

WATER PERMIT NO. 7224-3

Name of Applicant: Midland National Life

Address: One Sammons Plaza, Sioux Falls SD 57193

Phone: 605 335-5700

Amount of Water Claimed: 0.8 cfs

Total Acres: NA

Source of Water Supply: groundwater (2 wells)

Water to be used for: geothermal use

County: Lincoln

Type of Waste Disposal System:

Location: south of Sioux Falls along the I-29 and I-229 interchange

PRIORITY Date Received: 11-4-2010

Application/License Fee: \$1250

Corrected Application Received: 11-10-2010

Period of Annual Use: Jan 1 – Dec 31

Remarks:

Diversion Point: SW ¼ NW ¼ Sec 8-T110N-R50W

Land to be Irrigated: NA

Depth of Well: 442 and 420 feet deep

Well Driller: Dave Putzke Well Drilling & Repair

Remarks:

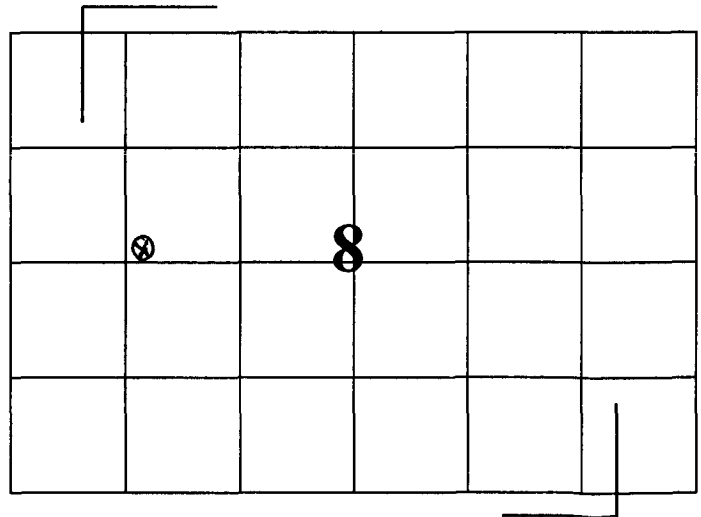
Type of Map: plat

Prepared by: Thad A Roberts, PE

Reviewed and the Number Assigned on: 11-10-2010

By: **Karen Schlaak**

Notice of Hearing - date to intervene: _____



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

Mail to: Water Rights Program Joe Foss Building 523 E. Capitol Pierre, SD 57501-3181 (605) 773-3352	No. <u>7224-3</u> (office use only) Hydrologic Unit <u>10170203</u>
	Basin <u>Sioux River</u>
	Newspaper <u>Sioux Valley News PO Box 255</u> <u>605-764-2000</u> <u>Canton 57013</u>

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NOV - 4 2010
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

Type of Application: ☒ New ☐ Vested Right (Use predates Mar 2, 1955) ☐ Future Use Reservation
(check one) ☐ 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.) _____

- Name of Applicant MIDLAND NATIONAL LIFE Phone 605-335-5700
(check one) ☐ Owner ☐ Tenant/lessee
Mailing Address ONE SIMMONS PLAZA SIOUX FALLS State SD 57193
(Street, RR, or Box and City) (Zip Code)
- Amount of water claimed 0.8 *CFS or 360 **GPM ***AF
(*Cubic Feet per Second) (**Gallons per Minute) (***)Acre Feet - storage capacity of dam/dugout or annual use if applicable
- Source of water supply groundwater (2 wells)
- Location of point of diversion (example - 3 wells in SW1/4 NE1/4 section 12-T104N-R53W)
SW1/4 NW1/4 Sec 8 - T100N - R50W
County LINCOLN
- County or counties where water will be used LINCOLN
- Annual period during which water is to be used YEAR AROUND Jan 1 - Dec 31
- 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)

STATE OF SOUTH DAKOTA)

County of Lincoln) SS

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, DOUGLAS J SCHWARTZ, 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 Douglas J Schwartz

Subscribed and sworn to before me this 2nd day of November 20 10

Cindy Byr
Notary Public signature

My Commission Expires
8-24-2012

**SOUTH DAKOTA
WATER PERMIT NO. 7224-3**

Date of first receipt of application November 4, 2010.

The Chief Engineer, on behalf of the Water Management Board, issues Water Permit No. 7224-3 to Midland National Life, One Sammons Plaza, Sioux Falls SD 57193 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. 7224-3 appropriates 0.8 cubic feet of water per second from two wells completed into the Sioux Quartzite (420 and 442 feet deep) located in SW ¼ NW ¼ Section 8-T100N-R50W.
2. The water appropriated shall be used for the purpose of geothermal heating and cooling use and may not exceed the amount of water needed for beneficial use.
3. The water is to be used during the following described annual period: January 1 – December 31.
4. The date of approval of Permit No. 7224-3 is March 14, 2011.
5. The date from which applicant may claim right is November 4, 2010.
6. One-fifth of the construction is to be completed on or before September 14, 2013.
7. All construction is to be completed on or before March 14, 2016.
8. Water is to be put to beneficial use on or before March 14, 2020.
9. Water rights obtained in compliance with the laws of the State of South Dakota may not be unlawfully impaired by this appropriation.

QUALIFICATION

The wells approved 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.

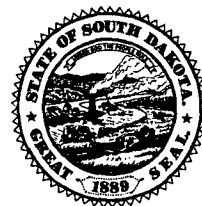
WATER MANAGEMENT BOARD

By: Garland Erbele

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

APR 26 2011

date



Supplemental Information

(type or print in ink)

**PLEASE SEE S.D. WATERWELL
COMPLETION REPORT**

1. Well Information - Proposed Construction

- a) Drill Hole Diameter 6" Depth 442' AND 420'
- b) Casing Type STEEL Diameter 6" Thickness 19.18 LB/FT
- c) Screen Type _____ Diameter _____ Thickness _____
- d) Gravel Pack _____ Length of Gravel Pack _____
- e) Depth to Top of Water Bearing Material _____
- f) Depth to Water (ground surface to water level) 49' AND 53'
- g) Distance to nearest existing domestic well:

On applicants property _____ On property owned by others _____

2. Wastewater Disposal System Information

- a) Type of System (i.e. septic tank, drain field) DRAIN FIELD
- b) System Capacity (gallons) _____ Year Constructed 2007/2008
- c) Connected to the City of _____ Sanitary System _____

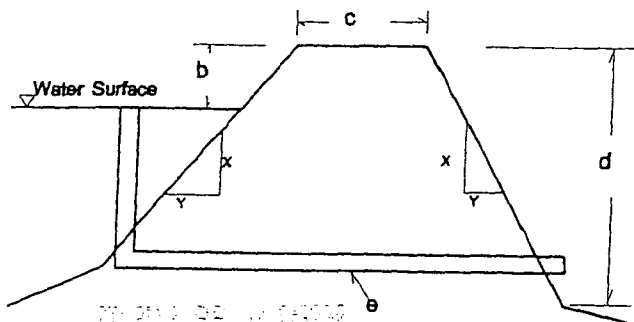
3. Dugout Information

- 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

SOUTH DAKOTA WATER WELL COMPLETION REPORT

07-92

Location NE 1/4 SW 1/4 Sec 8 Twp 100 Rg 50

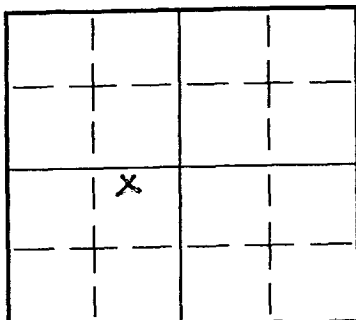
County LINCOLN

Please mark well location with an "X"

LOT 1, BLOCK 4 INTERSTATE CROSSING

Well Completion Date

4-20-07



LOCATION:

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

PROPOSED USE:

Geothermal

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

METHOD OF DRILLING:

rotary

CASING DATA: ☒ Steel ☐ Plastic ☐ Other

If other describe _____

PIPEWEIGHT	DIAMETER	FROM	TO	HOLE DIAMETER
<u>19.18</u> LB/FT	<u>6</u> IN	<u>0</u> FT	<u>117</u> FT	<u>10</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>13 yds</u>	_____	_____ lb./gal	_____ ft.	_____ ft.
<u>4</u>	_____	_____ lb./gal	_____ ft.	_____ ft.

Describe grouting procedure Pump w/ drilling rig

SCREEN: ☐ Perforated pipe ☐ Manufactured

Diameter _____ IN Length _____ FEET

Material _____

Slot Size _____ Set From _____ Feet to _____ 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: 5 gallons of Chlorine
☐ NO, Why Not? _____

Laboratory sent to for water quality analysis _____

Well Owner: M

Business Name: Midland National Life Ins Co

Address: One Midland Plaza
Sioux Falls S.D 57193

WELL LOG:

FORMATION	DEPTH	
	FROM	TO
<u>Top Soil</u>	<u>0</u>	<u>2</u>
<u>Yellow clay</u>	<u>2</u>	<u>99</u>
<u>Pipestone</u>	<u>99</u>	<u>117</u>
<u>Granite</u>	<u>117</u>	<u>420</u>

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STATIC WATER LEVEL 53 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: AIR

☐ Bailed _____

☐ Other _____

Pumping Level Below Land Surface

240 ft. After 24 Hrs. pumped 200 GPM

_____ ft. After _____ Hrs. pumped _____ GPM

If pump installed, pump rate _____ GPM

REMARKS

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WATER RIGHTS PROGRAM

This well was drilled under license # 439

And this report is true and accurate.

Drilling firm Dave Putzke well Drilling & repair

Signature of License Representative:

Dave Putzke

Signature of Well Owner or Equitable Property Holder:

[Signature]

Date: 5/14/07

SOUTH DAKOTA WATER WELL COMPLETION REPORT

07-92

Location SE $\frac{1}{4}$ NW $\frac{1}{4}$ Sec 8 Twp 100 N Rg 50 W

County

Lincoln

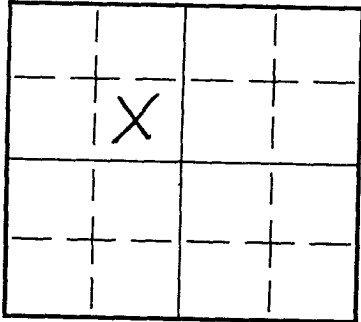
North

Please mark well location with an "X"

W

E

Well Completion Date



LOCATION:

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

PROPOSED USE:

Geothermal

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

METHOD OF DRILLING:

rotaryCASING DATA: ☒ Steel ☐ Plastic ☐ Other

If other describe _____

PIPEWEIGHT	DIAMETER	FROM	TO	HOLE DIAMETER
<u>19.18</u> LB/FT	<u>6</u> IN	<u>0</u> FT	<u>113</u> FT	<u>10</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>13 yds</u>	_____	_____ lb./gal	_____ ft.	_____ ft.
_____	_____	_____ lb./gal	_____ ft.	_____ ft.

Describe grouting procedure Pump w/drilling RigSCREEN: ☐ Perforated pipe ☐ Manufactured

Diameter _____ IN Length _____ FEET

Material _____

Slot Size _____ Set From _____ Feet to _____ 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: 5 gallon ofchlorine

Laboratory sent to for water quality analysis _____

Well Owner: _____

Business Name: Midland National Life Ins Co.Address: One Midland PlazaSioux Falls S.D 57193

WELL LOG:

DEPTH

FORMATION

FROM

TO

TOP Soil02Yellow Clay29.5Pipestone95113Granite113442

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STATIC WATER LEVEL 49 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: AIR☐ Bailed☐ Other

Pumping Level Below Land Surface

252 ft. After 24 Hrs. pumped 160 GPM

_____ ft. After _____ Hrs. pumped _____ GPM

If pump installed, pump rate _____ GPM

REMARKS

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WATER RIGHTS PROGRAM

This well was drilled under license # 439

And this report is true and accurate.

Drilling firm Dave Putzke well Drilling & repair Inc

Signature of License Representative:

Dave Putzke

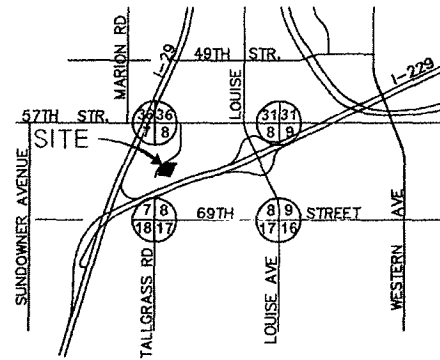
Signature of Well Owner or Equitable Property Holder:

[Signature]Date: 6/25/07

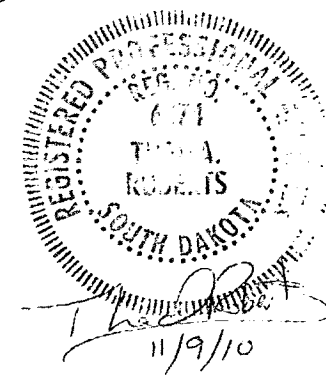
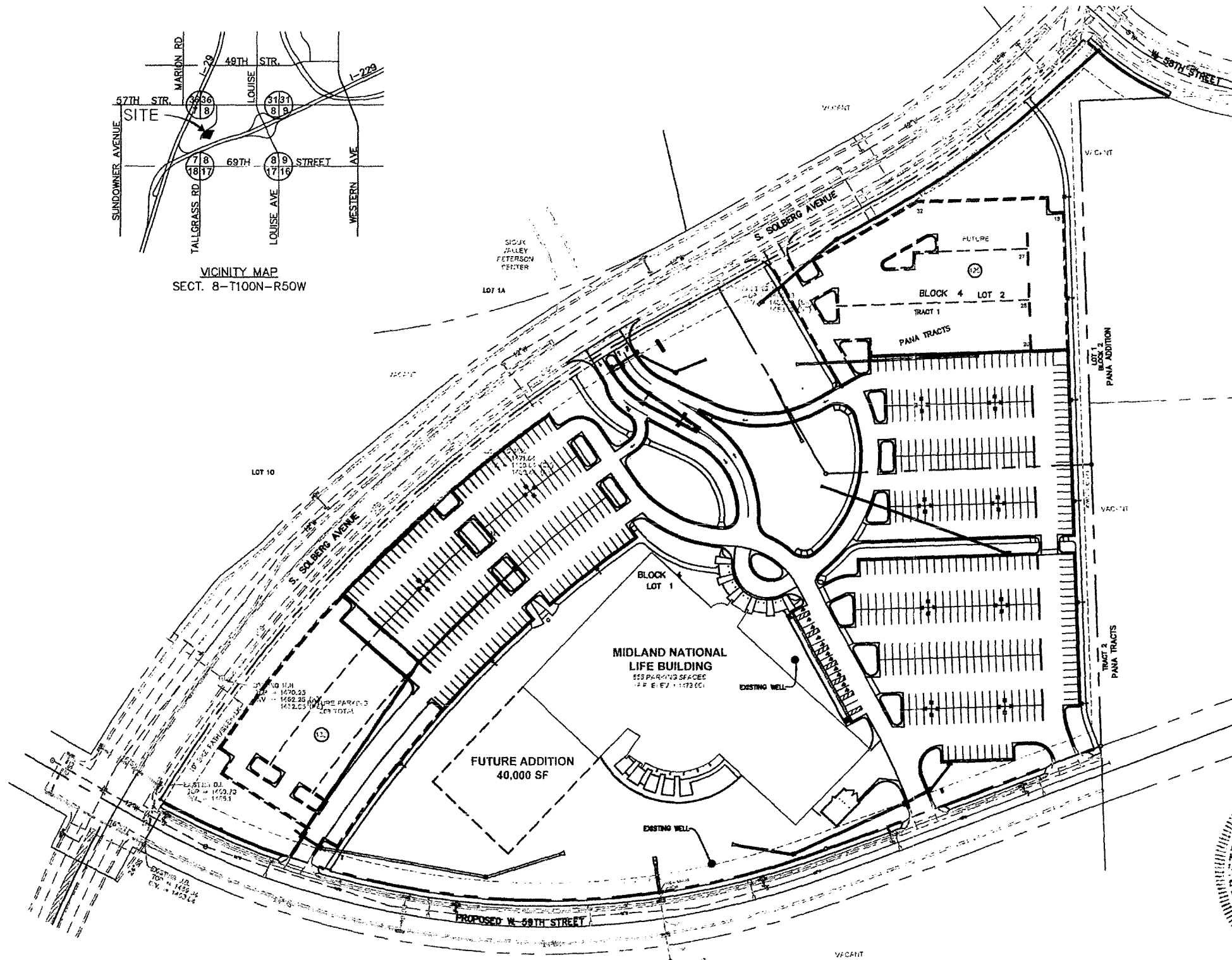
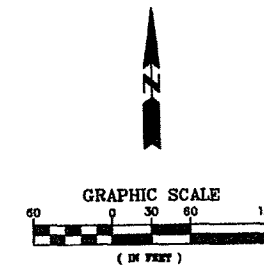
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VICINITY MAP
SECT. 8-T100N-R50W



Midland National
OVERALL SITE PLAN
WELL LOCATIONS

Sayre Associates
Engineering Solutions
218 S. DAKOTA AVENUE • SIOUX FALLS, SD 57104
Phone: (605) 332-7211 • Fax: (605) 332-7222

PROJECT NO.: 17575
SURVEYED BY: DAS
CREATED BY: CR/HLA
APPROVED BY: TAR
REVISION DATE: 11/10
WELL LOCATIONS

RECEIPT

WATER RIGHTS PROGRAM

South Dakota Department of Environment and Natural Resources

Date 11/4, 20 10

RECEIVED OF Midland Aerial Photo Insurance Co. 1 Senate Plaza Sioux Falls SD 57193

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

Fee for Application for Permit No. <u>7224-3</u> to Appropriate Water, to construct and to put water to beneficial use	105	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>7224-3</u>	100	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	1250 00

No.

04666

By

Robert Thiele
Chief Engineer



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
denr.sd.gov

October 8, 2010

Midland Nat'l Life Insurance Co.
c/o Douglas J Schwartz
5400 S Solberg
Sioux Falls SD 57108

Dear Mr. Schwartz:

DENR received an application for a Temporary Discharge Permit for your geothermal well which is currently being reviewed by DENR's Surface Water Quality Program. I am writing to ensure that you are also aware of the water right permit requirements in South Dakota.

According to State law a water right permit is needed for any water use except for reasonable, private domestic use. Businesses such as yours using well water for geothermal heating and/or cooling purposes require a permit. DENR records indicate two wells were completed in 2007. The well completion reports filed by the driller are attached.

Enclosed are application forms and instruction sheet to apply for a water permit. The completed forms with the application fee and map can be returned to: Water Rights Program, 523 E. Capitol, Pierre, SD 57501. Please respond by November 1, 2010.

If you have any questions when completing the application forms, please contact Eric Gronlund or me at (605) 773-3352.

Sincerely,

Karen Schlaak
Water Rights Program
karen.schlaak@state.sd.us

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

November 5, 2010

Midland National Life
c/o Douglas J Schwartz
One Sammons Plaza
Sioux Falls SD 57193

Dear Mr. Schwartz:

Thank you for submitting the *Application for a Permit to Appropriate Water* for geothermal use. In order to complete the application the following is required.

- Enclosed is the map submitted with the application. The map needs to reference a government section corner or quarter corner for Section 8-T100N-R50W.

If you have any questions, please contact me.

Sincerely,

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

enclosure

Douglas J Schwartz
Assistant Vice President, Administrative Services
Phone: (605) 373-2710 Fax: (605) 373-8554
e-mail: dschwartz@SFGMembers.com

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WATER RIGHTS
PROGRAM

November 9, 2010

Karen,

Here is the map I received back from Sayre. I think this is what you are looking for. If there is anything else you need please let me know.

Thanks
Doug



**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. 7224-3, Midland National Life**

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. 7224-3, Midland National Life, c/o Douglas J Schwartz, One Sammons Plaza, Sioux Falls SD 57193.

The Chief Engineer is recommending APPROVAL of Application No. 7224-3 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 qualification:

The wells approved 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.

See report on application for additional information.

Garland Erbele, Chief Engineer
January 18, 2011

REPORT TO THE CHIEF ENGINEER
ON
WATER PERMIT APPLICATION NO. 7224-3
MIDLAND NATIONAL LIFE
NOVEMBER 29, 2010

Water Permit Application No. 7224-3 proposes to appropriate 0.8 cubic feet of water per second from two existing wells (420 and 442 feet deep respectively) completed into the Sioux Quartzite aquifer. The wells are located in the SW¼ NW¼ Section 3, T100N-R50W. Water from the wells is used for geothermal heating and cooling.

AQUIFER: Sioux Quartzite (SOUX)

GEOLOGY AND AQUIFER CHARACTERISTICS:

The Sioux Quartzite is a Precambrian aged ortho-quartzite, (i.e. a sedimentary formation composed of massive, pink and red colored quartz sand cemented to a non-porous quartzite with silica) (Baldwin, 1949). The Sioux Quartzite appears to overlie the crystalline basement rocks in the area "except for minor intrusions" and estimates of its maximum thickness range from under 1,000 feet to over 3,000 feet (McCormick, 2004). The thickness of the quartzite is unknown in this area because only a small amount of drilling was done into it due to its extreme hardness (Niehus, 1994). Pre-glacial streams incised numerous irregular valleys on the quartzite surface resulting in a craggy and rugged upper surface (Baldwin, 1949). The well logs submitted with this application indicate that 95-99 feet of glacial till overlie the Sioux Quartzite at this site.

Except for the places where the quartzite is interbedded with mudstone and poorly cemented sand, the primary (intergranular) porosity of the rock is generally extremely low and it is typically not aquifer material. However, locally the Sioux Quartzite does yield water from fractures and porous zones (McCormick, 2007), and is considered a minor aquifer in Lincoln County (Niehus, 1997). The depth and development of the fracture system in the Sioux Quartzite is unknown but water-supply wells commonly penetrate the quartzite to a depth of 200 ft or less (Lindgren and Niehus, 1992). Since the orientation and density of joints or fractures in the rock are difficult to predict, the aquifer characteristics of the quartzite are site specific and highly variable.

Where the Sioux Quartzite is an aquifer it is commonly under unconfined conditions near outcrop areas and confined conditions elsewhere. The site of this proposed appropriation is located approximately 4.25 miles south of the nearest Quartzite outcrop (Martin and others, 2004), and the aquifer is under confined condition. The predominant chemical constituents in water from the Sioux Quartzite aquifer are calcium and sulfate (Lindgren and Niehus, 1992). Recharge to the Sioux Quartzite probably occurs by infiltration of precipitation and snowmelt in southern Minnehaha County where the Sioux Quartzite crops out (Niehus, 1997). In addition, Split Rock Creek is probably a source of recharge at Palisades State Park (Niehus and Lindgren, 1994). Groundwater movement in the aquifer is predominantly to the south and southwest following the regional dip in the Sioux Quartzite surface (Lindgren and Niehus, 1992). Water-level fluctuations in observation wells completed in the Sioux Quartzite aquifer show a close correlation with long-term trends in precipitation (Niehus, 1994).

The wells that are to be used to supply this appropriation were completed in April 2007 and have been in use since 2008. A 200 gallon per minute (gpm) pump was installed in the 420 foot deep well and the 442 foot deep well is equipped with a pump capable of producing

160 gpm (Putzke). The 420 foot deep well reportedly draws down approximately 120 feet when pumped at 200 gpm and drawdown in the 442 foot deep well is reported to be approximately 200 feet at a pump rate of 160 gpm (Putzke).

The DENR-Water Rights Program does not monitor any observation wells completed into the Sioux Quartzite aquifer and historic water level data is limited. Lindgren and Niehus (1992) published a hydrograph for a Sioux Quartzite observation well located approximately 14 miles north of this area. The observation well data identifies approximately 8.5 feet of fluctuation in response to climatic conditions, over the period of record (water years 1980-1987). The only long term historic water level data for the aquifer is limited to water well completion reports. Review of the completion reports on file with the DENR-Water Rights Program (Water Rights, 2011b) indicates withdrawals from the aquifer have not exceeded recharge. The withdrawals proposed by this application are not expected to cause the withdrawals from the Sioux Quartzite aquifer to exceed the average annual recharge to the aquifer.

REVIEW OF EXISTING WATER RIGHTS/PERMITS

There are 37 water rights/permits appropriating groundwater within approximately four miles of the site proposed by this application (Water Rights, 2011a). The sources of water for these appropriations include: the Big Sioux, Wall Lake, Sioux Quartzite aquifers; and glacial till. The 11 appropriations from the Sioux Quartzite aquifer within four miles are shown in table 1.

PERMIT NO	NAME	STATUS	USE	CFS	ACRES
1257-3*	GREENLEE PACKING CO INC	LC	IND	1.70	
1767-3	PAM OIL INC	LC	IND	0.11	
4936-3	CASA DEL ROSA WATER INC	LC	SHD	0.03	
5622-3	DALE OLSON	LC	SHD	0.22	
5877-3	DALE G OLSON	LC	COM	0.02	
6020-3	EVANGELICAL LUTHERAN GOOD SAMARITAN SOCIETY	LC	REC	0.05	
6118-3	PRAIRIE GREEN HOMEOWNERS ASSOCIATION	LC	REC	0.11	
6195-3	BAKKER CROSSING GOLF COURSE	LC	IRR	0.44	61.00
6451-3	BLUFFS TOWNHOMES ASSOCIATION	LC	IRR	0.09	3.00
6552-3	LANDSCAPE GARDEN CENTERS	PE	COM	0.12	
995A-3	PAM OIL INC	LC	GEO	0.40	
* may be subject to cancellation due to abandonment (Goodman)					

Table 1. Water Rights/Permits appropriating water from the Sioux Quartzite aquifer within approximately four miles of the site proposed for appropriation by Application No. 7224-3.

Except for the well that supplies Water Right No. 6020-3, the diversion points for all of the Water Rights/Permits shown in table 1 are located over 1.89 miles from the wells Application No. 7224-3 proposes to utilize. Water Right No. 6020-3, Evangelical Lutheran Good Samaritan Society, is supplied by a well located approximately 1800 feet north of this site. Given the distances involved, interference is not expected to be significant in any of the prior appropriator's wells except possibly the well that supplies Water Right No. 6020-3 (Good Samaritan well). To date, the Department of Environment and Natural Resources has received no complaints concerning these two wells.

Since the porosity of the Sioux Quartzite aquifer is generally small, the drawdown in a pumped well may be significant; however it may be somewhat limited in areal extent. Drawdown in the quartzite is not expected to be uniform in all directions because the flow is mainly through fractures. Depending on the extent that the fractures and joints intersected by each well are interconnected, it is possible that drawdown from the Midland National Life wells is measurable in the well that supplies Water Right No. 6020-3.

Unlawful impairment of wells in the Sioux Quartzite:

Since SDCL 46-2A-9 requires that a permit to appropriate water may only be issued if the proposed diversion can be developed without unlawful impairment of existing rights, consideration must be given to what constitutes unlawful impairment or an adverse impact.

The Water Management Board rules define an adversely impacted domestic well but do not identify what constitutes an adverse impact to a prior appropriator. The Board has promulgated rules pursuant to SDCL 46-6-6.1 that regulate large capacity wells with the intent of maintaining an adequate depth of water for prior appropriators; and providing for the lowering of the pump in prior appropriator's wells.

One of the principal Board rules addressing SDCL 46-6-6.1 is ARSD 74:02:05:02, which requires that the spacing of large cap wells is to be controlled to assure domestic use and other prior water right water supplies in **adequate wells**. An adequate well is defined by ARSD 74:02:04:20(6) as:

“a well constructed or rehabilitated to allow various withdrawal methods to be used, to allow the inlet to the pump to be placed not less than 20 feet into the saturated aquifer or formation material when the well is constructed, or to allow the pump to be placed as near to the bottom of the aquifer as is practical if the aquifer thickness is less than 20 feet;”

ARSD 74:02:05:02 can be interpreted to say that if an affected well is not an adequate well then spacing (read interference) need not be considered. The rule implies, when considering the definition of an adequate well, that 20 feet is an “adequate depth of water for prior appropriators” as required SDCL 46-6-6.1. However, in the Sioux Quartzite aquifer, 20 feet is seldom a sufficient depth of water to be a dependable supply for a well.

Interference issues in the Sioux Quartzite aquifer are further complicated by the fact that unlike in the case of most other aquifers where the maximum drawdown that could result from pumping a large capacity well is limited by the aquifer thickness, in the quartzite aquifer the maximum drawdown is limited by the well depth.

Therefore, in assessing if well interference is an adverse impairment, provided the affected well is adequate, the depth of the affected well must also be taken into consideration. Although depth is a critical factor in a well's ability to tolerate interference in the Sioux Quartzite, minimum well depth is not regulated.

Even though minimum well depth is not dictated by statute or rule, ARSD 74:02:04:60 does specify the requirements for the installation of pumps in wells. The rule requires that the depth of the pump setting shall be determined by dividing the specific capacity determined for the well into the required yield and adding at least 10 additional feet. Obviously the minimum depth of the pump setting as determined by ARSD 74:02:04:60 could be used as a quasi-minimum well depth standard. For example, the bottom of a well with a specific capacity of 1 gallon per minute per foot of drawdown (gpm/ft), permitted for 20 gallons per minute (gpm), would need to be at least 30 below the static water level; and the bottom of a well with a specific capacity of 0.5 gpm/ft, permitted for 20 gpm, would need to be at least 50 feet deeper than the static water level.

If the depth of a well allows for pump placement per ARSD 74:02:04:60 and interference requires the well be deepened, that interference could be considered an adverse impact. Conversely, if the affected well is not deep enough to allow compliance with the requirements of ARSD 74:02:04:60, interference that would require deepening of the well would not be an adverse impact. It is important to note that unlike the standard defining an adequate well, the pump installation standard does not fix the setting to the static water level or the specific capacity at the time of construction. The pump setting and ultimately the depth of a well must be able to accommodate for seasonal and climatic fluctuations of the static water level and/or a change of the well's specific capacity.

In a well interference situation involving the Sioux Quartzite, the static water level and specific capacity would be used to determine the minimum (highest) pump setting for the affected well. After allowing for seasonal and climatic conditions, well interference that caused the pump to be lowered below the calculated pump setting may be unlawful impairment.

Midland National Life wells and Good Samaritan well:

There is always the possibility that the Midland Life wells and the Good Samaritan well are supplied by completely independent fracture sets, in which case any well interference between the wells would be minimal, if even measurable. The Midland Life wells and the Good Samaritan well have been in use since 2008 with no reported controversy.

The SD Well Completion Report submitted for the Good Samaritan Well indicates the well is 453 feet deep, had a static water level in May 1999 of 23 feet below grade and was capable of producing 80 to 100 gpm "when drilling with air". From the data provided on the completion report the specific capacity of the well can be determined to be at least 0.186 gpm/ft. (Note: the actual specific capacity of the well is probably exceeds 0.38 gpm/ft (assuming the well produced 100 gpm with air, and air development is less than 60% efficient compared with a submersible pump)). Since the maximum diversion rate authorized for the Good Samaritan well by Water Right No. 6020-3 is 20 gpm the pumping level of the well would be expected to be no lower than 107.5 feet below the static water level. Since the Good Samaritan well is more that 140.5 feet deep the well complies with ARSD 74:02:04:60.

Well Interference caused by pumping the Midland National wells is not going to "dry up" the Good Samaritan well. It appears the Good Samaritan well is deep enough to allow for the pump to be lowered to accommodate most any interference from the Midland National Life wells. In addition, the bottom of the Good Samaritan well is actually lower than the bottom of either of the Midland National Life wells. However, since the Good Samaritan well is an adequate well, and appears to be deep enough to both comply with ARSD 74:02:04:60 and be a dependable water supply; the water right authorizing use of

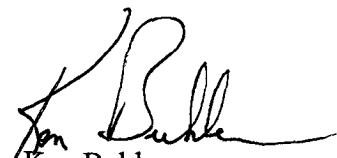
the well should provide protection from another user either causing the loss of water production or increased operating expenses.

The drawdown cone created by pumping a well is defined by the aquifer characteristics. The aquifer Storativity (S) mainly affects the amplitude of the drawdown and since the S of the Sioux Quartzite aquifer is probably fairly low, the drawdown at a production well can be expected to be fairly significant. Although from the limited pumping data available from the Midland Life wells and the Good Samaritan well can be interpreted as documenting favorably fractured rock was intersected by each of the wellbores. These fractures may act to effectively increase the radius of the production well, thereby decreasing the well's drawdown (Huntley and others, 1992).

Aquifer Transmissivity (T) affects the shape of the drawdown. The specific capacities of the Midland Life wells and the Good Samaritan well are 1.67 gpm/ft, 0.8 gpm/ft and $\cong 0.38$ gpm/ft, respectively. Huntley and others (1992) report that there appears to be a linear relationship between specific capacity and transmissivity (log of specific capacity to the log of transmissivity in fractured rock). Given the specific capacities are low; the T for the Sioux Quartzite aquifer must be correspondingly low. Since the T is low for the Sioux Quartzite aquifer, the drawdown curve should be narrow and deep. It is unlikely with the presumed low transmissivity of the Sioux Quartzite that drawdown from the Midland Life wells would be more than just a few feet at the distance that separates the Midland Life wells and the Good Samaritan well (approximately 1800 feet). The well interference would not be significant compared to natural water level fluctuations in the aquifer.

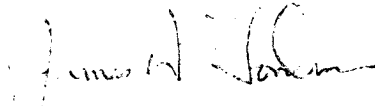
Conclusions:

1. The Sioux Quartzite is a viable aquifer in this area.
2. The Sioux Quartzite is under confined/artesian conditions in this area.
3. Recharge to the Sioux Quartzite aquifer is through infiltration of precipitation and possibly through streamflow losses.
4. Average annual recharge has not been quantified for the Sioux Quartzite aquifer.
5. The DENR-Water Rights Program does not monitor any observation wells completed into the Sioux Quartzite aquifer.
6. Historic water level data for the aquifer is limited to water well completion reports. Completion reports on file with the DENR-Water Rights Program indicate withdrawals from the aquifer have not exceeded recharge.
7. There is a reasonable probability that approval of this application will not cause withdrawals from the aquifer to exceed average annual recharge to the aquifer.
8. Unlawful impairment in the Sioux Quartzite aquifer can be considered drawdown to the extent that an affected well that is both adequate pursuant to ARSD 74:02:04:20(7) and allows for a pump setting pursuant to ARSD 74:02:04:60 experiences a loss of water production or increased operating expense that can be attributed to another well.
9. The nearest well supplied from the Sioux Quartzite aquifer to this application site is located approximately 1800 feet away.
10. Well interference if this application is approved is not expected to be adverse.



Ken Buhler

approved by:



James A. Goodman, P.E

References:

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Goodman, J.A., SD DENR-Water Rights Program. Personal interview. 13 Jan. 2010

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Lindgren, R.J., and Niehus, C.A., 1992, Water Resources of Minnehaha County, South Dakota: U.S. Geological Survey Water-resources Investigations Report 91-4101, 80p

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Niehus, C.A., and Lindgren, R.J., 1994, Major Aquifers in Minnehaha County, South Dakota: South Dakota Geological Survey Information Pamphlet 46, 22 p.

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Water Rights Program, 2011a, "Water Permit/Right Files", South Dakota DENR-Water Rights Program, Joe Foss Building, Pierre, SD

Water Rights Program, 2011b, "Well Completion Report Files", South Dakota DENR-Water Rights Program, Joe Foss Building, Pierre, SD



**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.

January 19, 2011

Midland National Life
Douglas J Schwartz
One Sammons Plaza
Sioux Falls SD 57193

Dear Mr. Schwartz:

Water Permit Application No. 7224-3 for geothermal 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 Sioux Valley News printed at Canton SD (Ph # 605-764-2000). You will need to contact the newspaper and authorize publication of this notice. For your information, a copy of the notice, the recommendation of the Chief Engineer and report on the application 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 Notice 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 application.

Sincerely,

Eric Gronlund
Natural Resources Engineer
(605) 773-3352
eric.gronlund@state.sd.us

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.



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

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

January 19, 2011

Sioux Valley News
PO Box 255
Canton SD 57013

ATTENTION: Legal Public Notice

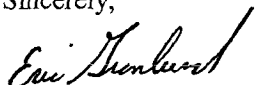
Enclosed is a Notice on Application No. 7224-3 to Appropriate Water to be published twice. Please publish the first notice on January 27, 2011 with the second publication 7 days later. The text of the notice can be e-mailed to your paper by contacting Karen Schlaak at (605) 773-3352.

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 Midland National Life, c/o Douglas J Schwartz, One Sammons Plaza, Sioux Falls SD 57913 (Ph # 605-335-5700).

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. 7224-3

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

Date _____

We are in receipt of your letter of January 19, 2011 enclosing Notice to Appropriate Water by Application No. 7224-3 which was first published in our issue of _____. **ENCLOSED IS A COPY OF THIS FIRST PUBLICATION.**

Name

Newspaper

Affidavit of Publication

STATE OF SOUTH DAKOTA
COUNTY OF LINCOLN

ANDY WILCOX

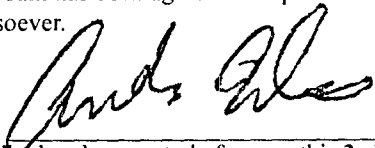
being first duly sworn on his oath says; that the Sioux Valley News is a legal weekly newspaper of general circulation as required by South Dakota Code of Nineteen Hundred Thirty-Nine, and any acts amendatory thereto, printed and published by the Sioux Valley News, Inc., in Canton, in said county and State, and has been such legal newspaper during the time hereinafter mentioned; that he is and during all of said time was publisher of said newspaper and has personal knowledge of the facts stated in this affidavit; that the advertisement headed:

Midland National Life DENR Notice on Application No. 7224-3

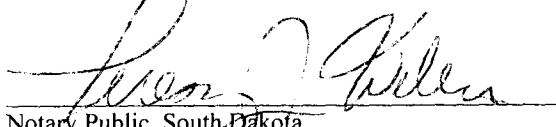
a printed copy of which is hereto attached, was printed and published in said newspaper for TWO successive week(s) upon the following dates, to-wit:

January 27, 2011
February 3, 2011

that the full amount of the fees charged for publishing the same to-wit: the sum of \$41.58 insures solely to the benefit of the publishers of said newspaper; that no agreement or understanding for any division of this sum has been made with any other person; and that no part of said sum has been agreed to be paid to any person whomsoever.



Subscribed and sworn to before me this 3rd day of
February, 2011.



Notary Public, South Dakota



My Commission Expires
12/9/2014

NOTICE OF APPLICATION

NO. 7224-3 to Appropriate Water

Notice is given that Midland National Life, c/o Douglas J. Schwartz, One Sammons Plaza, Sioux Falls SD 57193 has filed an application for a water permit to appropriate 0.8 cubic feet of water per second from two wells completed into the Sioux Quartzite (420 and 442 feet deep) located in SW 1/4 NW 1/4 Section 3-T100N-R50W for geothermal heating and cooling use.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 7224-3 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 at 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 February 14, 2011.

The petition may be informal, but must include a statement describing the petitioner's interest in 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.

Published in the Sioux Valley News on
January 27 and February 3, 2011 at the
total approximate cost of \$41.58.

RECEIVED

FEB 14 2011

WATER RIGHTS
PROGRAM

Schlaak, Karen

From: Schwartz, Douglas [DSchwartz@sfgmembers.com]
Sent: Tuesday, February 15, 2011 1:20 PM
To: Gronlund, Eric
Cc: Schlaak, Karen
Subject: RE: Midland National Life's water permit application for geothermal

Thanks for the heads up on this Eric

Thanks
Doug

From: Eric.Gronlund@state.sd.us [mailto:Eric.Gronlund@state.sd.us]
Sent: Tuesday, February 15, 2011 1:16 PM
To: Schwartz, Douglas
Cc: Karen.Schlaak@state.sd.us
Subject: Midland National Life's water permit application for geothermal

Mr. Schwartz:

This is in regard to the water permit application for wells used for Midland National Life's geothermal system.

DENR was drafting the water permit and discovered there was an error in the publication notice. The error was in the legal description where Section 3 was listed instead of the proper section No. 8. This requires readvertisement of the publication notice. This was not the fault of the newspaper but instead was a typographical error in the copy provided them. The cost of publishing the readvertisement will be paid by DENR. Please feel free to contact me if you have any questions.

Eric Gronlund
Water Rights Program, DENR
Phone: (605) 773-3352
Fax: (605) 773-4068
Email: eric.gronlund@state.sd.us
Web: www.denr.sd.gov

The information contained in this message is confidential, protected from disclosure and may be legally privileged. If the reader of this message is not the intended recipient or an employee or agent responsible for delivering this message to the intended recipient, you are hereby notified that any disclosure, distribution, copying, or any action taken or action omitted in reliance on it, is strictly prohibited and may be unlawful. If you have received this communication in error, please notify us immediately by replying to this message and destroy the material in its entirety, whether in electronic or hard copy format. Thank you.

02/15/2011



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

February 15, 2011

Sioux Valley News
PO Box 255
Canton SD 57013

ATTENTION: Legal Public Notice

Enclosed is a Notice on Application No. 7224-3 to Appropriate Water to be published twice. Please publish the first notice on February 24, 2011 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.

Please BILL the Water Rights Program for the cost of publication.

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. 7224-3

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

Date _____

We are in receipt of your letter of February 15, 2011 enclosing Notice to Appropriate Water by Application No. 7224-3 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

February 15, 2011

Midland National Life
Douglas J Schwartz
One Sammons Plaza
Sioux Falls SD 57193

Dear Mr. Schwartz:

The Notice of Application No. 7224-3 to appropriate water published on January 27 and February 3, 2011 contained an error in the legal description of the well locations. The description identified the wells as being located in Section 3. The actual location of the wells as identified on the map submitted with the application is Section 8. Therefore, the notice needs to be readvertised to correct the error.

The notice has been resent to the Sioux Valley News printed in Canton SD. For your information, a copy of the notice is enclosed.

The cost of publication of this notice will be paid by the Water Rights Program. Please contact us if you have any questions.

Sincerely,


Eric Gronlund
Natural Resources Engineer
(605) 773-3352
eric.gronlund@state.sd.us

enclosures

Instruction to Newspaper - Publish first Notice on February 24, 2011 with the second publication 7 days later. The Water Rights Program is responsible for payment.

NOTICE OF APPLICATION NO. 7224-3 to Appropriate Water

Notice is given that Midland National Life, c/o Douglas J Schwartz, One Sammons Plaza, Sioux Falls SD 57193 has filed an application for a water permit to appropriate 0.8 cubic feet of water per second from two wells completed into the Sioux Quartzite (420 and 442 feet deep) located in SW ¼ NW ¼ Section 8-T100N-R50W for geothermal heating and cooling use.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 7224-3 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 March 14, 2011.

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.

Published twice at the total approximate cost of_____.

Affidavit of Publication

RECEIVED

STATE OF SOUTH DAKOTA
COUNTY OF LINCOLN

MAR 10 2011
WATER RIGHTS
PROGRAM

ANDY WILCOX

being first duly sworn on his oath says; that the Sioux Valley News is a legal weekly newspaper of general circulation as required by South Dakota Code of Nineteen Hundred Thirty-Nine, and any acts amendatory thereto, printed and published by the Sioux Valley News, Inc., in Canton, in said county and State, and has been such legal newspaper during the time hereinafter mentioned; that he is and during all of said time was publisher of said newspaper and has personal knowledge of the facts stated in this affidavit; that the advertisement headed:

DENR

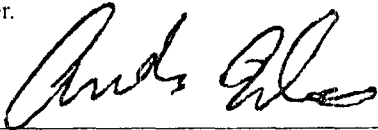
Notice on Application NO 7224-3

a printed copy of which is hereto attached, was printed and published in said newspaper for TWO successive week(s) upon the following dates, to-wit:

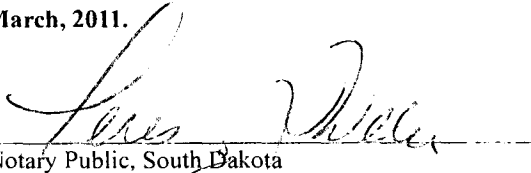
February 24, 2011

March 3, 2011

that the full amount of the fees charged for publishing the same to-wit: the sum of \$41.58 insures solely to the benefit of the publishers of said newspaper; that no agreement or understanding for any division of this sum has been made with any other person; and that no part of said sum has been agreed to be paid to any person whomsoever.



Subscribed and sworn to before me this 3rd day of
March, 2011.



Notary Public, South Dakota

(Seal)



My Commission Expires
12/9/2014

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Steven M. Pirner, Secretary,
Department of Environmental and
Natural Resources.

Published in the Sioux Valley News on
February 24 and March 3, 2011 at the
total approximate cost of \$41.58

OK

March 10, 2011

PAYMENT REQUEST FORM

PAYEE: Sioux Valley News
PO Box 255
Canton SD 57013

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

DESCRIPTION OF SERVICE, PRODUCE OR TRANSFER

Legal publication notice on Permit #7224-3 (error in first printing)

AMOUNT: \$41.58

FUNDING SOURCE:

GENERAL : X

FEDERAL:

COMMENTS:

AUTHORIZATION:

Darrel C. L. 3/10/11

I declare and affirm under the penalties of perjury that this claim is in all things, true and correct. I further agree to comply with the provisions of the Civil Rights Act of 1964 and regulations issued thereunder relating to nondiscrimination in Federal assisted programs.



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

APR 26 2011

Midland National Life
Douglas J Schwartz
One Sammons Plaza
Sioux Falls SD 57193

Dear Mr. Schwartz:

Enclosed is Water Permit No. 7224-3 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

RECEIVED

MAY 13 2011

WATER RIGHTS
PROGRAMNOTICE OF COMPLETION OF WORKS AND
APPLICATION OF WATER TO BENEFICIAL USEDate 05-11-11TO: Water Rights Program, DENR
523 E. Capitol
Pierre, SD 57501-3181FROM: MIDLAND NATIONAL LIFE c/o DOUGLAS J SCHWARTZ
(name)
ONE SAMMONS PLAZA
(address)
SIOUX FALLS SD 57193 605-335-5700
(city, state, zip) (phone)

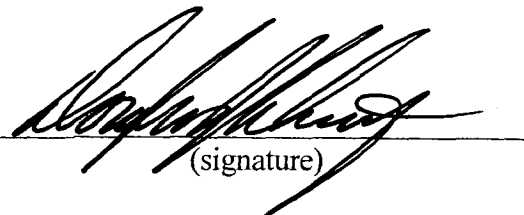
I have completed the construction of the water use system and I have put the water to beneficial use to the maximum extent it is going to be used.

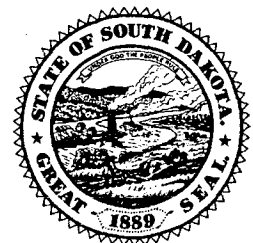
Water Permit No. 7224-3 states that the water use system is to be constructed by
3-14-16, and water is to be put to beneficial use by 3-14-20.
(date) (date)

The water use system was completed on 10/26/10.
(date)

Applying the water to beneficial use was completed on 10/30/10.
(date)

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


(signature)





**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

May 17, 2011

7224-3

Douglas Schwartz
Midland National Life
One Sammons Plaza
Sioux Falls SD 57193

Dear Mr. Schwartz:

I am writing to acknowledge receipt of the "Notice of Completion of Works" form that you sent in to let us know that you are completed with system authorized by Water Permit No. 7224-3.

The system is now ready for inspection. Inspections are done on a county-by-county basis as staff time permits. You have done everything you need to do and the intervening time between the completion of your project and the staff inspection has no bearing on your water permit.

Someone from our office will contact you prior to the inspection to set up a time that is convenient for you. If you have any questions, please contact me.

Sincerely,

A handwritten signature in cursive script that reads "Genny McMath".

Genny McMath
Environmental Scientist
Water Rights Program
(605) 773-3352
email: genny.mcmath@state.sd.us

Report of Examination of Works and/or Application of Water to Beneficial Use For Permit No. 7224-3

I have this day, April 17, 2023, made a thorough examination of the water use system constructed by Midland National life; One Sammons Plaza, Sioux Falls, SD 57193 of Permit No. 7224-3, bearing the priority of November 4, 2010 authorizing the diversion of 0.80 cu. ft. per second from ground water (Sioux Quartzite) for geothermal heating and cooling purposes.

A. Works used to divert the water:

Well Information:

- 1) Well Drilling Firm: Putzke Well Drilling
- 2) No. of Wells 2
- 3) Depth(s) 420 & 442 feet
- 4) Well log is available Y

Casing:

- 1) Diameter 6 inches
- 2) Length 117 & 113 feet
- 3) Type steel

Screen: **not screened**

Static water level 53 & 49 feet

Pump:

- 1) Make 2 Submersibles
- 2) Capacity 200 each GPM (See Note at the bottom of this report)

Motor: Unknown

B. Works used to apply water to beneficial use: For geothermal heating & cooling

C. Compliance with Permit Requirements:

- 1) Permit qualifications being abided by Y
- 2) Exceptions to compliance are: None

D. Condition and Location:

1. The system is in good condition with the point(s) of diversion located as follows: WELL LOCATIONS
From the SW corner Sec 8 T100N R50W: WELL #1 1920 ft N & 895 ft E, Lat 43.49500 Long -96.78375
WELL #2 2160 ft N & 1045 ft E, Lat 43.49572 Long -96.78316 (NW ¼ SW ¼)

The works are capable of diverting and conveying to the place of use 0.80 cu. ft. per second of water of water which is to be used for geothermal use.

2. All structures, wells and lands on map Y

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

The contact person at the building location is Allan Meier with a phone number of 605/373-2240.

All water is pumped from the aquifer and returned to water table.



Darrell W DeBoer
Water Rights Inspector
DANR, Water Rights Program

Date report completed: **April 19, 2023**

NOTE: Mark Rath called and spoke with Allan Meier w/Midland National Life. They use one well at a time and if they do use two, it is limited to approximate 350 to 360 gpm (0.78 to 0.80 cfs).



0 0.05 0.1 0.2 0.3 0.4 Miles



Darrell DeBoer
Water Right Inspector
DANR-Water Rights Program

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

NAME: Midland National Life

ADDRESS: One Sammons Plaza, Sioux Falls SD 57193

DATE: May 22, 2023

COUNTY: Minnehaha

GENERAL DESCRIPTION OF AUTHORIZED PROJECT:

The permit holder is authorized to construct two 420 foot and 442 foot deep wells into the Sioux Quartzite Aquifer in the SW1/4 NW1/4 of Section 8 T100N-R50W for geothermal heating and cooling at a diversion of 0.80 cfs.

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:

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

The permit holder constructed two wells in the NW1/4 SW1/4 of Section 8 T100N-R50W

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

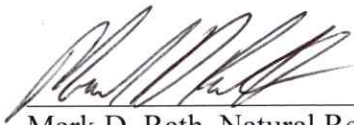
No irrigation.

- **Review of Existing Diversions**

There is one existing water permits/rights within a half mile of where the this well was developed into the Sioux Quartzite Aquifer. This water right was in existence when this permit was issued, it was determined that there was reasonable probability any well interference due to pumping of this well would not adversely or unlawfully impair existing rights. The same would be expected for the wells constructed in the new location.

RECOMMENDED ACTION

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



Mark D. Rath, Natural Resources Engineer
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 and/or additional diversion point(s) does not increase the potential for adverse effects to existing diversions.



Eric Gronlund, Chief Engineer
Water Rights Program



DEPARTMENT of AGRICULTURE
and NATURAL RESOURCES
JOE FOSS BUILDING
523 E. CAPITOL AVE
PIERRE SD 57501-3182
danr.sd.gov

MAY 24 2023

7224-3

Allan Meier
Midland National Life
One Sammons Plaza
Sioux Falls SD 57193

Dear Mr. Meier:

Enclosed is Water License No. 7224-3. 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. 7224-3**

(1) Midland National Life, One Sammons Plaza, Sioux Falls SD 57193 made Application No. 7224-3, November 4, 2010, for a water permit to divert 0.80 cubic feet of water per second from ground water, two wells (Sioux Quartzite), Lincoln County, South Dakota for geothermal heating and cooling purposes. Permit No. 7224-3, with a priority date of November 4, 2010, was approved March 14, 2011, and issued to the applicant for diversion of water with construction of the described water supply system to be completed on or before March 14, 2016, and for the application to beneficial use of water on or before March 14, 2020.

Water Permit No. 7224-3 authorized two wells in the SW $\frac{1}{4}$ NW $\frac{1}{4}$ Section 8, T100N, R50W. An investigation conducted for licensing purposes found the diversion points developed outside of the permitted area in the NW $\frac{1}{4}$ SW $\frac{1}{4}$ Section 8. Pursuant to SDCL 46-5-13.1 and ARSD 74:02:01:14.01, the Chief Engineer made a finding that the change in the diversion point locations did 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 0.80 cubic feet of water per second for beneficial use. The diversion points are located as follows:

- Well #1: 1,920 ft N & 895 ft E of the SW corner of Section 8, T100N, R50W (NW $\frac{1}{4}$ SW $\frac{1}{4}$)
Latitude 43.49500, Longitude -96.78375
- Well #2: 2,160 ft N & 1,045 ft E of the SW corner of Section 8, T100N, R50W (NW $\frac{1}{4}$ SW $\frac{1}{4}$)
Latitude 43.49572, Longitude -96.78316

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

(4) Pursuant to South Dakota Water Law 46-5-30.1 Midland National Life, One Sammons Plaza, Sioux Falls SD 57193 the holder and/or owner of Water Right No. 7224-3 is issued a license to appropriate water, the right to use 0.80 cubic feet of water per second from ground water, two wells (Sioux Quartzite) with a priority date of November 4, 2010, from the locations specified in (2) of this license for geothermal heating and cooling purposes.

This license is subject to South Dakota Water Law, any limitations or conditions listed in Water Right No. 7224-3 and subject to the following qualification:

- 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.


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

MAY 24 2023
date

