

WATER PERMIT NO. 7584-3

Name of Applicant: Pearl Creek Colony

Address: 21085 415th Ave, Iroquois SD 57353

Phone: 605 546-2452

Amount of Water Claimed: 1.78 cfs

Total Acres: 160 acres

Source of Water Supply: groundwater (one well)

Water to be used for: irrigation

County: Beadle

Type of Waste Disposal System:

Location: 3 miles SW of Iroquois

PRIORITY

Date Received: 12-26-12

Application/License Fee: \$ 700 (need to refund)

Corrected Application Received:

Period of Annual Use: May 1 – October 31

Remarks:

Diversion Point: Center NE 1/4 Sec 16-T110N-
R59W

Land to be Irrigated: NE 1/4 Sec 16-T110N-R59W

Depth of Well: 80 – 100 feet deep

Well Driller:

Remarks:

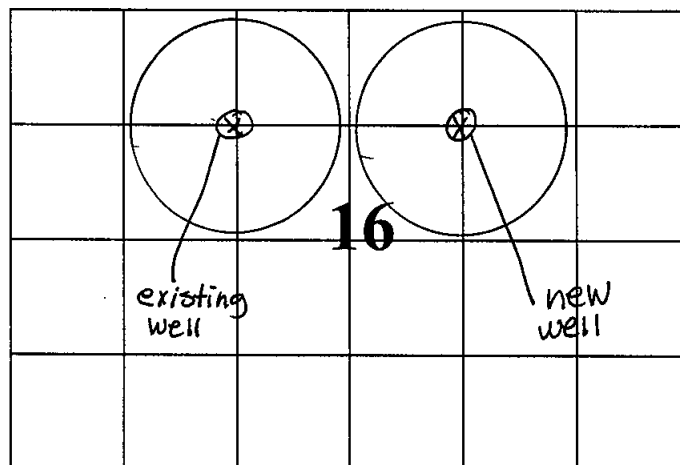
Type of Map: aerial

Prepared by:

Reviewed and the Number Assigned on: 12-31-12

By: Karen Schlaak

Notice of Hearing - date to intervene: _____



FORM 2: Application for uses other than irrigation
(type or print)

Mail to:
PMB 2020
DENR - Water Rights
523 E Capitol Ave
Pierre, SD 57501-3182
ph. (605) 773-3352

No. 7584-3 (office use only)
Hydrologic Unit 10160001
Basin James River
Newspaper Plainsman PO Box 1278
Huron 57350 605-352-6401

RECEIVED
DEC 26 2012
WATER RIGHTS
PROGRAM

Application For Permit To Appropriate Water Within The State Of South Dakota

Check use(s) of water:

☐ Municipal ☐ Suburban Housing ☐ Recreational ☐ Institutional
☐ Rural Water System ☐ Commercial ☐ Fish & Wildlife ☐ Geothermal Heat
☐ Domestic (over 18 gpm) ☐ Industrial ☒ Other Irrigation

Type of Application:
(check one)

☒ New ☐ Vested Right (Use predates Mar 2, 1955) ☐ Future Use Reservation
☐ Place to Beneficial Use Water Reserved by Future Use Permit No. _____
☐ Amendment/Correction to Permit No. _____

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

1. Name of Applicant Pearl Creek Colony Phone 605-546-2452
(check one) ☐ Owner ☐ Tenant/lessee

Mailing Address 21085 415th Ave Froggville SD 57353
(Address) (City) (State) (Zip Code)

2. Amount of water claimed 1.78 *CFS or 800 **GPM No add'l ***acres
(*Cubic Feet per Second) (**Gallons per Minute) (***)Acre Feet - storage capacity of dam/dugout or annual use if applicable)

3. Source of water supply Well

4. Location of point of diversion (example - 3 wells in SW1/4 NE1/4 section 12-T104N-R53W) County Beadle
1 well in NE 1/4 of Section 16-T110N-R59W

5. County or counties where water will be used Beadle

6. Annual period during which water is to be used May to Sept 30

7. Give a description of the project. When available include any preliminary engineering report or other reports or information that will help explain the project. (Attach sheet if more space is needed)

We already have an irrigation system in place that shares a well located in NW 1/4 of Section 16. We want to drill a well for this pivot only in NE 1/4, to irrigate 132 acres. Water Right No. 4114-3

STATE OF SOUTH DAKOTA)
County of Beadle) SS

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

I, Matt Waldner, 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 Matt Waldner 12-22-12

Subscribed and sworn to before me this _____ day of _____ 20____

SOUTH DAKOTA
WATER PERMIT NO. 7584-3

Date of first receipt of application December 26, 2012.

The Chief Engineer, on behalf of the Water Management Board, issues Water Permit No. 7584-3 to Pearl Creek Colony, 21085 415th Ave, Iroquois SD 57353 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. 7584-3 appropriates 1.78 cubic feet of water per second (cfs) from an additional well to irrigate acres authorized by Water Right No. 4114-3. Water Right No. 4114-3 authorizes 1.78 cfs from one well located in the center of the NW 1/4 Section 16 to irrigate 264 acres located in the N 1/2 Section 16; all in T110N-R59W. This permit authorizes 1.78 cfs from an additional well to be completed into the Floyd:Pearl Creek Aquifer (80 - 100 feet deep) located in the center of the NE 1/4 Section 16 to irrigate 132 acres authorized by Water Right No. 4114-3 located in the NE 1/4 Section 16; all in T110N-R59W. This will allow both pivots to run simultaneously.
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: May 1 – September 30.
3. The date from which applicant may claim right is December 26, 2012 (for additional diversion rate authority). Water Right No. 4114-3 retains September 6, 1977 priority date 
4. The date of approval of Permit No. 7584-3 is March 18, 2013.
5. One-fifth of the construction is to be completed on or before September 18, 2015.
6. All construction is to be completed on or before March 18, 2018.
7. Water is to be put to beneficial use on or before March 18, 2022.
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 under Water Right No. 4114-3 and 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. The new well authorized by Permit No. 7584-3 shall be constructed by a licensed well driller and construction of the well and installation of the pump shall comply with Water Management Board Well Construction Rules, Chapter 74:02:04 with the well casing pressure grouted (bottom to top) pursuant to Section 74:02:04:28.
3. This Permit is approved subject to the irrigation water use questionnaire being submitted each year.

WATER MANAGEMENT BOARD

By: 

Jeanne Goodman, Chief Engineer
Water Rights Program
Department of Environment and Natural Resources

APR 26 2013

date



Supplemental Information

(type or print)

1. Well Information (check one or both as applicable) ☒ Drilling new well(s) ☐ Using existing well(s)

- a) If new wells, how many 1 Have test holes been drilled ☐ Yes ☒ No Drilled by _____
(if yes, please provide copies of logs)
- b) If existing wells, how many _____ Provide copy of log(s), if available. Drilled by _____
- c) Well Depth 80' + 100' Depth to Top of Water Bearing Material 20 Depth to Water from Surface 15
- d) Distance to nearest existing domestic well:
On applicant's property 3/4 mile On property owned by others _____

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

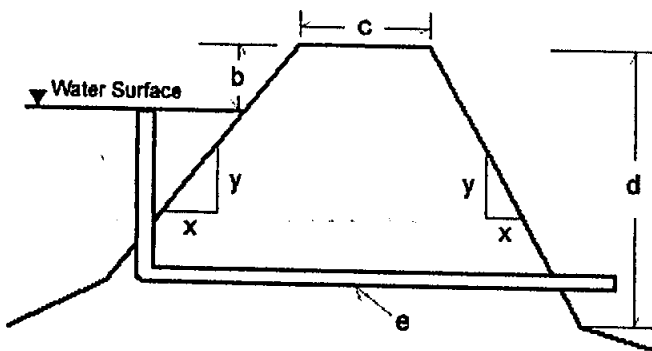
3. Dugout Information

- 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.

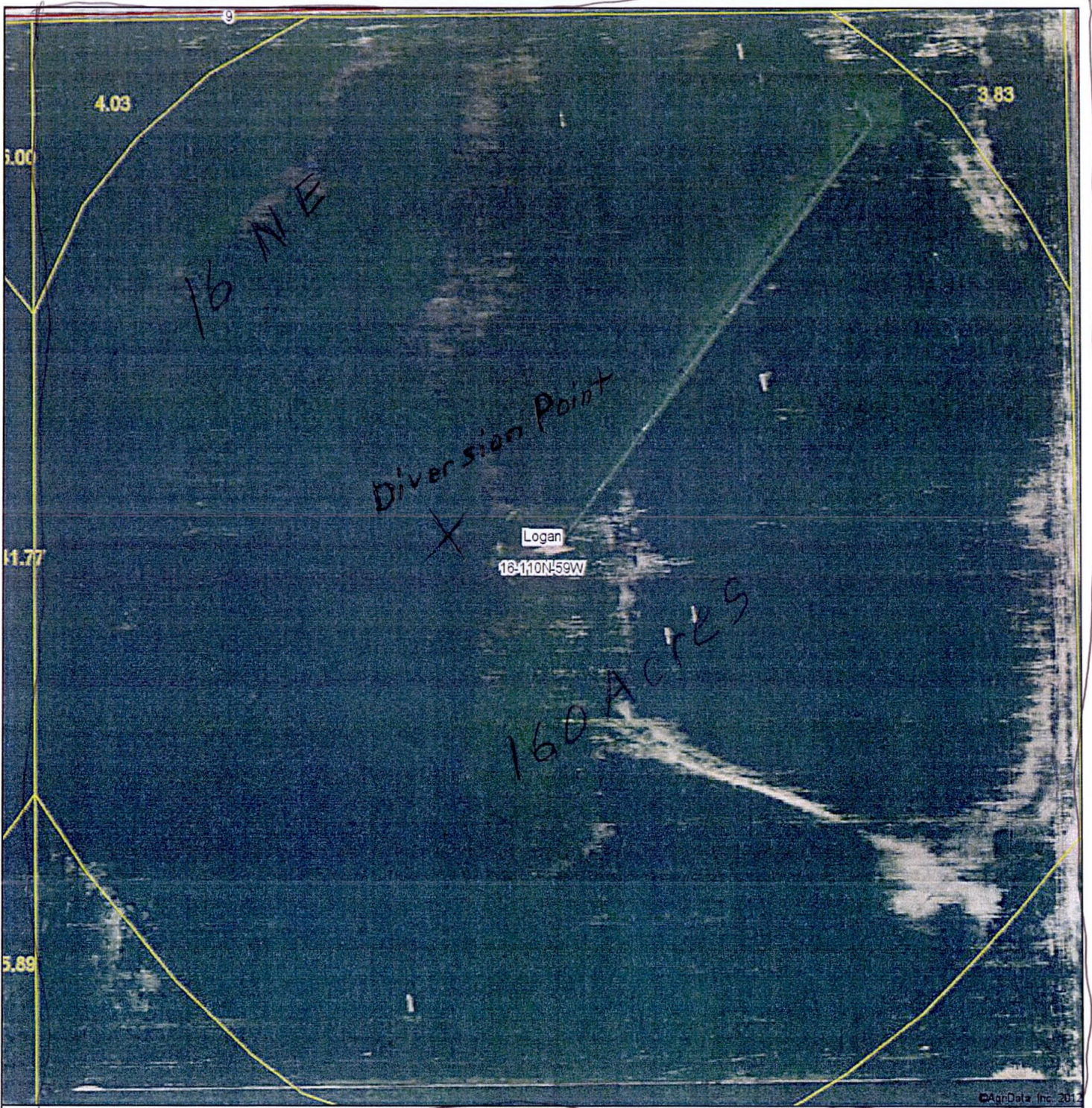
- a) If a private engineering firm or government agency was involved in the design of this dam, please give their name and address:



- 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 (e.g. 3 to 1 is a typical slope)
Upstream _____
Downstream _____
- h) Surface Area of Impoundment _____
- i) Storage _____ Acre Feet
- j) Drainage Area Above Dam _____ Acres

Sec 16-110N-59W NE 1/4

Aerial Map



map center: 44° 20' 9.42, 97° 55' 8.26
scale: 4033

16-110N-59W
Beadle County
South Dakota

Maps provided by:



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12/20/2012

RECEIPT

WATER RIGHTS PROGRAM

South Dakota Department of Environment and Natural Resources

RECEIVED OF Pearl Creek Colony, 21085 415th Ave, Irquouis SD 57353 Date 12-31, 20 12

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

Fee for Application for Permit No. <u>7584-3</u> to Appropriate Water, to construct and to put water to beneficial use	850	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>7584-3</u>	200	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	1050.00

No. **05810**

By Garland Erbele
Chief Engineer

KS



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182

denr.sd.gov

**RECOMMENDATION OF CHIEF ENGINEER FOR WATER PERMIT
APPLICATION NO. 7584-3, Pearl Creek Colony**

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. 7584-3, Pearl Creek Colony, Matt Waldner, 20185 415th Avenue, Iroquois SD 57353.

The Chief Engineer is recommending APPROVAL of Application No. 7584-3 because 1) the proposed diversion can be developed without unlawful impairment of existing rights, 2) the proposed use is a beneficial use and 3) it is in the public interest with the following qualifications:

1. The wells under Water Right No. 4114-3 and 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. The new well authorized by Permit No. 7584-3 shall be constructed by a licensed well driller and construction of the well and installation of the pump shall comply with Water Management Board Well Construction Rules, Chapter 74:02:04 with the well casing pressure grouted (bottom to top) pursuant to Section 74:02:04:28.
3. 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
February 26, 2013

REPORT TO THE CHIEF ENGINEER
ON
WATER PERMIT APPLICATION NOS. 7581-3, 7582-3, 7583-3, 7584-3, 7585-3
PEARL CREEK COLONY
FEBRUARY 16, 2013

Water Permit Application No. 7581-3 proposes to appropriate up to 320 acre-feet annually (ac-ft/yr) at a maximum diversion rate of 1.78 cubic feet of water per second (cfs) from one well to be completed into the Pearl Creek management unit of the Floyd aquifer. The well is to be located in the approximate center of the NW¼ of Section 27, T110N-R59W and is expected to be 80-100 feet deep. This application proposes to irrigate 160 acres located in the NW¼ of Section 27, T110N-R59W.

Water Permit Application No. 7582-3 proposes to appropriate up to 320 ac-ft/yr at a maximum diversion rate of 1.78 cfs from one well to be completed into the Pearl Creek management unit of the Floyd aquifer. The well is to be located in the approximate center of the NW¼ of Section 22, T110N-R59W and is expected to be 80-100 feet deep. This application proposes to irrigate 160 acres located in the NW¼ of Section 22, T110N-R59W.

Water Permit Application No. 7583-3 proposes to appropriate up to 320 ac-ft/yr at a maximum diversion rate of 1.78 cfs from one well to be completed into the Pearl Creek management unit of the Floyd aquifer. The well is to be located in the approximate center of the SW¼ of Section 22, T110N-R59W and is expected to be 80-100 feet deep. This application proposes to irrigate 160 acres located in the SW¼ of Section 22, T110N-R59W.

Water Permit Application No. 7584-3 proposes authorization to construct an additional well into the Pearl Creek management unit of the Floyd aquifer. The well is to be located near the center of the NW¼ of Section 16, T110N-R59W and is expected to be 80-100 feet deep. This application proposes to divert water from this well at a maximum diversion rate of 1.78 cfs to irrigate 132 of the acres that are currently authorized by Water Right No. 4114-3. Water Right No. 4114-3 authorizes the irrigation of 264 acres located in the N½ of Section 16, T110N-R59W from one well located in the center of the NW¼ of Section 16, T110N-R59W at a maximum diversion rate of 1.78 cfs. Approval of this application will allow two center pivot irrigation systems to operate simultaneously.

Water Permit Application No. 7585-3 proposes authorization to construct an additional well into the Pearl Creek management unit of the Floyd aquifer. The well is to be located near the center of the NW¼ of Section 4, T110N-R59W and is expected to be 80-100 feet deep. This application proposes to divert water from this well at a maximum diversion rate of 1.78 cfs to irrigate 132 of the acres that are currently authorized by Water Right No. 4114-3. (approximately 80-100 feet deep), and to divert water from the well at a maximum diversion rate of 1.78 cfs to irrigate 126 of the acres that are currently authorized by Water Right No. 4115-3. Water Right No. 4115-3 authorizes the irrigation of 252 acres located in the N½ of Section 4, T110N-R59W from one well located in the center of the NW¼ of Section 4, T110N-R59W at a maximum diversion rate of 2.0 cfs. Approval of this application will allow two center pivot irrigation systems to operate simultaneously.

AQUIFER: Pearl Creek management unit of the Floyd aquifer (F:PC)

HISTORY:

At the February 3, 1982, Water Management Board meeting, Water Rights staff opposed the granting of Water Permit No. 4854-3 from the Floyd: Pearl Creek aquifer, based on water availability. At the time, staff relied on a "5% safe yield criteria" to assess the availability of unappropriated water from an aquifer. This safe yield criterion assumed that the amount of water that could be appropriated from an aquifer without producing unacceptable negative effects was less than five percent of the estimated recoverable water in storage in the aquifer. The Board approved the permit with an understanding with the staff that if aquifer water levels decline, staff will have to reduce pumping based on priority or establish a water use control area and reduce all pumping (Water Management Board, 1982a).

The Water Management Board considered Future Use Permit No. 4889-3, to reserve 15.0 cfs from the Floyd: Pearl Creek aquifer for the City of Huron at its June 9, 1982 meeting (Water Management Board, 1982b). The Board denied the application based on the 5% safe yield criteria, and adopted a finding of fact (#12) that "There is no unappropriated water available" (Water Rights, 1982c).

In 1987, Chief Engineer John Hatch recommended denial of Water Permit Application No. 4854A-3 to amend Permit No. 4854-3 to extend the time for construction of works because 1) based on records of water use there is no unappropriated water available for the applicant's proposed use, 2) the proposed diversion cannot be developed without unlawful impairment of existing rights, 3) because withdrawals will exceed the average annual recharge to the Floyd: Pearl Creek aquifer, approval would not be in the public interest. Ultimately, the application to extend the five year period of time for the completion of works under Water Permit 4854-3 was denied, essentially because the applicant failed to sustain his burden of demonstrating the existence of "exigent circumstances" (Water Rights, 1987a). Water Permit No. 4854-3 was cancelled May 11, 1988 for non-construction.

The City of Iroquois submitted Water Permit Application No. 5120-3 to appropriate water from the Floyd: Pearl Creek in 1987 and Chief Engineer John Hatch recommended denial because "there is reasonable probability that unappropriated water is not available for the applicant's proposed use" (Water Rights, 1987b). Following a Water Management Board hearing, the Board concluded there was a reasonable probability that unappropriated water was available for the appropriation based upon estimates of recharge which ranged from 2.53 inches to 3.05 inches per year as opposed to estimates of 0.22 inches to 0.90 inches per year presented by the staff and the permit was approved.

Water Right No. 5623-3, City of Iroquois, and Water Permit Nos. 5801-3, 5956-3, 6876-3, 6877-3, Pearl Creek Colony have all been approved since 1987.

GEOLOGY AND AQUIFER CHARACTERISTICS:

The Pearl Creek management unit of the Floyd aquifer is a sand and gravel deposit of glacial origin located in southeastern Beadle County. The aquifer lies within a north-south trending

bedrock valley roughly one mile west of Pearl Creek Colony (Iles, 1979). Hedges and others (1982) estimated the aquifer underlies 11,000 acres and contains 45,000 acre-feet of recoverable water in storage. Based on the work by Iles (1979), test hole data (“Lithologic Logs”), observation well data (Water Rights, 2013a), well completion reports (Water Rights, 2013c) and water right/permit data (Water Rights, 2013b), the areal extent of the aquifer was refined and is shown in Figure 1. Using all of the information currently available, the aquifer underlies approximately 11,040 acres. Aquifer materials are greater than 60 feet thick in places and the aquifer appears to be completely saturated to the south of Highway 14 (Iles, 1979).

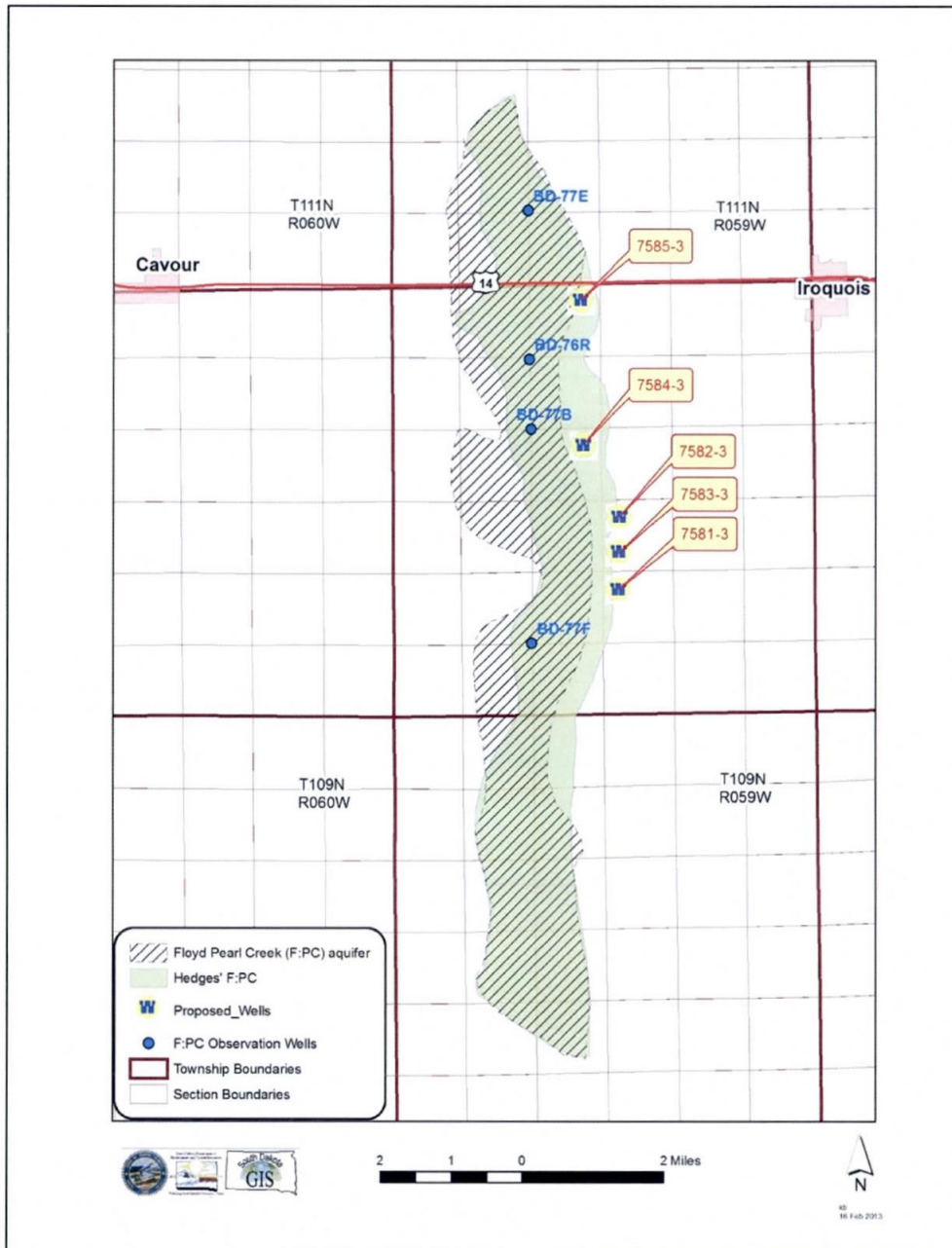


Figure 1. Map showing the areal extent of the Floyd: Pearl Creek aquifer, location of DENR-Water Rights' observation wells, and the proposed well sites.

PROPOSED WELL SITES:

The Floyd: Pearl Creek aquifer lies in a very pronounced bedrock valley. Test holes drilled for 1) the groundwater study for the City of Huron (Iles, 1979), 2) the groundwater study for the City of Iroquois (Green, 1983), 3) the Beadle County Study (Hedges, 1968; and Howells and Stephens, 1968) and 4) Pearl Creek Colony in 1977 (Water Rights, 2013c) all suggest that the proposed well sites are not located within the aquifer boundary (see Figure 2).

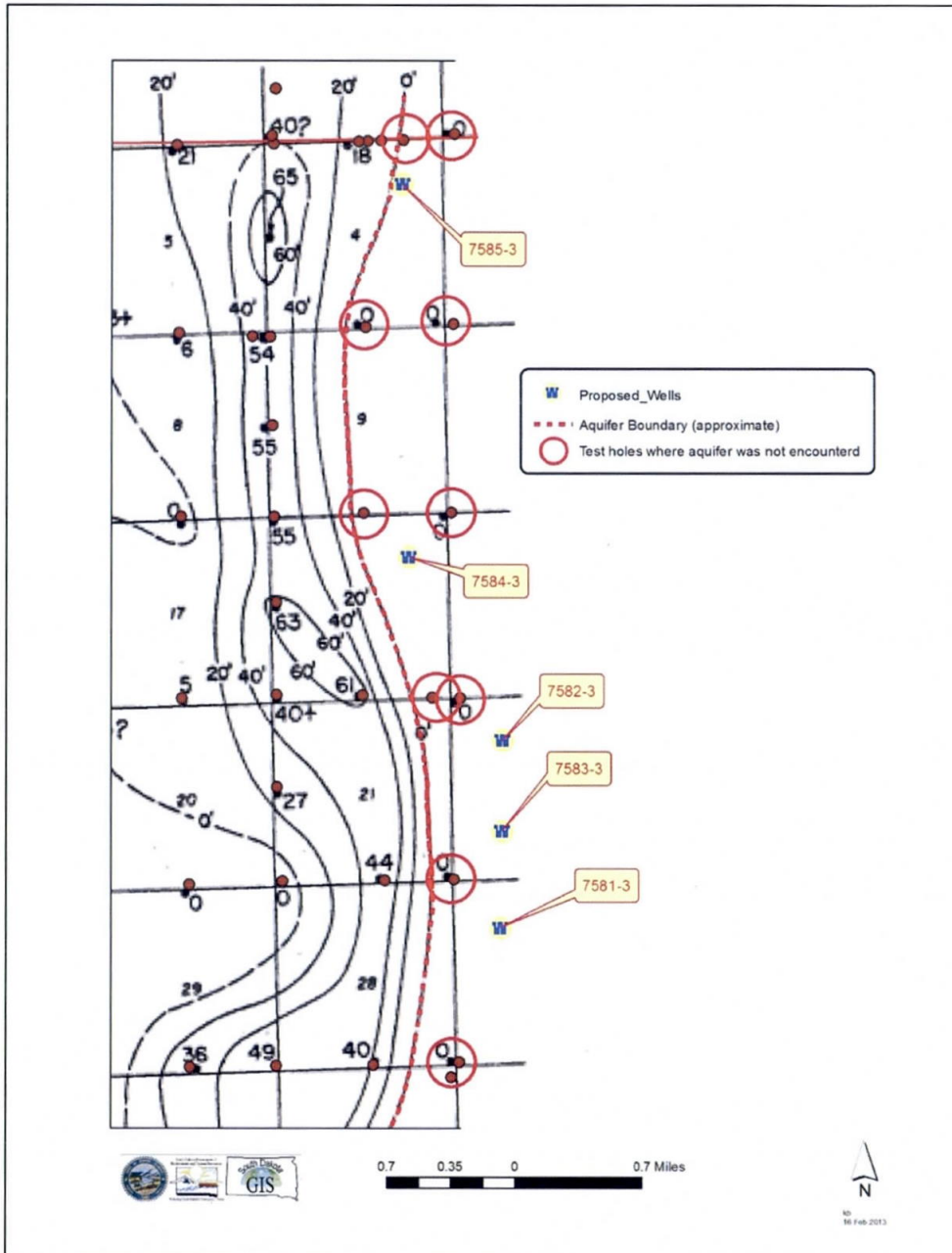


Figure 2. Map showing the thickness of the Floyd: Pearl Creek aquifer (modified from Iles, 1979) with test holes showing no aquifer emphasized in the vicinity of the proposed well sites.

SDCL 46-2A-9

Pursuant to SDCL 46-2A-9, a permit to appropriate water may be issued only if there is reasonable probability that there is unappropriated water available for the applicant's proposed use, that the proposed diversion can be developed without unlawful impairment of existing rights and that the proposed use is a beneficial use and in the public interest. This report discusses water availability and potential impairment issues pertaining to the Floyd: Pearl Creek aquifer and the applications described on page one.

WATER AVAILABILITY:

The probability of unappropriated water being available from the Floyd: Pearl Creek aquifer can be evaluated by considering SDCL 46-6-3.1 which requires "No application to appropriate groundwater may be approved if, according to the best information reasonably available, it is probable that the quantity of water withdrawn annually from a groundwater source will exceed the quantity of the average estimated annual recharge of water to the groundwater source."

In applying SDCL 46-6-3.1, the Sixth Judicial Circuit Court ruled in 2005 that if the Water Management Board uses average annual recharge, then it should also use average annual withdrawals to determine if unappropriated water is available from the aquifer (*Hines v. South Dakota Dept. of Environ. and Nat'l. Resources, Hughes County 04-37* (Memorandum Decision, April 29, 2005)).

The availability of unappropriated water from the Floyd: Pearl Creek aquifer was evaluated based on observation well data and through consideration of hydrologic budgets for the aquifer.

OBSERVATION WELL DATA:

The analysis of observation well data provides a qualitative means of assessing the aquifer and provides the best information available to evaluate the Floyd: Pearl Creek aquifer. In addition, Administrative Rule of South Dakota Section 74:02:05:07 requires that "the Water Management Board shall rely upon the record of observation well measurements to determine that the quantity of water withdrawn annually from the aquifer does not exceed the estimated average annual recharge to the aquifer."

The DENR-Water Rights Program monitors four observation wells completed into the Floyd: Pearl Creek aquifer. The location of these observation wells are shown in Figure 1. The analysis of the DENR-Water Rights Program observation well data provides the best information reasonably available to evaluate withdrawals from an aquifer as compared with recharge to the aquifer. Hydrographs for the observation wells are shown in Figures 3-6.

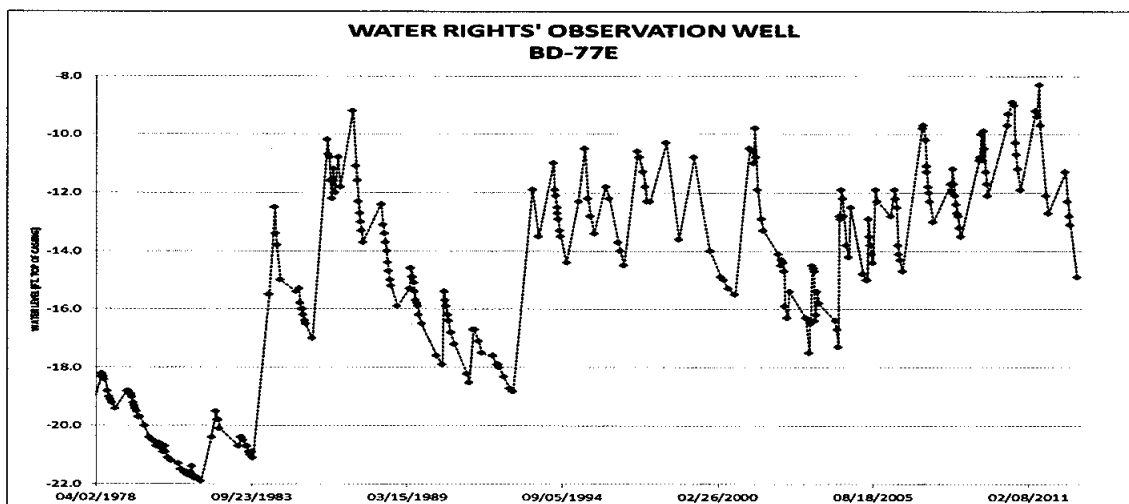


Figure 3. Hydrograph for DENR-Water Rights' Observation Well BD-77E

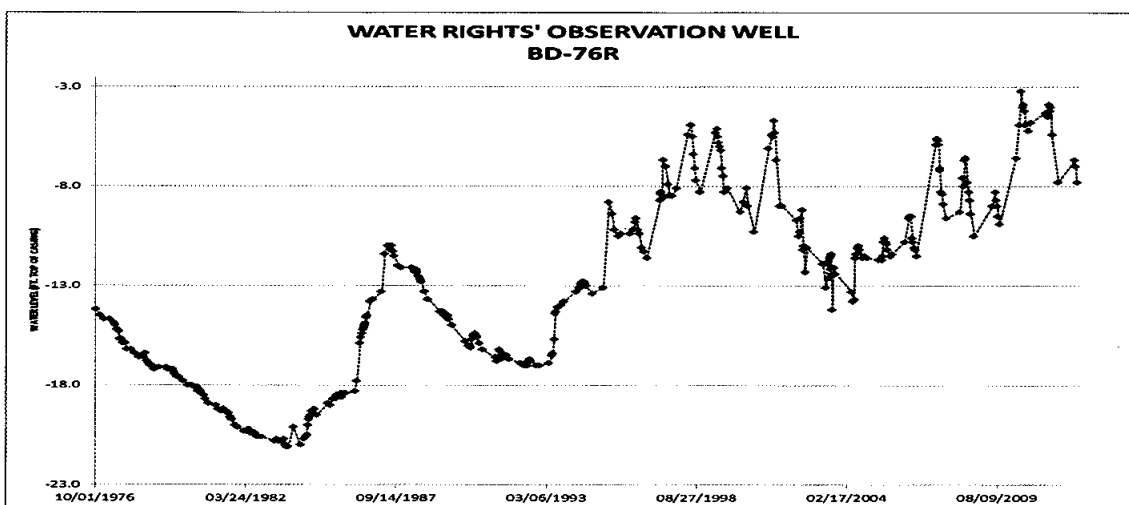


Figure 4. Hydrograph for DENR-Water Rights' Observation Well BD-76R

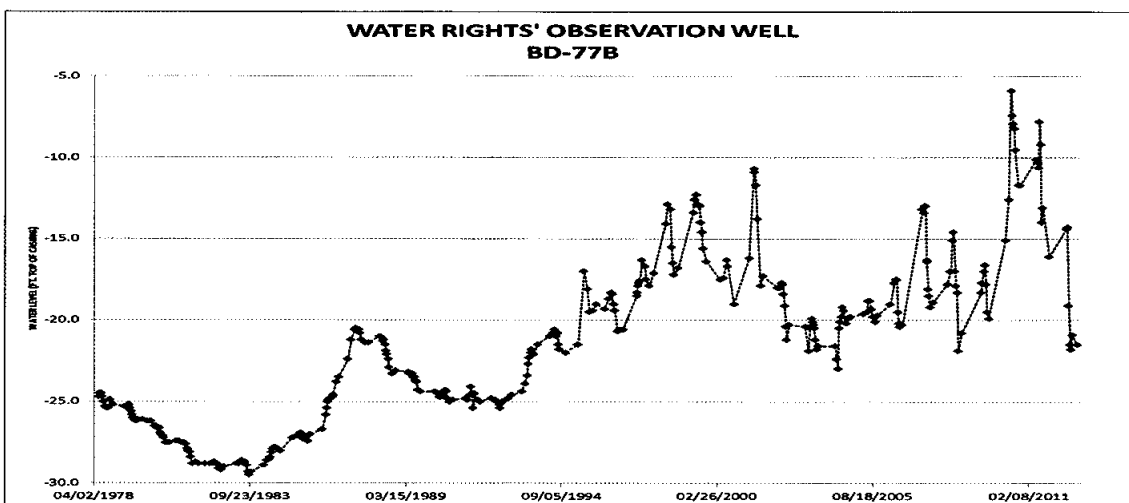


Figure 5. Hydrograph for DENR-Water Rights' Observation Well BD-77B

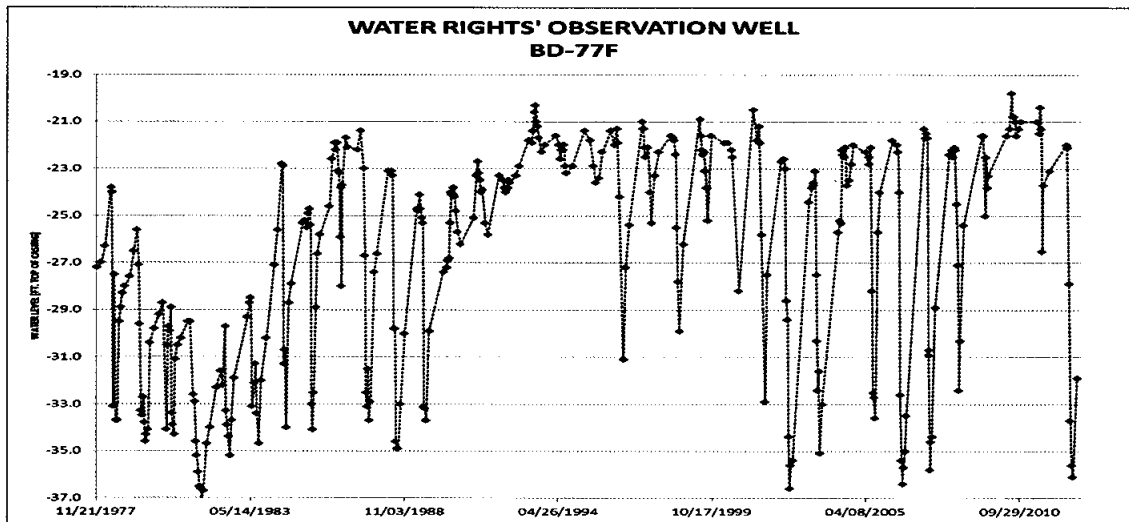


Figure 6. Hydrograph for DENR-Water Rights' Observation Well BD-77F

A rising water level indicates that recharge to the aquifer exceeds withdrawals from the aquifer and conversely a declining water level is indicative of withdrawals exceeding recharge. An equation for this relationship is:

$$\Delta S = R - D$$

Where: ΔS = change in the volume of water in storage in the aquifer

R = Recharge

D = Discharge

The observation well data for the Floyd: Pearl Creek aquifer has documented upward trending water levels throughout the aquifer. The slope of linear trend lines for observation well hydrographs over the time period of June 1, 1978, through October 2012 are shown in Table 1.

OBSERVATION WELL	LINEAR TREND LINE SLOPE (ft/yr)
BD-77E	+0.26
BD-76R	+0.36
BD-77B	+0.40
BD-77F	+0.18
<i>AVERAGE</i>	<i>+0.30</i>

Table 1. Linear trend line slopes for observation wells completed into the Floyd: Pearl Creek aquifer for the time period of June 1, 1978 through October 2012

The upward trending water levels indicate that withdrawals from the Floyd: Pear Creek aquifer have not exceeded recharge to the aquifer over the period of record.

An analysis of observation well data was used to quantify the change in the volume of water in storage in the aquifer (i.e. the amount that recharge to the aquifer has exceeded discharge from the aquifer). The analysis involved identifying the portion of the aquifer that is under unconfined conditions and determining the average annual change of water level in the aquifer. The amount of water represented by a change in water level was determined by multiplying the water level

change by the aquifer's specific yield (assumed to be 0.15). The average change in storage was applied over the portion of the aquifer that is under unconfined conditions to determine the volume in acre-feet per year of the change in storage. In equation form:

$$\Delta V_{avg} = \Delta \text{Wat Lev}_{avg} * S_y * A$$

Where:

ΔV_{avg} = Average change in volume (ac-ft/yr)

$\Delta \text{Wat Lev}_{avg}$ = Average change in water level (ft/yr)

S_y = Specific Yield

A = Area (acres)

The average annual change in water level (Wat Lev_{avg}) in the Floyd: Pearl Creek aquifer was determined through examination of DENR-Water Rights' observation well data. This analysis is only valid for the unconfined portion(s) of the aquifer, therefore it was limited to data from observation well BD-77E since the aquifer was under confined conditions over all or part of the period of record at the other three observation wells. The annual change of the water level in the unconfined portion of the aquifer well was calculated and is shown in Table 2.

WATER YEAR	ANNUAL WATER LEVEL CHANGE (ft)
1978	0.8
1979	-0.6
1980	-1.4
1981	-0.7
1982	1.7
1983	-1.0
1984	6.1
1985	-2.0
1986	6.2
1987	-2.9
1988	-2.2
1989	-0.6
1990	-0.3
1991	-0.3
1992	-1.6
1993	5.2
1994	-0.9
1995	1.0
1996	-0.6
1997	1.7
1998	-1.3
1999	-0.4
2000	-1.5
2001	2.2
2002	-2.1
2003	-0.4
2004	1.6
2005	2.3
2006	-2.8
2007	1.7
2008	-0.5
2009	1.4
2010	0.9
2011	-0.9
2012	-2.8
<i>AVERAGE</i>	<i>+0.14</i>

Table 2. Water level change per year for the Floyd: Pearl Creek aquifer (Water Rights, 2013a).

To determine the area (A) of the Floyd: Pearl Creek aquifer that was under unconfined conditions, all of the test holes (“Lithologic Logs”), observation wells (Water Rights, 2013a), well completion reports (Water Rights, 2013c) as well as data provided in water right/permits (Water Rights, 2013b) available for the aquifer were evaluated relative to the October 2012 water level estimated using the observation well data. Based on this analysis, the unconfined portion of the Floyd: Pearl Creek aquifer was determined to be 1,425 acres (see Figure 7).

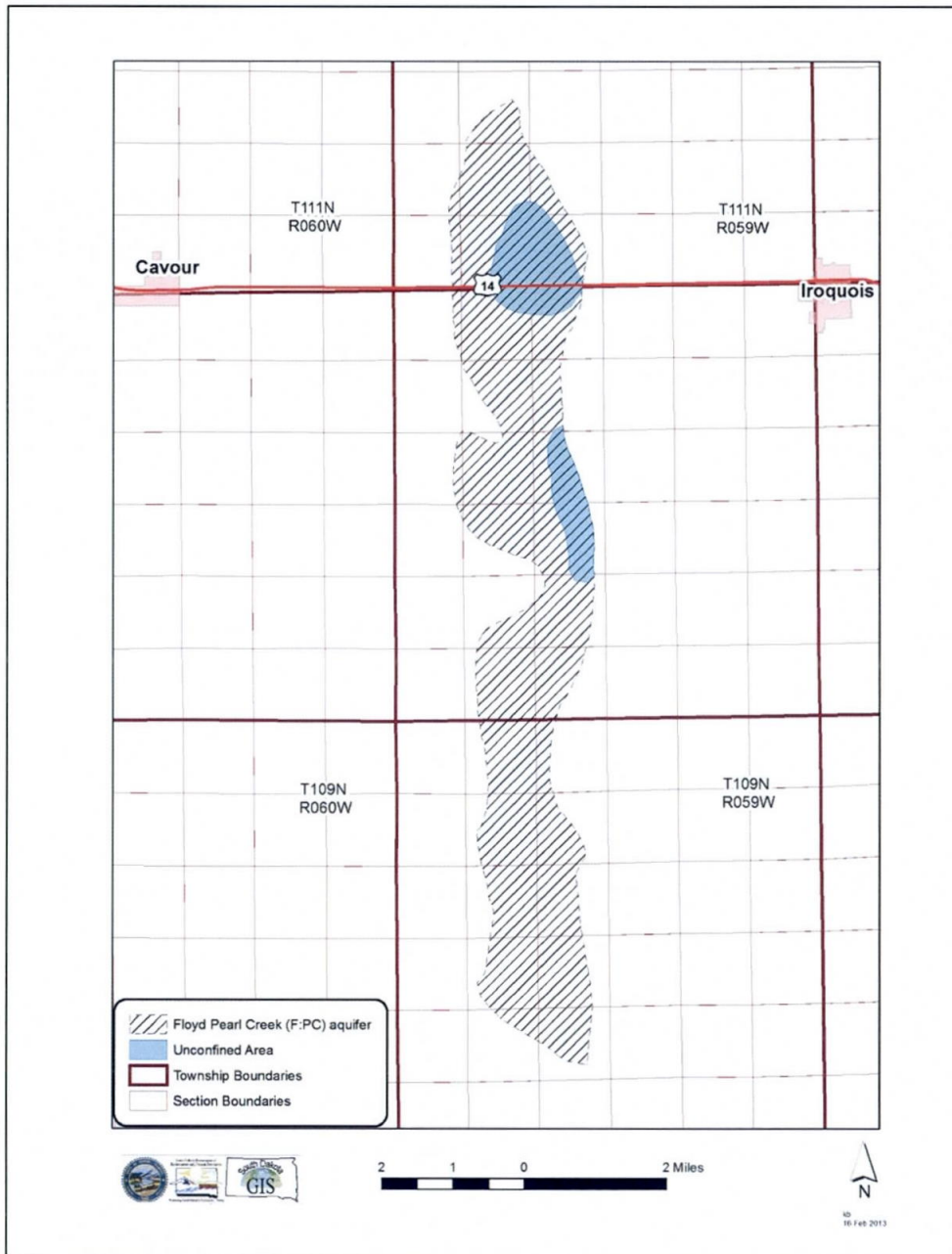


Figure 7. Areal extent of the Floyd: Pearl Creek aquifer and the unconfined areas of the aquifer.

Substituting the values from above for the equation $\Delta V_{avg} = \Delta W_{at Lev_{avg}} * S_y * A$,

$$\Delta V_{avg} = 0.14 \text{ ft/yr} * 0.15 * 1,425 \text{ acres}$$

$$\Delta V_{avg} = 30 \text{ ac-ft/yr}$$

Therefore, the observation well data indicates that the annual recharge to the aquifer exceeded discharge from the aquifer by an average of 30 acre-feet per year for the period (Water Year 1978-2012). Since 30 ac-ft/yr is insignificant considering the size of this aquifer, for all practical purposes, this analysis of observation well data shows that over the period of record the average annual withdrawals have equaled average annual recharge.

HYDROLOGIC BUDGETS:

SDCL 46-6-3.1 and the availability of unappropriated water from the Floyd: Pearl Creek aquifer can be evaluated by considering hydrologic budgets for the aquifer that compare the recharge to and discharge from the aquifer.

Recharge:

Recharge to the Floyd: Pearl Creek aquifer was estimated to range from 0.22 inches per year to 0.90 inches per year (Hedges and others, 1985). A digital groundwater flow model was developed by Emmons (1988) for the glacial aquifer system that includes the Floyd: Pearl Creek aquifer. Calculated recharge rates to the unconfined aquifer(s) ranged from 0.9 to 3.4 inches per year and to the confined aquifer(s) ranged from 0.24 to 0.72 inches per year (Emmons, 1988). At the July 8, 1987, Water Management Board consideration of Water Permit Application No. 5120-3, City of Iroquois; Ed Jacobson with Clark Engineering Company, and the engineer for the City of Iroquois, testified that recharge to the Floyd: Pearl Creek aquifer should be considered 2.53-3.05 inches per year based on his interpretation of the yet to be published Emmons model (Water Management Board, 1987). It should be noted that Jacobson appears to have estimated an areal extent of the aquifer extending north well beyond any aquifer boundary that can be supported by geologic data. In addition, Jacobson relied on the Emmons model which included a number of over simplifying assumptions necessary develop the digital model. Most significantly, inputs to the model for both recharge and evapotranspiration for this portion of the study area do not appear to reflect the buried, confined nature of most of the Floyd: Pearl Creek aquifer. Goodman (1992) estimated the average annual recharge to the Floyd: Pearl Creek aquifer to equal 1.6 inches per year based on observation well data. However, the estimate did not account for the fact that only a small portion of the aquifer is unconfined.

Since the Floyd: Pearl Creek aquifer is predominately buried and under confined conditions, the recharge estimates proposed by Hedges and others (1985) should be considered appropriate for the aquifer. Considering an areal extent of the aquifer equal to 11,040 acres and applying the estimated recharge rate range, the average annual recharge to the Floyd: Pearl Creek aquifer is estimated to total between 202 acre-feet per year (ac-ft/yr) and 828 ac-ft/yr.

Withdrawals:

Withdrawals from the Floyd Pearl Creek aquifer occur through natural discharge, domestic use and uses from appropriative rights/permits. Essentially all of the well withdrawals from the aquifer are for irrigation use. For the period of 1979 through 2011, irrigation pumpage from the aquifer is shown in Table 3.

Budget methods:

Two methods were used to evaluate the availability of unappropriated water with separate hydrologic budgets: 1) comparing estimated average annual recharge to the aquifer with the average annual reported well withdrawals; and 2) comparing the number of acres that can be irrigated based on the estimated average annual recharge to the aquifer to the number of acres currently authorized for irrigation by water rights/permits.

Irrigation Questionnaire Method:

The amount of unappropriated water that is available from the Floyd: Pearl Creek aquifer was estimated by comparing the estimated average annual recharge rate to the average annual well withdrawal for the period of record (i.e. 1979-2011). As noted above, the average annual recharge to the aquifer is estimated to range between 202 ac-ft/yr and 828 ac-ft/yr. The average annual irrigation pumping for this time period was reported to be 681.92 ac-ft/yr.

Year	Number of Permits	Appropriation (ac-ft/yr)	Number of Permits Reporting	No. Reporting no pumping	Total Irrigated Acres	Total Volume Pumped (ac-ft)	App Rate (in/ac)
2011	11	5078	10	0	1747	735.98	5.06
2010	11	5078	10	8	294	9.83	0.4
2009	11	5078	10	1	1722.7	401.49	2.8
2008	11	5078	10	0	1937.5	889	5.51
2007	9	3798	8	0	1293	1002.49	9.3
2006	9	3798	8	0	877	548	7.5
2005	9	3798	8	0	1127.5	461.74	4.91
2004	9	3798	8	3	534	115.47	2.59
2003	9	3798	9	0	1369	750.78	6.58
2002	9	3798	8	0	1290	577.85	5.38
2001	9	3798	8	0	1284	587.88	5.49
2000	9	3798	8	0	1274.5	489.39	4.61
1999	9	3798	8	2	774	242.13	3.75
1998	9	3798	8	0	1274.5	392.92	3.7
1997	9	3798	8	0	1070	345.92	3.88
1996	9	3798	8	2	963	675.95	8.42
1995	9	3798	8	2	963	474.27	5.91
1994	9	3798	8	2	976	579.58	7.13
1993	9	3798	8	3	844	174.99	2.49
1992	9	3798	8	2	972	362.46	4.47
1991	9	3798	8	2	952	535	6.74
1990	9	3798	8	2	974	654.43	8.06
1989	9	3798	8	0	1305	1005.83	9.25
1988	9	3798	8	0	1232	1408.24	13.72
1987	9	3798	8	0	1277	635.57	5.97
1986	10	4118	9	3	782	225.29	3.46
1985	10	4118	9	1	1157	1179.09	12.23
1984	10	4118	9	1	1273	3241.44	30.56
1983	10	3798	10	1	1380	1845.62	16.05
1982	10	4434	3	1	295.8	491.62	19.94
1981	11	4594	0	0	0	0	0
1980	10	4296	0	0	0	0	0
1979	10	4296	2	1	120	99.42	9.94
Min*	9	3798	2	0	120	9.83	0.4
Max*	11	5078	10	8	1937.5	3241.44	30.56
Total*					33334.5	21139.65	
Avg*(1)	9.5	4055.8	8.1	1.19	1075.31	681.92	7.61
*1980 and 1981 data was excluded in the calculations due to lack of irrigation questionnaire returns							
(1) average application rate (7.61 in/yr) based on total volume pumped /total irrigated acres							

Table 3. Irrigation development from the Floyd: Pearl Creek aquifer (Modified from Mathiowetz and Stonesifer, 2013; Water Rights, 1980-2012)

Recharge to Acres Method:

The amount of unappropriated water that is available from Floyd: Pearl Creek aquifer was also estimated by comparing the maximum number of acres that could be irrigated from the aquifer based on the estimated average annual recharge and the average irrigation application rate, to the average irrigated acreage for 1979-2011.

The maximum average annual irrigation withdrawal based on a recharge rate ranging from 202 ac-ft/yr to 828 ac-ft/yr and an application rate of 7.61 inches per year would allow for the irrigation of 318 acres and 1,305 acres, respectively. The average acreage irrigated from the Floyd: Pearl Creek aquifer has been 1,075.31 for the time period of 1979-2011.

WATER AVAILABILITY SUMMARY:

The DENR-Water Rights Program observation well data indicates that unappropriated water is not available from the Floyd: Pearl Creek aquifer. Analysis of the observation well data shows that from 1979-2012, average annual recharge to the Floyd: Pearl Creek aquifer has been essentially equal to the average annual withdrawals from the aquifer. A comparison of the average annual irrigation pumpage reported from the aquifer from 1979-2011 with the estimated average annual recharge range for the aquifer indicates average annual irrigation withdrawals are between 479.92 ac-ft/yr in excess of average annual recharge and 146.08 ac-ft/yr less than the given average annual recharge range. Comparing the number of acres that can be irrigated based on the average annual recharge range suggests the current average irrigated acreage is between 757.31 acres greater than, and 229.69 acres less than the maximum average annual irrigated acreage from the aquifer based on the historic irrigation application rate from the aquifer.

The difference between the observation well method and budgeting methods for determining the amount of unappropriated water that is available from the aquifer is likely due to a number of factors. Budgeting methods using the high end of the range of estimated average recharge rates resulted in greater amounts of unappropriated water available from the aquifer however: a) irrigation questionnaire data is not available for 2012 at this time and it is likely that the 2012 data will increase the averages for the number of acres irrigated, amount of water pumped and the percentage of irrigated to permitted acres. Higher current use averages will reduce the amount of water available based on budgets; and b) budgeting methods are all dependent upon self-reporting by way of annual irrigation questionnaires. Errors in the reporting and/or interpretation of the irrigation questionnaires would influence the results.

Since the observation well method a) includes a longer period of record (i.e. 1977-2012 versus 1979-2011); b) is less influenced by short term trends; and c) Administrative Rule of South Dakota Section 74:02:05:07 requires that “the Water Management Board shall rely upon the record of observation well measurements to determine that the quantity of water withdrawn annually from the aquifer does not exceed the estimated average annual recharge to the aquifer” the method should be utilized for determining the availability of unappropriated water from the Floyd: Pearl Creek aquifer. The observation well data indicates there is not unappropriated water available.

EXISTING WATER RIGHTS:

In addition to a number of domestic use wells that appear to be completed into the Floyd: Pearl Creek aquifer (Water Rights, 2013c) there are 14 water rights/permits appropriating water from

the aquifer. The approximate location of the diversion points for water rights/permits appropriating water from the Floyd: Pearl Creek aquifer are shown in Figure 8 and the appropriations are listed in Table 4.

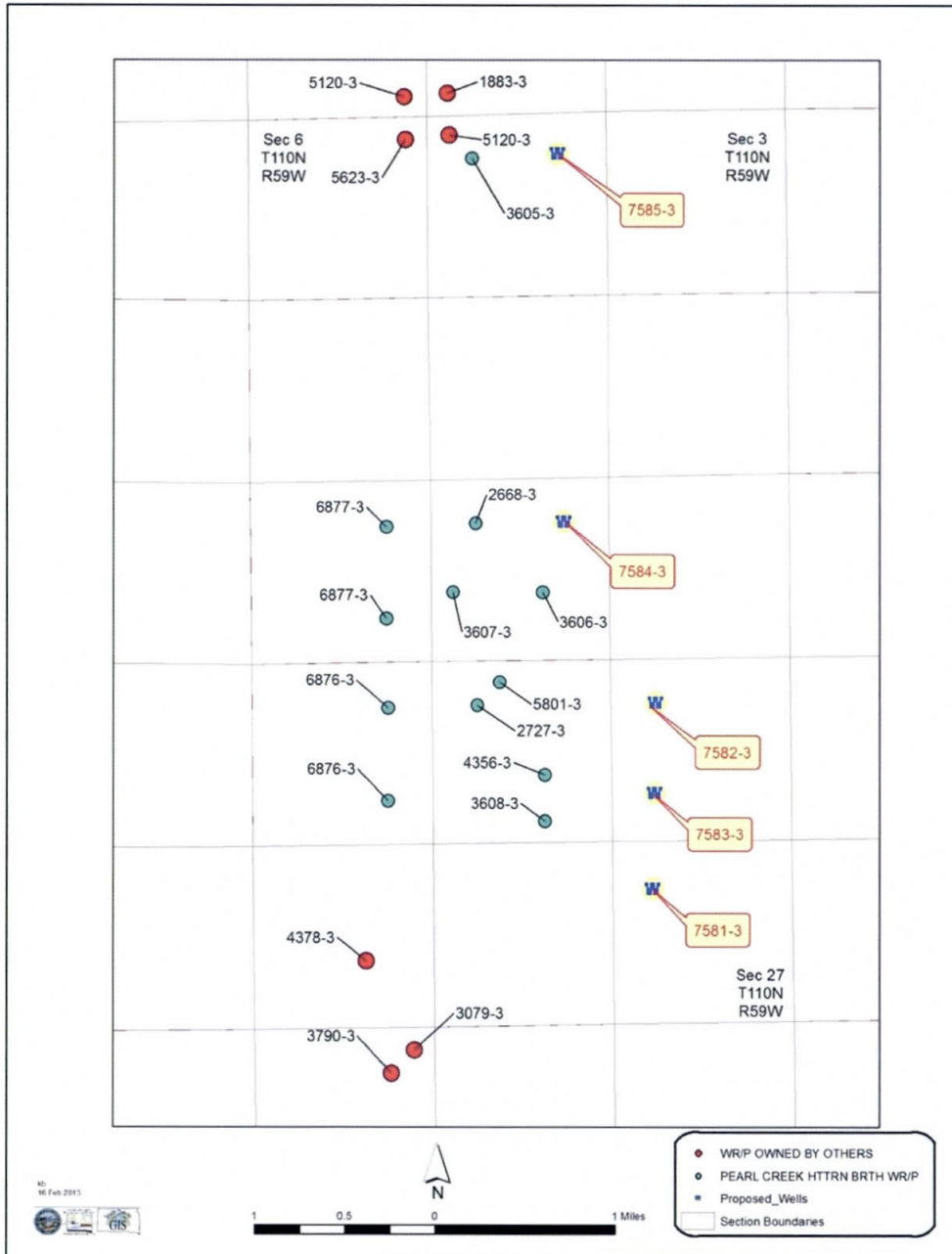


Figure 8. Map showing the approximate location of the diversion points for water rights/permits appropriating water from the Floyd: Pearl Creek aquifer and the proposed well sites.

PERMIT NO	NAME	STATUS	USE	CFS	ACRES
1883-3	BETTY/VICTOR GRAVEL	LC	IRR	1.73	121
2668-3	PEARL CREEK HTRN BRTH	IL	IRR	na	na
2727-3	PEARL CREEK HTRN BRTH	LC	IRR	1.78	132
3079-3	DORIS M NENABER	IL	IRR	na	na
3605-3	PEARL CREEK HTRN BRTH	IL	IRR	na	na
3606-3	PEARL CREEK HTRN BRTH	LC	IRR	0.2	15
3607-3	PEARL CREEK HTRN BRTH	LC	IRR	1.88	132
3608-3	PEARL CREEK HTRN BRTH	IL	IRR	na	na
3790-3	NENABER BROTHERS	IL	IRR	na	na
4114-3	PEARL CREEK HTRN BRTH	LC	IRR	1.78	264
4115-3	PEARL CREEK HTRN BRTH	LC	IRR	2	252
4356-3	PEARL CREEK HTRN BRTH	LC	IRR	2.5	176
4378-3	NENABER BROTHERS	IL	IRR	na	na
4652-3	BRIAN & EILEEN NENABER	LC	IRR	1.33	149
4906-3	BRIAN & EILEEN NENABER	LC	IRR	2	200
5120-3	CITY OF IROQUOIS	IL	MUN	na	na
5623-3	CITY OF IROQUOIS	LC	MUN	0.1	0
5801-3	PEARL CREEK HTRN BRTH	PE	COM	0	0
5956-3	PEARL CREEK HTRN BRTH	PE	COM	0.156	0
6876-3	PEARL CREEK HTRN BRTH	PE	IRR	4	320
6877-3	PEARL CREEK HTRN BRTH	PE	IRR	4	320

LC= Water Right, IL= Incorporated, PE= Water Permit, IRR= Irrigation, MUN= Municipal, COM= Commercial

Table 4. Water Rights/Permits appropriating water from the Floyd: Pearl Creek aquifer.

As noted earlier, when considering the location of the proposed well sites and the geologic information available, it is unlikely any of these applications will be developed. If development occurs, significant drawdown is expected due to the proximity of the wells to aquifer boundary conditions. As seen in Figure 8, in all cases, the nearest existing diversion point to the proposed well sites belongs to the applicant and excessive drawdown will self-limit diversions.

To balance interests between irrigation use and delivery of water by artesian pressure the Water Management Board has defined an “adversely impacted domestic well” in ARSD 74:02:04:20(7) as:

“a well in which the pump intake was set at least 20 feet below the top of the aquifer at the time of construction or, if the aquifer is less than 20 feet thick, is as near to the bottom of the aquifer as is practical and the water level of the aquifer has declined to a level that the pump will no longer deliver sufficient water for the well owner's needs”

In reality, the assurance of reasonable domestic use provided by SDCL 46-6-6.1 and ARSD 74:02:04:20(7) ensures not only that interference will not be adverse to domestic well users but also in existing appropriative rights.

Regardless, these permits, if approved should contain the standard permit qualification for most groundwater permits/rights which states:

“The well 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”.

CONCLUSIONS:

1. The Chief Engineer has recommended denial of water permit applications from the Floyd: Pearl Creek aquifer twice in the past because under the criteria used at times, there was not a reasonable probability that unappropriated water was available.
2. The best information currently available indicates the Floyd: Pearl Creek aquifer underlies approximately 11,040 acres, all in Beadle County.
3. Test drilling has been extensive in the vicinity of the well sites proposed by these applications and it appears the sites are not located over an aquifer.
4. The best information available to determine the amount of unappropriated water available from the Floyd: Pearl Creek aquifer is through analysis of observation well data.
5. The analysis of DENR-Water Rights' observation well data indicates that over the period of record of 1977-2012, for all practical purposes, the average annual recharge to the aquifer equals the average annual withdrawals from the aquifer.
6. The most realistic average annual recharge estimate for the Floyd: Pearl Creek aquifer ranges from 0.22 inches per year to 0.90 inches per year.
7. The volume of average annual recharge to the Floyd: Pearl Creek aquifer based on an area of 11,040 acres and a recharge rate of 0.22-0.90 inches per year ranges from 202 ac-ft/yr to 828 ac-ft/yr.
8. The average annual withdrawals for irrigation from the Floyd: Pearl Creek aquifer for 1979-2011 has been approximately 681.92 ac-ft/yr.
9. The average annual irrigation application rate for the Floyd: Pearl Creek aquifer from 1979-2011 has been 7.61 inches per year.
10. The maximum **average** annual irrigation withdrawal based on a recharge of 202 acre-feet per year and an application rate of 7.61 inches per year would allow for the irrigation of 318 acres.
11. The maximum **average** annual irrigation withdrawal based on a recharge of 828 acre-feet per year and an application rate of 7.61 inches per year would allow for the irrigation of 1,305 acres.
12. The average number of acres irrigated from the Floyd: Pearl Creek over the period of 1979-2011 has been 1,075.31 acres.
13. There is not a reasonable probability that unappropriated water is available from the Floyd: Pearl Creek aquifer.
14. The permit applications described on page one of this report propose to irrigate a total of 738 acres.



Ken Buhler
SD DENR-Water Rights Program

REFERENCES:

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- Green, S.A. 1983, Ground-water Study for the City of Iroquois, South Dakota: SD Department of Water and Natural Resources, Geological Survey Open File Report No. 36-UR, 31 p., 2 figs., 1 table, 2 app
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Water Rights, 2013a, Observation Well Files, SD DENR-Water Rights Program, Joe Foss Bldg, Pierre, SD.

Water Rights, 2013b, Water Right/Permit Files, SD DENR-Water Rights Program, Joe Foss Bldg, Pierre, SD.

Water Rights, 2013c, Well Completion Report Files, SD DENR-Water Rights Program, Joe Foss Bldg, Pierre, SD.

RECEIVED

APR - 1 2013

PRINTER'S AFFIDAVIT

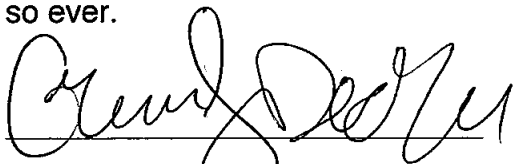
WATER RIGHTS
PROGRAM

STATE OF SOUTH DAKOTA,
COUNTY OF BEADLE: ss.

I, CORINN DECKER, being duly sworn on oath, say that THE PLAINSMAN is a daily paper published at Huron, Beadle County, South Dakota, and that said newspaper has a bona fide circulation of at least 250 copies daily; that said newspaper has been published within said county for fifty-two consecutive weeks immediately prior to this date, that said newspaper is printed in whole or in part, in an office maintained at said place of publication; that I am Legal Advertising Coordinator of said newspaper and know the facts herein state. The annexed notice headed:

**SD ENVIRONMENTAL - WATER RIGHTS -
WALDNER**

was published for one day, in said newspaper, and not in any supplement of the said newspaper, the publication was of the 8TH day MAR. 2013 That the full FORTY-EIGHT & 74/000 dollars insures to the benefit of the publisher of said newspaper; that no agreement or understanding for the division thereof has been made with any other person, and that no part there of has been agreed to be paid to any person whom so ever.



Subscribed and sworn to before me this 31ST day of MAR. 2013.



Notary Public, South Dakota

My term expires 12/27/18

Legal # 649

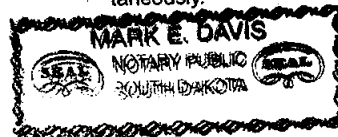
F.P. 03-08-13

**NOTICE OF
APPLICATION NOS.
7584-3 and 7585-3**

Notice is given that Pearl Creek Colony, c/o Matt Waldner, 21085 415th Ave, Iroquois SD 57353 has filed the following applications for a water permit.

Application No. 7584-3 proposes to appropriate 1.78 cubic feet of water per second (cfs) from an additional well to irrigate acres authorized by Water Right No. 4114-3. Water Right No. 4114-3 authorizes 1.78 cfs from one well located in the center of the NW 1/4 Section 16 to irrigate 264 acres located in the N 1/2 Section 16; all in T110N-R59W. This application proposes to appropriate 1.78 cfs from an additional well to be completed into the Floyd:Pearl Creek Aquifer (80 - 100 feet deep) located in the center of the NE 1/4 Section 16 to irrigate 132 acres authorized by Water Right No. 4114-3 located in the NE 1/4 Section 16; all in T110N-R59W. This will allow both pivots to run simultaneously.

Application No. 7585-3 proposes to appropriate 1.78 cfs from an additional well to irrigate acres authorized by Water Right No. 4115-3. Water Right No. 4115-3 appropriates 2.0 cfs from one well located in the approximate center of the NW 1/4 Section 4 to irrigate 252 acres located in the N 1/2 Section 4; all in T110N-R59W. This application proposes to appropriate 1.78 cfs from an additional well to be completed into the Floyd:Pearl Creek Aquifer (80 - 100 feet deep) located in the center of the NE 1/4 Section 4 to irrigate 126 acres authorized by Water Right No. 4115-3 located in the NE 1/4 Section 4; all in T110N-R59W. This will allow both pivots to run simultaneously.



Pursuant to SDCL 46-2A-2, the Chief Engineer APPROVAL of Application Nos. 7584-3 and 7585-3 because 1) unappropriated water is available, 2) existing rights will not be unlawfully impaired, 3) there 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 these applications, as recommended, unless a petition is filed opposing the applications or the applicant files a petition contesting the Chief Engineer's recommendations. If a petition opposing the applications or contesting the recommendations is filed, then a hearing will be scheduled and the Water Management Board will consider these applications. Notice of the hearing will be given to the applicant and any person filing a petition.

Any person interested in opposing or supporting these applications or recommendations must file a written petition with BOTH the applicant and the Chief Engineer. The applicant must file a petition if contesting the Chief Engineer's recommendations. 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 March 18, 2013.

The petition may be informal, but must include a statement describing the applicant's interest in the applications, the petitioner's reasons for opposing or supporting the applications, 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 these applications.

Steven M. Pinner, Secretary, Department of Environment and Natural Resources, No. 649 (ady) Published once at the total approximate cost of \$48.13.



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182

denr.sd.gov

February 27, 2013

Plainsman
PO Box 1278
Huron SD 57350

ATTENTION: Legal Public Notice

Enclosed is a Notice on Application Nos. 7584-3 and 7585-3 to Appropriate Water. Please publish the notice once on March 8, 2013. 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 and arrange for payment. **Please BILL the APPLICANT for the cost of publication.** The APPLICANT is Pearl Creek Colony, c/o Matt Waldner, 21085 415th Ave, Iroquois SD 57353 (Ph # 605-546-2452).

Please send the Water Rights Program an affidavit or the enclosed Proof of Publication form immediately.

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

Schlaak, Karen

From: Ruby Crandall <rnewman.plainsman@midconetwork.com>
Sent: Wednesday, February 27, 2013 1:31 PM
To: Schlaak, Karen
Subject: Re: 7584-3 and 7585-3, Pearl Creek Colony

I have received your email.
Thank you.

Ruby (Newman) Crandall
Creative Services Supervisor

Plainsman/Payday/Print Shop
49 3rd Street SE
Huron, SD 57350

605-353-7412

1-800-859-3045, ext. 412

fax: 605-353-7422

rnewman.plainsman@midconetwork.com

On Feb 27, 2013, at 1:13 PM, Schlaak, Karen wrote:

Attached is a notice for Pearl Creek Colony to be published on March 8, 2013. Their address is Pearl Creek Colony, 21085 415th Ave, Iroquois SD 57353 (Matt Waldner) 605 546-2452.

Karen Schlaak

Water Rights Program

Phone: 605 773-3352

Fax: 605 773-4068

<7584-85-3pluralpublic-short.docx>



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182

denr.sd.gov

NOTE: TO BE SURE OF PUBLICATION ON
THE CORRECT DATE, CONTACT
THE NEWSPAPER(S) RIGHT AWAY.

February 27, 2013

Pearl Creek Colony
Matt Waldner
21085 415th Ave
Iroquois SD 57353

Dear Mr. Waldner:

Water Permit Application Nos. 7584-3 and 7585-3 for irrigation use have been examined and found to comply with the South Dakota Water Laws and applicable rules. A notice has been sent to the Plainsman printed at Huron SD (Ph # 605-352-6401). You will need to contact the newspaper(s) 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(s) to authorize publication of your Notice and to arrange for payment. Early contact with the paper(s) can eliminate delays. Upon receiving authorization from you, the publisher has been instructed to publish your notice. The newspaper(s) 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 applications.

Instruction to Newspaper - Publish the Notice on March 8, 2013. 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 NOS. 7584-3 and 7585-3

Notice is given that Pearl Creek Colony, c/o Matt Waldner, 21085 415th Ave, Iroquois SD 57353 has filed the following applications for a water permit.

Application No. 7584-3 proposes to appropriate 1.78 cubic feet of water per second (cfs) from an additional well to irrigate acres authorized by Water Right No. 4114-3. Water Right No. 4114-3 authorizes 1.78 cfs from one well located in the center of the NW 1/4 Section 16 to irrigate 264 acres located in the N 1/2 Section 16; all in T110N-R59W. This application proposes to appropriate 1.78 cfs from an additional well to be completed into the Floyd:Pearl Creek Aquifer (80 - 100 feet deep) located in the center of the NE 1/4 Section 16 to irrigate 132 acres authorized by Water Right No. 4114-3 located in the NE 1/4 Section 16; all in T110N-R59W. This will allow both pivots to run simultaneously.

Application No. 7585-3 proposes to appropriate 1.78 cfs from an additional well to irrigate acres authorized by Water Right No. 4115-3. Water Right No. 4115-3 appropriates 2.0 cfs from one well located in the approximate center of the NW 1/4 Section 4 to irrigate 252 acres located in the N 1/2 Section 4; all in T110N-R59W. This application proposes to appropriate 1.78 cfs from an additional well to be completed into the Floyd:Pearl Creek Aquifer (80 - 100 feet deep) located in the center of the NE 1/4 Section 4 to irrigate 126 acres authorized by Water Right No. 4115-3 located in the NE 1/4 Section 4; all in T110N-R59W. This will allow both pivots to run simultaneously.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application Nos. 7584-3 and 7585-3 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 these applications, as recommended, unless a petition is filed opposing the applications or the applicant files a petition contesting the Chief Engineer's recommendations. If a petition opposing the applications or contesting the recommendations is filed, then a hearing will be scheduled and the Water Management Board will consider these applications. Notice of the hearing will be given to the applicant and any person filing a petition.

Any person interested in opposing or supporting these applications or recommendations must file a written petition with BOTH the applicant and Chief Engineer. The applicant must file a petition if contesting the Chief Engineer's recommendations. 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 March 18, 2013.

The petition may be informal, but must include a statement describing the petitioner's interest in the applications, the petitioner's reasons for opposing or supporting the applications, 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 these applications. Steven M. Pirner, Secretary, Department of Environment and Natural Resources.
Published once at the total approximate cost of _____.



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182

denr.sd.gov

APR 26 2013

Pearl Creek Colony
Matt Waldner
21085 415th Ave
Iroquois SD 57353

Dear Mr. Waldner:

Enclosed are Water Permit Nos. 7584-3 and 7585-3 authorizing construction of your water diversion systems and beneficial use of the water, not exceeding the limits as specified in the Water Permits.

Form 10's, *Notice of Completion of Works and Application of Water to Beneficial Use*, are enclosed. Please return the completed forms after you have finished the systems and have put the water to beneficial use. An investigation can then be scheduled so the water licenses 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,

Jeanne Goodman, Chief Engineer
Water Rights Program.
(605) 773-3352

enclosures

SOUTH DAKOTA WATER WELL COMPLETION REPORT

7584-3 SD EForm - 1621LD V1

11-02

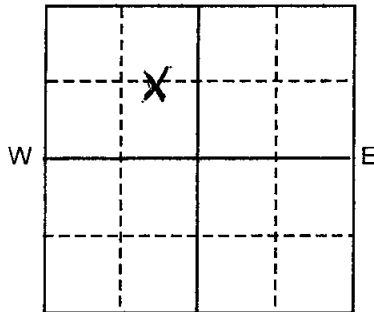
Location 1/4 NW 1/4 Sec 16 Twp 110N Rg 59W

Well Owner: PEARL CREEK HUTTERIAN

County BEADLE

North

Please mark well location with an "X"



Well Completion Date

9-5-2013

1 Mile

Distance to nearest potential pollution source (septic tank, abandoned well, feed lot, etc.)? ft. from (identify source)

PROPOSED USE:

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

METHOD OF DRILLING:

DRD

CASING DATA:

☐ Steel ☒ Plastic ☐ Other

If other describe

PIPEWEIGHT	DIAMETER	FROM	TO	HOLE DIAMETER
40.0 LB/FT	16.00 IN	0.0 FT	50.0 FT	24.00 IN
LB/FT	IN	FT	FT	IN
LB/FT	IN	FT	FT	IN

GROUTING DATA:

Grout Type	No. of Sacks	Grout Weight	From	To
GWDF	33	54.0 Lb/gal	0.0 Ft	50.0 Ft
		Lb/gal	Ft	Ft

Describe grouting procedure

TREMIE PPM

SCREEN:

☐ Perforated pipe ☒ Manufactured

Diameter 16.00 Inches Length 15.0 Feet

Material STAINLESS STEEL

Slot Size .080 Set From 50.0 Feet to 65.0 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?
☐ No, Why Not?

Lab to which water quality sample sent for analysis

WELL LOG:

FORMATION	DEPTH	
	FROM	TO
TOP SOIL	0	2
YELLOW CLAY	2	10
YELLOW FINE SAND	10	25
GREY SAND FINE	25	33
COAL	33	35
MED GRAVEL-CLEAN	35	43
COAL W/ FINE GREY SAND	43	50
FINE-MED SAND W/ COAL	50	65
BLUE CLAY	65	70

STATIC WATER LEVEL 10.0 FEET

If flowing: closed in pressure PSI

GPM flow through Inch pipe

Controlled by ☐ Valve ☐ Reducers ☐ Other

Reduced flow rate GPM

Can well be completely shut in?

WELL TEST DATA:

☒ Pumped Describe: SUB PUMP 900 GPM

☐ Bailed

☐ Other

Pumping Level Below Land Surface

 Ft. After Hrs. pumped 700.0 GPM

 Ft. After Hrs. pumped GPM

If pump installed, pump rate: 700.0 GPM

REMARKS

RECEIVED

JAN 31 2014

WATER RIGHTS PROGRAM

This well was drilled under license # 689 and this report is true and accurate

Drilling firm:

Signature of License Representative:

Signature of Well Owner or Equitable Property Holder:

Date:

**Report of Examination of Works and/or Application of Water to Beneficial Use
For Permit No. 7584-3**

I have this day, **December 4, 2018**, made a thorough examination of the water use system constructed by **Pearl Creek Colony, 21085 415th Avenue, Iroquois, SD 57353**, holder of Permit No. **7584-3**, bearing the priority of **December 26, 2012** authorizing the diversion of **1.78** cu. ft. per second of the waters of **groundwater (Floyd: Pearl Creek Aquifer)** for **irrigation** purposes, in **Beadle** County.

Inspection contact: **Conrad Waldner, Pearl Creek Colony**

A. Works used to divert the water:

Well Information:

West Well (NW1/4, Licensed WP No. 4114-3)

This well was previously licensed, but it now has a submersible pump and motor.

East Well (NE1/4, WP No. 7584-3)

- 1) Well Drilling Firm: **Kaiser Well Drilling**
- 2) No. of Wells **1**
- 3) Depth(s) **70** feet
- 4) Well log is available **Yes**

Casing:

- 1) Diameter **16** inches
- 2) Length **50** feet
- 3) Type **PVC**

Screen:

- 1) Type **Stainless Steel**
- 2) Length **15** feet
- 3) Static water level **10** feet

Pump:

- 1) Make **Unknown**
- 2) Model **Unknown**
- 3) Capacity **800** GPM

Motor:

- 1) Make **Unknown**
- 2) Model No. **Unknown**
- 3) Horsepower rating **40** hp

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

- | | | | |
|-------------------------|----------------------------------|--------------------------------|------------------------------------|
| Water Permit No. 7584-3 | 1) Type <u>PVC</u> | 2) Size <u>8</u> inches | 3) Length <u>1,730</u> feet |
| Water Permit No. 4114-3 | 1) Type <u>Galvanized</u> | 2) Size <u>8</u> inches | 3) Length <u>25</u> feet |

C. Works used to apply water to beneficial use:

Center pivot:

West Pivot (Licensed WP No. 4114-3)

Receives water from the well for WP No. 4114-3. This pivot has been replaced since the original permit.

- 1) Make Valley
- 2) Overall length 1,298 feet
- 3) Number of towers 7
- 4) End gun Yes
- 5) Capacity 800 GPM

Chemigation Equipment:

- 1) Does chemigate No

East Pivot (Licensed WP No. 4114-3)

Receives water from the well for WP No. 7584-3. This pivot has been replaced since the original permit.

- 1) Make Valley
- 2) Overall length 1,298 feet
- 3) Number of towers 7
- 4) End gun Yes
- 5) Capacity 800 GPM

Chemigation Equipment:

- 1) Does chemigate No

D. Compliance with Permit Requirements:

- 1) Permit qualifications being abided by Yes
- 2) Irrigation Questionnaires checked to determine if permit owner started irrigation by the end of construction period Yes, the flows for WP No. 7584-3 are recorded under Licensed WP No. 4114-3.
- 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:

West Well (Licensed WP No. 4114-3): 1,360 feet south and 1,330 feet east of the northwest corner of Section 16-T110N-R59W (Latitude 44.33589, Longitude -97.92876 – SE1/4NW1/4):

East Well (WP No. 7584-3): 2,220 feet east and 1,330 feet south of the northwest corner of Section 16-T110N-R59W (Latitude 44.33603, Longitude -97.92536 – SE1/4NW1/4).

2. The well for WP No. 7584-3 is capable of diverting and conveying to the place of use 1.78 cu. ft. per second of water which is to be used for irrigation purposes. Water has been put to beneficial use to the maximum extent as follows: all in Section 16-T110N-R59W

<u>NW1/4NE1/4</u>	<u>33 acres</u>
<u>SW1/4NE1/4</u>	<u>33 acres</u>

<u>NE1/4NE1/4</u>	<u>33 acres</u>
<u>SE1/4NE1/4</u>	<u>33 acres</u>

comprising a total of 132 acres of land and the license should be issued for 1.78 cfs.

The well for WP No. 4114-3 has previously been licensed to divert and convey to the place of use 1.78 cu. ft. per second of water which is to be used for irrigation purposes. Water has been put to beneficial use to the maximum extent as follows: all in Section 16-T110N-R59W

NW1/4NW1/4 33 acres
SW1/4NW1/4 33 acres

NE1/4NW1/4 33 acres
SE1/4NW1/4 33 acres

comprising a total of 132 acres of land and the license has been issued for 1.78 cfs.

3. All structures, wells and lands on map Yes

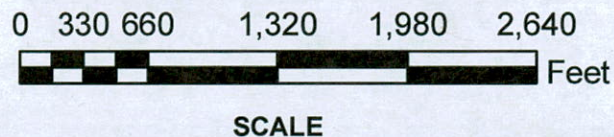
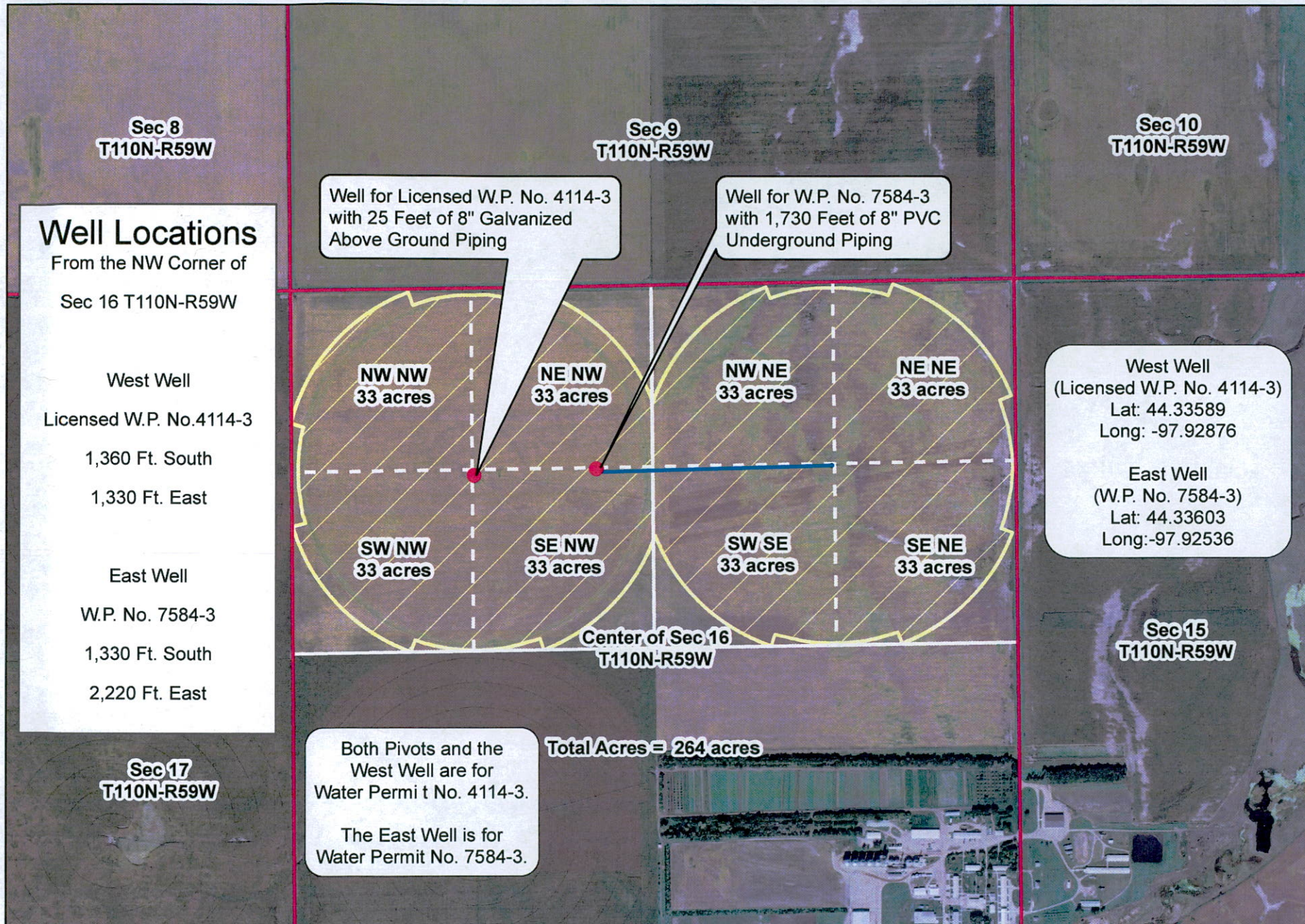
F. Comments or other permit(s) associated with the project: This permit added a well to the existing well and center pivots for Licensed Water Permit No. 4114-3. The existing well pump and motor appear to have been replaced with a submersible pump and motor and this well now supplies water only to the west pivot. The new well authorized by WP No. 7584-3 supplies water only to the east pivot. The pivots also appear to have been replaced since the original permit was issued.



Keith DeJong
Water Rights Inspector
DENR, Water Rights Program

Date report completed: December 12, 2018

Water Permit No. 7584-3



Keith DeJong
Keith DeJong, PE
Staff Engineer
December 12, 2018

Approval of Location Change and/or Additional Diversion Point(s)

NAME: Pearl Creek Colony

ADDRESS: 21085 415th Avenue, Iroquois, SD 57353

DATE: December 18, 2018 **COUNTY:** Beadle **TELEPHONE:**

AUTHORITY:

Pursuant to SDCL 46-5-13.1, the location of a diversion point may be changed or additional diversion points may be licensed provided the following conditions are met and the potential for interference with other existing diversions is not increased:

Water Permit No. 7584-3 authorized an additional well and appropriated diversion rate authority to operate the two center pivots authorized by Water Right No. 4114-3 to irrigate 264 acres in the N ½ Section 16-T110N-R59W. Water Right No. 4114-3 appropriates 1.78 cubic feet of water per second from one well in the approximate center of the NW ¼ of this section. This well was operated to supply each of the center pivots on an alternating basis. The additional well and diversion rate authority authorized by Water Permit No. 7584-3 provided sufficient water for the two pivots to operate at the same time.

Water Permit No 7584-3 for the additional well was to be located in the approximate center of the NE ¼ Section 16-T110N-R59W. However, Keith DeJong's licensing investigation found the well was drilled in the along the 1/16 line in the E ½ NW ¼ of Section 16.

Matt Waldner with Pearl Creek Colony had a phone conversation with Genny McMath in which he indicated that with the additional well and diversion rate authority provided by Permit No. 7584-3, the two irrigation systems operate independent of each other. Mr. Waldner requested that two separate licenses be issued to reflect separate systems for ease in reporting on the annual irrigation questionnaire

- **Developed water source same as permitted source and no additional water appropriated**

Based on the well depths, both wells are constructed into the Floyd:Pearl Creek aquifer which is the water source authorized.

Combined, Water Right No. 4114-3 and Water Permit No. 7584-3 appropriate 3.56 cfs. The licensing investigation found 3.56 cfs being applied to beneficial use.

- **If irrigation, no new land is irrigated**

No new land is irrigated. Water Right No. 4114-3 authorizes irrigation of 264 acres and that is the number of acres found to be irrigated on Keith DeJong's December 4, 2018, site visit.

- **Review of Existing Diversions**

All the other water rights within a two mile radius are held by Pearl Creek Colony

There is observation well BD-77B located in the NW corner of Section 16-T110N-R59W completed in the Floyd:Pearl Creek aquifer. The hydrograph for this observation well show water levels are dominated by climatic conditions with only minor fluctuation due to pumping.

RECOMMENDED ACTION

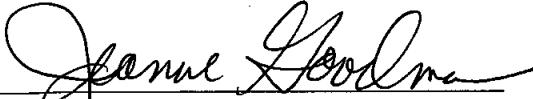
Based on the above criteria, it is recommended that the diversion point be licensed as developed.



Eric Gronlund, Engineer III
Water Rights Program

The Chief Engineer makes a finding pursuant SDCL 46-5-13.1 and ARSD 74:02:01:14.01 that:

This change in location does not increase the potential for adverse effects to existing diversions.



Jeanne Goodman, Chief Engineer
Water Rights Program

7584-3



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE SOUTH DAKOTA 57501-3182
<http://denr.sd.gov>

JUN 03 2019

4114-3
7584-3

Matt Waldner
Pearl Creek Colony
21085 415th Ave
Iroquois SD 57353

Dear Mr. Waldner:

Enclosed are Water License No. 7584-3 and Reissued Water License No. 4114-3. The licenses are the final documents completing your process of obtaining a Water Right. Included with the licenses 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, the State Water Laws provide that you have a continuing right to use the water. If you have any questions, please contact our office.

Sincerely,

Jeanne Goodman, Chief Engineer
Water Rights Program
(605) 773-3352

enclosures

STATE OF SOUTH DAKOTA
WATER LICENSE NO. 7584-3

(1) Pearl Creek Colony, 21085 415th Ave., Iroquois SD 57353 made Application No. 7584-3, December 26, 2012 for a water permit to divert 1.78 cubic feet of water per second (cfs) from ground water, one well (Floyd Pearl Creek Aquifer), Beadle County, South Dakota for irrigation purposes. Permit No. 7584-3, with priority dates of December 26, 2012 and September 6, 1977 was approved March 18, 2013 and issued to the applicant for diversion of water with construction of the described water supply system to be completed on or before March 18, 2018 and for the application to beneficial use of water on or before March 18, 2022.

Water Right No. 4114-3, with priority dates of March 29, 1976 (NW ¼) and September 6, 1977 (NE ¼), authorizes diversion of 1.78 cfs for irrigation of 264 acres in the N ½ Section 16 from one well located in the NW ¼ Section 16, all in T110N, R59W. Water Permit No. 7584-3 was obtained to add a well and an additional 1.78 cfs diversion rate to the irrigation system allowing the two pivots to run independently.

An investigation of the water use system found the two wells and pivots do run independently and will be licensed separately. If it becomes necessary, the pivots can run from either well however the priority dates will differ if that occurs. A priority date of December 26, 2012 is retained for irrigation from the newer well located in the E ½ NW ¼ Section 16, T110N, R59W to irrigate the NE ¼ Section 16 (No. 7584-3). A priority date of September 6, 1977 is retained for irrigation of the NE ¼ from the well located in the center of the NW ¼ Section 16 (No. 4114-3).

The well authorized under No. 7584-3 was to be located in the approximate center of the NE ¼ Section 16. The actual well location found during the field investigation is along the 1/16 line in the E ½ NW ¼ Section 16, T110N, R59W. Pursuant to SDCL 46-5-13.1 and ARSD 74:02:01:14.01, the Chief Engineer made a finding that the change in well location does not increase the potential for adverse effects to existing diversions.

(2) It is certified that the permit holder has complied with the provisions of South Dakota State Law relating to completion of the water supply system and is entitled to divert 1.78 cubic feet of water per second for beneficial use. The location of the diversion point is:

- 2,220'E and 1,330'S of the NW corner of Section 16, T110N, R59W (SE ¼ NW ¼)
Latitude 44.33603, Longitude -97.92536

(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:

T110N, R59W Section 16	NW ¼ NE ¼	33 acres
	NE ¼ NE ¼	33 acres
	SW ¼ NE ¼	33 acres
	SE ¼ NE ¼	33 acres
Total		132 acres

continued

(4) Pursuant to South Dakota Water Law 46-5-30.1 Pearl Creek Colony, 21085 415th Ave., Iroquois SD 57353 the holder and/or owner of Water Right No. 7584-3 is issued a license to appropriate water, the right to use 1.78 cubic feet of water per second from ground water, one well (Floyd Pearl Creek Aquifer) with priority dates of December 26, 2012 (from well in SE ¼ NW ¼) and September 6, 1977 (from well in center of the NW ¼) from the location 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. 7584-3 and subject to the following qualifications:

- The wells under Water Right No. 4114-3 and 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.
- The new well authorized by Permit No. 7584-3 shall be constructed by a licensed well driller and construction of the well and installation of the pump shall comply with Water Management Board Well Construction Rules, Chapter 74:02:04 with the well casing pressure grouted (bottom to top) pursuant to Section 74:02:04:28. *The well was completed on September 5, 2013 by Kaiser Well Drilling. A copy of the well completion report is on file with the Water Rights Program.*
- This Permit is approved subject to the irrigation water use questionnaire being submitted each year.



Jeanne Goodman, Chief Engineer
Water Rights Program
Department of Environment and Natural Resources

JUN 03 2019

date



**NOTICE OF COMPLETION OF WORKS AND
APPLICATION OF WATER TO BENEFICIAL USE**

Date 8-29-17

TO: Water Rights Program, DENR
523 E. Capitol
Pierre, SD 57501-3181

FROM: PELL CREEK Colony
(name)
21085 415 AVE
(address)
Iron Mountain SD 57353
(city, state, zip) (phone)

I have completed the construction of the water use system and I have put the water to beneficial use to the maximum extent it is going to be used.

Water Permit No. 7584-3 states that the water use system is to be constructed by
3-18-22 (date), and water is to be put to beneficial use by 3-18-18 (date).

The water use system was completed on 6-1-2013
(date)

Applying the water to beneficial use was completed on 6-1-2013
(date)

You may schedule an investigation so that the water license may be issued.

CJW

