WATER
association
Quality water, quality life

P.O. Box 226 • Seneca, KS 66538 • 785/336-3760
FAX 785/336-2751 • http://www.krwa.net

January 27, 2017

Alex Whitesell
Kansas Department of Agriculture - Division of Water Resources
1320 Research Park Drive
Manhattan, Kansas 66502-5000

RE: Application
File Nos. 49,742 & 49,743

Dear Mr. Whitesell:

Please find enclosed the required maps showing the locations of the proposed points of diversion and the proposed place of use under the referenced file numbers.

These documents should complete the applications to be reviewed and considered for approval.

If staff have any additional questions, I can be reached by telephone at 785/640-4701, by e-mail at dhelmke@krwa.net or by writing to 6847 SE 29th Street, Tecumseh, Kansas 66542-9571.

Sincerely,

Douglas S. Helmke, P.G.
Water Rights / Source Water Specialist
Kansas Rural Water Association

DSH
c: KRWA
Carol Steinlage, Manager

Terrane Resources Co.

P.O. Box 173 Stafford, KS 67578 620-234-5200

KANSAS GROUND WATER: STRAIGHT UP FROM THE ROCKS!

09 December, 2016

Mr. David Barfield, PE
Chief Engineer of the Divison of Water Resources
Kansas Department of Agriculture
1320 Research Park Drive
Manhattan KS 66502

Re: New applications for Nemaha RWD #4

Dear Sir,

This letter is written to provide applications to be considered for new water rights for the Nemaha Co. RWD #4. The District is currently experiencing significant declines in their existing well field which appears to be the result of the drought.

We are currently in the exploratory drilling phase to find additional sources of supply.

At this time we request 60 days to finalize the drilling program, obtain and evaluate water quality data and select the final locations for the points of diversion.

We will provide drilling logs for the test holes/test wells the District has installed and for those to be installed. Along with any other information we can provide to help identify to assist with the aquifer delineaton.

Mr. Barfield, should you or any of your staff have any questions do not hesitate to contact me directly at 620-546-3616(cell) or by e-mail at terresco@yahoo.com.

Respectfully Submitted,

Ned Marks

Edward "Ned" T. Marks, PG
TERRANE RESOURCES CO.
KS Lic. 431

RURAL WATER DISTRICT NO. 4

NEMAHA COUNTY, KANSAS

PO BOX 160 WETMORE, KS 66550 785/866-2600

January 16, 2016

Kansas Department of Agriculture
1320 Research Park Drive
Manhattan, KS 66502

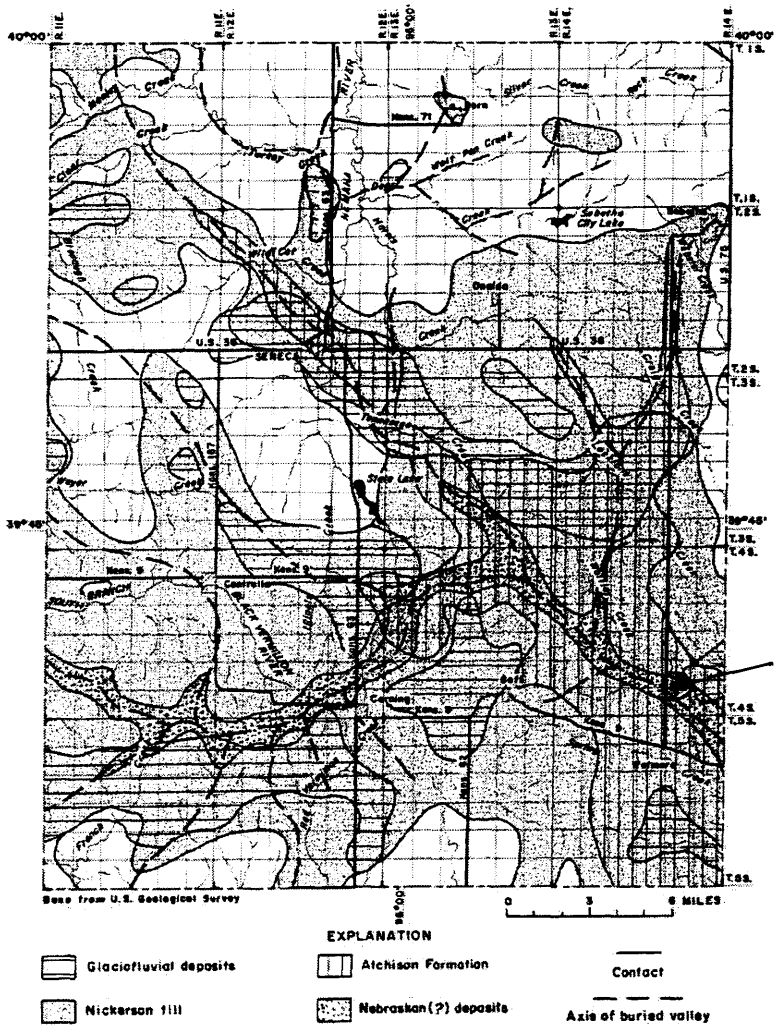
Attn: Alex Whitesell

Enclosed are the Applications for Nos. 49742 and 49743. Also enclosed are the Test Logs for the Wells.

The maps and the justification for the quantities will be mailed soon.

Thank you,

Carol Steinlage, Manager



File #'s 49,742 & 49,743

The Cedar Bluffs Till is present throughout the county except along stream valleys where it has been removed by late Pleistocene erosion. This heterogeneous mixture of fine- to course-grained material is tan, brown, or light gray, commonly contains erratics, and locally contains lenses of sand and gravel.

Stream erosion was the primary geologic process during Illinoisan time, but some materials underlying terraces along the South Fork Big Nemaha River may be remnants of Illinoisan deposition. These deposits are composed primarily of sandy clay, which is characteristic of the reworked glacial deposits. The terrace deposits are not considered significant geologic features, however, and have not been mapped as separate units on the geologic map. The present stream pattern began developing during Illinoisan time, with some streams cutting new channels into the bedrock surface and others, after removing the glacial cover, resuming flow in or near the preglacial channels.

Stream erosion and deposition increased during Wisconsinan time. Deposits of Wisconsinan age underlie terraces and flood plains in all major stream valleys, and are composed of reworked glacial material. These deposits have not been shown as separate units on the geologic map. The wind-deposited loess, primarily of Wisconsinan age, that mantles much of the uplands generally is less than 10 feet thick and is not considered to be significant enough to map as a separate unit.

Alluvium of Wisconsinan and Recent age occurs in all stream valleys in the county. It is composed primarily of reworked and redistributed clayey glacial deposits. Locally, small pockets of sand and gravel or thin layers of fine sand are present.

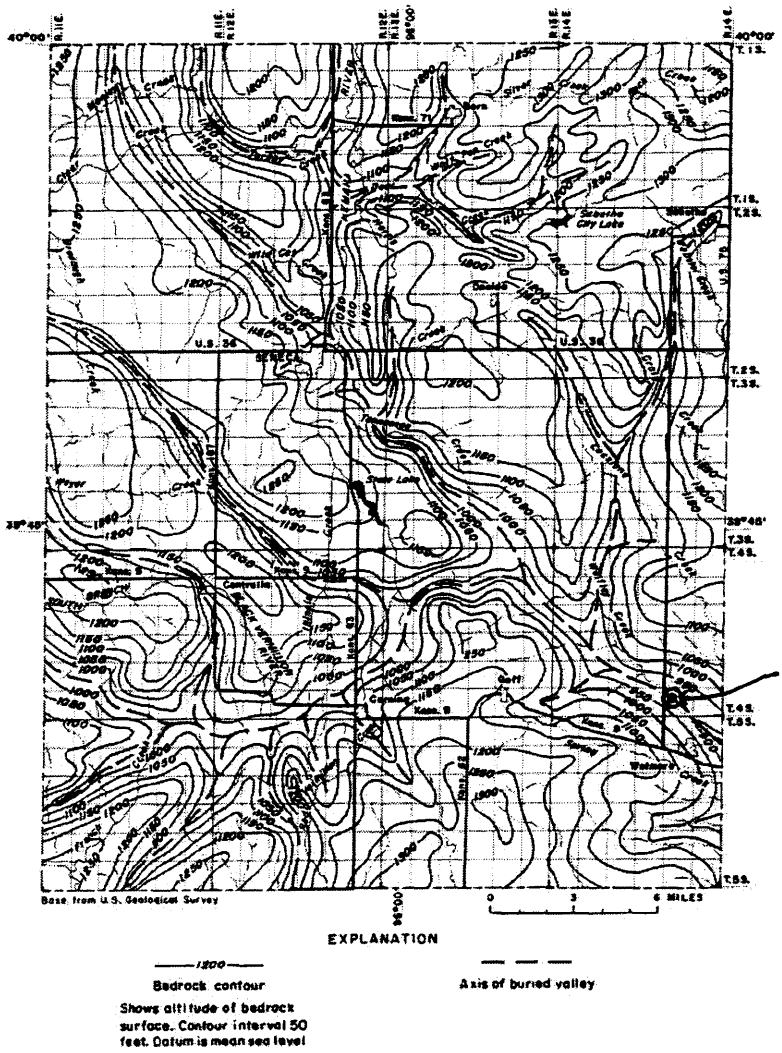
The relation of bedrock to unconsolidated deposits is shown on plate 2. Several of the buried valleys that are readily apparent on the profiles show the relative thicknesses of the glacial cover in various parts of the county. The positions of some of the larger areas of glaciofluvial deposits, Atchison Formation, and fluvial deposits are shown. Present stream trends can be compared with buried stream valleys.

ydrology

General Conditions

Both the irregular relief of the land surface and the texture of the glacial deposits exert a strong influence on recharge to and discharge from the aquifers. Rainfall on uplands that are underlain by glacial till of low permeability runs off rapidly and contributes little ground-water recharge. Rainfall and storm runoff in areas underlain by glaciofluvial deposits of high permeability contribute appreciable quantities of water to the aquifer. Recharge to permeable glacial deposits also may occur by upward leakage of water under higher hydrostatic pressure from bedrock formations. Natural discharge is principally from permeable glacial deposits to streams that have eroded below the potentiometric surface of the aquifers. The quantity of water discharged in this manner is sufficient to cause most streams in the area to flow continuously, even during periods of little precipitation. Other discharge is by wells. A few artesian wells in the county flow continuously.

The location of wells, test holes, and springs in Nemaha County is shown on plate 3. Also shown are well depths, water levels, and the aquifer that yields water to each well.



Surface Elevation ≈ 1,100'

File #'s 49,742 + 49,743

A major buried stream valley extends from about 4 miles south of Centralia eastward to the county line near Wetmore. This valley and its tributaries began developing by early Nebraskan time. Evidence from studies in surrounding counties indicates that the valley extends about 40 miles northwestward from Centralia, and extends eastward from Wetmore through Jackson and Atchison Counties in Kansas and then northeastward into Missouri. In Nemaha County, the width of the buried valley ranges from one-half to one and one-half miles and the depth is about 200 feet.

The major valley has several buried tributaries that appear to be at the same base level as the larger valley. The most significant tributary extends from its intersection with the major valley northwestward to Seneca. From Seneca the tributary extends farther north-northwest where it divides again. The northwestward extension is buried by glacial deposits and has no apparent relation to present streams. The northward extension coincides with the valleys of the South Fork Big Nemaha River and Turkey Creek, as indicated by remnants of glacial deposits along the valley walls. The present course of these two streams and their tributaries has been strongly influenced by pre-Illinoisan buried valleys. General trends and gradients of the buried tributary valleys indicate that early Pleistocene drainage was eastward. Late Pleistocene and Recent drainage flows generally southward and northward from the present topographic divide that extends across the county.

Unconsolidated glacial drift, loess, deposits beneath terraces, and alluvium overlie the bedrock surface. The known thickness of these deposits ranges from a few feet to 380 feet.

Nebraskan(?) deposits have not been identified in exposures, but deep test holes reveal basal gravels that are of pre-Kansan age. These gravels are composed largely of limestone and chert fragments, but also contain fragments of igneous and metamorphosed material that have no local source. The limestone and chert probably were derived from rocks of Permian and Cretaceous age west of this area, and were transported to their present locations by periglacial streams flowing in the now-buried channels. The igneous and metamorphosed material probably was transported by glaciers, then reworked and deposited by the periglacial streams.

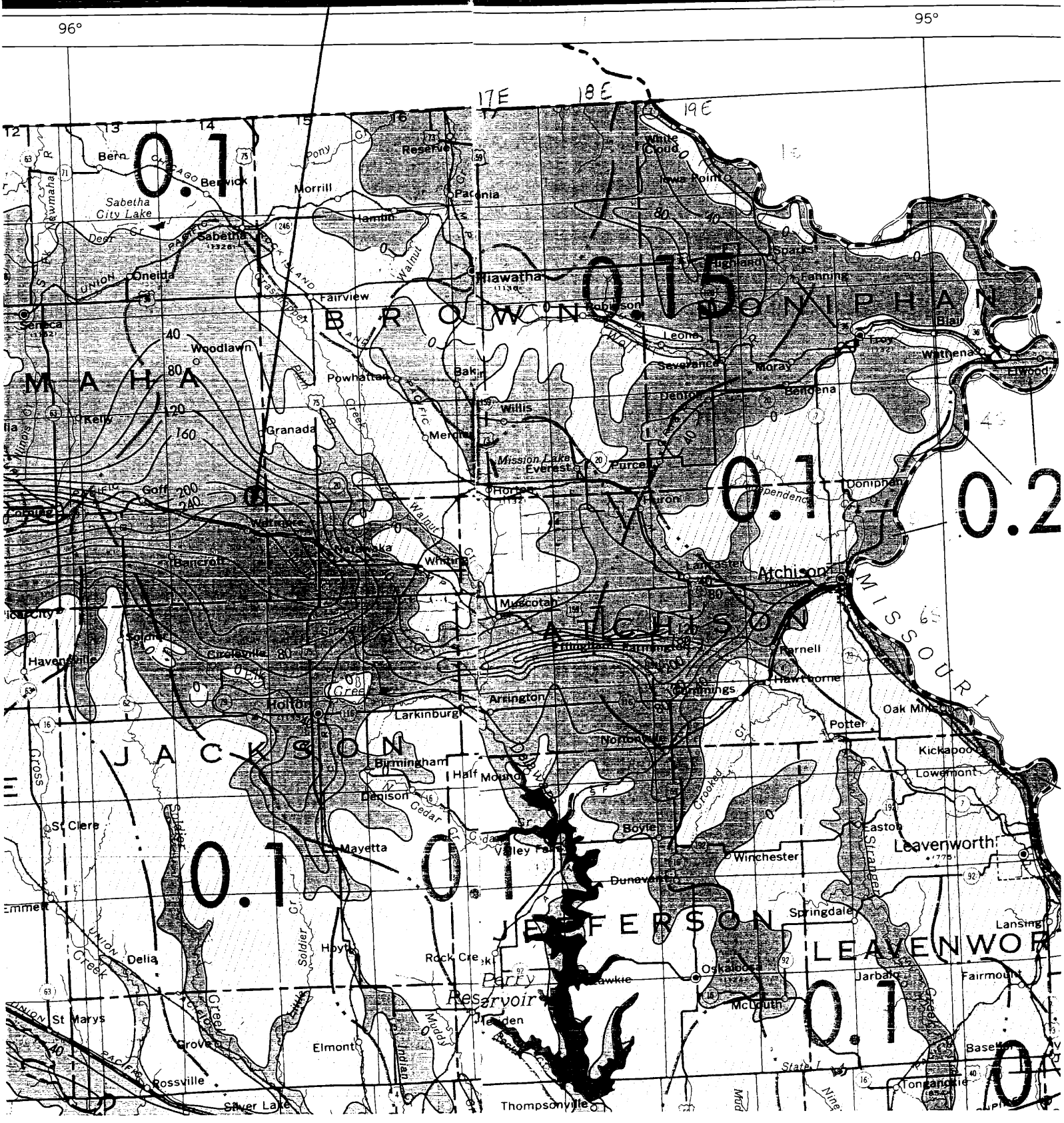
The Atchison Formation is an early Kansan glaciolacustrine sand deposit that overlies the Nebraskan(?) basal gravel deposits. The formation generally is confined to the buried valleys. Test drilling indicates that the formation either is absent or grades into soft, sandy bluish-gray clay in the western part of the county. Deposition of the very fine silty sand in the Atchison Formation is believed to have preceded deposition of the Nickerson Till by an early Kansan glacial advance.

The Nickerson Till appears to have been deposited in depressions where the Atchison Formation is missing and the till often reaches great thicknesses. The heterogeneous mixture of fine- to coarse-grained material is predominantly dark gray and contains some lenses of sand and gravel. Deposition of the Nickerson Till was spread over stream channels and upland areas, but the till may not have been deposited on the highest bedrock surfaces.

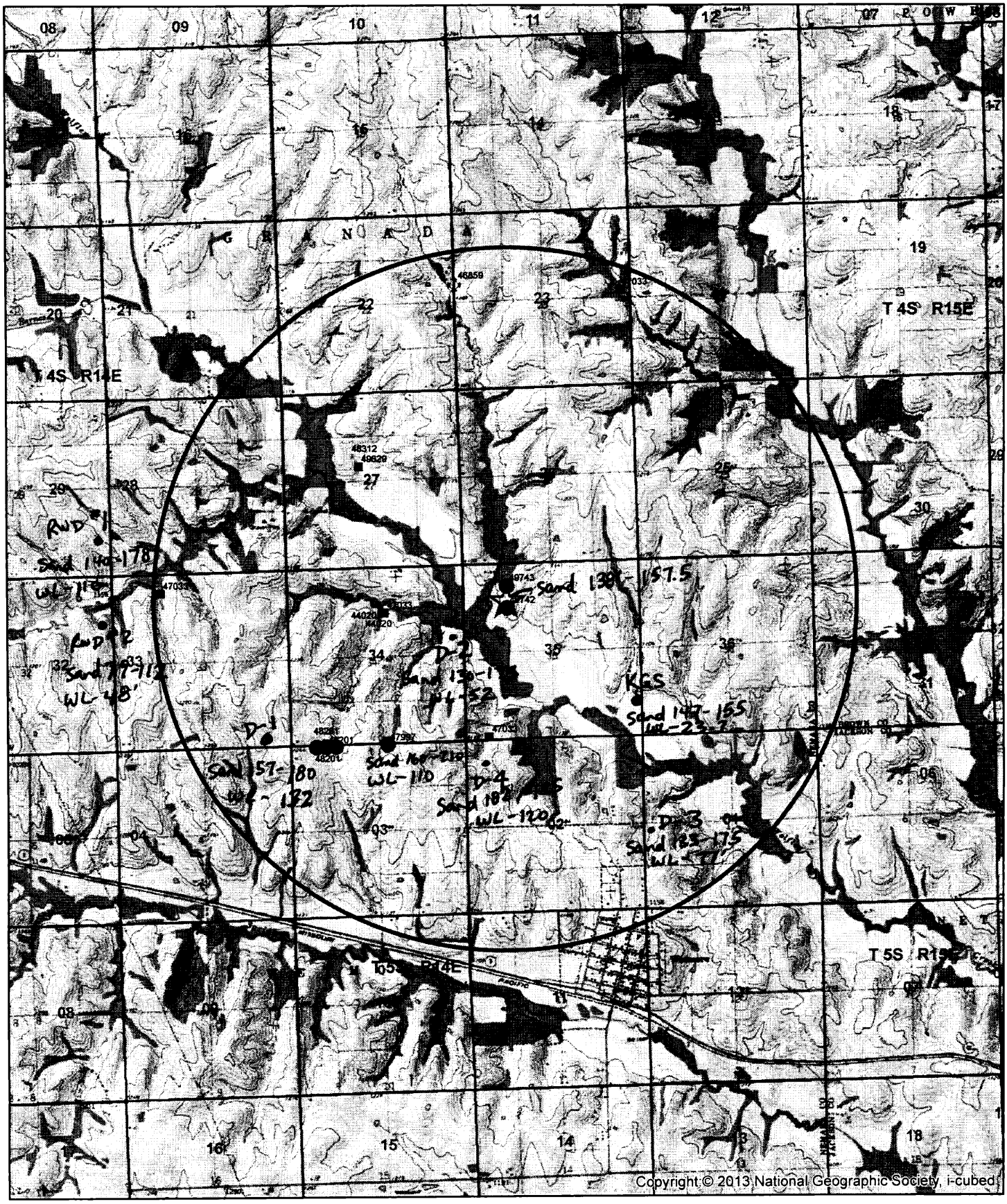
Locally, glaciofluvial deposits of fine to coarse sand, silt, and gravel separate the Nickerson Till from the overlying Cedar Bluffs Till. These glaciofluvial materials that were deposited in stream channels or depressions by meltwater from the glaciers extend over several large areas. The areal extent of the four oldest Pleistocene units is shown on figure 4.

Figure 4--Areal distribution of the four oldest Pleistocene units.

File #'s 49,742 & 49,743



NEMAHA RWD NO. 4
FILE NOS. 49,742 & 49,743



1:48,000

N

RWD 4 #1

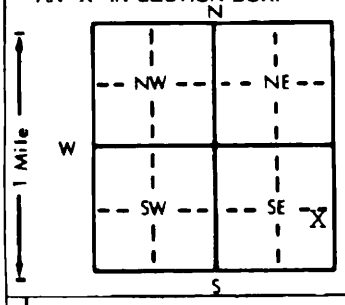
WATER WELL RECORD Form WWC-5 KSA 82a-1212

1 LOCATION OF WATER WELL:	Fraction	Section Number	Township Number	Range Number
County: NEMAHA	X NE¼ SE ¼ SE ¼	29	T 4 S	R 14E E/W

Distance and direction from nearest town or city street address of well if located within city?

2 WATER WELL OWNER: Nemaha Co. RWD #4
RR#, St. Address, Box # : P.O. Box AC WELL #2 - North
City, State, ZIP Code : Wetmore, KS 66550
Board of Agriculture, Division of Water Resources Application Number:

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:



4 DEPTH OF COMPLETED WELL 177' ft. ELEVATION:
Depth(s) Groundwater Encountered 1. ft. 2. ft. 3. ft.
WELL'S STATIC WATER LEVEL 110' ft. below land surface measured on mo/day/yr
Pump test data: Well water was 131.02 ft. after 12 hours pumping 351 gpm
Est. Yield 235 gpm: Well water was 134.52 ft. after 24 hours pumping 351 gpm
Bore Hole Diameter 36" in. to ft., and in. to ft.
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Lawn and garden only 10 Monitoring well
Was a chemical/bacteriological sample submitted to Department? Yes ..... No ..... ; If yes, mo/day/yr sample was submitted
Water Well Disinfected? Yes X No

5 TYPE OF BLANK CASING USED: 5 Wrought iron 8 Concrete tile CASING JOINTS: Glued ..... Clamped .....
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded X
2 PVC 4 ABS 7 Fiberglass Threaded
Blank casing diameter 12" in. to 0-142 ft., Dia 12" in. to 172-177 ft., Dia in. to ft.
Casing height above land surface 24" in., weight 49.56 lbs./ft. Wall thickness or gauge No. .375
TYPE OF SCREEN OR PERFORATION MATERIAL: JOHNSON .060 slott 7 PVC 10 Asbestos-cement
1 Steel 3 Stainless steel 5 Fiberglass 8 RMP (SR) 11 Other (specify)
2 Brass 4 Galvanized steel 6 Concrete tile 9 ABS 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE: 5 Gauzed wrapped 8 Saw cut 11 None (open hole)
1 Continuous slot 3 Mill slot 6 Wire wrapped 9 Drilled holes
2 Louvered shutter 4 Key punched 7 Torch cut 10 Other (specify)
SCREEN-PERFORATED INTERVALS: From 142 ft. to 172 ft., From ft. to ft.
From ft. to ft., From ft. to ft.
GRAVEL PACK INTERVALS: From 130 ft. to 177 ft., From ft. to ft.
From ft. to ft., From ft. to ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout 3 Bentonite 4 Other Fill sand
Grout Intervals: From 0 ft. to 25 ft., From 82 ft. to 130 ft., From 25 ft. to 82 ft.
What is the nearest source of possible contamination:
1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 14 Abandoned water well
2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 15 Oil well/Gas well
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer storage 16 Other (specify below)
13 Insecticide storage creek
Direction from well? North How many feet? 600'

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	2	Top Soil			
2	31	Clay-Brown & Yellow-Gravels & Rocks			
31	42	Clay-very sandy-Yellow			
42	48	Gravel-Dirty w/ Clay			
48	49	Clay-Brown			
49	140	Clay-Blue Grey-w/ Gravel			
140	161	Sand-Medium to Coarse Blue			
161	164	Boulders-Very Coarse-Gravel & Blue Clay			
164	177	Clay-Blue w/ Boulders			
177	178	Sand-Fine Blue			
178	187	Clay-Blue Grey			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 4-21-95 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 182 This Water Well Record was completed on (mo/day/yr) 6-22-95
under the business name of STRADER DRILLING CO., INC. by (signature) Dale Strader

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Topeka, Kansas 66620-0001. Telephone: 913-296-5545. Send one to WATER WELL OWNER and retain one for your records.

OFFICE USE ONLY T R E/W SEC. ¼ ¼ ¼

RWD #2

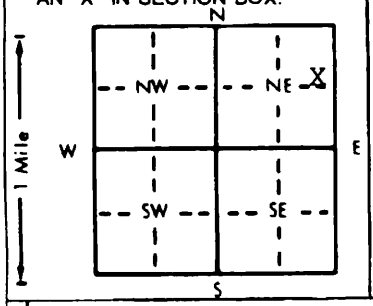
WATER WELL RECORD Form WWC-5 KSA 82a-1212

1 LOCATION OF WATER WELL: County: NEMAHA | Fraction: SE ¼ NE ¼ NE ¼ | Section Number: 32 | Township Number: T 4 S | Range Number: R 14E E/W

Distance and direction from nearest town or city street address of well if located within city?

2 WATER WELL OWNER: Nemaha Co. RWD #4
RR#, St. Address, Box # : P.O. Box AC WELL #1 - South
City, State, ZIP Code : Wetmore, KS 66550
Board of Agriculture, Division of Water Resources Application Number:

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:



4 DEPTH OF COMPLETED WELL 117' ft. ELEVATION:
Depth(s) Groundwater Encountered 1. ft. 2. ft. 3. ft.
WELL'S STATIC WATER LEVEL 48'-1" ft. below land surface measured on mo/day/yr
Pump test data: Well water was 61.25 ft. after 12 hours pumping 351 gpm
Est. Yield 235 gpm: Well water was 68.23 ft. after 24 hours pumping 351 gpm
Bore Hole Diameter 36" in. to ft., and in. to ft.
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Lawn and garden only 10 Monitoring well
Was a chemical/bacteriological sample submitted to Department? Yes No; If yes, mo/day/yr sample was submitted
Water Well Disinfected? Yes X No

5 TYPE OF BLANK CASING USED: 1 Steel 2 PVC 3 RMP (SR) 4 ABS 5 Wrought iron 6 Asbestos-Cement 7 Fiberglass 8 Concrete tile 9 Other (specify below)
CASING JOINTS: Glued Clamped Welded X Threaded
Blank casing diameter 12" in. to 0-82 ft., Dia 12" in. to 112-117 ft., Dia in. to ft.
Casing height above land surface 24 in., weight 49.56 lbs./ft. Wall thickness or gauge No. .375
TYPE OF SCREEN OR PERFORATION MATERIAL: JOHNSON .050 slot 7 PVC 10 Asbestos-cement
1 Steel 3 Stainless steel 5 Fiberglass 8 RMP (SR) 11 Other (specify)
2 Brass 4 Galvanized steel 6 Concrete tile 9 ABS 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE: 1 Continuous slot 2 Louvered shutter 3 Mill slot 4 Key punched 5 Gauzed wrapped 6 Wire wrapped 7 Torch cut 8 Saw cut 9 Drilled holes 10 Other (specify) 11 None (open hole)
SCREEN-PERFORATED INTERVALS: From 82 ft. to 112 ft., From ft. to ft.
From ft. to ft., From ft. to ft.
GRAVEL PACK INTERVALS: From 73 ft. to 117 ft., From ft. to ft.
From ft. to ft., From ft. to ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout 3 Bentonite 4 Other Fill sand
Grout Intervals: From 0 ft. to 25' ft., From 25 ft. to 73 ft., From 25 ft. to 73 ft.
What is the nearest source of possible contamination:
1 Septic tank 2 Sewer lines 3 Watertight sewer lines 4 Lateral lines 5 Cess pool 6 Seepage pit 7 Pit privy 8 Sewage lagoon 9 Feedyard 10 Livestock pens 11 Fuel storage 12 Fertilizer storage 13 Insecticide storage 14 Abandoned water well 15 Oil well/Gas well 16 Other (specify below) creek
Direction from well? south How many feet? 100'

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	12	Top Soil & Tan Clay			
12	43	Black Silty Clay			
43	47	Fine Sand			
47	67	Black Clay			
67	69	Grey Clay			
79	90	Fine Sand & Pebbles			
90	105	Fine SAnd, pebbles & cobbles			
105	112	Fine Sand and fine gravel			
112	122	Black Clay			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 4-14-95 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 182 This Water Well Record was completed on (mo/day/yr) 6-22-95 under the business name of STRADER DRILLING CO., INC. by (signature) Dale Askeen

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Topeka, Kansas 66620-0001. Telephone: 913-296-5545. Send one to WATER WELL OWNER and retain one for your records.

OFFICE USE ONLY T R E/W SEC. ¼ ¼ ¼

D-1

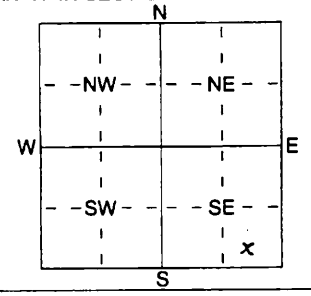
WATER WELL RECORD Form WWC-5 KSA 82a-1212 ID No. _____

1 LOCATION OF WATER WELL: County: Nemaha	Fraction: SW ¼ SE ¼ SE ¼	Section Number: 33	Township Number: T 4 S	Range Number: R 14E E/W

Distance and direction from nearest town or city street address of well if located within city?
1 3/4 west 1 north of wetmore

2 WATER WELL OWNER: Howard Kranz
RR#, St. Address, Box # : Rt 1 Box 49
City, State, ZIP Code : Wetmore, Ks. 66550
Board of Agriculture, Division of Water Resources Application Number:

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:



4 DEPTH OF COMPLETED WELL 200' ft. ELEVATION:
Depth(s) Groundwater Encountered 1 ..... ft. 2 ..... ft. 3 ..... ft.
WELL'S STATIC WATER LEVEL 132 ft. below land surface measured on mo/day/yr 10-10-03
Pump test data: Well water was ..... ft. after ..... hours pumping ..... gpm
Est. Yield 30 gpm: Well water was ..... ft. after ..... hours pumping ..... gpm
WELL WATER TO BE USED AS: 1 Domestic 2 Irrigation 3 Feedlot 4 Industrial 5 Public water supply 6 Oil field water supply 7 Domestic (lawn & garden) 8 Air conditioning 9 Dewatering 10 Monitoring well 11 Injection well 12 Other (Specify below)

Was a chemical/bacteriological sample submitted to Department? Yes ..... No x ; If yes, mo/day/yrs sample was submitted
Water Well Disinfected? Yes x No

5 TYPE OF BLANK CASING USED: 1 Steel 2 PVC 3 RMP (SR) 4 ABS 5 Wrought iron 6 Asbestos-Cement 7 Fiberglass 8 Concrete tile 9 Other (specify below)
CASING JOINTS: Glued x Clamped ..... Welded ..... Threaded .....
Blank casing diameter 5" in. to 24" ft., Dia ..... in. to ..... ft., Dia ..... in. to ..... ft.
Casing height above land surface ..... in., weight 2.82 lbs./ft. Wall thickness or guage No. .258

TYPE OF SCREEN OR PERFORATION MATERIAL: 1 Steel 2 Brass 3 Stainless Steel 4 Galvanized Steel 5 Fiberglass 6 Concrete tile 7 PVC 8 RMP (SR) 9 ABS 10 Asbestos-Cement 11 Other (Specify) 12 None used (open hole)

SCREEN OR PERFORATION OPENINGS ARE: 1 Continuous slot 2 Louvered shutter 3 Mill slot 4 Key punched 5 Guazed wrapped 6 Wire wrapped 7 Torch cut 8 Saw cut 9 Drilled holes 10 Other (specify) ..... 11 None (open hole)

SCREEN-PERFORATED INTERVALS: From 171 ft. to 181 ft., From ..... ft. to ..... ft.
From ..... ft. to 200 ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From 25 ft. to 200 ft., From ..... ft. to ..... ft.
From ..... ft. to ..... ft., From ..... ft. to ..... ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout 3 Bentonite 4 Other .....
Grout Intervals: From ..... ft. to 3 ft., From 25 ft. to ..... ft., From ..... ft. to ..... ft.

What is the nearest source of possible contamination:
1 Septic tank 2 Sewer lines 3 Watertight sewer lines 4 Lateral lines 5 Cess pool 6 Seepage pit 7 Pit privy 8 Sewage lagoon 9 Feedyard 10 Livestock pens 11 Fuel storage 12 Fertilizer storage 13 Insecticide storage 14 Abandoned water well 15 Oil well/Gas well 16 Other (specify below) pond
Direction from well? NorthEast How many feet? 55'

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	1	top soil			
1	11	clay brown sandy			
11	28	clay yellow sandy			
28	36	clay tan grey mix			
36	54	clay grey			
54	57	fine/course sand grey			
57	151	clay grey pebbles			
151	157	clay grey silty			
157	164	fine/sand grey			
164	~~184~~ 170	fine/course sand boulders			
170	175	course sand med pea grey boulders			
175	181	pea grey boulders			
181	200	shale grey			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 10-30-03 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's Licence No 182 This Water Well Record was completed on (mo/day/yr) 10-30-03
under the business name of Strader Drilling Co. Inc. by (signature) Jim Strader

INSTRUCTIONS: Use typewriter or ball point pen. PLEASE PRESS FIRMLY and PRINT clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of $5.00 for each constructed well.

27 addon VJ D-2 ☆

WATER WELL RECORD Form WWC-5 KSA 82a-1212

1 LOCATION OF WATER WELL: County: Nemaha | Fraction: ~~CNE~~ SE¼ - SE¼ - NE¼ ~~NE¼ NE¼ NE¼~~ | Section Number: 34 | Township Number: T 4 (S) | Range Number: R 14 (E/W)

Distance and direction from nearest town or city? .5 W 2 N OF Wetmore

Street address of well if located within city?

2 WATER WELL OWNER: Alan Shumaker
RR#, St. Address, Box #: RT 1
City, State, ZIP Code: Wetmore, Ks. 66550
Board of Agriculture, Division of Water Resources Application Number:

3 DEPTH OF COMPLETED WELL 175 ft. Bore Hole Diameter 12 in. to 175 ft., and ____ in. to ____ ft.

Well Water to be used as: 1 Domestic 2 Irrigation 3 Feedlot 4 Industrial 5 Public water supply 6 Oil field water supply 7 Lawn and garden only 8 Air conditioning 9 Dewatering 10 Observation well 11 Injection well 12 Other (Specify below)

Well's static water level 52 ft. below land surface measured on May month 22 day 1980 year

Pump Test Data: Well water was ____ ft. after ____ hours pumping ____ gpm
Est. Yield 200 gpm: Well water was ____ ft. after ____ hours pumping ____ gpm

4 TYPE OF BLANK CASING USED: 1 Steel 2 PVC 3 RMP (SR) 4 ABS 5 Wrought iron 6 Asbestos-Cement 7 Fiberglass 8 Concrete tile 9 Other (specify below)

Casing Joints: Glued ✓ Clamped ____ Welded ____ Threaded ____

Blank casing dia 5 in. to 0-153 ft., Dia ____ in. to ____ ft., Dia ____ in. to ____ ft.

Casing height above land surface 24 in., weight 2.64 lbs./ft. Wall thickness or gauge No .258

TYPE OF SCREEN OR PERFORATION MATERIAL: 1 Steel 2 Brass 3 Stainless steel 4 Galvanized steel 5 Fiberglass 6 Concrete tile 7 PVC 8 RMP (SR) 9 ABS 10 Asbestos-cement 11 Other (specify) 12 None used (open hole)

Screen or Perforation Openings Are: 1 Continuous slot 2 Louvered shutter 3 Mill slot 4 Key punched 5 Gauzed wrapped 6 Wire wrapped 7 Torch cut 8 Saw cut 9 Drilled holes 10 Other (specify) 11 None (open hole)

Screen-Perforation Dia 5 in. to ____ ft., Dia ____ in. to ____ ft., Dia ____ in. to ____ ft.

Screen-Perforated Intervals: From 153 ft. to 175 ft., From ____ ft. to ____ ft.
From ____ ft. to ____ ft., From ____ ft. to ____ ft.

Gravel Pack Intervals: From 15 ft. to 175 ft., From ____ ft. to ____ ft.
From ____ ft. to ____ ft., From ____ ft. to ____ ft.

5 GROUT MATERIAL: 1 Neat cement 2 Cement grout 3 Bentonite 4 Other ____

Grouted Intervals: From 5 ft. to 15 ft., From ____ ft. to ____ ft., From ____ ft. to ____ ft.

What is the nearest source of possible contamination: 1 Septic tank 2 Sewer lines 3 Lateral lines 4 Cess pool 5 Seepage pit 6 Pit privy 7 Sewage lagoon 8 Feed yard 9 Livestock pens 10 Fuel storage 11 Fertilizer storage 12 Insecticide storage 13 Watertight sewer lines 14 Abandoned water well 15 Oil well/Gas well 16 Other (specify below)

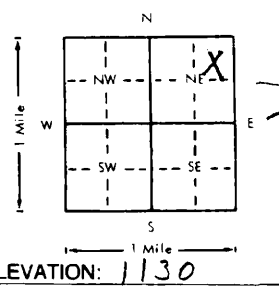
Direction from well N How many feet 122 ? Water Well Disinfected? Yes ✓ No ____

Was a chemical/bacteriological sample submitted to Department? Yes ____ No ✓ If yes, date sample was submitted ____ month ____ day ____ year: Pump Installed? Yes ✓ No ____

If Yes: Pump Manufacturer's name Jacuzzi Model No. 754B HP 3/4 Volts 230
Depth of Pump Intake 140 ft. Pumps Capacity rated at 10 gal./min.
Type of pump: 1 Submersible 2 Turbine 3 Jet 4 Centrifugal 5 Reciprocating 6 Other

6 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on May month 28 day 1980 year and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 182.
This Water Well Record was completed on June month 2 day 1980 year under the business name of STRADER DRLG CO INC by (signature) Dale Ashren

7 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:



ELEVATION: 1130

FROM	TO	LITHOLOGIC LOG	FROM	TO	LITHOLOGIC LOG
0	4	Top Soil			
4	130	Clay, brown, blue			
130	155	Fine Sand			
155	195	Fine Sand, Course Sand			

Depth(s) Groundwater Encountered 1. 130 ft. 2. ____ ft. 3. ____ ft. 4. ____ ft. (Use a second sheet if needed)

INSTRUCTIONS: Use typewriter or ball point pen, *please press firmly* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Division of Environment, Water Well Contractors, Topeka, KS 66620. Send one to WATER WELL OWNER and retain one for your records.

OFFICE USE ONLY T 4 R 14 E/W SEC. 34 NE¼ NE¼ NE¼

KGS

WATER WELL RECORD Form WWC-5 KSA 82a-1212

LOCATION OF WATER WELL:	Fraction	Section Number	Township Number	Range Number
City: Nemaha	NE ¼ SE ¼ SE ¼	35	T 4 S	R 14 E/W

Distance and direction from nearest town or city street address of well if located within city?
1/4 mile N. of Wetmore

WATER WELL OWNER: KGS
R#, St. Address, Box # :
State, ZIP Code :

Board of Agriculture, Division of Water Resources
Application Number:

LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX: N / NW / NE / W / E / SW / SE / S — X

4 DEPTH OF COMPLETED WELL ~~156~~ 155 ft. ELEVATION: ~1092

Depth(s) Groundwater Encountered 1. ..... ft. 2. ..... ft. 3. ..... ft.

WELL'S STATIC WATER LEVEL ~~23~~ 23.7 ft. below land surface measured on mo/day/yr 3/13/87

Pump test data: Well water was ..... ft. after ..... hours pumping ..... gpm

Est. Yield ..... gpm: Well water was ~~156~~ 155 ft. after ..... hours pumping ..... gpm

Bore Hole Diameter 6 1/4 in. to ~~156~~ 155 ft., and ..... in. to ..... ft.

WELL WATER TO BE USED AS: 1 Domestic 2 Irrigation 3 Feedlot 4 Industrial 5 Public water supply 6 Oil field water supply 7 Lawn and garden only 8 Air conditioning 9 Dewatering 10 Observation well 11 Injection well (12) Other (Specify below) Monitoring research

Was a chemical/bacteriological sample submitted to Department? Yes ..... No X; If yes, mo/day/yr sample was submitted ..... Water Well Disinfected? Yes ..... No X

TYPE OF BLANK CASING USED: 1 Steel (2) PVC 3 RMP (SR) 4 ABS 5 Wrought iron 6 Asbestos-Cement 7 Fiberglass 8 Concrete tile 9 Other (specify below)

CASING JOINTS: Glued ..... Clamped ..... Welded ..... Threaded ~~Teflon Tape~~

casing diameter 2 in. to ~~156~~ 155 ft., Dia ..... in. to ..... ft., Dia ..... in. to ..... ft.

height above land surface 2 ft. 10 in., weight ..... lbs./ft. Wall thickness or gauge No. Sch. 80

TYPE OF SCREEN OR PERFORATION MATERIAL: (7) PVC 1 Steel 2 Brass 3 Stainless steel 4 Galvanized steel 5 Fiberglass 6 Concrete tile 8 RMP (SR) 9 ABS 10 Asbestos-cement 11 Other (specify) 12 None used (open hole)

SCREEN OR PERFORATION OPENINGS ARE: 1 Continuous slot (3) Mill slot .01 2 Louvered shutter 4 Key punched 5 Gauzed wrapped 6 Wire wrapped 7 Torch cut 8 Saw cut 9 Drilled holes 10 Other (specify) 11 None (open hole)

SCREEN-PERFORATED INTERVALS: From 136 ft. to ~~156~~ 155 ft., From ..... ft. to ..... ft.

From ..... ft. to ..... ft., From ..... ft. to ..... ft.

GRAVEL PACK INTERVALS: From ~~120~~ 125 ft. to ~~156~~ 155 ft., From ..... ft. to ..... ft.

From ..... ft. to ..... ft., From ..... ft. to ..... ft.

GROUT MATERIAL: (1) Neat cement 2 Cement grout 3 Bentonite 4 Other

Intervals: From 0 ft. to ~~120~~ 125 ft., From ..... ft. to ..... ft., From ..... ft. to ..... ft.

What is the nearest source of possible contamination:
1 Septic tank 2 Sewer lines 3 Watertight sewer lines 4 Lateral lines 5 Cess pool 6 Seepage pit 7 Pit privy 8 Sewage lagoon 9 Feedyard 10 Livestock pens 11 Fuel storage 12 Fertilizer storage 13 Insecticide storage 14 Abandoned water well 15 Oil well/Gas well 16 Other (specify below)

Direction from well? Brown to black How many feet?

FROM	TO	LITHOLOGIC LOG	FROM	TO	LITHOLOGIC LOG
0	3	Top Soil			
3	25	Brown and tan slightly Sandy silty clay with some gravel			
25	90	gray silty clay with sand and gravel			
90	147	gray clayey silt to silty fine sand with occasional sand and gravel			
147	154.5	medium to coarse sand with some gravel			
154.5	155	gray Limestone			

CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 12/18/86 - 12/4-17/86, but not developed then and this record is true to the best of my knowledge and belief. Kansas Well Contractor's License No. ..... This Water Well Record was completed on (mo/day/yr) 12/18/86 - ~~12/87~~ 7/88 and the business name of KGS; M Kleinschmidt Mgr. & Driller by (signature)

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Office of Oil Field and Environmental Geology, Regulation and Permitting Section, Topeka, Kansas 66620-7500, Telephone: 913-862-9360. Send one to WATER WELL OWNER and retain one for your records.

KGS USE ONLY — T — R — E/W — SEC. — ¼ — ¼ — ¼

D-3

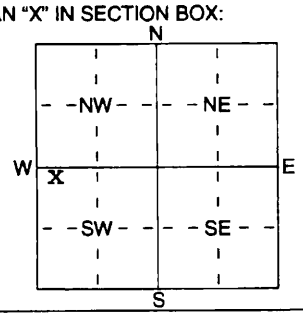
WATER WELL RECORD Form WWC-5 KSA 82a-1212 ID No. _____

1 LOCATION OF WATER WELL:	Fraction	Section Number	Township Number	Range Number
County: Nemaha County	NW ¼ SW ¼ NW ¼	1	T 5 S	R 14E E/W

Distance and direction from nearest town or city street address of well if located within city?
½ North of Wetmore

2 WATER WELL OWNER: Ron Burdiek
RR#, St. Address, Box # : R.R. 1 Box 214
City, State, ZIP Code : Wetmore,Ks. 66550
Board of Agriculture, Division of Water Resources Application Number:

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:



4 DEPTH OF COMPLETED WELL 181' ft. ELEVATION:
Depth(s) Groundwater Encountered 1 ..... ft. 2 ..... ft. 3 7-9-03 ft.
WELL'S STATIC WATER LEVEL 77' ft. below land surface measured on mo/day/yr 7-9-03
Pump test data: Well water was ..... ft. after ..... hours pumping ..... gpm
Est. Yield 100+ gpm: Well water was ..... ft. after ..... hours pumping ..... gpm
WELL WATER TO BE USED AS: 1 Domestic 2 Irrigation 3 Feedlot 4 Industrial 5 Public water supply 6 Oil field water supply 7 Domestic (lawn & garden) 8 Air conditioning 9 Dewatering 10 Monitoring well 11 Injection well 12 Other (Specify below)

Was a chemical/bacteriological sample submitted to Department? Yes ..... No X ; If yes, mo/day/yrs sample was submitted
Water Well Disinfected? Yes X No

5 TYPE OF BLANK CASING USED: 1 Steel 2 PVC 3 RMP (SR) 4 ABS 5 Wrought iron 6 Asbestos-Cement 7 Fiberglass 8 Concrete tile 9 Other (specify below)
CASING JOINTS: Glued X Clamped Welded Threaded
Blank casing diameter XXX 5" in. to ft., Dia in. to ft., Dia in. to ft.
Casing height above land surface 24" in., weight 2.82 lbs./ft. Wall thickness or guage No. .258

TYPE OF SCREEN OR PERFORATION MATERIAL: 1 Steel 2 Brass 3 Stainless Steel 4 Galvanized Steel 5 Fiberglass 6 Concrete tile 7 PVC 8 RMP (SR) 9 ABS 10 Asbestos-Cement 11 Other (Specify) 12 None used (open hole)

SCREEN OR PERFORATION OPENINGS ARE: 1 Continuous slot 2 Louvered shutter 3 Mill slot 4 Key punched 5 Guazed wrapped 6 Wire wrapped 7 Torch cut 8 Saw cut 9 Drilled holes 10 Other (specify) 11 None (open hole)

SCREEN-PERFORATED INTERVALS: From 161' ft. to 181' ft., From ft. to ft.
From ft. to ft., From ft. to ft.
GRAVEL PACK INTERVALS: From 25' ft. to 181' ft., From ft. to ft.
From ft. to ft., From ft. to ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout 3 Bentonite 4 Other
Grout Intervals: From 4' ft. to 25' ft., From ft. to ft., From ft. to ft.

What is the nearest source of possible contamination:
1 Septic tank 2 Sewer lines 3 Watertight sewer lines 4 Lateral lines 5 Cess pool 6 Seepage pit 7 Pit privy 8 Sewage lagoon 9 Feedyard 10 Livestock pens 11 Fuel storage 12 Fertilizer storage 13 Insecticide storage 14 Abandoned water well 15 Oil well/Gas well 16 Other (specify below) Feedlot
Direction from well? South How many feet? 90'

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	1	top soil			
1	24	yellow clay			
24	38	yellow clay grey mix			
38	133	grey clay			
133	155	very fine sand or silt grey			
155	175	grey fine sand			
175	181	grey shale			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 7-16-03 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's Licence No 182 This Water Well Record was completed on (mo/day/yr) 7-16-03
under the business name of Strader Drilling Co., INc. by (signature) Jim Strader

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of $5.00 for each constructed well.

Form	WWC5
Contractor	Drill-Well, LLC
Well Owner	Kenneth Babcock
Doc ID	1082194

Litholgy

0	5	no sample
5	13	silty clay brown
13	16	sandy clay light brown
16	23	silty clay grayish brown
23	87	silty clay gray
87	88	sand C - VC
88	127	silty clay gray
127	136	sand M - VC with clay layers
136	139	silty clay gray
139	148	sand/silty sand VF
148	160	silty clay gray
160	165	sand M - C with clay layers
165	180	silty clay gray
180	185	sand VF some silt
185	204	sand VF
204	206	sand M - VC
206	210	gravel/some chert

47,997

WATER WELL RECORD Form WWC-5

1082194

Division of Water Resources App. No.

Babcock 12-(

Well ID

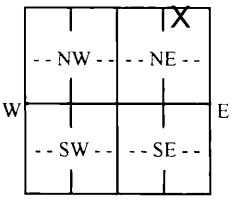
☑ Original Record ☐ Correction ☐ Change in Well Use

1 LOCATION OF WATER WELL: County: Nemaha | Fraction: NE ¼ NW ¼ NE ¼ NE ¼ | Section Number: 3 | Township Number: T 5 S | Range Number: R 14 ☑ E ☐ W

2 WELL OWNER: Last Name: Babcock First: Kenneth
Business:
Address: 1858 220th St
Address:
City: Hiawatha State: KS ZIP: 66434

Street or Rural Address where well is located (if unknown, distance and direction from nearest town or intersection): If at owner's address, check here: ☐
3/4 mile west of Wetmore on HY9, 1 1/4 mile north, 700 feet west. well is on south side of road.

3 LOCATE WELL WITH "X" IN SECTION BOX:



4 DEPTH OF COMPLETED WELL: 210 ft.
Depth(s) Groundwater Encountered: 1) 180 ft. 2) ..... ft. 3) 110 ft., or 4) ☐ Dry Well
WELL'S STATIC WATER LEVEL: 110 ft.
☑ below land surface, measured on (mo-day-yr) 03/01/2012
☐ above land surface, measured on (mo-day-yr).....
Pump test data: Well water was ..... ft. after ..... hours pumping ..... gpm
Well water was ..... ft. after ..... hours pumping ..... gpm
Estimated Yield: 60 gpm
Bore Hole Diameter: 14 in. to 210 ft. and ..... in. to ..... ft.

5 Latitude: 39.6528050 (decimal degrees)
Longitude: 95.8290550 (decimal degrees)
Datum: ☐ WGS 84 ☑ NAD 83 ☐ NAD 27
Source for Latitude/Longitude:
☑ GPS (unit make/model: Garmin) (WAAS enabled? ☐ Yes ☑ No)
☐ Land Survey ☐ Topographic Map
☐ Online Mapper: .....

6 Elevation: 1193 ft. ☑ Ground Level ☐ TOC
Source: ☐ Land Survey ☐ GPS ☐ Topographic Map ☑ Other KOLAR

7 WELL WATER TO BE USED AS:
1. Domestic: ☐ Household ☐ Lawn & Garden ☐ Livestock
2. ☐ Irrigation
3. ☐ Feedlot
4. ☐ Industrial
5. ☐ Public Water Supply: well ID .....
6. ☐ Dewatering: how many wells? .....
7. ☐ Aquifer Recharge: well ID .....
8. ☐ Monitoring: well ID .....
9. Environmental Remediation: well ID ..... ☐ Air Sparge ☐ Soil Vapor Extraction ☐ Recovery ☐ Injection
10. ☐ Oil Field Water Supply: lease .....
11. Test Hole: well ID Babcock 12-03 ☑ Cased ☐ Uncased ☐ Geotechnical
12. Geothermal: how many bores? ..... a) Closed Loop ☐ Horizontal ☐ Vertical b) Open Loop ☐ Surface Discharge ☐ Inj. of Water
13. ☐ Other (specify): .....

Was a chemical/bacteriological sample submitted to KDHE? ☐ Yes ☑ No If yes, date sample was submitted: .....
Water well disinfected? ☑ Yes ☐ No

8 TYPE OF CASING USED: ☐ Steel ☑ PVC ☐ Other ..... CASING JOINTS: ☑ Glued ☐ Clamped ☐ Welded ☐ Threaded
Casing diameter 8 in. to 210 ft., Diameter ..... in. to ..... ft., Diameter ..... in. to ..... ft.
Casing height above land surface 24 in. Weight ..... lbs./ft. Wall thickness or gauge No. SDR21

TYPE OF SCREEN OR PERFORATION MATERIAL:
☐ Steel ☐ Stainless Steel ☐ Fiberglass ☑ PVC ☐ Other (Specify) .....
☐ Brass ☐ Galvanized Steel ☐ Concrete tile ☐ None used (open hole)

SCREEN OR PERFORATION OPENINGS ARE:
☐ Continuous Slot ☑ Mill Slot ☐ Gauze Wrapped ☐ Torch Cut ☐ Drilled Holes ☐ Other (Specify) .....
☐ Louvered Shutter ☐ Key Punched ☐ Wire Wrapped ☐ Saw Cut ☐ None (Open Hole)

SCREEN-PERFORATED INTERVALS: From 190 ft. to 210 ft., From ..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From 25 ft. to 210 ft., From ..... ft. to ..... ft., From ..... ft. to ..... ft.

9 GROUT MATERIAL: ☐ Neat cement ☐ Cement grout ☑ Bentonite ☐ Other .....
Grout Intervals: From 5 ft. to 25 ft., From ..... ft. to ..... ft., From ..... ft. to ..... ft.

Nearest source of possible contamination:
☐ Septic Tank ☐ Lateral Lines ☐ Pit Privy ☐ Livestock Pens ☐ Insecticide Storage
☐ Sewer Lines ☐ Cess Pool ☐ Sewage Lagoon ☐ Fuel Storage ☐ Abandoned Water Well
☐ Watertight Sewer Lines ☐ Seepage Pit ☐ Feedyard ☐ Fertilizer Storage ☐ Oil Well/Gas Well
☐ Other (Specify) .....
Direction from well? ..... Distance from well? ..... ft.

10 FROM	TO	LITHOLOGIC LOG	FROM	TO	LITHO. LOG (cont.) or PLUGGING INTERVALS
Attached	Attached	Attached			
			Notes:		

11 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was ☑ constructed, ☐ reconstructed, or ☐ plugged under my jurisdiction and was completed on (mo-day-year) 03/01/2012 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 779 This Water Well Record was completed on (mo-day-year) 05/22/2012 under the business name of Drill-Well, LLC

Send one copy to WATER WELL OWNER and retain one for your records. Fee of $5.00 for each constructed well.
KS Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-3565.
Visit us at http://www.kdheks.gov/waterwell/index.html KSA 82a-1212

50 Wetmore D-4 v.10

WATER WELL RECORD Form WWC-5 KSA 82a-1212

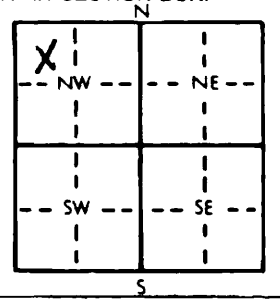
1 LOCATION OF WATER WELL:	Fraction	Section Number	Township Number	Range Number
County: Nemaha	NW ¼ NW ¼ NW ¼	2	T 5 (S)	R 14 (E) W

Distance and direction from nearest town or city street address of well if located within city? ½ N ½ W OF WETMORE

2 WATER WELL OWNER: R.J. STEDMAN
RR#, St. Address, Box # : BOX 231
City, State, ZIP Code : WETMORE 66550

Board of Agriculture, Division of Water Resources
Application Number:

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:



4 DEPTH OF COMPLETED WELL 200 ft. ELEVATION: 1153 Ref.
Depth(s) Groundwater Encountered 1. 190 ft. 2. ft. 3. ft.
WELL'S STATIC WATER LEVEL 120 ft. below land surface measured on mo/day/yr 6-11-82
Pump test data: Well water was ft. after hours pumping gpm
Est. Yield 150 gpm: Well water was ft. after hours pumping gpm
Bore Hole Diameter in. to ft., and in. to ft.
WELL WATER TO BE USED AS: 1 Domestic 2 Irrigation 3 Feedlot 4 Industrial 5 Public water supply 6 Oil field water supply 7 Lawn and garden only 8 Air conditioning 9 Dewatering 10 Observation well 11 Injection well 12 Other (Specify below)
Was a chemical/bacteriological sample submitted to Department? Yes No ✓; If yes, mo/day/yr sample was submitted
Water Well Disinfected? Yes No

5 TYPE OF BLANK CASING USED: 1 Steel 2 PVC 3 RMP (SR) 4 ABS 5 Wrought iron 6 Asbestos-Cement 7 Fiberglass 8 Concrete tile 9 Other (specify below)
CASING JOINTS: Glued ✓ Clamped Welded Threaded
Blank casing diameter 5 in. to 0-190 ft., Dia in. to ft., Dia in. to ft.
Casing height above land surface 24 in., weight 2.82 lbs./ft. Wall thickness or gauge No. .258

TYPE OF SCREEN OR PERFORATION MATERIAL: 1 Steel 2 Brass 3 Stainless steel 4 Galvanized steel 5 Fiberglass 6 Concrete tile 7 PVC 8 RMP (SR) 9 ABS 10 Asbestos-cement 11 Other (specify) 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE: 1 Continuous slot 2 Louvered shutter 3 Mill slot 4 Key punched 5 Gauzed wrapped 6 Wire wrapped 7 Torch cut 8 Saw cut 9 Drilled holes 10 Other (specify) 11 None (open hole)
SCREEN-PERFORATED INTERVALS: From 190 ft. to 200 ft., From ft. to ft.
From ft. to ft., From ft. to ft.
GRAVEL PACK INTERVALS: From 20 ft. to 200 ft., From ft. to ft.
From ft. to ft., From ft. to ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout 3 Bentonite 4 Other
Grout Intervals: From 0 ft. to 10 ft., From ft. to ft., From ft. to ft.
What is the nearest source of possible contamination: 1 Septic tank 2 Sewer lines 3 Watertight sewer lines 4 Lateral lines 5 Cess pool 6 Seepage pit 7 Pit privy 8 Sewage lagoon 9 Feedyard 10 Livestock pens 11 Fuel storage 12 Fertilizer storage 13 Insecticide storage 14 Abandoned water well 15 Oil well/Gas well 16 Other (specify below)
Direction from well? NE How many feet? 160

FROM	TO	LITHOLOGIC LOG	FROM	TO	LITHOLOGIC LOG
0	2	TOP SOIL			
2	10	SANDY CLAY, BROWN			
10	45	CLAY BROWN			
45	158	CLAY BLUE			
158	176	FINE SILT BLUE			
176	182	CLAY, BLUE			
182	189	FINE SAND COURSE SAND			
189	195	CHERT ⅛ x ¼ x ½			
195	200	SHALE, GREY			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 6-11-82 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 182 This Water Well Record was completed on (mo/day/yr) 7-1-82 under the business name of Strader Drilling Co., Inc. by (signature) Dale Strader

INSTRUCTIONS: Use typewriter or ball point pen, PLEASE PRESS FIRMLY and PRINT clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Division of Environment, Environmental Geology Section, Topeka, KS 66620. Send one to WATER WELL OWNER and retain one for your records.

OFFICE USE ONLY T 5 R 14 E W SEC. 2 NW¼ NW¼ NW¼

1320 Research Park Drive
Manhattan, Kansas 66502
(785) 564-6700

Kansas
Department of Agriculture
agriculture.ks.gov

900 SW Jackson, Room 456
Topeka, Kansas 66612
(785) 296-3556

Jackie McClaskey, Secretary

Governor Sam Brownback

December 27, 2016

NEMAHA RWD 4
PO BOX 160
WETMORE KS 66550

FILE COPY

Re: Pending Applications,
File Nos. 49,742 and 49,743

Dear Sir or Madam:

After a preliminary review of your above referenced applications for permits to appropriate water received in this office on December 15, 2016, they are being returned to you for additional information. In your original applications, you requested a 60-day period of time in which to determine the precise locations for your points of diversion within specified quarter section tracts of land described as the Northwest Quarter (NW¼) of Section 35, in Township 4 South, Range 14 East, Nemaha County, Kansas.

Once you've determined the precise locations for your points of diversion, complete the rest of Paragraph No. 5 for each of your applications by providing the description for the 10-acre tract location of the point of diversion as well as the feet distances North and West of the Southeast corner of the Section. The locations of the points of diversion must also be plotted on the topographical map(s) included. In the case of a battery of wells, please provide the description of the location of the proposed geographic center of the well battery, as well as **the location for each of the individual wells comprising the battery of wells**.

The locations of all other water wells of every kind within one-half mile (½) of the points of diversion must be plotted on the topographical map(s) as well. Each well should be identified as to its use (e.g. domestic, irrigation, industrial, etc.) and must **include the name and mailing address of the well owner**. A signed statement should be included on the map(s) declaring that all wells within one-half mile (½) of the points of diversion have been plotted, or it should declare that none exist. Please provide this information once you have established your points of diversion.

Paragraph No. 13 of the application requests well information so the source of supply of the proposed wells may be determined. Pursuant to K.A.R. 5-3-4d, this office requires a stratigraphic log of wells or test holes within 300 feet of the proposed points of diversion. Please supply the indicated information and test hole logs or driller's logs with the returned applications. Also, the enclosed "Minimum Desirable Streamflow" form must be signed and notarized, and the enclosed "Municipal Use Supplemental Sheet" form must be completed. These forms should be returned with your application as well.

(over)

In order to retain their priority of filing, the original applications and attachments must be returned to this office with the requested information on or before **February 15, 2017**, or within any authorized extension of time thereof. According to law, default in refiling of the completed applications and attachments within the time allowed shall constitute forfeiture of priority date and dismissal of the applications.
If you have any questions, please contact me at (785) 564-6631 or by email at alexander.whitesell@ks.gov. If you wish to discuss a specific file, please have the file number ready so that I may help you more efficiently.

Sincerely,

Alex Whitesell
Environmental Scientist
Water Appropriation Program

enclosures
pc:

1320 Research Park Drive
Manhattan, Kansas 66502
Jackie McClaskey, Secretary

Kansas
Department of Agriculture

Phone: (785) 564-6700
Fax: (785) 564-6777
Email: ksag@kda.ks.gov
www.agriculture.ks.gov
Sam Brownback, Governor

December 19, 2016

FILE COPY

NEMAHA RWD 4
PO BOX 1605
WETMORE KS 66550

RE: Application
File No. 49742

Dear Sir or Madam:

Your application for permit to appropriate water in 35-4S-14E in Nemaha County, was received and has been assigned the file number noted above.

As a matter of record, the Division of Water Resources has on hand a large number of applications awaiting processing. Therefore to be fair to all concerned, and so that we can process those applications on hand in the order they were received, we intend to concentrate on the backlog of applications until the issue is resolved. Once review of your application has begun, we will contact you, if additional information is required.

In accordance with the provisions of the Kansas Water Appropriation Act, a portion of which is included below, the use of water as proposed prior to approval of the application is unlawful. Once approved, compliance with the terms, conditions and limitations of the permit is necessary. Conservation of the water resources of Kansas is required.

Section 82a-728 of the Kansas Water Appropriation Act, provides (a) except for the appropriation of water for the purpose of domestic use, . . . it shall be unlawful for any person to appropriate or threaten to appropriate water from any source without first applying for and obtaining a permit to appropriate water in accordance with the provisions of the Water Appropriation Act or for any person to violate any condition of a vested right, appropriation right or an approved application for a permit to appropriate water for beneficial use.

(b) (1) The violation of any provision of this section by any person is a class C misdemeanor . . .

A class C misdemeanor is punishable by a fine not to exceed $500 and/or a term of confinement not to exceed one month in the county jail. Each day that the violation occurs constitutes a separate offense.

If you have any questions, please contact me at (785) 564-6645. If you wish to discuss a specific file, please have the file number ready so that we may help you more efficiently.

Sincerely,

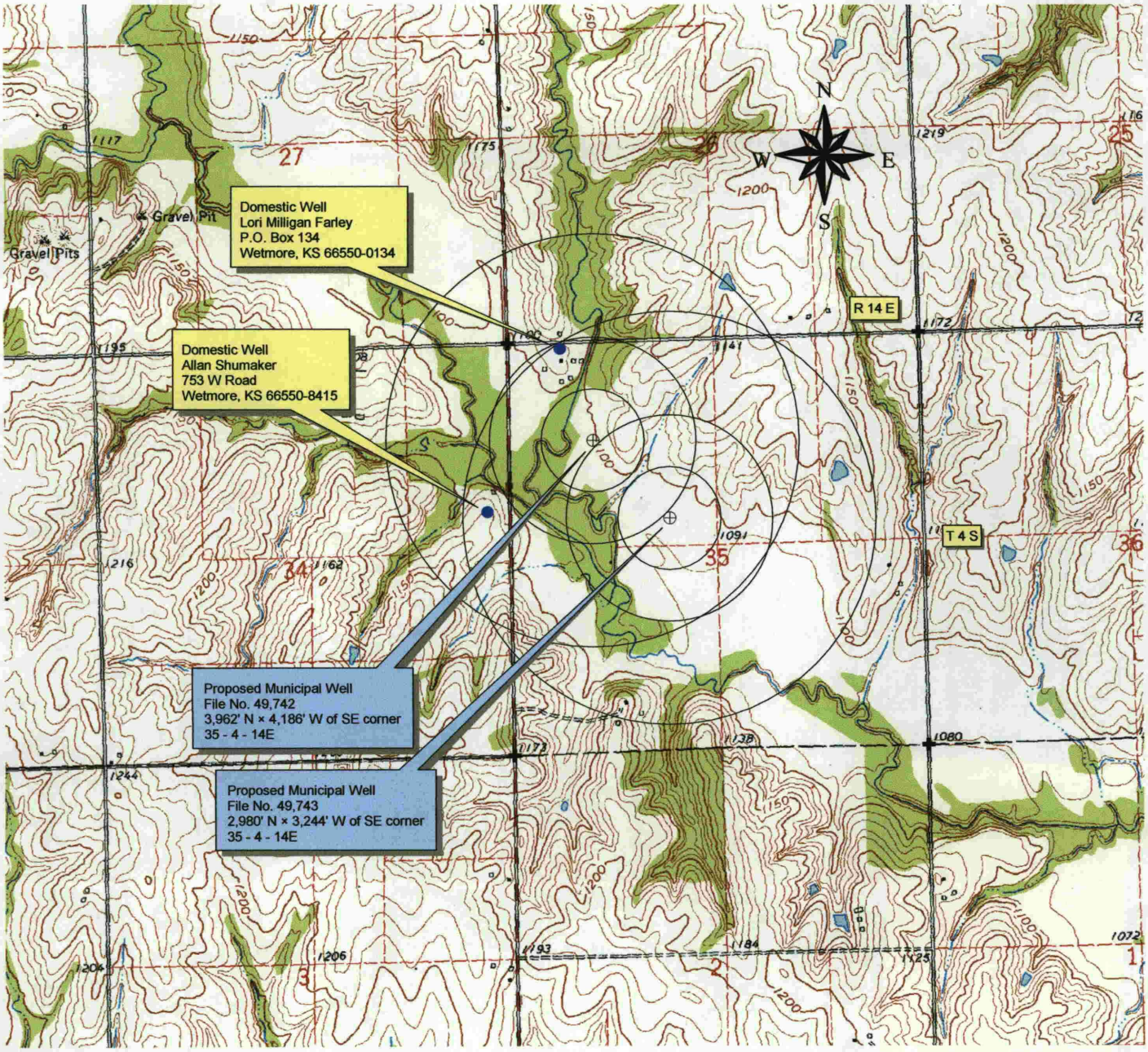
Brent A. Turney

Brent A Turney, P.G.
Change Application Unit Supervisor
Water Appropriation Program

BAT: dlw
pc: TOPEKA Field Office
GMD

SCANNED

Rural Water District No. 4, Nemaha County
Applications for Permit to Appropriate Water
File Nos. 49,742 & 49,743



Legend

- ⊕ Municipal Well
- • Domestic Well
- + Section Corner

All wells of every kind within ½ mile of the proposed wells have been plotted.

Carol Steinlage
(Signature)

RECEIVED
WATER RESOURCES
JAN 30 2017
KS DEPT OF AGRICULTURE

DOUGLAS S. HELMKE
LICENSED
72
JANUARY 25, 2017
KANSAS
GEOLOGIST

Douglas S. Helmke

Map prepared by Douglas S. Helmke, P.G., Kansas Rural Water Association, January 25, 2017.

~~File No. 49,743~~

0 0.25 0.5 0.75 1 Miles

Place of Use

All wells of any kind within 1/2 mile of the requested point of diversion have been plotted.

N

Signature: _____

AJW/DWR

Date: 12/27/2016

File No. 49,742

WATER RESOURCES
RECEIVED
JAN 19 2017
KS DEPT OF AGRICULTURE

0 0.25 0.5 0.75 1 Miles

Place of Use

All wells of any kind within 1/2 mile of the requested point of diversion have been plotted.

N

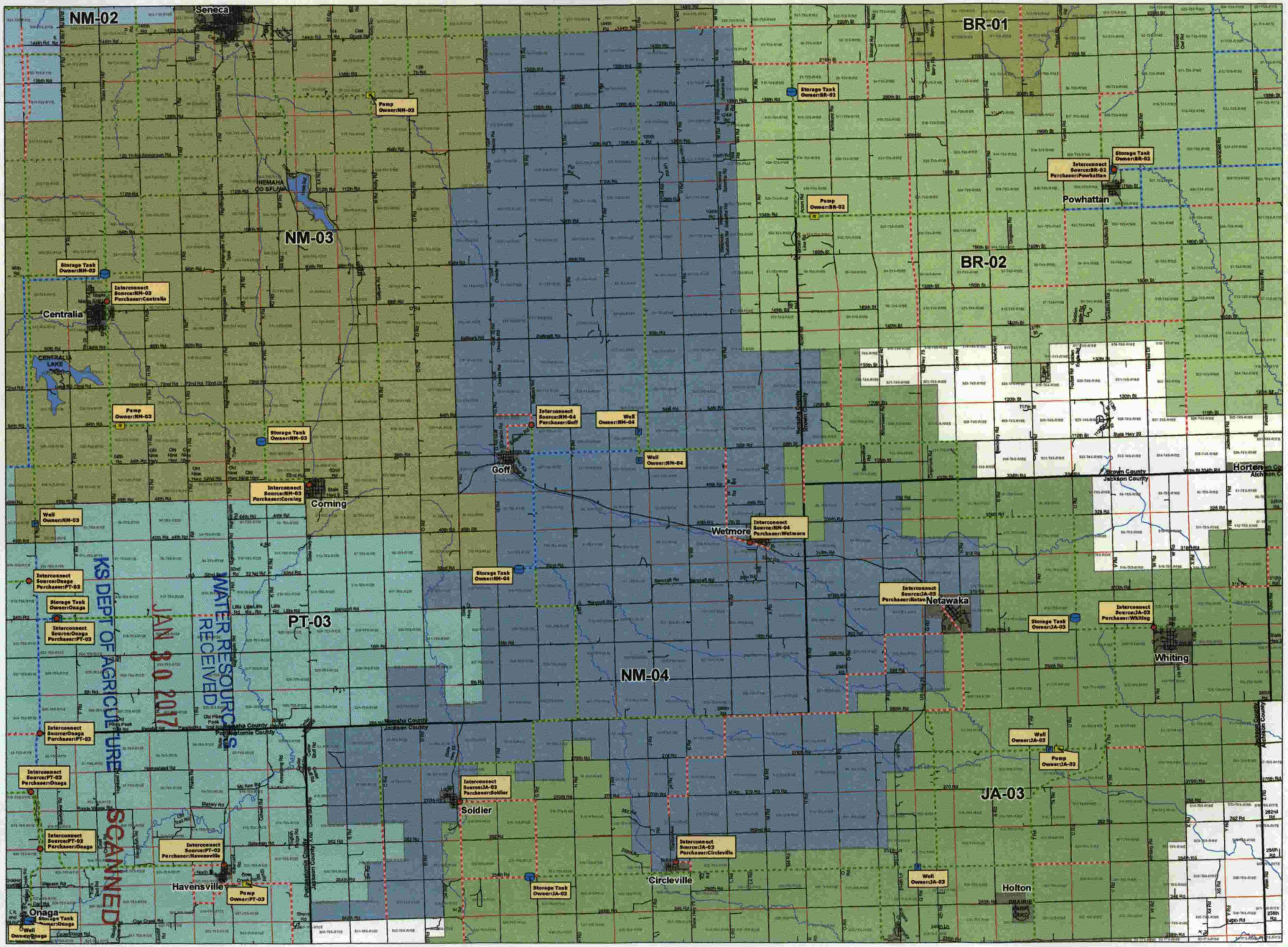
AJW/DWR

Date: 12/27/2016

Signature: _____

FILE No. 49,742

Nemaha County RWD No. 04



Legend

- Interconnect
- Pump
- Storage Tank
- Surface Intake
- Treatment Facility
- Well

Water Mains

- Less than 4 inch
- 4 to 6 inch
- greater than 6 inch
- Roads
- Streams
- PLSS
- County Boundary
- City Boundary
- Lakes

Locator Map: Study Area

0 1 2 4 Miles

Produced by Kansas Rural Water Association with the cooperation of the Kansas Water Office and the Data Access and Support Center October 2015

REQUESTED PLACE OF USE: WITHIN BOUNDARIES OF RURAL WATER DISTRICT No. 4, NEMAHA COUNTY & IMMEDIATE VICINITY, AND WITHIN THE CITY OF GOFF & IMMEDIATE VICINITY.