NOTICE

This scan only represents the application as filed. The information contained herein meets the requirements of K.A.R. 5-3-1 or K.A.R. 5-5-1, and has been found acceptable for filing in the office of the Chief Engineer. The application should not be considered to be a complete application as per K.A.R. 5-3-1b or K.A.R. 5-5-2a.

THE STATE OF KANSAS

KANSAS DEPARTMENT OF AGRICULTURE
Jackie McClaskey, Secretary of Agriculture

DIVISION OF WATER RESOURCES
David W. Barfield, Chief Engineer

File Number 49849
This item to be completed by the Division of Water Resources.

WATER RESOURCES
RECEIVED
MAY 25 2017
12:00
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, Kansas 66502:

1. Name of Applicant (Please Print): David M Kriegel & Derek M Kriegel

   Address: PO Box 698

   City: Coldwater State KS Zip Code 67029

   Telephone Number: (864) 270-9031

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

   OR ☒ groundwater in Salt Fork Arkansas River (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 195* acre-feet OR --- gallons per calendar year, to be diverted at a maximum rate of 815* gallons per minute OR --- cubic feet per second.

   **Limited to 195 AF and 815 gpm when combined with Water Right, File No. 31904.*

   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. 2 *GMD* 1 *Meets K.A.R. 5-3-1* (YES) / NO *Use* IRR *Source* (GW) S *County* CM *By* KAB *Date* 5/25/17
Code RE2 *Fee $* 300 *TR #* _____ *Receipt Date* 5/25/17 *Check #* 1135

DWR 1-100 (Revised 06/16/2014)

6/2/2017 CLM

File No. _____

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.

(A) One in the NW quarter of the SW quarter of the SE quarter of Section 34, more particularly described as being near a point 1,302 feet North and 2,442 feet West of the Southeast corner of said section, in Township 31 South, Range 18 West, Comanche 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):

Same as Applicant
(name, address and telephone number)

_____
(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 April 11, 2017. _____
> Applicant's Signature

The applicant must provide the required information or signature irrespective of whether they are the landowner. Failure to complete this portion of the application will cause it to be unacceptable for filing and the application will be returned to the applicant.

7. The proposed project for diversion of water will consist of one well and diversion works
(number of wells, pumps or dams, etc.)
and was completed (by) 1978.
(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 1978.
(Mo/Day/Year)

File No. 49849

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 _____

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.

P/D and P/U overlap with Water Right, File No. 31904. No modifications are proposed for File No. 31904.

This new application is for additional quantity.

File No. _____

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	7/26/78			
Total depth of well	288 ft			
Depth to water bearing formation				
Depth to static water level	109 ft			
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):

Same as Applicant
(name, address and telephone number)

(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 Greensburg, Kansas, this 11th day of April (month), 2017 (year).

(Applicant Signature)

By
(Agent or Officer Signature)

(Agent or Officer - Please Print)

GINA FRIESEN
Notary Public, State of Kansas
My Appointment Expires
4-28-19

Gina Friesen 4/11/17

Assisted by EKF SFFO/ESII (office/title) Date: 2/15/17

IRRIGATION USE
SUPPLEMENTAL SHEET

File No. 49849

Name of Applicant (Please Print): David M Kriegel & Derek M Kriegel

1. Please supply the name and address of each landowner, the legal description of the lands to be irrigated, and designate the actual number of acres to be irrigated in each forty acre tract or fractional portion thereof:

Landowner of Record NAME: David M Kriegel & Derek M Kriegel

ADDRESS: PO Box 698, Coldwater KS 67029-0698

S	T	R	NE¼				NW¼				SW¼				SE¼				TOTAL
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
34	31	18W									32.5			32.5		32.5	32.5		130

Landowner of Record NAME: _____

ADDRESS: _____

S	T	R	NE¼				NW¼				SW¼				SE¼				TOTAL
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	

Landowner of Record NAME: _____

ADDRESS: _____

S	T	R	NE¼				NW¼				SW¼				SE¼				TOTAL
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	

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2. Please complete the following information for the description of the operation for the irrigation project. Attach supplemental sheets as needed.

a. Indicate the soils in the field(s) and their intake rates:

Soil Name	Percent of field (%)	Intake Rate (in/hr)	Irrigation Design Group
Kingsdown fine sand, loam, 0-2% slopes	22%		
Clarke Clay Loam, 1-3% slopes	6%		
Pratt Loamy fine Sand, 1-5% slopes	55%		
Pratt Loamy fine Sand, 5-12% slopes	6%		
Shellabarger Sandy Loam, +3% slopes	11%		
Total:	100 %		

b. Estimate the average land slope in the field(s): 1 %

Estimate the maximum land slope in the field(s): 3 %

c. Type of irrigation system you propose to use (check one):

X Center pivot ____ Center pivot - LEPA ____ "Big gun" sprinkler

____ Gravity system (furrows) ____ Gravity system (borders) ____ Sideroll sprinkler

Other, please describe: _____

d. System design features:

i. Describe how you will control tailwater: N/A

ii. For sprinkler systems:

(1) Estimate the operating pressure at the distribution system: 50 psi

(2) What is the sprinkler package design rate? 950 gpm Controlling Flow with valve TO 700gpm

(3) What is the wetted diameter (twice the distance the sprinkler throws water) of a sprinkler on the outer 100 feet of the system? 57 feet

(4) Please include a copy of the sprinkler package design information.

e. Crop(s) you intend to irrigate. Please note any planned crop rotations:

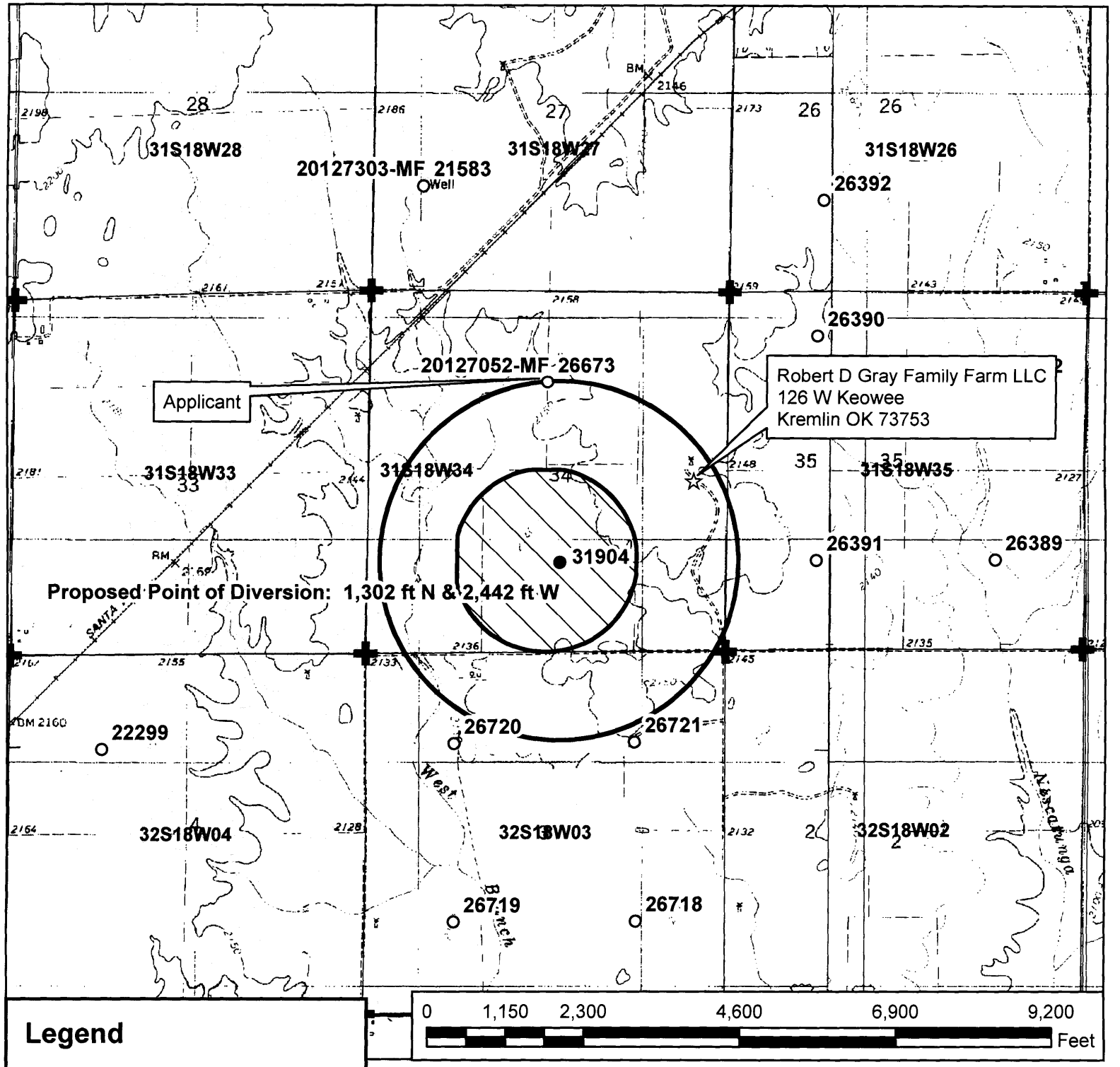
Alfalfa, wheat, soybeans, milo and corn

f. Please describe how you will determine when to irrigate and how much water to apply (particularly important if you do not plan a full irrigation).

Use soil moisture probe to determine water needs. This combined with crop growth stage and rain forecast will be used to determine when and how much to irrigate in accordance with resource sustainability.

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

49849



Legend

- Water Appropriations
- Proposed Point of Diversion
- Domestic Well
- Section Corner
- Half Mile Circle
- Section Line
- Proposed Place of Use

Water Appropriation, File No.

New Application Map (Overlap w/ File No. 31904)

34-31S-18W // Comanche County

To the best of my knowledge, all wells within 1/2 mile of the proposed point of diversion have been shown.

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N

Signature

2/15/17 EKF-SFFO 1:24,000 scale

49849

February 13, 2017
(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. _____

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

State of Kansas)
) ss
County of Stafford)

Derek Kriegel
(Print Applicant's Name)

I hereby certify that the foregoing instrument was signed in my presence and sworn to before me this 8th day of February, 2017.

Notary Public

My Commission Expires:

STATE OF KANSAS NOTARY PUBLIC
ELIZABETH K. FITCH
My Appointment Expires
October 12, 2017

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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

49849

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

WATER WELL RECORD
KSA 82a-1201-1215

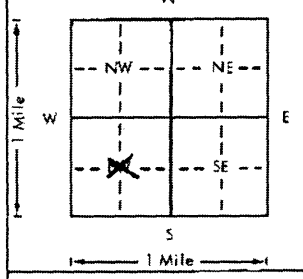
Kansas Department of Health and Environment-Division of Environment
(Water well Contractors)
Topeka, Kansas 66620

1. Location of well:	County	Fraction	Section number	Township number	Range number
	Comanche	CSW 1/4 1/4 1/4	34	T 31 S	R 18 E/W

2. Distance and direction from nearest town or city: 2 Mi. E. & 1 Mi. N. of Coldwater, Ks.
Street address of well location if in city:

3. Owner of well: Roy Boisseau
R.R. or street:
City, state, zip code: Coldwater, Kansas 67029

4. Locate with "X" in section below:



Sketch map: Well No. 4 (TH 1-78)

6. Bore hole dia. 30 in. Completion date 7/26/78
Well depth 288 ft.

7. ___ Cable tool ___ Rotary ___ Driven ___ Dug
___ Hollow rod ___ Jetted ___ Bored X Reverse rotary

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

9. Casing: Material Steel Height: Above ~~below~~
Threaded ___ Welded X Surface 12 in.
RMP ___ PVC ___ Weight 36.91 lbs./ft.
Dia. 16 in. to 173 ft. depth Wall Thickness: inches or
Dia. ___ in. to ___ ft. depth gage No. .219"

5. Type and color of material	From	To
Sandy top soil	0	3
Fine to coarse sand - loose	3	78
Coarse sand - fine to coarse gravel	78	107
Tan sandy clay	107	135
Coarse sand	135	145
Tan sandy clay - sand streaks	145	171
Fine to coarse sand - small clay streaks	171	224
Tan sandy clay	224	235
Fine to coarse sand	235	288
Redbed	288	320
(Use a second sheet if needed)		

10. Screen: Manufacturer's name Doerr Metal Products Co.
Type Steel Dia. 16"
Slot/gauze 1/8 Length 116'
Set between 173 ft. and 289 ft.
___ ft. and ___ ft.
Gravel pack? yes Size range of material 1/8 X 3/8

11. Static water level: mo./day/yr.
109 ft. below land surface Date 7/26/78

12. Pumping level below land surfaces:
161 ft. after 4 hrs. pumping 935 g.p.m.
205 ft. after 1 hrs. pumping 1500 g.p.m.
Estimated maximum yield 1500 g.p.m.

13. Water sample submitted: mo./day/yr.
___ Yes X No Date ___

14. Well head completion:
___ Pitless adapter 12 inches above grade

15. Well grouted? yes
With: ___ Neat cement ___ Bentonite X Concrete
Depth: From 0 ft. to 10 ft.

16. Nearest source of possible contamination:
ft. 6000 Direction west Type Farm
Well disinfected upon completion? ___ Yes X No

17. Pump: ___ Not installed
Manufacturer's name Layne & Bowler Inc
Model number 12K HP 100 Volts ___
Length of drop pipe 200 ft. capacity 900 g.p.m.
Type:
___ Submersible X Turbine
___ Jet ___ Reciprocating
___ Centrifugal ___ Other

18. Elevation:
Topography:
___ Hill
___ Slope
X Upland
___ Valley

19. Remarks:

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.
Layne Western Co. 102
Business name License No.
Address Wichita, Kansas
Signed [signature] Date 9/14/78
Authorized representative

T 31 R 18 E/W Sec 34 1/4 1/4 1/4 CSW

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

Form WWC-5

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MAY 25 2017
KS DEPT OF AGRICULTURE

MT-1023

SOUTH CENTRAL IRRIGATION

MARCH 06, 2006	WISH-49159
~~CUSTOMER : DENNIS MCKINNEY~~	VALLEY 4071 MODIFIED - LINDSAY 307 MIX 7 TOWER - 1316.87 FT SYSTEM 950 GPM @ 50 PSI
LEGAL : COMANCHE SE 1/4 34-31-18	SENNINGER I-WOBS SENNINGER 15 PSI REGULATORS DUAL NELSON P85AS 15/32 TB ELEVATION 5 FT UP, 5 FT DOWN

NORTH 634 MAIN STREET

GREENSBURG, KANSAS 67054

(620)723-2104

49549

WARRANTY

WATER APPLICATION UNIFORMITY OBTAINED WITH THIS SYSTEM CAN BE ADVERSELY AFFECTED BY MANY VARIABLES INCLUDING THE IMPROPER MAKEUP OR INSTALLATION OF THE SPRINKLER OR SPRAY NOZZLE PACKAGE, OBSTRUCTED NOZZLES, MAINTAINING INCORRECT PIVOT PRESSURE, UNFAVORABLE CLIMATIC CONDITIONS, TIGHT AND/OR SLOPING SOILS, IMPROPER END GUN ARC SETTINGS, ERRATIC AND IMPROPER OPERATING SPEED OF THE SYSTEM, POOR QUALITY OF WATER WITH ABRASIVES, CORROSIVES, AND/OR SOLIDS WHICH CAN CAUSE PLUGGING AND JAMMING, AS WELL AS INHERENT VARIABLES IN THE MANY COMPONENTS COMPRISING THE SYSTEM. THEREFORE WESTERN IRRIGATION SUPPLY HOUSE, INC., MAKES NO WARRANTY AS TO THE UNIFORMITY OF COVERAGE OBTAINED FROM THIS WATER APPLICATION PRINTOUT OTHER THAN ITS MATHEMATICAL ACCURACY.

IT IS THE RESPONSIBILITY OF THE END USER TO DETERMINE IF ANY INCOMPATIBILITY EXISTS BETWEEN THE WATER DISTRIBUTION DEVICES AND THE CROP, THE SOIL, AND THE PHYSICAL STRUCTURE OF THE MECHANICAL MOVE SYSTEM. WESTERN IRRIGATION SUPPLY HOUSE, INC., THEREFORE, DISCLAIMS ANY LIABILITY FOR DAMAGES DUE TO FAILURE OF THE SYSTEM TO PERFORM AS CONTEMPLATED.

FIGURES PRESENTED ON THIS COMPUTER PRINTOUT ARE BASED ON THE FOLLOWING:

1. DATA FURNISHED TO WESTERN IRRIGATION SUPPLY HOUSE, INC., ON PIPE LENGTH, DIAMETER, SURFACE FINISH, OUTLET SPACINGS, WATER FLOW, PIVOT PRESSURE AND ALL OTHER APPLICABLE INFORMATION.

2. THERE IS 100% WATER APPLICATION EFFICIENCY (ZERO WIND VELOCITY AND NO EVAPORATION).

3. PIVOT PRESSURE IS MEASURED ON THE MAIN HORIZONTAL DISTRIBUTION PIPE JUST AFTER THE LAST ELBOW.

4. MAIN PIPE PRESSURE IS CALCULATED AS IF THE PIVOT IS ALWAYS ON LEVEL GROUND.

5. SPRINKLER OR SPRAY NOZZLE BASE PRESSURE MAY BE LESS THAN MAIN LINE PIPE PRESSURE DUE TO THE USE OF PRESSURE REGULATORS. WHERE DROP PIPES ARE USED THE STATIC HEAD IS ADDED TO AND FRICTION LOSS IS SUBTRACTED FROM THE MAIN LINE PIPE PRESSURE TO DETERMINE INLET PSI. REGULATORS ARE CONSIDERED MOUNTED AT THE SAME HEIGHT AS THE SPRINKLING DEVICE UNLESS NOTED.

49849

VALLEY 4071 MODIFIED - LINDSAY 307 MIX MARCH 06, 2006 WISH-49159

DEALER
SOUTH CENTRAL IRRIGATION
NORTH 634 MAIN STREET
GREENSBURG, KANSAS 67054

IRRIGATOR
DENNIS MCKINNEY
COMANCHE SE 1/4 34-31-18

TOTAL TARGET GPM	950.00	FRICTION FACTOR USED	138	SPANS	LENGTH	PIPE I.D.
TOP OF PIVOT PRESSURE	50.00	TOTAL LENGTH	1316.87	1	171.40	5.79
not used ENDGUN TARGET GPM	60.73	NUMBER OF TOWERS	7	4	185.37	5.79
NUMBER OF OUTLETS	156	NUMBER OF SPRINKLERS	133	1	185.11	5.79
				1	177.81	6.395
				OH	41.07	3.79

SENNINGER I-WOBS - STANDARD ANGLE 9 GROOVE BLACK PLATES X NPT X 1 LB WEIGHT FIRST TWO SPANS
SENNINGER I-WOBS - LOW ANGLE BLUE 9 GROOVE PLATES X NPT X 1 LB WEIGHT BALANCE
SENNINGER PSR 15 PSI SERIES REGULATORS MOUNTED AFTER GOOSENECKS
DROPS AVERAGE 5.5 FT OF .75 I.D. FLEXIBLE HOSE
ELEVATION IS 5 FT UP AND 5 FT DOWN

CAUTIONS AND WARNINGS

1. Inadequate crop clearance and/or structural interference may cause poor water distribution, resulting in decreased uniformity and possible streaking.
2. Over watering at beginning of system due to practical limitations on smallest nozzle sizes available and/or allowable for proper operation.

49849

OUTLET NO.	LAST OUTLET	DISTANCE TO PIVOT	GPM NEED	GPM DEL.	PIPE PSI	NOZZLE PSI	SPRINKLER LABEL AND NOZZLE SIZE	SPRK NO.	REG SIZE	PLUG NO.	DROP LENGTH
1		5.35								1	
2		18.98								2	
3		27.89								3	
4	35.65	35.65	1.21	1.52	48.33	18.89	SN I-WOB 7 LIME	1	SPSR15		66
5		44.47								4	
6		53.03								5	
7	25.84	61.49	1.29	1.53	47.21	19.32	SN I-WOB 7 LIME	2	SPSR15		78
8		69.40								6	
9	16.67	78.16	1.34	1.53	46.60	19.32	SN I-WOB 7 LIME	3	SPSR15		78
10		85.54								7	
11		87.56								8	
12	16.78	94.94	1.63	1.53	46.09	19.32	SN I-WOB 7 LIME	4	SPSR15		78
13		103.70								9	
14	16.67	111.61	1.93	1.96	45.67	19.08	SN I-WOB 8 LAVENDER	5	SPSR15		72
15		120.07								10	
16	17.02	128.63	2.29	2.22	45.34	19.05	SN I-WOB 8.5 LAVENDER	6	SPSR15		72
17		137.48								11	
18	17.61	146.24	2.68	2.72	45.11	18.57	SN I-WOB 9.5 GREY	7	SPSR15		60
19		155.61								12	
20	18.15	164.39	3.00	2.97	44.92	18.12	SN I-WOB 10 TURQUOISE	8	SPSR15		48
TOWER 1	171.40	171.40									
21		173.94								13	
22	17.47	181.86	3.08	2.99	44.34	18.33	SN I-WOB 10 TURQUOISE	9	SPSR15		54
23		188.65								14	
24	15.70	197.56	3.28	3.31	43.55	18.50	SN I-WOB 10.5 TURQUOISE	10	SPSR15		60
25		205.32								15	
26	16.61	214.17	3.69	3.63	42.78	18.67	SN I-WOB 11 YELLOW	11	SPSR15		66
27		222.73								16	
28	17.02	231.19	3.99	3.99	42.09	18.82	SN I-WOB 11.5 YELLOW	12	SPSR15		72
29		239.10								17	
30	16.67	247.86	4.25	4.33	41.49	18.97	SN I-WOB 12 RED	13	SPSR15		78
31		255.24								18	
32	16.77	264.63	4.40	4.33	40.97	18.97	SN I-WOB 12 RED	14	SPSR15		78
33		272.93								19	
34	15.68	280.31	4.65	4.71	40.55	18.92	SN I-WOB 12.5 RED	15	SPSR15		78
35		289.07								20	
36	16.67	296.98	5.13	5.05	40.19	18.66	SN I-WOB 13 WHITE	16	SPSR15		72
37		305.44								21	
38	17.02	314.00	5.58	5.43	39.91	18.38	SN I-WOB 13.5 WHITE	17	SPSR15		66
39		322.85								22	
40	17.61	331.61	6.08	6.22	39.71	18.02	SN I-WOB 14.5 BLUE	18	SPSR15		60
41		340.98								23	
42	18.15	349.76	4.93	4.95	39.53	17.88	SN I-WOB 13 WHITE	19	SPSR15		48
TOWER	185.37	356.77									
43	9.55	359.31	3.21	3.27	39.27	18.09	SN I-WOB 10.5 TURQUOISE	20	SPSR15		48
44	7.92	367.23	2.77	2.70	39.00	18.36	SN I-WOB 9.5 GREY	21	SPSR15		54
45	6.79	374.02	3.01	2.99	38.67	18.33	SN I-WOB 10 TURQUOISE	22	SPSR15		54
46	8.91	382.93	3.27	3.31	38.26	18.50	SN I-WOB 10.5 TURQUOISE	23	SPSR15		60

OUTLET NO.	LAST OUTLET	DISTANCE TO PIVOT	GPM NEED	GPM DEL.	PIPE PSI	NOZZLE PSI	SPRINKLER LABEL AND NOZZLE SIZE	SPRK NO.	REG SIZE	PLUG NO.	DROP LENGTH
47	7.76	390.69	3.33	3.33	37.92	18.71	SN I-WOB 10.5 TURQUOISE	24	SPSR15		66
48	8.85	399.54	3.56	3.63	37.55	18.67	SN I-WOB 11 YELLOW	25	SPSR15		66
49	8.56	408.10	3.56	3.65	37.22	18.87	SN I-WOB 11 YELLOW	26	SPSR15		72
50	8.46	416.56	3.49	3.35	36.91	18.91	SN I-WOB 10.5 TURQUOISE	27	SPSR15		72
51	7.91	424.47	3.63	3.67	36.65	19.07	SN I-WOB 11 YELLOW	28	SPSR15		78
52	8.76	433.23	3.58	3.67	36.37	19.07	SN I-WOB 11 YELLOW	29	SPSR15		78
53	7.38	440.61	3.79	3.67	36.16	19.07	SN I-WOB 11 YELLOW	30	SPSR15		78
54	9.39	450.00	4.08	4.01	35.91	19.02	SN I-WOB 11.5 YELLOW	31	SPSR15		78
55	8.30	458.30	3.68	3.67	35.72	19.07	SN I-WOB 11 YELLOW	32	SPSR15		78
56	7.38	465.68	3.86	4.01	35.56	19.02	SN I-WOB 11.5 YELLOW	33	SPSR15		78
57	8.76	474.44	4.05	4.01	35.40	19.02	SN I-WOB 11.5 YELLOW	34	SPSR15		78
58	7.91	482.35	4.05	3.99	35.27	18.82	SN I-WOB 11.5 YELLOW	35	SPSR15		72
59	8.46	490.81	4.28	4.31	35.16	18.78	SN I-WOB 12 RED	36	SPSR15		72
60	8.56	499.37	4.46	4.29	35.07	18.58	SN I-WOB 12 RED	37	SPSR15		66
61	8.85	508.22	4.59	4.66	34.99	18.52	SN I-WOB 12.5 RED	38	SPSR15		66
62	8.76	516.98	4.81	4.63	34.94	18.33	SN I-WOB 12.5 RED	39	SPSR15		60
63	9.37	526.35	4.90	4.97	34.92	18.08	SN I-WOB 13 WHITE	40	SPSR15		54
64	8.78	535.13	5.03	4.95	34.84	17.88	SN I-WOB 13 WHITE	41	SPSR15		48
TOWER 3	185.37	542.14									
65	9.55	544.68	4.87	4.95	34.62	17.88	SN I-WOB 13 WHITE	42	SPSR15		48
66	7.92	552.60	4.16	4.24	34.40	18.18	SN I-WOB 12 RED	43	SPSR15		54
67	6.79	559.39	4.51	4.61	34.10	18.13	SN I-WOB 12.5 RED	44	SPSR15		54
68	8.91	568.30	4.85	5.00	33.73	18.27	SN I-WOB 13 WHITE	45	SPSR15		60
69	7.76	576.06	4.91	5.03	33.42	18.47	SN I-WOB 13 WHITE	46	SPSR15		66
70	8.85	584.91	5.22	5.03	33.10	18.47	SN I-WOB 13 WHITE	47	SPSR15		66
71	8.56	593.47	5.18	5.05	32.81	18.66	SN I-WOB 13 WHITE	48	SPSR15		72
72	8.46	601.93	5.05	5.05	32.55	18.66	SN I-WOB 13 WHITE	49	SPSR15		72
73	7.91	609.84	5.21	5.08	32.32	18.85	SN I-WOB 13 WHITE	50	SPSR15		78
74	8.76	618.60	5.12	5.08	32.10	18.85	SN I-WOB 13 WHITE	51	SPSR15		78
75	7.38	625.98	5.39	5.48	31.92	18.76	SN I-WOB 13.5 WHITE	52	SPSR15		78
76	9.39	635.37	5.76	5.88	31.73	18.66	SN I-WOB 14 BLUE	53	SPSR15		78
77	8.30	643.67	5.17	5.08	31.58	18.85	SN I-WOB 13 WHITE	54	SPSR15		78
78	7.38	651.05	5.39	5.48	31.46	18.76	SN I-WOB 13.5 WHITE	55	SPSR15		78
79	8.76	659.81	5.64	5.48	31.35	18.76	SN I-WOB 13.5 WHITE	56	SPSR15		78
80	7.91	667.72	5.60	5.45	31.26	18.57	SN I-WOB 13.5 WHITE	57	SPSR15		72
81	8.46	676.18	5.90	5.85	31.20	18.48	SN I-WOB 14 BLUE	58	SPSR15		72
82	8.56	684.74	6.11	6.25	31.15	18.20	SN I-WOB 14.5 BLUE	59	SPSR15		66
83	8.85	693.59	6.26	6.25	31.13	18.20	SN I-WOB 14.5 BLUE	60	SPSR15		66
84	8.76	702.35	6.53	6.63	31.13	17.93	SN I-WOB 15 DK BROWN	61	SPSR15		60
85	9.37	711.72	6.62	6.59	31.16	17.75	SN I-WOB 15 DK BROWN	62	SPSR15		54
86	8.78	720.50	6.77	6.56	31.14	17.57	SN I-WOB 15 DK BROWN	63	SPSR15		48
TOWER 4	185.37	727.51									
87	9.55	730.05	6.54	6.56	30.97	17.57	SN I-WOB 15 DK BROWN	64	SPSR15		48
88	7.92	737.97	5.56	5.37	30.79	18.00	SN I-WOB 13.5 WHITE	65	SPSR15		54
89	6.79	744.76	6.00	6.18	30.54	17.83	SN I-WOB 14.5 BLUE	66	SPSR15		54
90	8.91	753.67	6.44	6.63	30.22	17.92	SN I-WOB 15 DK BROWN	67	SPSR15		60
91	7.76	761.43	6.49	6.66	29.96	18.10	SN I-WOB 15 DK BROWN	68	SPSR15		66
92	8.85	770.28	6.87	6.66	29.69	18.11	SN I-WOB 15 DK BROWN	69	SPSR15		66

OUTLET NO.	LAST OUTLET	DISTANCE TO PIVOT	GPM NEED	GPM DEL.	PIPE PSI	NOZZLE PSI	SPRINKLER LABEL AND NOZZLE SIZE	SPRK NO.	REG SIZE	PLUG NO.	DROP LENGTH
93	8.56	778.84	6.80	6.69	29.46	18.28	SN I-WOB 15 DK BROWN	70	SPSR15		72
94	8.46	787.30	6.61	6.69	29.25	18.28	SN I-WOB 15 DK BROWN	71	SPSR15		72
95	7.91	795.21	6.80	6.73	29.07	18.46	SN I-WOB 15 DK BROWN	72	SPSR15		78
96	8.76	803.97	6.65	6.72	28.90	18.46	SN I-WOB 15 DK BROWN	73	SPSR15		78
97	7.38	811.35	6.98	7.20	28.77	18.34	SN I-WOB 15.5 DK BROWN	74	SPSR15		78
98	9.39	820.74	7.44	7.66	28.63	18.22	SN I-WOB 16 ORANGE	75	SPSR15		78
99	8.30	829.04	6.66	6.72	28.53	18.46	SN I-WOB 15 DK BROWN	76	SPSR15		78
100	7.38	836.42	6.92	6.73	28.47	18.46	SN I-WOB 15 DK BROWN	77	SPSR15		78
101	8.76	845.18	7.22	7.20	28.41	18.34	SN I-WOB 15.5 DK BROWN	78	SPSR15		78
102	7.91	853.09	7.16	7.17	28.37	18.17	SN I-WOB 15.5 DK BROWN	79	SPSR15		72
103	8.46	861.55	7.51	7.63	28.36	18.05	SN I-WOB 16 ORANGE	80	SPSR15		72
104	8.56	870.11	7.76	7.59	28.37	17.89	SN I-WOB 16 ORANGE	81	SPSR15		66
105	8.85	878.96	7.93	8.03	28.40	17.77	SN I-WOB 16.5 ORANGE	82	SPSR15		66
106	8.76	887.72	8.25	8.43	28.46	17.50	SN I-WOB 17 DK GREEN	83	SPSR15		60
107	9.37	897.09	8.34	8.39	28.55	17.35	SN I-WOB 17 DK GREEN	84	SPSR15		54
108	8.78	905.87	8.50	8.35	28.58	17.19	SN I-WOB 17 DK GREEN	85	SPSR15		48
TOWER 5	185.37	912.88									
109	9.55	915.42	8.19	8.35	28.48	17.18	SN I-WOB 17 DK GREEN	86	SPSR15		48
110	7.92	923.34	6.95	7.06	28.35	17.64	SN I-WOB 15.5 DK BROWN	87	SPSR15		54
111	6.79	930.13	7.48	7.52	28.14	17.54	SN I-WOB 16 ORANGE	88	SPSR15		54
112	8.91	939.04	8.01	8.00	27.88	17.61	SN I-WOB 16.5 ORANGE	89	SPSR15		60
113	7.76	946.80	8.05	8.03	27.67	17.78	SN I-WOB 16.5 ORANGE	90	SPSR15		66
114	8.85	955.65	8.52	8.47	27.46	17.67	SN I-WOB 17 DK GREEN	91	SPSR15		66
115	8.56	964.21	8.40	8.51	27.28	17.82	SN I-WOB 17 DK GREEN	92	SPSR15		72
116	8.46	972.67	8.15	8.07	27.12	17.94	SN I-WOB 16.5 ORANGE	93	SPSR15		72
117	7.91	980.58	8.37	8.54	26.99	17.98	SN I-WOB 17 DK GREEN	94	SPSR15		78
118	8.76	989.34	8.17	8.11	26.88	18.10	SN I-WOB 16.5 ORANGE	95	SPSR15		78
119	7.38	996.72	8.56	8.54	26.80	17.98	SN I-WOB 17 DK GREEN	96	SPSR15		78
120	9.39	1006.11	9.11	8.99	26.72	17.86	SN I-WOB 17.5 DK GREEN	97	SPSR15		78
121	8.30	1014.41	8.14	8.11	26.68	18.10	SN I-WOB 16.5 ORANGE	98	SPSR15		78
122	7.38	1021.79	8.45	8.54	26.65	17.98	SN I-WOB 17 DK GREEN	99	SPSR15		78
123	8.76	1030.55	8.79	8.99	26.65	17.86	SN I-WOB 17.5 DK GREEN	100	SPSR15		78
124	7.91	1038.46	8.70	8.51	26.67	17.83	SN I-WOB 17 DK GREEN	101	SPSR15		72
125	8.46	1046.92	9.12	8.95	26.70	17.71	SN I-WOB 17.5 DK GREEN	102	SPSR15		72
126	8.56	1055.48	9.40	9.35	26.77	17.44	SN I-WOB 18 PURPLE	103	SPSR15		66
127	8.82	1064.30	9.04	8.91	26.86	17.56	SN I-WOB 17.5 DK GREEN	104	SPSR15		66
128	7.76	1072.06	8.04	8.00	26.95	17.61	SN I-WOB 16.5 ORANGE	105	SPSR15		60
129	6.87	1078.93	8.06	7.92	27.05	17.46	SN I-WOB 16.5 ORANGE	106	SPSR15		54
130	7.71	1086.64	8.73	8.80	27.19	17.25	SN I-WOB 17.5 DK GREEN	107	SPSR15		54
131	7.96	1094.60	9.51	9.66	27.18	16.89	SN I-WOB 18.5 PURPLE	108	SPSR15		48
TOWER 6	185.11	1097.99									
			PIPE ID CHANGES FROM 5.790 TO 6.395								
132	8.98	1103.58	10.12	10.09	27.15	16.78	SN I-WOB 19 BLACK	109	SPSR15		48
133	8.92	1112.50	10.17	10.13	26.98	16.92	SN I-WOB 19 BLACK	110	SPSR15		54
134	8.92	1121.42	10.25	10.17	26.77	17.06	SN I-WOB 19 BLACK	111	SPSR15		60
135	8.92	1130.34	10.34	10.21	26.58	17.20	SN I-WOB 19 BLACK	112	SPSR15		66
136	8.92	1139.26	10.43	10.22	26.43	17.20	SN I-WOB 19 BLACK	113	SPSR15		66
137	8.92	1148.18	10.32	10.25	26.29	17.33	SN I-WOB 19 BLACK	114	SPSR15		72

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OUTLET NO.	LAST OUTLET	DISTANCE TO PIVOT	GPM NEED	GPM DEL.	PIPE PSI	NOZZLE PSI	SPRINKLER LABEL AND NOZZLE SIZE	SPRK NO.	REG SIZE	PLUG NO.	DROP LENGTH
138	8.58	1156.76	10.20	10.25	26.19	17.32	SN I-WOB 19 BLACK	115	SPSR15		72
139	8.58	1165.34	10.27	10.29	26.11	17.46	SN I-WOB 19 BLACK	116	SPSR15		78
140	8.58	1173.92	10.34	10.29	26.05	17.46	SN I-WOB 19 BLACK	117	SPSR15		78
141	8.58	1182.50	10.56	10.73	26.02	17.29	SN I-WOB 19.5 BLACK	118	SPSR15		78
142	8.80	1191.30	10.62	10.73	26.01	17.29	SN I-WOB 19.5 BLACK	119	SPSR15		78
143	8.58	1199.88	10.56	10.73	26.02	17.29	SN I-WOB 19.5 BLACK	120	SPSR15		78
144	8.58	1208.46	10.62	10.73	26.06	17.29	SN I-WOB 19.5 BLACK	121	SPSR15		78
145	8.58	1217.04	10.69	10.69	26.12	17.17	SN I-WOB 19.5 BLACK	122	SPSR15		72
146	8.58	1225.62	10.98	11.12	26.21	17.01	SN I-WOB 20 DK TURQUOISE	123	SPSR15		72
147	8.92	1234.54	11.26	11.08	26.32	16.90	SN I-WOB 20 DK TURQUOISE	124	SPSR15		66
148	8.92	1243.46	11.36	11.51	26.46	16.73	SN I-WOB 20.5 DK TURQUOISE	125	SPSR15		66
149	8.92	1252.38	11.42	11.47	26.62	16.61	SN I-WOB 20.5 DK TURQUOISE	126	SPSR15		60
150	8.92	1261.30	11.49	11.43	26.81	16.50	SN I-WOB 20.5 DK TURQUOISE	127	SPSR15		54
151	8.92	1270.22	12.93	13.15	26.91	15.80	SN I-WOB 22.5 MAROON	128	SPSR15		48
TOWER 7	177.81	1275.80									
			PIPE ID CHANGES FROM 6.395 TO 3.790								
152	10.98	1281.20	11.90	11.82	26.86	16.24	SN I-WOB 21 MUSTARD	129	SPSR15		48
153	7.27	1288.47	9.82	9.66	26.83	16.89	SN I-WOB 18.5 PURPLE	130	SPSR15		48
154	7.67	1296.14	9.97	10.09	26.80	16.78	SN I-WOB 19 BLACK	131	SPSR15		48
155	7.33	1303.47	9.94	10.09	26.78	16.78	SN I-WOB 19 BLACK	132	SPSR15		48
156	7.62	1311.09	12.91	12.67	26.77	15.97	SN I-WOB 22 MAROON	133	SPSR15		48
OVERHANG	41.07	1316.87		61.25	ENDGUN		(2) DUAL NELSON P85AS 15/32 TB				

THERE IS NO BOOSTER PUMP
FRICTION LOSS THROUGH ENDGUN VALVE IS 0.81 PSI - ENDGUN PRESSURE IS 25.96 PSI

TOTAL GPM = 950.51
GPA = 7.11

MINIMUM RECOMMENDED REGULATOR INLET PRESSURE IS 20.00 PSI
WITH GRADUATED ELEVATION OF 5.00 FT THE INLET PRESSURE IS 23.53 PSI FOR SPRINKLER 120
THIS POSITION IS THE CLOSEST TO THE MINIMUM RECOMMENDED INLET PRESSURE

HYDRAULICS SUMMARY

TOWER NUMBER	ACRES UNDER SPAN	GPM NEED	ACTUAL GPM	GPM PER ACRE	AVERAGE IN. PER HR DELIVERED UNDER SPAN	AVERAGE IN. DELIVERED FOR REVOLUTION TIME 36 HR	48 HR	60 HR
1	2.12	15.07	15.69	7.41	0.016	0.59	0.79	0.98
2	7.06	50.21	49.76	7.05	0.016	0.56	0.75	0.93
3	12.02	85.45	85.35	7.10	0.016	0.56	0.75	0.94
4	16.97	120.69	120.47	7.10	0.016	0.56	0.75	0.94
5	21.93	155.93	156.43	7.13	0.016	0.57	0.76	0.95
6	26.85	190.88	190.85	7.11	0.016	0.57	0.75	0.94
7	30.44	216.44	216.14	7.10	0.016	0.56	0.75	0.94
OVERHANG	7.68	54.60	54.56	7.10	0.016	0.57	0.75	0.94
ENDGUN	8.39	60.73	61.25	7.30				

TOTAL	133.46	950.00	950.51	7.12

SUMMARY OF SPRINKLERS

4	SN I-WOB 7 LIME
1	SN I-WOB 8 LAVENDER
1	SN I-WOB 8.5 LAVENDER
2	SN I-WOB 9.5 GREY
3	SN I-WOB 10 TURQUOISE
5	SN I-WOB 10.5 TURQUOISE
7	SN I-WOB 11 YELLOW
5	SN I-WOB 11.5 YELLOW
5	SN I-WOB 12 RED
4	SN I-WOB 12.5 RED
13	SN I-WOB 13 WHITE
6	SN I-WOB 13.5 WHITE
2	SN I-WOB 14 BLUE
4	SN I-WOB 14.5 BLUE
13	SN I-WOB 15 DK BROWN
4	SN I-WOB 15.5 DK BROWN
4	SN I-WOB 16 ORANGE
8	SN I-WOB 16.5 ORANGE
10	SN I-WOB 17 DK GREEN
5	SN I-WOB 17.5 DK GREEN
1	SN I-WOB 18 PURPLE
2	SN I-WOB 18.5 PURPLE
11	SN I-WOB 19 BLACK
5	SN I-WOB 19.5 BLACK
2	SN I-WOB 20 DK TURQUOISE
3	SN I-WOB 20.5 DK TURQUOISE
1	SN I-WOB 21 MUSTARD
1	SN I-WOB 22 MAROON
1	SN I-WOB 22.5 MAROON

23 PLUGS

SUMMARY OF DROPS

17	48 IN DROP
16	54 IN DROP
13	60 IN DROP
23	66 IN DROP
24	72 IN DROP
40	78 IN DROP

TOTAL OF 133 DROPS
LENGTH OF HOSE: 735.5 FT.

SUMMARY OF REGULATORS

133 SPSR15

TOTAL OF 133 REGULATORS

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NOZZLE POSITION CHART

SN I-WOB 7 LIME	1, 2, 3, 4
SN I-WOB 8 LAVENDER	5
SN I-WOB 8.5 LAVENDER	6
SN I-WOB 9.5 GREY	7, 21
SN I-WOB 10 TURQUOISE	8, 9, 22
SN I-WOB 10.5 TURQUOISE	10, 20, 23, 24, 27
SN I-WOB 11 YELLOW	11, 25, 26, 28, 29, 30, 32
SN I-WOB 11.5 YELLOW	12, 31, 33, 34, 35
SN I-WOB 12 RED	13, 14, 36, 37, 43
SN I-WOB 12.5 RED	15, 38, 39, 44
SN I-WOB 13 WHITE	16, 19, 40, 41, 42, 45, 46, 47, 48, 49, 50, 51, 54
SN I-WOB 13.5 WHITE	17, 52, 55, 56, 57, 65
SN I-WOB 14 BLUE	53, 58
SN I-WOB 14.5 BLUE	18, 59, 60, 66
SN I-WOB 15 DK BROWN	61, 62, 63, 64, 67, 68, 69, 70, 71, 72, 73, 76, 77
SN I-WOB 15.5 DK BROWN	74, 78, 79, 87
SN I-WOB 16 ORANGE	75, 80, 81, 88
SN I-WOB 16.5 ORANGE	82, 89, 90, 93, 95, 98, 105,106
SN I-WOB 17 DK GREEN	83, 84, 85, 86, 91, 92, 94, 96, 99, 101
SN I-WOB 17.5 DK GREEN	97, 100,102,104,107
SN I-WOB 18 PURPLE	103
SN I-WOB 18.5 PURPLE	108,130
SN I-WOB 19 BLACK	109,110,111,112,113,114,115,116,117,131,132
SN I-WOB 19.5 BLACK	118,119,120,121,122
SN I-WOB 20 DK TURQUOISE	123,124
SN I-WOB 20.5 DK TURQUOISE	125,126,127
SN I-WOB 21 MUSTARD	129
SN I-WOB 22 MAROON	133
SN I-WOB 22.5 MAROON	128

PRECIPITATION CHART FOR FULL CIRCLE

WISH-49159 MARCH 06, 2006

DEALER - SOUTH CENTRAL IRRIGATION

IRRIGATOR - DENNIS MCKINNEY
FIELD NO - COMANCHE SE 1/4 34-31-18

TOTAL LENGTH PIPE = 1316.87
GPM UNDER PIPE = 889.26
ACRES UNDER PIPE = 125.07
RANGE OF ENDGUN = 43.45
GPM OF ENDGUN = 61.25
ACRES UNDER ENDGUN = 8.39
WATERING LENGTH = 1360.32

SYSTEM PRESSURE = 50 PSI
TOTAL GPM = 950.51

MOTOR SIZE (HP) = 1
LOADED MOTOR RPM = 1745
CENTER GEAR BOX RATIO = 58
WHEEL GEAR BOX RATIO = 52
TIRE SIZE = 11.2 X 24
LAST TOWER SPEED (FPM) = 6.10

PRECIPITATION DATA FIGURED WITH ENDGUN RUNNING

PRECIPITATION BASED			% TIMER BASED		
PRECIPITATION INCHES	% TIMER SETTING	TIME HOURS	% TIMER SETTING	PRECIPITATION INCHES	TIME HOURS
.34	100.00	21.90 - 1314(min)	100.00	.34	21.90 - 1314(min)
.40	86.02	25.46	90.00	.38	24.34
.50	68.82	31.83	80.00	.43	27.38
.60	57.35	38.19	70.00	.49	31.29
.70	49.16	44.56	60.00	.57	36.50
.75	45.88	47.74	50.00	.69	43.80
.80	43.01	50.92	45.00	.76	48.67
.90	38.23	57.29	40.00	.86	54.75
1.00	34.41	63.65	35.00	.98	62.58
1.25	27.53	79.57	30.00	1.15	73.01
1.50	22.94	95.48	25.00	1.38	87.61
1.75	19.66	111.39	20.00	1.72	109.51
2.00	17.20	127.30	15.00	2.29	146.01
2.25	15.29	143.22	10.00	3.44	219.02
2.50	13.76	159.13	5.00	6.88	438.04

CAUTION: The relationship between precipitation rate, timer setting, and hours per revolution provided above are theoretical numbers based on the data list at the top of the page. Actual precipitation rates may vary due to the following field and machine conditions: wind drift; evaporation; tire slippage, tire loaded radius; drive train efficiency; elevation changes; soil type. Due to these varying field and machine conditions the above chart should be used as a guide only.

SOUTH CENTRAL IRRIGATION

NORTH 634 MAIN STREET
GREENSBURG, KANSAS 67054

MARCH 06, 2006
WISH-49159
DENNIS MCKINNEY
COMANCHE SE 1/4 34-31-18
950 @ 50 PSI

VALLEY 4071 MODIFIED - LINDSAY 307 MIX
SENNINGER I-WOBS
SENNINGER 15 PSI REGULATORS
.75 I.D. FLEXIBLE HOSE
DUAL NELSON P85AS 15/32 TB

Rotation time at 100% = 21.90 Hours Or 1314 minutes

Installation Chart

Out #	Drop Len	Sprk #	Noz Size	Reg
1	PLUG			
2	PLUG			
3	PLUG			
4	66	1	7	PSR15
5	PLUG			
6	PLUG			
7	78	2	7	PSR15
8	PLUG			
9	78	3	7	PSR15
10	PLUG			
11	PLUG			
12	78	4	7	PSR15
13	PLUG			
14	72	5	8	PSR15
15	PLUG			
16	72	6	8.5	PSR15
17	PLUG			
18	60	7	9.5	PSR15
19	PLUG			
20	48	8	10	PSR15
	TOWER 1			
1	PLUG			
2	54	9	10	PSR15
3	PLUG			
4	60	10	10.5	PSR15
5	PLUG			
6	66	11	11	PSR15
7	PLUG			
8	72	12	11.5	PSR15
9	PLUG			
10	78	13	12	PSR15
11	PLUG			
12	78	14	12	PSR15
13	PLUG			
14	78	15	12.5	PSR15
15	PLUG			
16	72	16	13	PSR15
17	PLUG			
18	66	17	13.5	PSR15
19	PLUG			
20	60	18	14.5	PSR15
21	PLUG			
22	48	19	13	PSR15
	TOWER 2			
1	48	20	10.5	PSR15
2	54	21	9.5	PSR15
3	54	22	10	PSR15
4	60	23	10.5	PSR15
5	66	24	10.5	PSR15
6	66	25	11	PSR15
7	72	26	11	PSR15
8	72	27	10.5	PSR15
9	78	28	11	PSR15
10	78	29	11	PSR15
11	78	30	11	PSR15
12	78	31	11.5	PSR15
13	78	32	11	PSR15
14	78	33	11.5	PSR15
15	78	34	11.5	PSR15
16	72	35	11.5	PSR15
17	72	36	12	PSR15
18	66	37	12	PSR15
19	66	38	12.5	PSR15
20	60	39	12.5	PSR15
21	54	40	13	PSR15
22	48	41	13	PSR15
	TOWER 3			
1	48	42	13	PSR15
2	54	43	12	PSR15
3	54	44	12.5	PSR15
4	60	45	13	PSR15
5	66	46	13	PSR15
6	66	47	13	PSR15
7	72	48	13	PSR15
8	72	49	13	PSR15
9	78	50	13	PSR15
10	78	51	13	PSR15
11	78	52	13.5	PSR15
12	78	53	14	PSR15
13	78	54	13	PSR15
14	78	55	13.5	PSR15
15	78	56	13.5	PSR15
16	72	57	13.5	PSR15
17	72	58	14	PSR15
18	66	59	14.5	PSR15
19	66	60	14.5	PSR15
20	60	61	15	PSR15
21	54	62	15	PSR15
22	48	63	15	PSR15
	TOWER 4			
1	48	64	15	PSR15
2	54	65	13.5	PSR15
3	54	66	14.5	PSR15
4	60	67	15	PSR15
5	66	68	15	PSR15
6	66	69	15	PSR15
7	72	70	15	PSR15
8	72	71	15	PSR15
9	78	72	15	PSR15
10	78	73	15	PSR15
11	78	74	15.5	PSR15
12	78	75	16	PSR15
13	78	76	15	PSR15
14	78	77	15	PSR15
15	78	78	15.5	PSR15
16	72	79	15.5	PSR15
17	72	80	16	PSR15
18	66	81	16	PSR15
19	66	82	16.5	PSR15
20	60	83	17	PSR15
21	54	84	17	PSR15
22	48	85	17	PSR15
	TOWER 5			
1	48	86	17	PSR15
2	54	87	15.5	PSR15
3	54	88	16	PSR15
4	60	89	16.5	PSR15
5	66	90	16.5	PSR15
6	66	91	17	PSR15
7	72	92	17	PSR15
8	72	93	16.5	PSR15
9	78	94	17	PSR15
10	78	95	16.5	PSR15
11	78	96	17	PSR15
12	78	97	17.5	PSR15
13	78	98	16.5	PSR15
14	78	99	17	PSR15
15	78	100	17.5	PSR15
16	72	101	17	PSR15
17	72	102	17.5	PSR15
18	66	103	18	PSR15
19	66	104	17.5	PSR15
20	60	105	16.5	PSR15
21	54	106	16.5	PSR15
22	54	107	17.5	PSR15
23	48	108	18.5	PSR15
	TOWER 6			
1	48	109	19	PSR15
2	54	110	19	PSR15
3	60	111	19	PSR15
4	66	112	19	PSR15
5	66	113	19	PSR15
6	72	114	19	PSR15
7	72	115	19	PSR15
8	78	116	19	PSR15
9	78	117	19	PSR15
10	78	118	19.5	PSR15
11	78	119	19.5	PSR15
12	78	120	19.5	PSR15
13	78	121	19.5	PSR15
14	72	122	19.5	PSR15
15	72	123	20	PSR15
16	66	124	20	PSR15
17	66	125	20.5	PSR15
18	60	126	20.5	PSR15
19	54	127	20.5	PSR15
20	48	128	22.5	PSR15
	TOWER 7			
1	48	129	21	PSR15
2	48	130	18.5	PSR15
3	48	131	19	PSR15
4	48	132	19	PSR15
5	48	133	22	PSR15

WISH - 49159

DROP CONFIGURATION CHART

MARCH 06, 2006

DEALER - SOUTH CENTRAL IRRIGATION

IRRIGATOR - DENNIS MCKINNEY
FIELD NO. - COMANCHE SE 1/4 34-31-18

SPAN 1 POS/LEN	SPAN 2 POS/LEN	SPAN 3 POS/LEN	SPAN 4 POS/LEN	SPAN 5 POS/LEN	SPAN 6 POS/LEN	SPAN 7 POS/LEN	ENDBOOM POS/LEN
1 - 66	9 - 54	20 - 48	42 - 48	64 - 48	86 - 48	109 - 48	129 - 48
2 - 78	10 - 60	21 - 54	43 - 54	65 - 54	87 - 54	110 - 54	130 - 48
3 - 78	11 - 66	22 - 54	44 - 54	66 - 54	88 - 54	111 - 60	131 - 48
4 - 78	12 - 72	23 - 60	45 - 60	67 - 60	89 - 60	112 - 66	132 - 48
5 - 72	13 - 78	24 - 66	46 - 66	68 - 66	90 - 66	113 - 66	133 - 48
6 - 72	14 - 78	25 - 66	47 - 66	69 - 66	91 - 66	114 - 72	
7 - 60	15 - 78	26 - 72	48 - 72	70 - 72	92 - 72	115 - 72	
8 - 48	16 - 72	27 - 72	49 - 72	71 - 72	93 - 72	116 - 78	
	17 - 66	28 - 78	50 - 78	72 - 78	94 - 78	117 - 78	
	18 - 60	29 - 78	51 - 78	73 - 78	95 - 78	118 - 78	
	19 - 48	30 - 78	52 - 78	74 - 78	96 - 78	119 - 78	
		31 - 78	53 - 78	75 - 78	97 - 78	120 - 78	
		32 - 78	54 - 78	76 - 78	98 - 78	121 - 78	
		33 - 78	55 - 78	77 - 78	99 - 78	122 - 72	
		34 - 78	56 - 78	78 - 78	100 - 78	123 - 72	
		35 - 72	57 - 72	79 - 72	101 - 72	124 - 66	
		36 - 72	58 - 72	80 - 72	102 - 72	125 - 66	
		37 - 66	59 - 66	81 - 66	103 - 66	126 - 60	
		38 - 66	60 - 66	82 - 66	104 - 66	127 - 54	
		39 - 60	61 - 60	83 - 60	105 - 60	128 - 48	
		40 - 54	62 - 54	84 - 54	106 - 54		
		41 - 48	63 - 48	85 - 48	107 - 54		
					108 - 48		

SUMMARY OF DROPS

17 - 48 IN DROP
16 - 54 IN DROP
13 - 60 IN DROP
23 - 66 IN DROP
24 - 72 IN DROP
40 - 78 IN DROP

TOTAL OF 133 DROPS

49849

PSI 50

Gallons 950

Wetted Sprinker Dia 51'

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

May 25, 2017

DAVID M KRIEGEL & DEREK M KRIEGEL
PO BOX 698
COLDWATER KS 67029

FILE COPY

RE: Application
File No. 49849

Dear Sir or Madam:

Your application for permit to appropriate water in 34-31S-18W in Comanche 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,

Kristen A Baum

Kristen A. Baum
New Applications Unit Supervisor
Water Appropriation Program

BAT: dlw
pc: STAFFORD Field Office
GMD

49849

Soil Map—Comanche County, Kansas

Map Scale: 1:6,210 if printed on A portrait (8.5" x 11") sheet.

Meters: 0 50 100 200 300

Feet: 0 300 600 1200 1800

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84

WATER RESOURCES
RECEIVED
MAY 25 2017
KS DEPT OF AGRICULTURE

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Comanche County, Kansas
Survey Area Data: Version 15, Sep 20, 2016

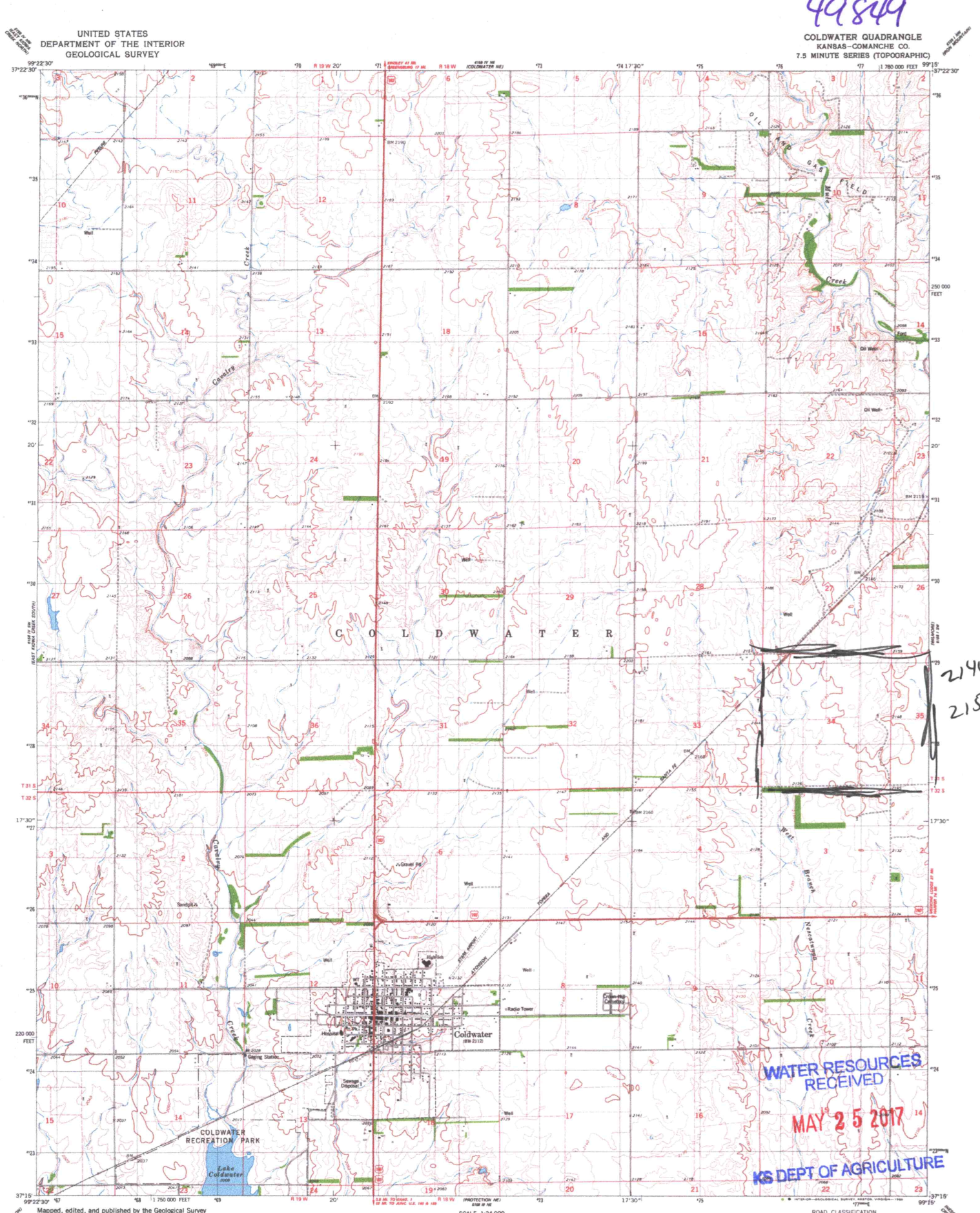
Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 13, 2010—Jan 25, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Comanche County, Kansas (KS033)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
5427	Kingsdown fine sandy loam, 0 to 2 percent slopes	28.8	22.2%
5873	Clark clay loam, 1 to 3 percent slopes	7.6	5.9%
5928	Pratt loamy fine sand, 1 to 5 percent slopes	71.3	55.1%
5929	Pratt loamy fine sand, 5 to 12 percent slopes	7.9	6.1%
5956	Shellabarger sandy loam, 1 to 3 percent slopes	13.9	10.7%
Totals for Area of Interest		**129.5**	**100.0%**



Mapped, edited, and published by the Geological Survey

Control by USGS and NOS/NOAA

Topography by photogrammetric methods from aerial photographs taken 1974. Field checked 1975. Map edited 1979

Projection and 10,000-foot grid ticks: Kansas coordinate system, south zone (Lambert conformal conic)
1000-meter Universal Transverse Mercator grid, zone 14
1927 North American datum

Fine red dashed lines indicate selected fence and field lines where generally visible on aerial photographs. This information is unchecked

To place on the predicted North American Datum 1983 move the projection lines 33 meters east as shown by dashed corner ticks

UTM GRID AND 1979 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24 000

CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

ROAD CLASSIFICATION

Primary highway, hard surface
Secondary highway, hard surface
Light-duty road, hard or improved surface
Unimproved road
Interstate Route
U. S. Route
State Route

KANSAS
QUADRANGLE LOCATION

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
AND STATE GEOLOGICAL SURVEY, LAWRENCE, KANSAS 66044
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

COLDWATER, KANS.
N3715—W9915/7.5
1979
DMA 6158 IV SE—SERIES V878