

WATER PERMIT NO. 7129-3

Name of Applicant: **Gordon Little**

Address: **456 176th St, Watertown SD 57201**

Phone: **605 882-1262**

Amount of Water Claimed: **1.78 cfs**

Total Acres: **140**

Source of Water Supply: **groundwater (3 wells)**

Water to be used for: **irrigation**

County: **Codington**

Type of Waste Disposal System: **NA**

Location: **4 miles south of Watertown**

PRIORITY

Date Received: **4-21-09**

Application/License Fee: **\$300**

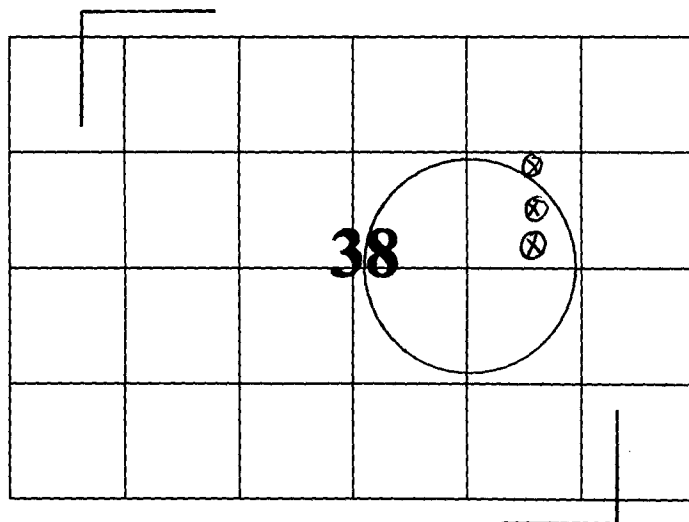
Corrected Application Received: **4-23-09**

Period of Annual Use: **June 1 – Sept 30**

Remarks:

Diversion Point: **SE ¼ NE ¼ Sec 28-T116N-R52W**

Land to be Irrigated: **S ½ NE ¼, N ½ SE ¼ Sec 28-T116N-R52W**



Depth of Well: **38, 32, 36 feet deep**

Well Driller: **Kaiser Well Drilling**

Remarks:

Type of Map: **aerial**

Prepared by: **Cathy Dally, Co CO FSA**

Reviewed and the Number Assigned on: **4-23-09**

By: **Karen Schlaak**

Notice of Hearing - date to intervene: _____

FORM 2: Application for irrigation in South Dakota
(type or print)

Mail to: Water Rights Program Joe Foss Building 523 E. Capitol Pierre, SD 57501-3181 (605) 773-3352	No. <u>7129-3</u> (office use only) Hydrologic Unit <u>10170202</u>
	Basin <u>Sioux River</u>
	Newspaper <u>Public Opinion PO Box 10</u>
	<u>605-886-6901</u> <u>Watertown</u> <u>57201</u>

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APR 2 2009

WATER RIGHTS
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Application For Permit To Appropriate Water For Irrigation

Type of Application: ☒ New ☐ Vested Right ☐ Amendment/Correction to Permit No. _____

(Use predates Mar 2, 1955)

Description of amendment/correction: (i.e. change diversion point(s), add diversion point(s), change use, etc.)

1. Name of Applicant Gordon Little Phone 605 882-1262
 (check one) ☒ Owner ☐ Tenant/lessee → 882-1262
 Mailing Address 45626 176 st Watertown State S.D. 57201
 (Street, RR, or Box and City) (Zip Code)
2. Amount of water claimed 1.78*CFS or 800**GPM ***AF Total Acreage 140
 (*Cubic Feet per Second) (**Gallons per Minute) (***) Acre Feet - storage capacity of dam/dugout or annual use if applicable)
3. Source of water supply 3 Wells
4. Location of point of diversion (example - 3 wells in SW1/4 NE1/4 section 12-T104N-R53W) County Codington
3 wells in NE 1/4 sec 28 T116 R52 (SE 1/4 NE 1/4)
5. County or counties where water will be used Codington
6. Annual period during which water is to be used June 1 → Sept 30
7. List below each forty acre division, or lot, or fraction thereof and show number of acres to be irrigated in each.
 (Attach sheet if more space is needed)

Land Description	Acres	Land Description	Acres
<u>SE 1/4 NE 1/4 sec 28 116 52</u>	<u>35</u>		
<u>SW 1/4 NE 1/4 sec 28 116 52</u>	<u>35</u>		
<u>NE 1/4 SE 1/4 sec 28 116 52</u>	<u>35</u>		
<u>NW 1/4 SE 1/4 sec 28 116 52</u>	<u>35</u>		

8. Give a description of the project. (Attach sheet if more space is needed)
Circle Pivot, three wells, Crop land

STATE OF SOUTH DAKOTA) SS

County of Codington

Attachments: Attach Form 2A if diversion is from a well or dugout, or if storage of water is proposed. Attach map and any other technical information. (see instructions)

I, Gordon Little, the applicant, certify that I have read this application, have examined the attached map and that the matters stated are true and that I intend, and am able to complete the necessary construction.Applicant's signature [Signature]Subscribed and sworn to before me this 22 day of April 2009Notary Public signature [Signature]My Commission Expires 4/30/2010

**SOUTH DAKOTA
WATER PERMIT NO. 7129-3**

Date of first receipt of application April 21, 2009.

Date of return to applicant for corrections, amendments or changes April 21, 2009.

Date of receipt of corrected application April 23, 2009.

The Chief Engineer, on behalf of the Water Management Board, issues Water Permit No. 7129-3 to Gordon Little, 45676 176th St, Watertown SD 57201 authorizing the construction of the water use system and the placing of water to beneficial use subject to the following limitations, conditions and qualifications:

1. Water Permit No. 7129-3 appropriates 1.78 cubic feet of water per second from three wells completed into the Big Sioux:North Aquifer (38, 32 and 31 feet deep) located in SE 1/4 NE 1/4 Section 28 to irrigate 140 acres located in the S 1/2 NE 1/4 and N 1/2 SE 1/4 Section 28; all in T116N-R52W.
2. The amount of the appropriation may not exceed 2 acre feet annually for each acre of land to which water is actually and beneficially applied for irrigation. The water is to be used during the following described annual period: June 1 – September 30.
3. The date from which applicant may claim right is April 21, 2009.
4. The date of approval of Permit No. 7129-3 is July 13, 2009.
5. One-fifth of the construction is to be completed on or before January 13, 2012.
6. All construction is to be completed on or before July 13, 2014.
7. Water is to be put to beneficial use on or before July 13, 2018.
8. Water rights obtained in compliance with the laws of the State of South Dakota may not be unlawfully impaired by this appropriation.

QUALIFICATIONS

1. The wells approved under this Permit will be located near domestic wells and other wells which may obtain water from the same aquifer. The well owner under this Permit shall control his withdrawals so there is not a reduction of needed water supplies in adequate domestic wells or in adequate wells having prior water rights.
2. This Permit is approved subject to the irrigation water use questionnaire being submitted each year.

WATER MANAGEMENT BOARD

By: Garland Erbele

Garland Erbele, Chief Engineer
Water Rights Program
Department of Environment and Natural Resources

JUL 21 2009

date



(type or print in ink)

1. Well Information - Proposed Construction

- a) Drill Hole Diameter 30 Depth 1038 1032 1036
- b) Casing Type PVC Diameter 16 Thickness Sch 40
- c) Screen Type PVC Diameter 16 Thickness Sch 40
- d) Gravel Pack Pea rock Length of Gravel Pack 15'
- e) Depth to Top of Water Bearing Material 15'
- f) Depth to Water (ground surface to water level) 12
- g) Distance to nearest existing domestic well:
On applicants property 1200 On property owned by others 500 abandon
Pea Water Wells

2. Wastewater Disposal System Information

- a) Type of System (i.e. septic tank, drain field) _____
- b) System Capacity (gallons) _____ Year Constructed _____
- c) Connected to the City of _____ Sanitary System

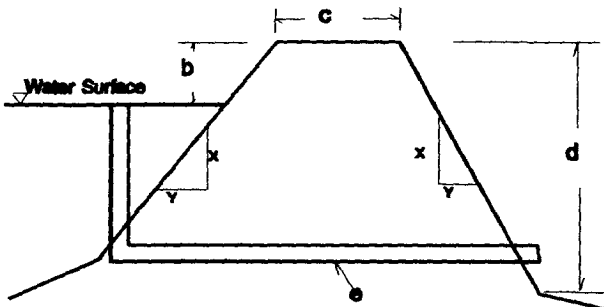
3. Dugout Information

- a) Surface Dimensions _____ Depth _____
- b) Depth to water (ground surface to water level) _____

4. Water Storage Dams

If the proposed water use system contains one or more storage dams, please furnish the information requested below for each dam. The locations of the dams need to be shown on the map submitted with the application.

- a) If a private engineering firm or government agency was involved in the design of this dam, please give their name and address:



- b) Freeboard _____
- c) Crest Width _____
Crest Length _____
- d) Height _____
- e) Primary Outlet Capacity _____
If pipe, diameter _____
- f) Secondary Spillway Capacity _____
Spillway Width _____
- g) X & Y Slope _____
Upstream _____
Downstream _____
- h) Surface Area of Impoundment _____
- i) Storage _____ Acre Feet
- j) Drainage Area Above Dam _____ Acres



USDA - Farm Service Agency

Codington Co

1:8,243

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28-116N-52W

APR 21 2009

2009

Carly Daley
4-20-09

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Legend

- Tract Boundaries
- Section-Township-Range
- Easements
- CRP
- Common Land Units
- Rangeland
- Wetland Determination Identifiers
- Restricted
- Limited Restrictions
- Exempt from Conservation Compliance Provisions

N



Codington County FSA Office
810 10th Ave. SE Suite 1
Watertown, SD 57201-5256

USDA FSA maps are for FSA Program administration only. There is no warranty or representation to the user as to the accuracy, currency, suitability or reliability. FSA MAPS DO NOT REPRESENT A LEGAL SURVEY. The user accepts the responsibility and assumes all risks associated with its use. Wetland points reflect records available with NRCS and may or may not constitute a full inventory of the property. The USDA Farm Service Agency assumes no responsibility for actual or consequential damage incurred as a result of any user's reliance on this data. Disclaimer: Wetland identifiers do not represent the size, shape or specific determination of the area. Refer to your original determination (CPA-026 and attached maps) for exact wetland boundaries and determinations, or contact NRCS.

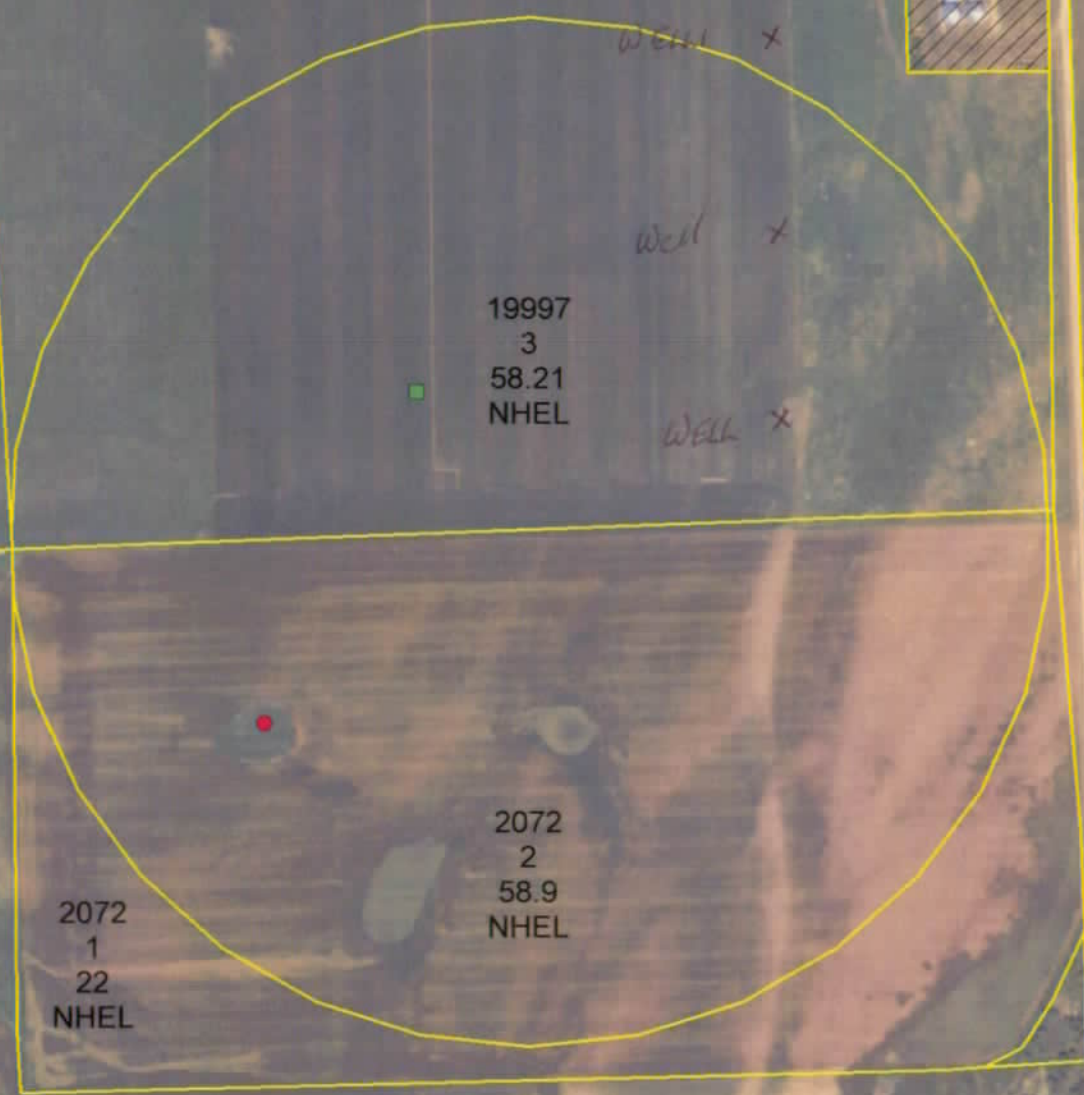


1
0.5
NH



19997
0
20.98

19997
2
75.62
NH



Well x

Well x

Well x

19997
3
58.21
NH

21321
1
73.59
NH

21165
3
5.14

2072
2
58.9
NH

2072
1
22
NH

211
2
47
NH

SOUTH DAKOTA WATER WELL COMPLETION REPORT

07-92

Location $\frac{1}{4}$ NE $\frac{1}{4}$ Sec 28 Twp 116 Rg 52

County

North

Codington

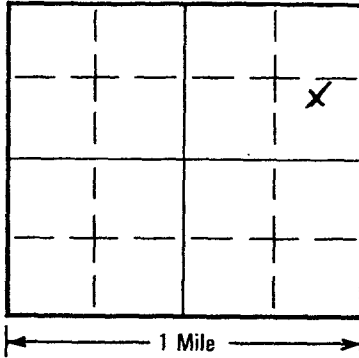
Please mark well location with an "X"

W

E

Well Completion Date

4-6-09



LOCATION:

Distance from nearest potential pollution source (septic tank, abandoned well, feed lot, etc.) 500 ft. from old abandoned water well (identify source).

PROPOSED USE:

☐ Domestic/Stock ☐ Municipal ☐ Business ☐ Test Holes
☒ Irrigation ☐ Industrial ☐ Institutional ☐ Monitoring well

METHOD OF DRILLING:

Boring Rig

CASING DATA: ☐ Steel ☒ Plastic ☐ Other

If other describe

PIPEWEIGHT	DIAMETER	FROM	TO	HOLE DIAMETER
Sch 40 LB/FT	16 IN	246 FT	21 FT	30 IN
_____ LB/FT	_____ IN	_____ FT	_____ FT	_____ IN
_____ LB/FT	_____ IN	_____ FT	_____ FT	_____ IN

GROUTING DATA

Grout Type	No. of Sacks	Grout Weight	From	To
Portland Cement	50	94 lb./gal	0 ft	20 ft
_____	_____	_____ lb./gal	_____ ft	_____ ft

Describe grouting procedure pressure pull method

SCREEN: ☐ Perforated pipe ☒ Manufactured

Diameter 16 IN Length 10 FEET

Material plastic

Slot Size 1085 Set From 21 Feet to 31 Feet

Other information

WAS A PACKER OR SEAL USED? ☐ YES ☐ NO

If so, what material?

Describe packer(s) and location?

DISINFECTION: Was well disinfected upon completion?

☒ YES, How:

HTH Tablets

☐ NO, Why Not?

Laboratory sent to for water quality analysis

Well Owner: Gordon Little

Business Name:

Address: 45676 176 st Winton S.D. 57201

WELL LOG:

FORMATION	DEPTH	
	FROM	TO
Top Soil	0	1
Sandy yellow clay	1	3
Mixed yellow gravel	3	31

STATIC WATER LEVEL 10 Feet

If flowing: closed in pressure _____ PSI

GPM flow _____ through _____ inch pipe

Controlled by ☐ Valve ☐ Reducers ☐ Other _____

Reduced Flowrate _____ GPM

Can well be completely shut in? _____

WELL TEST DATA:

☒ Pumped

Describe: Sub pump

☐ Bailed☐ Other

Pumping Level Below Land Surface

21 ft. After 24 Hrs. pumped 300 GPM

_____ ft. After _____ Hrs. pumped _____ GPM

If pump installed, pump rate _____ GPM

REMARKS

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This well was drilled under license # 687

And this report is true and accurate.

Drilling firm Kaiser Well Drilling

Signature of License Representative:

Signature of Well Owner or Equitable Property Holder:

Date:

SOUTH DAKOTA WATER WELL COMPLETION REPORT

07-92

Location 1/4 NE 1/4 Sec 28 Twp 116 Rg 52County Codington

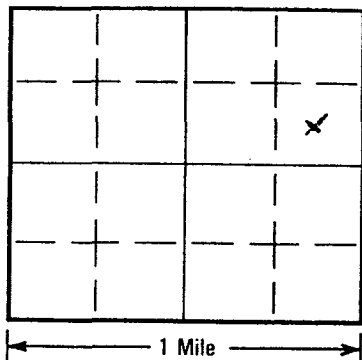
North

Please mark well location with an "X"

W

E

Well Completion Date

4-13-09Well Owner: Gordon Little

Business Name: _____

Address: 45676 176st Wentworth
S.D. 57201

WELL LOG:

FORMATION	DEPTH	
	FROM	TO
<u>Top Soil</u>	<u>0</u>	<u>1</u>
<u>Sandy yellow clay</u>	<u>1</u>	<u>3</u>
<u>Mixed gravel</u>	<u>3</u>	<u>38</u>

LOCATION:

Distance from nearest potential pollution source (septic tank, abandoned well, feed lot, etc.)? 500 ft. from 4600000 2 Rural Water Well 113 (identify source).

PROPOSED USE:

- ☐ Domestic/Stock ☐ Municipal ☐ Business ☐ Test Holes
☒ Irrigation ☐ Industrial ☐ Institutional ☐ Monitoring well

METHOD OF DRILLING:

Boring RigCASING DATA: ☐ Steel ☒ Plastic ☐ Other

If other describe _____

PIPEWEIGHT	DIAMETER	FROM	TO	HOLE DIAMETER
<u>5.140</u> LB/FT	<u>16</u> IN	<u>2467</u> FT	<u>25</u> FT	<u>30</u> IN
_____ LB/FT	_____ IN	_____ FT	_____ FT	_____ IN
_____ LB/FT	_____ IN	_____ FT	_____ FT	_____ IN

GROUTING DATA

Grout Type	No. of Sacks	Grout Weight	From	To
<u>Portland Cement</u>	<u>60</u>	<u>94</u> lb./gal	<u>0</u> ft	<u>20</u> ft
_____	_____	_____ lb./gal	_____ ft	_____ ft

Describe grouting procedure pressure pull methodSCREEN: ☐ Perforated pipe ☒ ManufacturedDiameter 16 IN Length 13 FEETMaterial plasticSlot Size 1085 Set From 23 Feet to 38 Feet

Other information _____

WAS A PACKER OR SEAL USED? ☐ YES ☐ NO

If so, what material? _____

Describe packer(s) and location? _____

DISINFECTION: Was well disinfected upon completion?

☒ YES, How: HTH Tablets☐ NO, Why Not? _____

Laboratory sent to for water quality analysis _____

STATIC WATER LEVEL 13 Feet

If flowing: closed in pressure _____ PSI

GPM flow _____ through _____ inch pipe

Controlled by ☐ Valve ☐ Reducers ☐ Other _____

Reduced Flowrate _____ GPM

Can well be completely shut in? _____

WELL TEST DATA:

☒ PumpedDescribe: Sub pump☐ Bailed☐ Other

Pumping Level Below Land Surface

27 ft. After 36 Hrs. pumped 336 GPM

_____ ft. After _____ Hrs. pumped _____ GPM

If pump installed, pump rate _____ GPM

REMARKS

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This well was drilled under license # 681

And this report is true and accurate.

Drilling firm Kaiser Well DrillingSignature of License Representative: [Signature]

Signature of Well Owner or Equitable Property Holder: _____

Date: _____

07-92

Date:

RECEIPT

WATER RIGHTS PROGRAM

South Dakota Department of Environment and Natural Resources

Date 4/21, 20 09

RECEIVED OF Prairie River Farm Inc G Little 45676 176th St Watertown SD 57201

The following amount in fees for services rendered as provided for by law:

Fee for Application for Permit No. <u>7129-3</u> to Appropriate Water, to construct and to put water to beneficial use	250	00
Fee for Application for Permit No. _____ to Appropriate Water for Future use		
Fee to retain Future Use Permit No. _____ after period of seven years.		
Fee for Inspecting Constructed Works, confirming beneficial use and issuing Water License No. <u>7129-3</u>	50	00
Fee for Filing Transfer Form _____		
Fee for _____		
Fee for Issuing New Well Driller's License No. _____ for C.Y. _____		
Fee for Renewal of Well Driller's License No. _____ for C.Y. _____		
Fee for Issuing Well Pump Installer's License No. _____ for C.Y. _____		
Fee for Renewal of Well Pump Installer's License No. _____ for C.Y. _____		
(Any Other Work Provided by Law)	TOTAL	300 00

No.

04121

By

Garland White
Chief Engineer



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

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**WATER RIGHTS
PROGRAM**

April 21, 2009

Gordon Little
45676 176th St
Watertown SD 57201

Dear Mr. Little:

Thank you for submitting the *Application for a Permit to Appropriate Water* for irrigation in Codington County.

The application is being returned because it needs to be signed and notarized (bottom portion of the application).

If you have any questions, please contact me.

Sincerely,

Karen Schlaak
Water Rights Program
605 773-3352
karen.schlaak@state.sd.us

enclosure



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

June 16, 2009

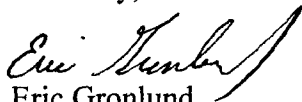
Doug Anderson
Sioux Rural Water System
45703 176th Street
Watertown SD 57201

Dear Mr. Anderson:

Enclosed is a copy of the report, recommendation and public notice for Water Permit Application No. 7129-3 for irrigation filed by Gordon Little. The public notice is set to be published June 24 and July 1, 2009 in the Public Opinion.

This information is being sent to Sioux Rural Water System based on a petition in opposition to a similar application in the late 1980's regarding a concern with groundwater quality in the area.

Sincerely,


Eric Gronlund
Water Rights Program
(605) 773-3352

enclosures



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

**RECOMMENDATION OF CHIEF ENGINEER FOR WATER PERMIT
APPLICATION NO. 7129-3, Gordon Little**

Pursuant to SDCL 46-2A-2, the following is the recommendation of the Chief Engineer, Water Rights Program, Department of Environment and Natural Resources concerning Water Permit Application No. 7129-3, Gordon Little, 45676176th Street, Watertown SD 57201.

The Chief Engineer is recommending APPROVAL of Application No. 7129-3 because 1) there is reasonable probability that there is unappropriated water available for the applicant's proposed use, 2) the proposed diversion can be developed without unlawful impairment of existing rights, 3) the proposed use is a beneficial use and 4) it is in the public interest with the following qualifications:

1. The wells approved under this Permit will be located near domestic wells and other wells which may obtain water from the same aquifer. The well owner under this Permit shall control his withdrawals so there is not a reduction of needed water supplies in adequate domestic wells or in adequate wells having prior water rights.
2. This Permit is approved subject to the irrigation water use questionnaire being submitted each year.

See report on application for additional information.

Garland Erbele, Chief Engineer
June 15, 2009

REPORT ON WATER PERMIT APPLICATION NO. 7129-3
GORDON LITTLE
JUNE 1, 2009

Water Permit Application No. 7129-3 proposes to appropriate 1.78 cubic feet of water per second from three existing wells (38, 32 and 31 feet deep, respectively) completed into the North management unit of the Big Sioux aquifer. The wells are located in the SE $\frac{1}{4}$ NE $\frac{1}{4}$ Section 28, T116N-R52W. The water is to be used to irrigate 140 acres located in the S $\frac{1}{2}$ NE $\frac{1}{4}$ and the N $\frac{1}{2}$ SE $\frac{1}{4}$ Section 28, T116N-R52W.

AQUIFIER: Big Sioux: North

AQUIFER CHARACTERISTICS:

The North management unit of the Big Sioux aquifer is an alluvium mantled, poorly to well-sorted, surficial outwash deposit, consisting of medium sand to medium gravel, located primarily in the flood plain of the Big Sioux River. The management unit extends from near Ortley, SD at the north, to near Castlewood, SD at the southern limit; underlying approximately 83,500 acres of Codington, Grant, Hamlin and Roberts Counties (Hedges and others, 1982). The Big Sioux: North contains an estimated 187,880 acre-feet of recoverable water in storage (Hedges and others, 1982). The aquifer ranges from 2-54 feet thick (Putnam and Thompson, 1996). Completion reports submitted with this application identify 21-25 feet of saturated material in this area. Groundwater movement in the aquifer is generally to the south and toward the Big Sioux River. The Big Sioux aquifer is isolated from deeper aquifers by relatively impermeable glacial till. The North management unit is hydraulically connected to Lake Kampeska, Pelican Lake, Still Lake and the Big Sioux River.

Recharge to the Big Sioux: North occurs through infiltration and percolation of precipitation. Since the aquifer is hydraulically connected to some area lakes and the Big Sioux River, recharge is provided to the aquifer during times of high runoff when surface water levels are higher than groundwater levels. The aquifer discharges to the lakes and river when groundwater levels are higher than surface water levels. In general, the aquifer discharges to the area surface waters.

Several estimates have been made of the Big Sioux: North recharge rate. Hansen (1990) estimated recharge to the Big Sioux aquifer to be 4-10 inches per year (in/yr). Recharge rates calculated for the various management units of the Big Sioux aquifer range from 2.7 to 6.9 in/yr if flow-net analysis is ignored (Hedges and others, 1985). Putnam and Thompson (1996) estimated the average annual recharge to the Big Sioux: North to be in the approximate range of 2.9-5.8 in/yr. Average annual recharge to the Big Sioux: North was estimated to 5.53 in/yr for the purpose of computer modeling under steady state conditions (Putnam and Thompson, 1996). Given the area of management unit, average annual recharge to the aquifer is estimated to be 38,479 acre-feet per year.

This is not to suggest that the entire volume of annual recharge is available for use everywhere in the aquifer or that all of the recoverable water in storage in the aquifer is

available for every diversion point. In fact the computer model for the aquifer suggests that during dry conditions, the ability of some high capacity wells to produce would be seriously impacted. The model suggests “The Big Sioux aquifer probably is unable to support extensive irrigation during dry periods such as those that occurred during 1980 and 1981, or in 1976” (Putnam and Thompson, 1996).

OBSERVATION WELL DATA:

The DENR-Water Rights Program monitors 28 observation wells completed into the Big Sioux: North aquifer. The nearest observation well: CD-57B is located within approximately one-half mile of the wells this application proposes to use. The hydrograph for the well is shown in figure 1.

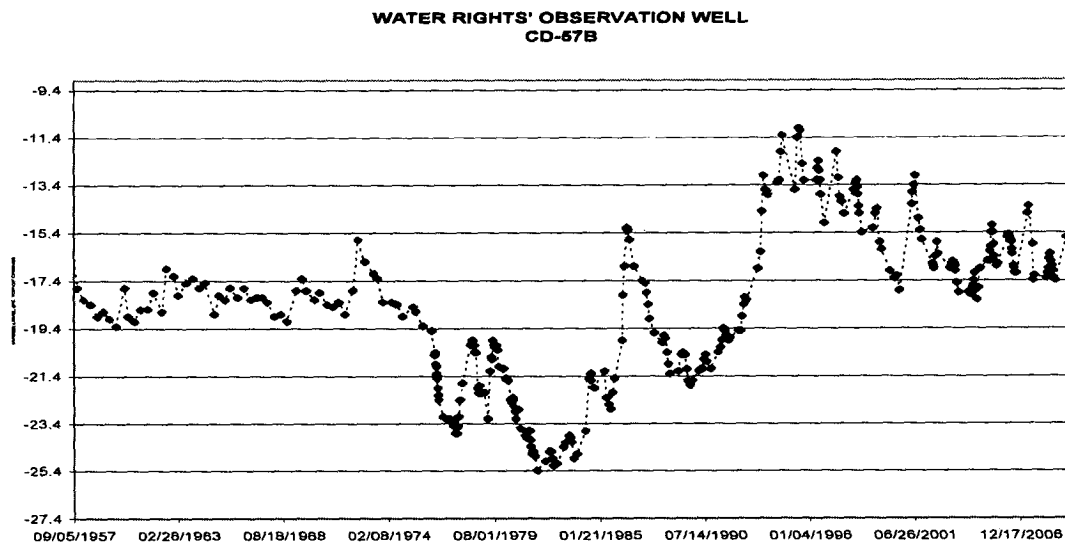


Figure 1. Hydrograph of DENR-Water Rights Program Observation Well CD-57B (Water Rights, 2009c)

The hydrograph is representative of Big Sioux: North wells. The water levels of the aquifer generally rise from February through June and decline from July through January. The water levels in the aquifer respond well to climatic conditions rising during above-normal precipitation and water levels declining corresponding to below normal precipitation. The hydrographs document that at the current level of development, the aquifer is not being depleted.

It is worth noting however, that Hedges and others (1985) point out that “...the rate of “average annual recharge” is subject to change with time if non-depletion of the aquifer is the only criteria.”

WATER USE:

There are currently 78 Water Rights/Permits appropriating water from the North management unit of the Big Sioux aquifer for irrigation use (43 appropriations), municipal use (16 appropriations), commercial use (11 appropriations), industrial use (5 appropriations), rural water system use (2 appropriations) and for suburban housing development use (1 appropriation) (Water Rights, 2009d). In addition there are three future

use permits that reserve a total of 4,396 acre-feet of water annually for the City of Watertown. Reported water use from the Big Sioux: North for municipal, rural water system, and irrigation use are shown below in tables 1-3 respectively

BS:N MUNICIPAL USE	
YEAR	PUMPAGE REPORTED (ac-ft/yr)
2008	N/A
2007	4053 ₁
2006	4198 ₂
2005	N/A
2004	4088 ₂
<i>Max</i>	<i>4198</i>
<i>Ave</i>	<i>4113</i>
₁ Reported to DENR-Water Rights Program	
₂ Reported to DENR-Office of Drinking Water	

Table 1. Reported water use from the Big Sioux: North aquifer for Municipal use

BS:N RWS USE		
YEAR	SIOUX RWS PUMPAGE REPORTED (AC-FT/YR)	CLARK WS PUMPAGE REPORTED (AC-FT/YR)
2008	1058	127
2007	1900	44
2006	1210	na
2005	1211	na
2004	1109	na
2003	1136	na
2002	na	na
2001	na	na
2000	na	na
1998	859.2	na
1997	835	na
1996	951.4	na
<i>Max</i>	<i>1900</i>	<i>127</i>
<i>Ave</i>	<i>1141</i>	<i>85.5</i>

Table 2. Reported water use from the Big Sioux: North aquifer for Rural Water System use (Water Rights, 2009b)

BS:N IRRIGATION		
YEAR	APPROPRIATION (ACRE- FEET/YEAR)	PUMPAGE REPORTED (AC-FT/YR)
2008	15,498.50	2743.94
2007	14584.5	3308.79
2006	15134.5	4285.97
2005	15250.5	2886.7
2004	14673.5	2448.79
2003	14113.5	3662.11
2002	14129.5	2835.49
2001	14116	2558.91
2000	14116	3013.88
1999	14047.6	2593.1
1998	14117.8	1702.52
1997	13612.8	1656
1996	13472.8	1497.96
1995	14136.8	1186.68
1994	1415.8	1192.95
1993	14445.8	865.5
1992	14311.8	1325.7
1991	17,240	1659
1990	22492.8	2520.1
1989	21096.8	2686.6
1988	19,564.80	2,740.40
1987	19564.8	1929.4
1986	19564.8	1079.1
1985	19659	1419.7
1984	21936.3	1684.5
1983	21141	1110.45
1982	20187	1384.05
1981	20814	1067
1980	20598	888
1979	20598	912
Max	22,492.80	4,285.97
Ave	16,521.17	2,028.18

Table 3. Irrigation from the Big Sioux: North (Water Rights, 2009a)

Withdrawals from the North management unit of the Big Sioux aquifer for domestic, commercial, industrial, rural, and suburban housing development uses is expected to be less than 1,000 acre-feet per year, collectively.

The total of withdrawals from the Big Sioux: North aquifer for domestic use and to supply appropriative rights is expected to be less than 12,000 acre-feet annually. On the scale of the management unit as a whole, it is clear that average annual withdrawals do not exceed the estimated average annual recharge.

REVIEW OF EXISTING WATER RIGHTS:

Since the North unit of the Big Sioux aquifer is primarily under unconfined conditions, drawdown caused by pumping is not significant very far from the production well. This is demonstrated quite well in figure 1. DENR-Water Rights Program Observation Well CD-57B is located within approximately 100 feet of a now abandoned Sioux Rural Water System production well. Although the observation well was located within the cone of influence of the production well, drawdown is not apparent. Well interference is not expected to be a problem in the Big Sioux aquifer.

There are only two Water Rights within approximately one mile of the wells that are to be used to supply this permit. They include:

WATER RIGHT NO.	NAME	USE	CFS	ACRES
2615A-3	Robert L. Endres	IRR	1.67	136
5158-3	Sioux Rural Water System	RWS	2.44	NA

Table 4. Water Rights within one mile of 7129-3

The diversion points for Water Right No. 2615A-3 are located over three-fourths of a mile northeast of the proposed diversion points for 7129-3.

Water Right No. 5158-3 authorizes diversions from a number of wells. Three of the diversion points are within 1000 feet of the wells proposed by this application. The remaining wells to supply Water Right No. 5158-3 are located over three-fourths of a mile east-northeast of 7129-3. For the past several years, the RWS area wells' availability statuses have been listed either as abandoned or emergency use only (Drinking Water, 2009).

Cancelled Water Permit No. 5244-3 was approved in 1989 to authorize irrigation from a well located about one mile north east of the wells that are to be used to supply 7129-3. The permit was approved over Sioux Rural Water System's opposition involving concerns that the proposed irrigation would exacerbate contamination issues in this area. This area has a documented problem with high concentrations of nitrates in the groundwater. Nitrate concentrations ranged from 0-43 parts per million in area wells (Barari and others, 1988). The three water supply wells constructed for Sioux Rural Water System in the early 1970's, near the wells that are to be used to supply this appropriation, all exhibited nitrate concentrations above the EPA established maximum contaminate level (MCL) of 10 milligrams per liter. Approval of Water Permit No. 5244-3 included the development of a management plan to minimize potential impacts on water quality in the Big Sioux: North aquifer.

A probable source of the nitrate contamination in this area is a non-point source from primarily agricultural land. The application of nitrogen-based fertilizer is common to both the irrigated and nonirrigated land. The Water Management Board adopted Findings of Fact

and Conclusions of Law for Water Permit Application No. 5244-3 that include (Water Rights, 1989):

Finding of Fact No.11: "Nitrogen-nitrate buildup in the soil may be more effectively controlled in an irrigated system than in an unirrigated system. This is because with irrigation the farmer can, at least partially, control the amount of water the crop receives and thus influence the growth of the plant and the consequent use of nitrogen."

Finding of Fact No.12: "With proper management, the proposed operation will, in all probability, not adversely affect the nitrate level of the aquifer, and may in fact utilize nitrogen more efficiently and reduce nitrate contamination below any that may occur from dryland farming operation."

Conclusion of Law No. 4: "The proposed use is in the public interest. The Board finds specifically that the concern as to contamination of Sioux Rural Water System wells does not compel the opposite finding as to the public interest because the evidence indicates a high probability that the proposed operation, when made subject to the appropriate conditions, will not adversely affect the nitrate level of the aquifer."

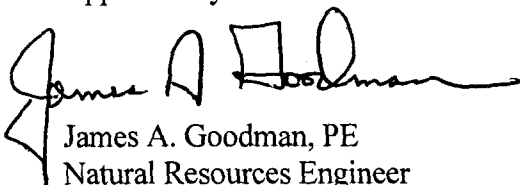
CONCLUSIONS:

1. Unappropriated Water is available from the Big Sioux: North aquifer for this appropriation.
2. The aquifer is under unconfined conditions. Drawdown created by pumping for this appropriation will not be significant and well interference is not expected to be adverse.
3. In the past, water permit application hearings have involved controversy.
4. There has been a history of elevated nitrate levels in groundwater in this portion of the Big Sioux: North aquifer.
5. In the past, the Water Management Board has concluded that nitrogen-nitrate buildup in the soil may be more effectively controlled in an irrigated system than in an unirrigated system and that it is in the interest to irrigate in this area.



Ken Buhler
Natural Resources Engineer

Approved by



James A. Goodman, PE
Natural Resources Engineer

REFERENCES:

- Barari, A., Cowman, T.C., and Iles, D.L., 1988, Evaluation of Data on Nitrate Concentrations in the Big Sioux Aquifer: S.D. Geological Survey UR-54, 30 p.
- Drinking Water, 2009, Public Water System Surveys, SD DENR-Drinking Water Office, Joe Foss Building, Pierre, SD
- Hansen, D.S., 1990, Water Resources of Codington and Grant Counties, South Dakota: U.S. Geological Survey Water Resources Investigation No. 89-4147, 47 p.
- Hedges, L.S., Burch, S.L., Iles, D.L., Barari, R.A., and Schoon, R.A., 1982, Evaluation of Ground-Water Resources Eastern South Dakota and Upper Big Sioux River, South Dakota and Iowa, Tasks 1-4: prepared for U.S. Army Corps of Engineers, contract DACW 45-80-C-0185
- Hedges, L.S., Allen, J. and Holly, D.E., 1985, Evaluation of Ground-Water Resources Eastern South Dakota and Upper Big Sioux River South Dakota and Iowa, Task 7: Groundwater Recharge: prepared for U.S. Army Corps of Engineers, contract DACW 45-80-C-0185
- Putnam, L.D., and Thompson, R.C., 1996, Appraisal of the Water Resources of the Big Sioux Aquifer, Codington and Grant Counties, South Dakota: U.S. Geological Survey Water Resources Investigation No. 96-4275, 34 p.
- Water Rights, 1989, Water Permit No. 5244-3, SD DENR-Water Rights Program, Joe Foss Bldg, Pierre, SD.
- Water Rights, 2009a, Irrigation Questioner Summaries 1980-2009, SD DENR-Water Rights Program, Joe Foss Bldg, Pierre, SD.
- Water Rights, 2009b, Non-irrigation Water User Reporting 1997-2009, SD DENR-Water Rights Program, Joe Foss Bldg, Pierre, SD.
- Water Rights, 2009c, Observation Well Files, SD DENR-Water Rights Program, Joe Foss Bldg, Pierre, SD.
- Water Rights, 2009d, Water Right/Permit Files, SD DENR-Water Rights Program, Joe Foss Bldg, Pierre, SD.

RECEIVED

JUL - 8 2009

WATER RIGHTS
PROGRAM

Form 8

PROOF OF PUBLICATION

STATE OF SOUTH DAKOTA)
) SS
County of CODINGTON)

I, MONICA K. SAATHOFF

certify that the attached printed Notice was
taken

from the WATERTOWN PUBLIC OPINION

printed and published in WATERTOWN

County of CODINGTON and

state of South Dakota. The notice was
published

in the newspaper on the following two dates:

JUNE 24th, 2009

JULY 1st, 2009

Cost of Printing \$96.52

Monica K. Saathoff
(Signature)

BOOKKEEPER

(Title)

JULY 1st, 2009

(Date Signed)

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 7129-3 because 1) unappropriated water is available, 2) existing rights will not be unlawfully impaired, 3) it is a beneficial use of water, and 4) it is in the public interest. In accordance with SDCL 46-2A-23, the Chief Engineer will act on this application, as recommended, unless a petition is filed opposing the application or the applicant files a petition contesting the Chief Engineer's recommendation. If a petition opposing the application or contesting the recommendation is filed, then a hearing will be scheduled and the Water Management Board will consider this application. Notice of the hearing will be given to the applicant and any person filing a petition.

Any person interested in opposing or supporting this application or recommendation must file a written petition with BOTH the applicant and Chief Engineer. The applicant must file a petition if contesting the Chief Engineer's recommendation. The Chief Engineer's address is "Water Rights Program, Foss Building, 523 E Capitol, Pierre SD 57501 (605 773-3352)" and the applicant's mailing address is given above. A petition filed by either an interested person or the applicant must be filed by July 13, 2009.

The petition may be informal, but must include a statement describing the

petitioner's interest in the application, the petitioner's reasons for opposing or supporting the application, and the signature and mailing address of the petitioner or the petitioner's legal counsel. If legal counsel is obtained, contact Eric Gronlund at the above Water Rights Program address to request copies of information pertaining to this application. Steven M. Pirner, Secretary, Department of Environment and Natural Resources.
(June 24 & July 1, 2009)
Published twice at the total approximate cost of \$98.90.

For legal notices in the Public Opinion and other South Dakota newspapers can be found at www.sdpublicnotices.com

DENR

NOTICE OF APPLICATION NO. 7129-3 to Appropriate Water

Notice is given that Gordon Little, 45676 176th St, Watertown SD 57201 has filed an application for a water permit to appropriate 1.78 cubic feet of water per second from three wells completed into the Big Sioux North Aquifer (38, 32 and 31 feet deep) located in SE 1/4 NE 1/4 Section 28 to irrigate 140 acres located in the S 1/2 NE 1/4 and N 1/2 SE 1/4 Section 28; all in T116N-R52W.



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

June 16, 2009

Public Opinion
PO Box 10
Watertown SD 57201

ATTENTION: Legal Public Notice

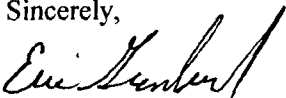
Enclosed is a Notice on Application No. 7129-3 to Appropriate Water to be published twice. Please publish the first notice on June 24, 2009 with the second publication 7 days later. The text of the notice can be e-mailed to your paper by contacting Karen Schlaak at (605) 773-3352.

The applicant must verify to you that the notice is to be published, before you make the first publication. **Please BILL the APPLICANT for the cost of publication.** The APPLICANT is Gordon Little, 45676 176th St., Watertown SD 57201 (Ph # 605-882-1262 or 881-6422).

Please send the Water Rights Program the first publication immediately. The publication is checked for accuracy so any corrections can be made in the second publication. You may use the form below or fax a copy of the first publication. Any fax should be sent to the attention of Karen Schlaak at (605) 773-4068. Publication errors can invalidate the public notice.

After the second publication, **please send us an affidavit or use the enclosed Proof of Publication form.** The applicant pays the cost of publication, but the Water Rights Program records require an affidavit or Proof of Publication. Delays in receiving the affidavit can be costly to the applicant.

Sincerely,


Eric Gronlund
Natural Resources Engineer
605 773-3352

enclosures

-----CUT HERE-----

No. 7129-3

TO: Eric Gronlund
Water Rights Program
Joe Foss Building
Pierre SD 57501-3181

Date _____

We are in receipt of your letter of June 16, 2009 enclosing Notice to Appropriate Water by Application No. 7129-3 which was first published in our issue of _____. **ENCLOSED IS A COPY OF THIS FIRST PUBLICATION.**

Name

Newspaper



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

NOTE: TO BE SURE OF PUBLICATION ON
THE CORRECT DATES, CONTACT
THE NEWSPAPER RIGHT AWAY.

June 16, 2009

Gordon Little
45676 176th St
Watertown SD 57201

Dear Mr. Little:

Water Permit Application No. 7129-3 for irrigation use has been examined and found to comply with the South Dakota Water Laws and applicable rules. A notice has been sent to the Publisher of the Public Opinion printed at Watertown SD (Ph # 605-886-6901). You will need to contact the newspaper and authorize publication of this notice. For your information, a copy of the notice, the recommendations of the Chief Engineer and reports on the applications are enclosed. Please review the notice prior to publication and notify this office, if you have any corrections or questions.

Be sure to contact the above newspaper to authorize publication of your Notices and to arrange for payment. Early contact with the paper can eliminate delays. Upon receiving authorization, the publisher has been instructed to publish your notice once each week for two consecutive weeks. The newspaper has also been instructed to send us the Proof of Publication. We must receive Proof of Publication before action can be taken on the applications.

Sincerely,

Eric Gronlund
Natural Resources Engineer
(605) 773-3352

enclosures

NOTE: If you plan to contest any part of the Chief Engineer's recommendation, you must file a petition pursuant to the procedures outlined in the attached notice of hearing. The Water Management Board will then consider your concerns during a hearing on the application.

Instruction to Newspaper - Publish first Notice on June 24, 2009 with the second publication 7 days later. The applicant is responsible for payment. The text of the notice can be e-mailed to your paper by contacting Karen Schlaak at (605) 773-3352 or email: Karen.schlaak@state.sd.us.

NOTICE OF APPLICATION NO. 7129-3 to Appropriate Water

Notice is given that Gordon Little, 45676 176th St, Watertown SD 57201 has filed an application for a water permit to appropriate 1.78 cubic feet of water per second from three wells completed into the Big Sioux:North Aquifer (38, 32 and 31 feet deep) located in SE ¼ NE ¼ Section 28 to irrigate 140 acres located in the S ½ NE ¼ and N ½ SE ¼ Section 28; all in T116N-R52W.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 7129-3 because 1) unappropriated water is available, 2) existing rights will not be unlawfully impaired, 3) it is a beneficial use of water, and 4) it is in the public interest. In accordance with SDCL 46-2A-23, the Chief Engineer will act on this application, as recommended, unless a petition is filed opposing the application or the applicant files a petition contesting the Chief Engineer's recommendation. If a petition opposing the application or contesting the recommendation is filed, then a hearing will be scheduled and the Water Management Board will consider this application. Notice of the hearing will be given to the applicant and any person filing a petition.

Any person interested in opposing or supporting this application or recommendation must file a written petition with BOTH the applicant and Chief Engineer. The applicant must file a petition if contesting the Chief Engineer's recommendation. The Chief Engineer's address is "Water Rights Program, Foss Building, 523 E Capitol, Pierre SD 57501 (605 773-3352)" and the applicant's mailing address is given above. A petition filed by either an interested person or the applicant must be filed by July 13, 2009.

The petition may be informal, but must include a statement describing the petitioner's interest in the application, the petitioner's reasons for opposing or supporting the application, and the signature and mailing address of the petitioner or the petitioner's legal counsel, if legal counsel is obtained. Contact Eric Gronlund at the above Water Rights Program address to request copies of information pertaining to this application. Steven M. Pirner, Secretary, Department of Environment and Natural Resources.



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

JUL 21 2009

Gordon Little
45676 176th St
Watertown SD 57201

Dear Mr. Little:

Enclosed is Water Permit No. 7129-3 authorizing construction of your water diversion system and beneficial use of the water, not exceeding the limits as specified in the Water Permit.

Form 10, *Notice of Completion of Works and Application of Water to Beneficial Use*, is enclosed. Please return this completed form after you have finished the system and have put the water to beneficial use. An investigation can then be scheduled so the water license may be issued, thus completing the acquisition of a water right.

An informational sheet *Common Water Right Questions?* is also enclosed. This sheet is intended to answer some of the questions associated with obtaining and keeping a water right.

Sincerely,

Garland Erbele, Chief Engineer
Water Rights Program
(605) 773-3352

enclosures



7129-3

**DEPARTMENT of AGRICULTURE
and NATURAL RESOURCES**

JOE FOSS BUILDING
523 E. CAPITOL AVE
PIERRE SD 57501-3182
danr.sd.gov

JUN 16 2023

Gordon Little
45676 176th St
Watertown SD 57201

7129-3

Dear Mr. Little:

Enclosed is Water License No. 7129-3. This is the final water right document completing your process of obtaining a Water Right. Included with your license is a map prepared by the staff engineer who conducted the field investigation.

For your information SDCL 46-6-27 requires that if in the future, the owner of an existing well, constructs a replacement well and does not plan to use the old well, the old well is considered abandoned and must be plugged. Also, any well that is being used or is not considered abandoned must be valved and controlled, if flowing, or sealed and capped so that no leaking occurs either underground or at the surface.

As long as you use the water beneficially, as stated in the Water License, State Water Laws provide that you have a continuing right to use the water. If you have any questions, please contact our office.

Sincerely,

Eric Gronlund, Chief Engineer
Water Rights Program
(605) 773-3352

enclosures

STATE OF SOUTH DAKOTA

WATER LICENSE NO. 7129-3

(1) Gordon Little; 45676 176th St, Watertown, SD 57201, made Application No. 7129-3, April 21, 2009, for a water permit to divert 1.78 cubic feet of water per second from groundwater, three wells (Big Sioux: North Aquifer), Codington County, South Dakota for irrigation purposes. Permit No. 7129-3, with a priority date of April 21, 2009 was approved July 13, 2009 and issued to the applicant for diversion of water with construction of the described water supply system to be completed on or before July 13, 2014 and for the application to beneficial use of water on or before July 13, 2018.

(2) It is certified that the permit holder has complied with the provisions of South Dakota State Law relating to completion of the construction of the water supply system and is entitled to divert 1.67 cubic feet of water per second for beneficial use. The locations of the diversion points are:

- Well #1: 1,415 ft S & 725 ft W of the NE corner of Section 28, T116N, R52W (SE ¼ NE ¼)
(Latitude 44.82933 Longitude -97.07019)
- Well #2: 1,840 ft S & 715 ft W of the NE corner of Section 28, T116N, R52W (SE ¼ NE ¼)
(Latitude 44.82787 Longitude -97.07021)
- Well #3: 2,290 ft S & 710 ft W of the NE corner of Section 28, T116N, R52W (SE ¼ NE ¼)
(Latitude 44.82663 Longitude -97.07017)

(3) The permit holder has complied with the provisions of South Dakota State Law relating to the application of water to beneficial use to irrigate the following land:

Section 28, T116N, R52W	
SW ¼ NE ¼	33.5 acres
SE ¼ NE ¼	32.7 acres
NE ¼ SE ¼	31.7 acres
NW ¼ SE ¼	31.5 acres
TOTAL: 129.4 acres	

(4) Pursuant to South Dakota Water Law 46-5-30.1 Gordon Little, the holder and/or owner of Water Right No. 7129-3 is issued a license to appropriate water, the right to use 1.67 cubic feet of water per second from groundwater, three wells (Big Sioux: North Aquifer), with a priority date of April 21, 2009 from the locations specified in (2) of this license for irrigation purposes.

This license is subject to South Dakota Water Law, any limitations or conditions listed in Water Right No. 7129-3 and subject to the following qualifications:

1. The wells approved under this water right will be located near domestic wells and other wells which may obtain water from the same aquifer. The well owner under this water right shall control his withdrawals so there is not a reduction of needed water supplies in adequate domestic wells or in adequate wells having prior water rights.

continued

2. This Water Right is approved subject to the irrigation water use questionnaire being submitted each year.

Eric Gronlund

Eric Gronlund, Chief Engineer
Water Rights Program
Department of Agriculture and Natural Resources

JUN 16 2023
date



Report of Examination of Works and/or Application of Water to Beneficial Use For Permit No. 7129-3

I have this day, April 26, 2023, made a thorough examination of the water use system constructed by Gordon Little; 45676 176th St, Watertown, SD 57201 of Permit No. 7129-3, bearing the priority of April 21, 2009 authorizing the diversion of 1.78 cu. ft. per second of the waters of the Big Sioux: North Aquifer source for irrigation purposes, in Codington County.

A. Works used to divert the water:

Well Information:

- 1) Well Drilling Firm: Kaiser Well Drilling
- 2) No. of Wells 3
- 3) Depth(s) 31, 38, 32 feet
- 4) Well log is available Y

Casing:

- 1) Diameter 16 inches
- 2) Length 21, 25, 22 feet
- 3) Type Plastic

Screen:

- 1) Type Plastic
- 2) Length 10, 13, 10 feet
- 3) Static water level 10-13 feet

Pump:

- 1) Make Submersibles
- 2) Model Unknown
- 3) Size Unknown
- 4) Capacity 750 total GPM

Motor:

- 1) Make Unknown
- 2) Model No. Unknown
- 3) Horsepower rating Unknown hp

B. Works used to transport water to place of use:

- 1) Type PVC
- 2) Size 8 inches
- 3) Length 1590 feet

C. Works used to apply water to beneficial use:

Center pivot:

- 1) Make T & L
- 2) Overall length 1300 feet
- 3) Number of towers 8
- 4) End gun Y
- 5) Capacity 750 total GPM

Chemigation Equipment:

- 1) Does chemigate N

Comments:

D. Compliance with Permit Requirements:

- 1) Permit qualifications being abided by Y
- 2) Irrigation Questionnaires checked to determine if permit owner started irrigation by the end of construction period Y
- 3) Exceptions to compliance are: None

E. Condition and Location:

1. The system is in good condition with the point(s) of diversion located as follows: WELL LOCATIONS
2. From the NE corner Sec 28 T116N R52W; WELL #1: 1415 ft S & 725 ft W, Lat 44.82933 Long - 97.07019 WELL #2: 1840 ft S & 715 ft W, Lat 44.82787 Long -97.07021 WELL #3: 2290 ft S & 710 ft W, Lat 44.82663 Long -97.07017 (all in SE ¼ NE ¼).

3. The works are capable of diverting and conveying to the place of use 1.67 cu. ft. per second of water which is to be used for irrigation. Water has been put to beneficial use to the maximum extent as follows:

legal description/acreage

Sec 28 T116N R52W

SW NE – 33.5 acres

SE NE – 32.7 acres

NE SE – 31.7 acres

NW SE – 31.5 acres

comprising a total of 129.4 acres of land and the license should be issued for 1.67 cfs

4. All structures, wells and lands on map Y

F. Comments or other permit(s) associated with the project:

The irrigated acreage was determined with the aid of FSA imagery and ArcMAPS software.

The pump rate reported in a recent Irrigation Questionnaire was used to establish the system flow capacity.

The mailing address in the permit materials is current but the contact telephone number is now 605/881-6422 (cell).

A handwritten signature in black ink, appearing to read "Darrell W DeBoer", written over a horizontal line.

Darrell W DeBoer
Water Rights Inspector
DANR, Water Rights Program

Date report completed: May 1, 2023

SEC 21
T116N R52WSEC 22
T116N R52W

REFERENCE CORNER

WELL LOCATIONS
 From the NE corner
 Sec 28 T116N R52W
 WELL #1
 1415 ft S & 725 ft W
 Lat 44.82933 Long -97.07019
 WELL #2
 1840 ft S & 715 ft W
 Lat 44.82787 Long -97.07021
 WELL #3
 2290 ft S & 710 ft W
 Lat 44.82663 Long -97.07017

TOTAL IRRIGATED AREA = 129.4 acres

WELL #1

WELL #2

WELL #3

SE NE
32.7 acresSW NE
33.5 acresCENTER SEC 28
T116N R52WNW SE
31.5 acresNE SE
31.7 acresSEC 27
T116N R52W

0 0.075 0.15 0.3 0.45 0.6 Miles



Darrell DeBoer
 Water Right Inspector
 DANR-Water Rights Program