

WATER PERMIT NO. 2585-2

Name of Applicant: Southern Black Hills Water System

Address: PO Box 124, Hermosa SD 57744 Phone: 605 424-2066

Amount of Water Claimed: 1600 AF Total Acres: NA

Source of Water Supply: groundwater (one well)

Water to be used for: rural water system use County: Custer

Type of Waste Disposal System:

Location: 5 miles northwest of Buffalo Gap

PRIORITY Date Received: 5-8-06

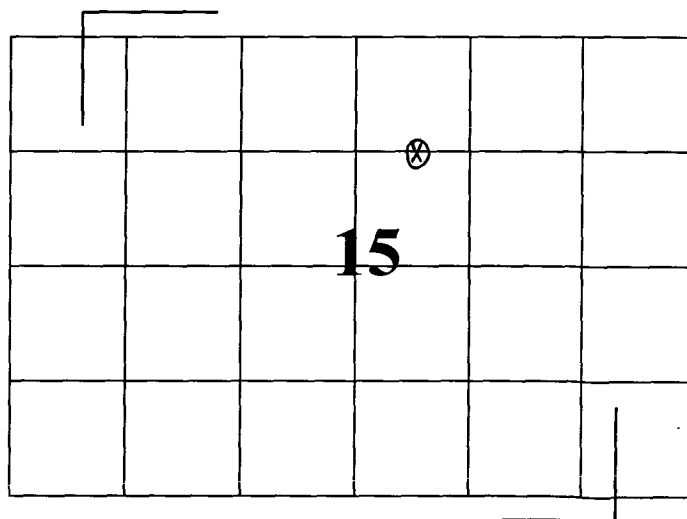
Application/License Fee: \$ 575.⁰⁰

Corrected Application Received: Period of Annual Use: January 1 – December 31

Remarks: serve users in Custer, Fall River and Pennington Counties

Diversion Point: W ½ NE ¼ Section 15-T6S-R6E

Land to be Irrigated:



Depth of Well: 1000 feet deep

Well Driller:

Remarks:

Type of Map: topo

Prepared by: Ken W Royse, PE

Reviewed and the Number Assigned on: 5-8-06

By: Karen Schlaak

Notice of Hearing - date to intervene: _____

Mail to:
Water Rights Program
Joe Foss Building
523 E. Capitol
Pierre, SD 57501-3181
(605) 773-3352

(office use only)
No. 2585-3 Hydrologic Unit 10120109
Basin Upper Cheyenne
Newspaper Hot Springs Star, Custer Co Chronicle
and Rapid City Journal

RECEIVED

MAY - 8 2006

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:
(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.)

Permit to develop a ground water source for the Southern Black Hills Water System

- Name of Applicant Southern Black Hills Water System Phone (605) 424-2066
(check one) ☐ Owner ☐ Tenant/lessee
Mailing Address PO Box 124 Hermosa State SD 57744
(Street, RR, or Box and City) (Zip Code)
- Amount of water claimed 2.67 *CFS or 1200 **GPM 1,600.00 ***AF
(*Cubic Feet per Second) (**Gallons per Minute) (***)Acre Feet - storage capacity of dam/dugout or annual use if applicable
- Source of water supply Madison Formation
- Location of point of diversion (example - 3 wells in SW1/4 NE1/4 section 12-T104N-R53W) County Custer
W1/2 NE 1/4 of Sec. 15 - T6S - R6E
- County or counties where water will be used Custer/Fall River/Pennington
- Annual period during which water is to be used Jan. 1 to 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)

System Engineering Report has been previously submitted to SDDENR. System is currently developing a regional supply and delivery system which will utilize water in counties as noted. Water quantity is based on a reasonable expectation of a year 2050 growth condition in area.

STATE OF ~~SOUTH~~ ^{NORTH} DAKOTA) SSCounty of Burleigh

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, Ken Rose, 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 Ken RoseSubscribed and sworn to before me this 5th day of May 20 06

PAMELA KENNEDY-SCHNEIDER

Notary Public

State of North Dakota

My Commission Expires Sept. 13, 2010

Notary Public signature Pamela Kennedy-Schneider

Supplemental Information

(Complete applicable portions only)

(type or print in ink)

1. Well Information - Proposed Construction

- a) Drill Hole Diameter 10"-12" Depth 1000'
- b) Casing Type PVC/steel Diameter 8" - 10" Thickness _____
- c) Screen Type _____ Diameter _____ Thickness _____
- d) Gravel Pack _____ Length of Gravel Pack _____ unknown
- e) Depth to Top of Water Bearing Material _____ unknown
- f) Depth to Water (ground surface to water level) _____ est. 970-1000'
- g) Distance to nearest existing domestic well:
- On applicants property 300-500 feet On property owned by others unknown

2. Wastewater Disposal System Information

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

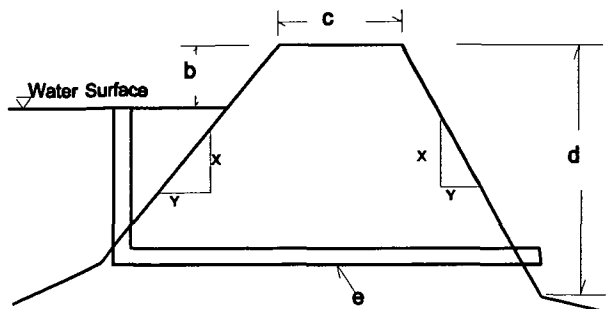
3. Dugout Information

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

4. Water Storage Dams

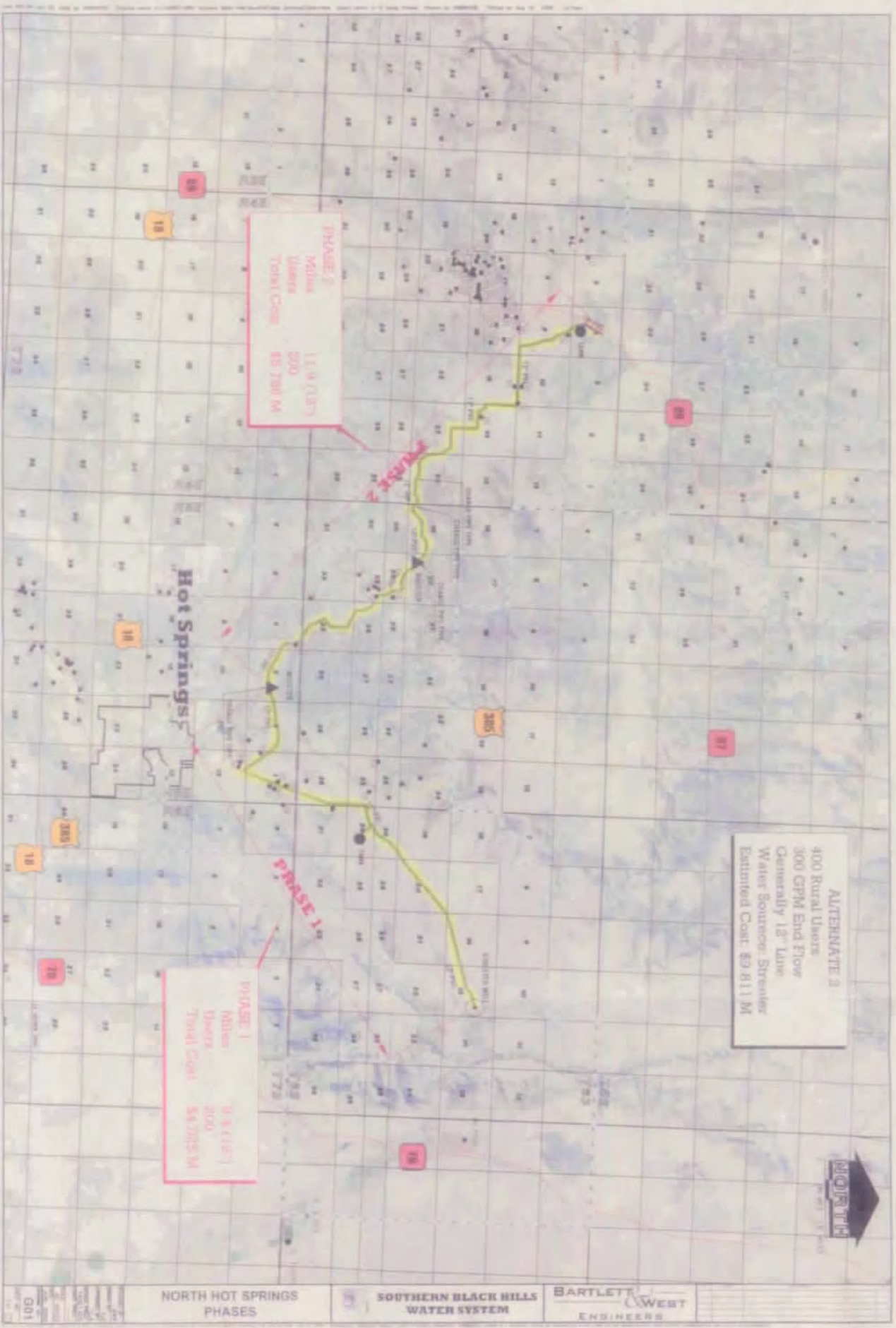
If the proposed water use system contains one or more storage dams, please furnish the information requested below for each dam. The locations of the dams need to be shown on the map submitted with the application.

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

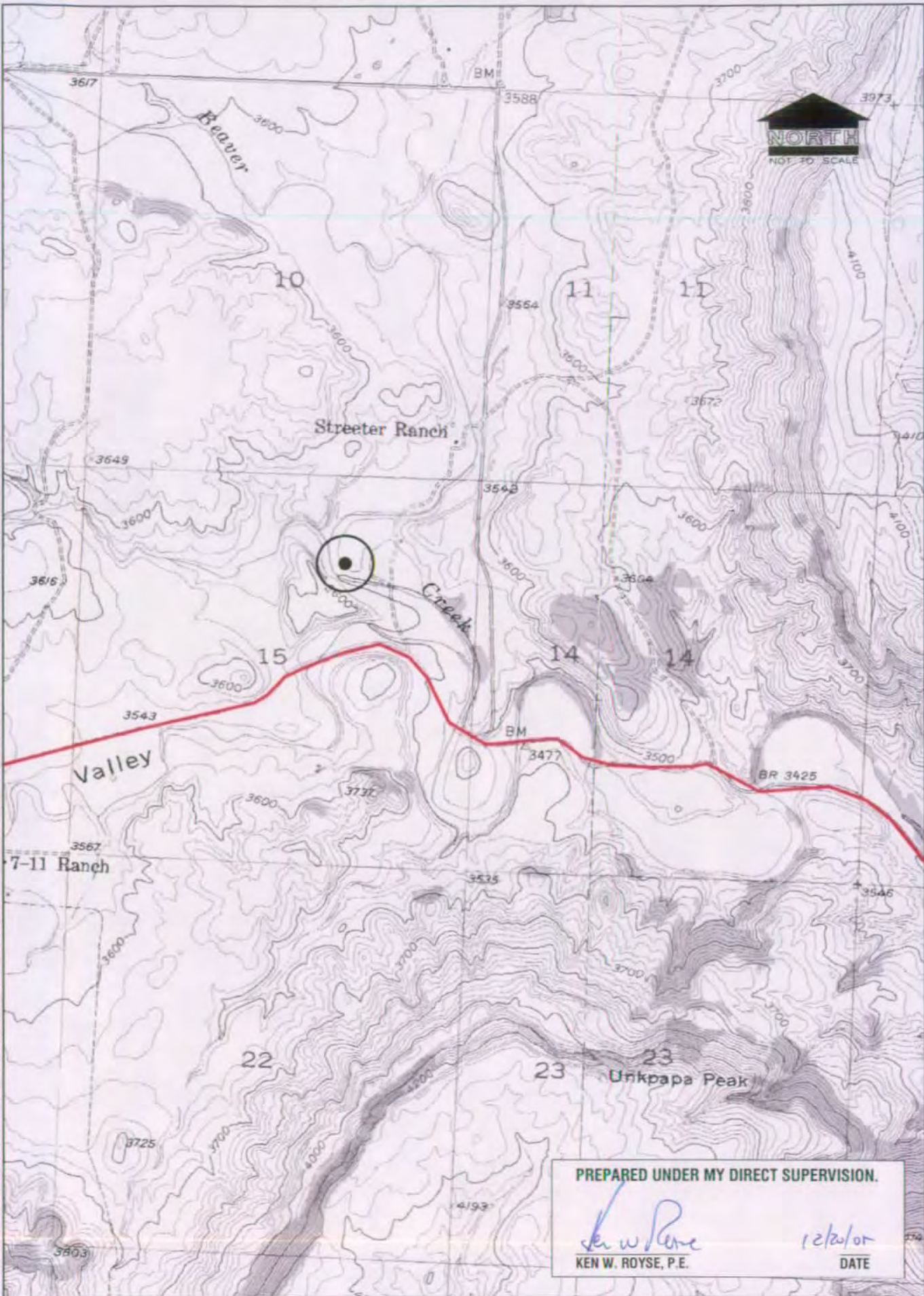


- b) Freeboard _____
- c) Crest Width _____
Crest Length _____
- d) Height _____
- e) Primary Outlet Capacity _____
If pipe, diameter _____
- f) Secondary Spillway Capacity _____
Spillway Width _____
- g) X & Y Slope _____
Upstream _____
Downstream _____
- h) Surface Area of Impoundment _____
- i) Storage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

Exhibit No. 10 G01 - From hearing on Application 2585-2



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PREPARED UNDER MY DIRECT SUPERVISION.

Ken W. Royse
KEN W. ROYSE, P.E.

12/20/08
DATE

BARTLETT & WEST
ENGINEERS

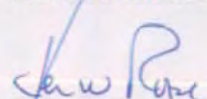
**SOUTHERN BLACK
HILLS WATER SYSTEM**

WELL SITE No. 1
SEC 15 - T6S - R6E

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PREPARED UNDER MY DIRECT SUPERVISION.


KEN W. ROYSE, P.E.

12/26/05
DATE

BARTLETT & WEST
ENGINEERS

**SOUTHERN BLACK
HILLS WATER SYSTEM**

WELL SITE No. 1
SEC 15 - T6S - R6E

RECEIPT

WATER RIGHTS PROGRAM

South Dakota Department of Environment and Natural Resources

Date May 15, 20 06

RECEIVED OF Southern Black Hills Water System Inc., PO Bxo 124, Hermosa SD 57744

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

Fee for Application for Permit No. <u>2585-2</u> to Appropriate Water, to construct and to put water to beneficial use	442	50
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>2585-2</u>	50	00
Fee for Filing Transfer Form _____		
Fee for _____		
Fee for Issuing New Well Driller's License No. _____ for C.Y. _____		
Fee for Renewal of Well Driller's License No. _____ for C.Y. _____		
Fee for Issuing Well Pump Installer's License No. _____ for C.Y. _____		
Fee for Renewal of Well Pump Installer's License No. _____ for C.Y. _____		
(Any Other Work Provided by Law)	TOTAL	492.50

No.

2445

By

Darland Eide

Chief Engineer

an

RECEIPT

WATER RIGHTS PROGRAM

South Dakota Department of Environment and Natural Resources

Date March 3, 20 06

RECEIVED OF Southern Black Hills Water System Inc., PO Box 124, Hermosa SD 57744

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

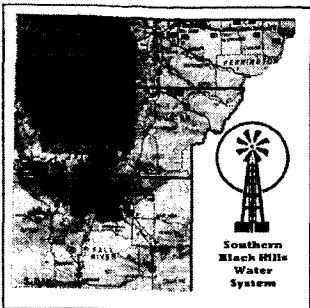
Fee for Application for Permit No. <u>2585-2</u> to Appropriate Water, to construct and to put water to beneficial use		82	50
Fee for Application for Permit No. ~~8550-2~~ to Appropriate Water for Future use			
Fee to retain Future Use Permit No. _____ after period of seven years.			
Fee for Inspecting Constructed Works, confirming beneficial use and issuing Water License No. _____			
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	82.50	

No.

2332

By

Darland Ebele
Chief Engineer *gm*



SOUTHERN BLACK HILLS WATER SYSTEM

P.O. Box 124

Hermosa, South Dakota 57744

Phone 605-255-4291

Fax 605-255-4094

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MAY - 8 2006

WATER RIGHTS
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May 5, 2006

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SD Rural Water
605-642-4031
- ◆ Dave Ryan
Advisory
SD Dept. of Env./Nat. Res.
605-773-4216
- ◆ Ken Royse
Engineer
Bartlett & West Engineers
701-258-1110

Mr. Eric Grunland
Water Rights Program, DENR
Joe Foss Building 523 East Capitol
Pierre, SD 57501-3181

Re: Southern Black Hills Rural Water
Modification of Future Use Permit Application and
New Permit to Appropriate Water

Dear Eric,

This is a follow-up to recent discussions regarding the pending Southern Black Hills (SBH) Water System Application for a Future Use Reservation of Water.

That application was submitted to your office in late February of this year and had identified five (5) separate potential water withdrawal sites for a total water need of 3,074 acre-ft/year. Please accept this letter as our request to eliminate Well Site No. 1 (located in Sec. 15-T6S-R6E) from the future permit application; please also reduce our water need request from 3,074 acre-ft/year to a revised future use of 1474 acre-ft/year.

With the above modification to the pending Future Use Permit Application please also accept a New Permit to Appropriate Water as attached. This new permit is for Well Site No. 1 (Sec. 15-T6S-R6E) as was deleted from the Future Use Permit. The amount of water requested is 1600 acre-ft/year (also as was deleted from the Future Use Permit).

We understand the fee adjustment created by the modifications to the Future Use Permit may be applied at the fee now due to process the new permit. If you need more on this please contact our engineer (Mr. Ken Royse, 701-258-1110) at your convenience.

Sincerely,

Bob Morrison
Chairman

cc: BW - Ken Royse w/attach.
SBH - Bob Morrison w/attach.



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

May 8, 2006

Southern Black Hills Water System
c/o Bob Morrison, Chairman
PO Box 124
Hermosa SD 57744

Dear Mr. Morrison:

We have received your request to amend the water permit application submitted March 2, 2006 as well as the additional *Application for a Permit to Appropriate Water* for rural water system use.

We originally received an application filing fee of \$82.50. After reviewing the two applications, it was determined an additional fee of \$542.50 will be required from the system.

If you have any questions, please contact me.

Sincerely,

Karen Schlaak

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

c: Ken Royse

Water Rights Program - DENR
Conversation File Documentation

NAME OF PERSON OR FILE: Water Permit Appl. No. 2585-2, Southern Black Hills Water
System

ADDRESS: COUNTY: Fall River

DATE: May 31, 2006 TELEPHONE:

RE: Call to Ken Royse

Ken Royse returned my phone call. He stated it was an oversight that the diversion rate was not included on the application. He stated the proposed diversion rate is 1,200 gallons per minute.

NAME: *Eric Handberg*

WATER PERMIT APPLICATION NO. 2585-2
SOUTHERN BLACK HILLS WATER SYSTEM
JUNE 1, 2006

Water Permit Application No. 2585-2 proposes to appropriate 2.67 cubic feet of water per second (1,600 acre-feet of water annually) from a well completed into the Madison aquifer located in the W ½ NE¼ Sec. 15, T6S-R6E in Custer County. The water is for rural water system use in Fall River, Custer and Pennington Counties.

AQUIFER: Madison aquifer (MDSN)

Aquifer Characteristics:

The Madison Limestone, locally known as the Pahasapa Limestone, is a fine to medium crystalline, cavernous limestone and dolomite. The Madison is laterally extensive and underlies much of the western United States. The Madison underlies 19,116,160 acres of western South Dakota and contains an estimated 644,827,200 acre-feet of recoverable water in storage. (Allen and others, 1985). The importance of the Madison as an aquifer is largely due to well developed zones of secondary porosity and permeability formed by weathering of exposed surfaces and ground water solution. The average porosity of the Madison is estimated to be 11% and the effective porosity from which recoverable water can be obtained by wells is assumed to be 5% (Rahn, 1979). Estimates of the thickness of the Madison in this area range from approximately 250 feet thick (Allen and others, 1985) to approximately 400 feet thick (Carter and Redden, 1999a) and (Carter and Redden, 1999b). This proposed well site is located on the crest of a plunging anticline (Williamson and others, 2000). This geologic structure may have enhanced the Madison's permeability as evidenced by a well (the "Streeter" well) completed approximately 500 feet from this proposed well site which reportedly flows 150 gallons per minute with only 10 feet of Madison penetrated by the well (Water Rights, 1994). The top of the Madison is estimated to be about 1,000 feet below grade at this site (Carter and Redden, 1999). In this area the Madison water is expected to be hot (over 100° F), fairly hard, and relatively low in total dissolved solids.

Water Availability:

The availability of unappropriated water in the Madison aquifer can be evaluated by considering SDCL 46-6-3.1 which requires that "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."

The Madison is recharged through infiltration of precipitation falling directly on the outcrop area, possibly upward leakage from the Deadwood aquifer, and from streamflow losses. The estimated average annual recharge for the Madison aquifer in South Dakota ranges from 140,000 to 400,000 acre-feet annually (Woodward Clyde, 1981). Average annual

recharge from 1931-1998 is estimated to be approximately 137,000 ac-ft/yr (Carter and others, 2001).

The high cost of Madison wells, except very near the outcrop, and the availability of groundwater from shallower aquifers, has limited domestic development and generally restricted usage from the Madison to those uses which require water rights. There are a total of 142 permits/rights which appropriate water from the Madison aquifer in South Dakota (Water Rights, 2006c). In addition, there are three future use permits (1833-2 Weston Heights Home Owners, 2086-2 The City of Rapid City, and 2560-2 Fall River Water User District) that reserve 6,108.8 acre-feet of water annually from the Madison aquifer. The majority of the water rights/permits from the aquifer are from Butte, Lawrence, Meade, Pennington and Fall River Counties. The Madison supplies water for irrigation, geothermal, industrial, and commercial use. However, by far the major use of the aquifer is for common distribution systems (suburban housing development and municipal use). The cities of Spearfish, Belle Fourche, Sturgis, Rapid City, Box Elder, and Edgemont all depend on water from the Madison aquifer.

If the worst case assumptions are made that (1) permits/rights with an annual withdrawal limitation (ac-ft/yr) will use the maximum allowable; and (2) permits/rights that are limited by a diversion rate only, will use 60% of the maximum allowable (considered reasonable for water distribution systems); the total water use from the Madison would be less than 50,000 acre-feet per year. The actual amount of water used from the Madison is considerably less than this estimate. Withdrawals from wells completed into the Madison aquifer were estimated to be 10,990.2 acre-feet annually from 1987-1996 (Carter and others, 2001).

This application proposes to withdraw 1,600 acre-feet of water annually from the Madison aquifer. Comparison of the estimated annual recharge to the Madison with the water use estimated from the aquifer indicates unappropriated water is available from the Madison aquifer.

Observation Well Data:

The Water Rights Program monitors 26 observation wells completed into the Madison aquifer in the Black Hills area (Water Rights, 2006b). The nearest observation well, CU-91A, is located about one and three-fourths miles west-southwest of this proposed well site. The hydrograph for the well is shown in figure 1.

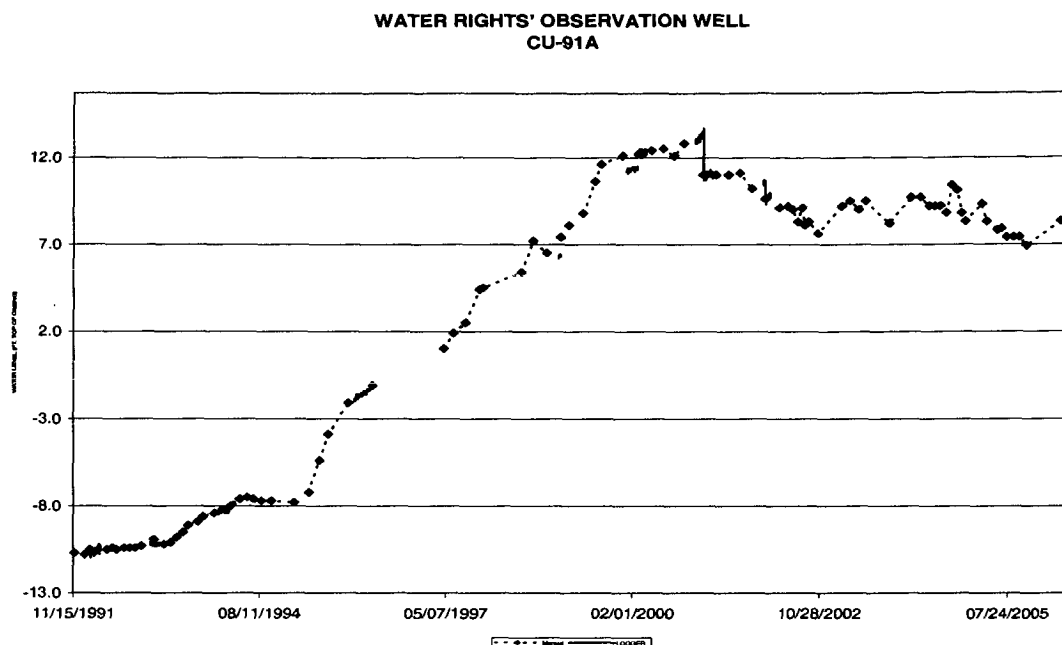


Figure 1. Hydrograph of Water Rights' Madison aquifer observation well located approximately 1.75 miles west-southwest of 2585-2

Observation well data suggests the potentiometric surface of the Madison aquifer has fluctuated around 25 feet during the period of record in response to seasonal and climatic variations. The hydrograph shows the potentiometric surface rose during the late 1990's in response to wet climatic conditions and decreased since about 2001 in response to less recharge. Observation well data indicates that at the existing level of development, natural influences dominate the water levels of the aquifer and the effects of appropriations as yet are not obvious. The observation well data verifies that unappropriated water is available from the Madison aquifer.

Affect on Existing Rights:

There are six Water Rights/Permits appropriating groundwater within five miles of the well site proposed by this application, they are shown below in table 1.

PERMIT NO	NAME	STATUS	AQUIFER	USE	CFS	DISTANCE FROM 2585-2
2113-2	JAMES A/DORIS J WILHELM	LC	MNLS	IND	0.03	4.5 mi.
2302-2	EBEN W STREETER	LC	MDSN	RWS	0.03	500 ft.
419-2	WIND CAVE NATIONAL PARK	LC	MDSN*	COM	0.15	3 mi.
794-2	TOWN OF BUFFALO GAP	LC	INKR	MUN	0.19	4.5 mi.
2546-2	EBEN W STREETER	PE	MDSN	RWS	0.21	500 ft.
2560-2	FALL RIVER WATER USERS DISTRICT	FU	MDSN	RWS	0.00	3 mi.

* Water Right authorizes use of a spring (probable Madison aquifer source) and a well (probable Deadwood aquifer source)

Table 1. Groundwater appropriations within five miles of 2585-2

The extent of a hydrologic connection between the Madison and shallower aquifers is unclear and debatable. If a connection exists it would be most evident between the Madison and the Minnelusa. The porous, permeable units of the Minnelusa Formation, which directly overlies the Madison Limestone, make up the Minnelusa aquifer. The Water Rights Program maintains an observation well completed into the Minnelusa aquifer adjacent to observation well CU-91A. Comparison of the hydrographs of the two wells (figure 2) clearly shows a potential for leakage from the Madison aquifer to the Minnelusa aquifer based on the potentiometric surface differential between the two aquifers.

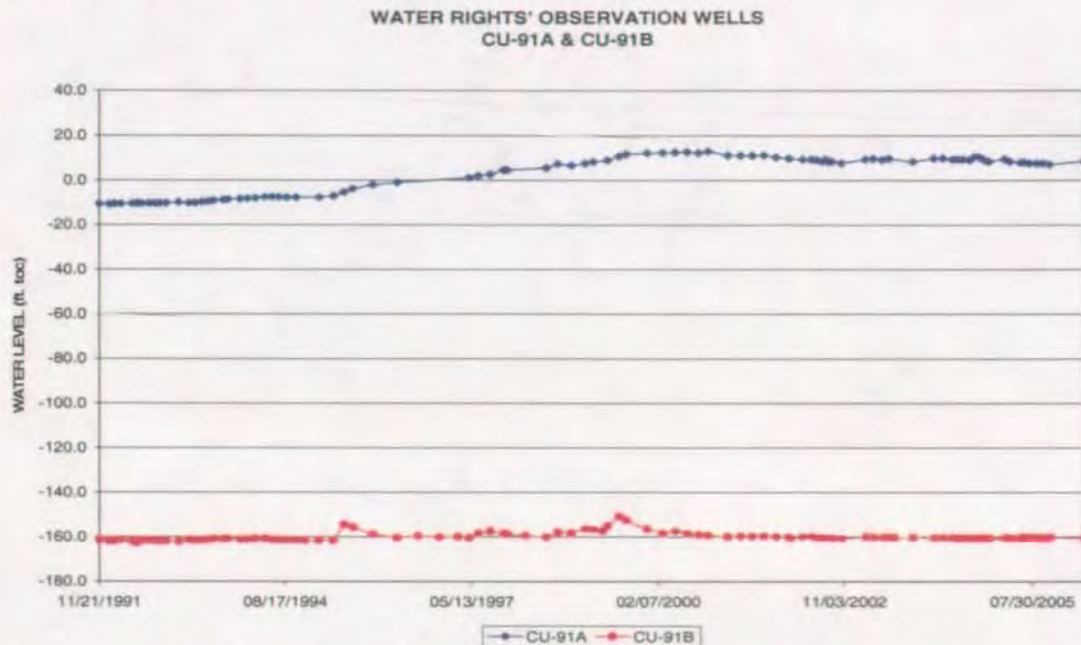


Figure 2. Hydrograph comparing colocated Water Rights' Observation wells completed into the Madison and Minnelusa aquifers

If leakage between the aquifers were significant, drawdown in the Madison could cause decreased leakage and consequently lower the water levels in the Minnelusa aquifer. However, the dolomitic lower portion of the Minnelusa is thought to serve as a confining layer, and for the most part the Madison and Minnelusa aquifers are "hydraulically distinct units". Confining layers occur above the Minnelusa aquifer limit any leakage to the overlying Minnekahta and Inyan Kara aquifers. Therefore, appropriations supplied by wells completed into aquifers that are shallower than the Madison (i.e. Minnelusa and Inyan Kara) are not expected to be impacted by this proposed well.

The lower portion of the Madison Limestone and the Englewood Formation form a lower confining unit minimizing the potential of impacts to the Deadwood aquifer.

The Madison aquifer is under confined conditions at this site with over 1,000 feet of artesian head pressure, and the well proposed by this application would flow. Drawdown from this appropriation could extend over a fairly large area. At this time it is not practical to attempt to quantify the specific affect pumping this well will have on area wells completed into the Madison aquifer since aquifer characteristics have not been

determined for this area, and the variability of the hydraulic characteristics has been well documented (Greene, 1993). In addition, Greene concluded that the transmissivity of the Madison is not equal in all directions (anisotropic); therefore the drawdown cone will extend farther in one direction than another.

Although the impact of this appropriation cannot be quantified, it is still possible to address whether this appropriation can be made without adversely affecting water rights, including domestic wells. Water Management Board rules 74:02:04 and 74:02:05, which were promulgated pursuant to SDCL 46-6-6.1, provide protection to prior appropriators only to the degree necessary to maintain an adequate depth of water in wells that have the ability to produce water *independent of artesian pressure*. Simply put the flow of a prior appropriator's well or even the well's pump placement is not necessarily protected. In fact, in past action, the Water Management Board has concluded that if increased cost or decreased production is considered an adverse impact, it could be in conflict with SDCL 46-1-4, which requires South Dakota's water resources to be put to beneficial use to the fullest extent of which they are capable. Therefore, the appropriation proposed by this application is not expected to adversely impact existing wells.

Although there are a limited number of domestic wells completed into the Madison aquifer in this area (Water Rights, 2004a) the potential affect of this appropriation to domestic wells must be considered. It is likely that even if a domestic well completed into the Madison aquifer in this area experienced interference, it would still be capable of delivering sufficient water with a pump inlet placed near the top of the aquifer. Therefore adverse impact to domestic wells is not probable.

Beaver Creek Springs

A potential obstacle to development of the Madison aquifer in this area concerns the possibility of affecting discharge from springs that may originate from the Madison aquifer. Beaver Creek Springs is located within approximately three-fourths of a mile from the well site proposed by this application. These springs are classified as Type 2 springs by Rahn and Gries (1973), meaning "The springs do not dry up and serve as points of permanent discharge from the carbonate aquifer" (Rahn and Gries, 1973). The water at Beaver Creek Springs has the "mixed geochemical characteristics of an evolved Minnelusa aquifer water with fast-moving, little evolved Madison aquifer water." (Whalen, 1994). Carter and others, (2002), conclude that the estimated spring source for Beaver Creek Springs is "Mostly Madison with dissolved Minnelusa minerals" from Whalen's findings.

The discharge of Beaver Creek Spring is estimated to be 10-15 cfs (Carter and others, 2002). It is clear from the hydrograph for Beaver Creek downstream of the springs (figure 3), that the estimated spring discharge accounts for the base flow of this creek. In theory, a lowering of the potentiometric surface of the Madison aquifer in the vicinity of these springs could reduce their discharge and consequently the flow in Beaver Creek.

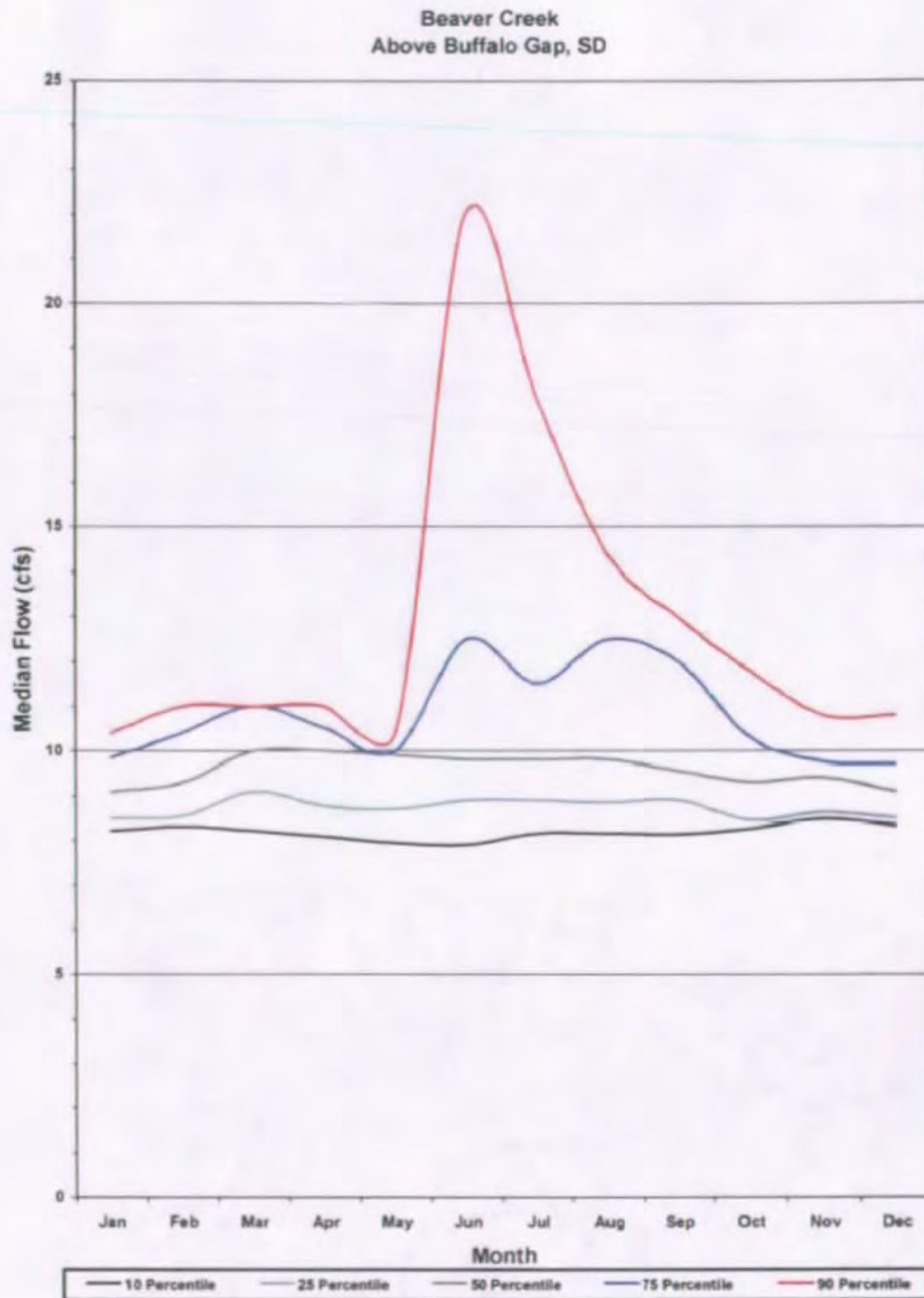


Figure 3. Hydrograph for Beaver Creek just downstream of Beaver Creek Springs (from Stroup, 2005)

There are 13 Water Rights/Permits appropriating water from Beaver Creek downstream of Beaver Creek Springs. The creek is considered over appropriated (Stroup, 2005).

If the base flow of Beaver Creek diminishes as the result of diversions from the well proposed by this application, the surface water users (appropriative and domestic) could

be affected. Since SD Water Law does not protect artesian head pressure as a means of diversion, well interference resulting in decreased discharge from these "artesian" springs probably could not be considered an adverse impact. However, the Water Management Board considered the potential of spring discharge decreasing as the result of well interference a "public interest" concern while considering Future Use Permit No. 2560-2. The future use permit was approved with the qualification stating:

"At such time as definite plans are made to construct works and put the water reserved by this permit to beneficial use, specific application for all or any part of the reserved water must be submitted and approved prior to construction of facilities pursuant to SDCL 46-5-38.1 with particular attention given to the flows of Beaver Spring, Cascade Springs and Hot Springs."

Since the aquifer characteristics have not been determined for the Madison aquifer in this area, it is not possible to estimate the drawdown at Beaver Creek Springs and/or decrease in flow of Beaver Creek that may result from this proposed diversion. Therefore it may not be possible to meet the "public interest" criteria that are established in SDCL 46-2A-9.

Future Use Permit No. 2560-2

Future Use Permit No. 2560-2 held by Fall River Water User District (FRWUD) reserves for future use, 750 acre-feet/year from the Madison aquifer, from three areas. The well site proposed by this application is located approximately two and one third miles northwest of one of these areas. The actual extent of interference between a well in the FRWUD area and the well proposed by this application will depend on location of the wells and the on-site aquifer characteristics. Water Permits are required before water reserved by the future use permits can be placed to beneficial use. Permits putting reserved water to beneficial use retain the priority date of the future use permits (May 16, 2005).

Pursuant to SDCL 46-2A-9, a permit to appropriate water can only be issued if there is reasonable probability that the proposed diversion can be developed without unlawful impairment of existing rights. If Application No. 2585-2 is approved, approval of a subsequent permit that would authorize FRWUD to construct a well in an area reserved by Future Use Permit No. 2560-2 could involve considering impacts to an *existing well* constructed to supply this permit, even though Permit No. 2560-2 has the senior priority date. However, once completed, any well constructed to use water that had been reserved by Future Use Permit No. 2560-2 would be senior to the well proposed by this application. A well constructed to supply this application may need to control its withdrawals to protect the senior water right.

SDCL 46-2A-9 also requires that a permit to appropriate water can only be issued if the appropriation is in the public interest. If the Water Management Board determines that it is not in the public interest to allow withdrawals from the Madison aquifer to decrease the flows of Beaver Creek, the number of high capacity wells in the proximity of Beaver Creek Springs could be limited in the future to prevent decreased spring discharge resulting from a cumulative impact of wells. In theory, if the well proposed by this

application (No. 2585-2) is constructed, a permit to put water reserved by Future Use Permit No. 2560-2 to beneficial use could be obstructed.

Term Limitation:

SDCL 46-2A-20 requires that "... no water permit for construction of works to withdraw water from the Madison formation in Butte, Fall River, Custer, Lawrence, Meade and Pennington counties may be issued for a term of more than twenty years, unless the water management board determines, based upon the evidence presented at the hearing that:

(1) Sufficient information is available to determine whether any significant adverse hydrologic effects on the supply of water in the Madison formation would result if the proposed withdrawal were approved; and

(2) The information, whether provided by the applicant or by other means, show that there is a reasonable probability that issuance of the proposed permit would not have a significant adverse effect on nearby Madison formation wells and springs."

Evidence is not available to justify issuing this permit without a term limitation of 20 years.

CONCLUSIONS:

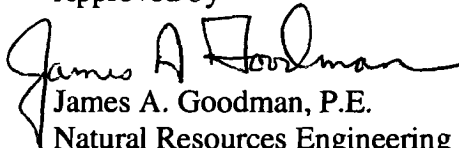
1. Water Permit Application 2585-2 proposes to appropriate 2.67 cubic feet of water per second (1,600 acre-feet of water annually) from a well completed into the Madison aquifer.
2. The Madison aquifer is a prolific aquifer that is laterally extensive. Unappropriated water is available for this appropriation.
3. The Madison aquifer is a confined aquifer in this area and drawdown from pumping could extend over a fairly widespread area.
4. The aquifer characteristics have not been determined for the Madison in this area so the extent of drawdown caused by this proposed appropriation cannot be evaluated.
5. The well site proposed by this application is located approximately 500 feet from the well that supplies Water Right No. 2302-2 and Water Permit No. 2546-2.
6. The well site proposed by this application is located approximately three-fourths of a mile from Beaver Creek Springs. The source for Beaver Creek Springs is "mostly Madison water".
7. The impact that drawdown in the Madison aquifer would have on the discharge of Beaver Creek Springs which provides the base flow for Beaver Creek, is unknown.

8. Decreased flow in Beaver Creek could affect a number of users (appropriative and domestic).
9. The well proposed by this application could affect development from Future Use Permit No. 2560-2.
10. Information is not available to approve this application without a 20 year term limit.
11. The Water Management Board must determine any public interest aspects of this application.



Ken Buhler
Natural Resources Engineering Specialist

Approved by



James A. Goodman, P.E.
Natural Resources Engineering Director

REFERENCES:

- Allen, J.C., Iles, D.L., and Petres, A.K., 1985, Analysis of Groundwater and Streamflow Data Western Dakotas Region of South Dakota, Tasks 3A.B.C. and 4A.B.: Groundwater Resource Inventory: South Dakota Department of Water and Natural Resources
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- Water Rights Program, 2006b, "Unpublished Observation Well Records", South Dakota DENR-Water Rights Program, Joe Foss Building, Pierre, SD
- Water Rights Program, 2006c, "Water Permit/Right Files", South Dakota DENR-Water Rights Program, Joe Foss Building, Pierre, SD
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**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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www.state.sd.us/denr

**RECOMMENDATION OF CHIEF ENGINEER FOR WATER PERMIT
APPLICATION NO. 2585-2, Southern Black Hills Water System**

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. 2585-2, Southern Black Hills Water System, c/o Robert Morrison, PO Box 124, Hermosa SD 57744.

The Chief Engineer is recommending DEFERRAL of Application No. 2585-2 until an aquifer test pump is completed by the applicant and the effect to Beaver Creek Springs is evaluated. An aquifer test pump proposal must be submitted to the Chief Engineer for review and approval prior to the test pump being conducted.

See report on application for additional information.

Garland Erbele, Chief Engineer
June 8, 2006



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and NATURAL RESOURCES**

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

June 8, 2006

Southern Black Hills Water System
c/o Robert G Morrison
PO Box 124
Hermosa SD 57744

Dear Mr. Morrison:

Water Permit Application Nos. 2580-2 and 2585-2 have been examined and found to comply with the South Dakota Water Laws and applicable rules. A notice has been sent to the following papers: Custer Co Chronicle, 605 673-2217, Rapid City Journal, 605 394-8300 and the Hot Springs Star, 605 745-4170.

You will need to contact the newspapers 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 newspapers to authorize publication of your Notice and to arrange for payment. Early contact with the papers 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

c: Ken Royse, Bartlett & West Engineers

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.



DEPARTMENT of ENVIRONMENT
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www.state.sd.us/denr

June 8, 2006

Hot Springs Star
PO Box 1000
Hot Spring SD 57747-1000

ATTENTION: Legal Public Notice

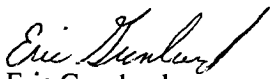
Enclosed is a Notice on Application Nos. 2580-2 and 2585-2 to Appropriate Water to be published twice. Please publish the first notice on June 13, 2006 with the second publication 7 days later. The text of the notice can be e-mailed to your paper by contacting Karen Schlaak at (605) 773-3352.

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 Southern Black Hills Water System, c/o Robert G Morrison, PO Box 124, Hermosa SD 57744 (Phone No. 605 424-2066).

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-----

Nos. 2580-2 and 2585-2

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

Date _____

We are in receipt of your letter of June 8, 2006 enclosing Notice to Appropriate Water by Application Nos. 2580-2 and 2585-2 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

June 8, 2006

Custer Co. Chronicle
PO Box 551
Custer SD 57730-0551

ATTENTION: Legal Public Notice

Enclosed is a Notice on Application Nos. 2580-2 and 2585-2 to Appropriate Water to be published twice. Please publish the first notice on June 14, 2006 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 Southern Black Hills Water System, c/o Robert G Morrison, PO Box 124, Hermosa SD 57744 (Phone No. 605 424-2066).

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-----

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

Nos. 2580-2 and 2585-2

Date _____

We are in receipt of your letter of June 8, 2006 enclosing Notice to Appropriate Water by Application Nos. 2580-2 and 2585-2 which was first published in our issue of _____. **ENCLOSED IS A COPY OF THIS FIRST PUBLICATION.**

Name Newspaper

Notice of Application No. 2580-2 to Appropriate and Reserve Water for Future Use
and Application No. 2585-2 to Appropriate Water

Notice is given that Southern Black Hills Water System, c/o Robert G Morrison, PO Box 124, Hermosa SD 57744 has filed the following applications.

Application No. 2580-2 proposes to appropriate for future use 1,474 acre-feet of water annually from the Madison Aquifer. The area to be reserved for future water use is the approximate center of NW ¼ Section 6-T3S-R8E (Custer County); S ½ SE ¼ Section 16-T6S-R4E (Custer County); W ½ NW ¼ Section 21-T8S-R5E (Fall River County) and S ½ NW ¼ Section 24-T6S-R5E (Custer County). The water is to be reserved for future water supplies for rural water system use by the system in Fall River, Custer and Pennington Counties. This application does not authorize construction of works or application of water to beneficial use.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 2580-2 because 1) unappropriated water is available, 2) the quantity of water reserved will be needed by the rural water system, 3) it is a beneficial use of water, and 4) it is in the public interest.

Application No. 2585-2 proposes to appropriate 2.67 cubic feet of water per second (1,600 acre-feet of water annually) from the Madison Aquifer located in the W ½ NE ¼ Section 15-T6S-R6E (Custer County). The water is for rural water system use in Fall River Custer and Pennington Counties.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends DEFERRAL of Application No. 2585-2 until an aquifer test pump is completed by the applicant and the effect to Beaver Creek Springs is evaluated.

Any person interested in opposing or supporting these applications must file a written petition with BOTH the applicant and Chief Engineer. The applicant must also file a petition if opposed to 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 July 3, 2006. 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 applications, and the signature and mailing address of the petitioner or the petitioner's legal counsel, if legal counsel is obtained.

The Water Management Board will consider these applications at 9:30 AM, July 12, 2006 in the Matthew Training Center, Foss Building, 523 E Capitol, Pierre SD. The Chief Engineer's recommendations are not final or binding upon the Board. The Board is authorized to 1) approve, 2) approve with qualifications, 3) defer, or 4) deny these applications based on the facts presented at the public hearing. The July 12, 2006 hearing date will be automatically delayed for at least 20 days upon written request to the Chief Engineer from the applicant or any interested person opposing the application. The request for an automatic delay must be filed by July 3, 2006.

Any hearing will be an adversary proceeding. Any person filing a petition and/or the applicant have the right to be represented by a lawyer and may present evidence or cross-examine witnesses according to SDCL 1-26. These and other due process rights will be forfeited if not exercised. Decisions of the Board may be appealed to the Circuit Court and State Supreme Court as provided by law. Contact Eric Gronlund by July 3, 2006, at the above Water Rights Program address to request copies of information pertaining to this application, to assure access to the hearing by the handicapped or to obtain an interpreter for the hearing impaired.

Since these applications do not involve a monetary controversy in excess of \$2,500.00 or termination of a property right in accordance with SDCL 1-26-18.3, the Chief Engineer has determined this contested case may not be referred to the Office of Hearing Examiners. If any party disagrees with this determination, the Chief Engineer shall be notified by July 3, 2006.

These applications are made pursuant to SDCL 46-1-1 thru 46-1-9, 46-1-12 thru 46-1-16; 46-2-3.1, 46-2-9, 46-2-11, 46-2-13, 46-2-17; 46-2A-1 thru 46-2A-10, 46-2A-12, 46-2A-14, 46-2A-15, 46-2A-20, 46-2A-21; 46-5-1 thru 46-5-11, 46-5-13 thru 46-5-15, 46-5-24, 46-5-25, 46-5-30.2, 46-5-30.4, 46-5-31; 46-6-3, 46-6-3.1, 46-6-6.1, 46-6-10, 46-6-13, 46-6-14, 46-6-26; and Board Rules ARSD 74:02:01:01 thru 74:02:01:15. Steven M. Pirner, Secretary, Department of Environment and Natural Resources.



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

PMB 2020
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June 8, 2006

Rapid City Journal
PO Box 450
Rapid City SD 57709-0450

ATTENTION: Legal Public Notice

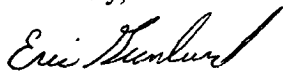
Enclosed is a Notice on Application Nos. 2580-2 and 2585-2 to Appropriate Water to be published twice. Please publish the first notice on June 14, 2006 with the second publication 7 days later. The text of the notice can be e-mailed to your paper by contacting Karen Schlaak at (605) 773-3352.

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 Southern Black Hills Water System, c/o Robert G Morrison, PO Box 124, Hermosa SD 57744 (Phone No. 605 424-2066).

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.

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Sincerely,


Eric Gronlund
Natural Resources Engineer
605 773-3352

enclosures

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

Nos. 2580-2 and 2585-2

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

Date _____

We are in receipt of your letter of June 8, 2006 enclosing Notice to Appropriate Water by Application Nos. 2580-2 and 2585-2 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)

)ss.

County of Custer

Charles W. Najacht of said county, being duly sworn, on oath says that he is publisher of the Custer County Chronicle, a weekly newspaper printed and published in Custer City, said County of Custer and has full and personal knowledge of all the facts herein stated; that said newspaper is a legal newspaper and has a bona-fide circulation of at least two hundred copies weekly, and has been published within said County for fifty-two successive weeks next prior to the publication of the notice herein, mentioned, and was and is printed wholly or in part in an office maintained at said place of publication: that the

Southern Hills Water District
Water Application

a printed copy of which, taken from the paper in which the same was published, is attached to this sheet, and is made a part of this Affidavit, was published in said newspaper at least once each week for 2 successive week(s), on which said newspaper was regularly published, to wit:

June 14, 2004 ; June 21, 2006 ;

_____ ; _____ ; _____ ;

_____ ; _____ ; _____ ;

_____ ; _____ ; _____ ;

the full amount of the fees for the publication of the annexed notice is \$ 77.33.

Charles W. Najacht

Subscribed and sworn to me before this 21

of June, 2006 ;

Norma Najacht

NOTARY PUBLIC

MY COMMISSION EXPIRES: May 5, 2012

NOTICE OF APPLICATION

NO. 2580-2 TO APPROPRIATE AND RESERVE WATER FOR FUTURE USE AND APPLICATION NO. 2585-2 TO APPROPRIATE WATER

Notice is given that Southern Black Hills Water System, c/o Robert G Morrison, PO Box 124, Hermosa SD 57744 has filed the following applications.

Application No. 2580-2 proposes to appropriate for future use 1,474 acre-feet of water annually from the Madison Aquifer. The area to be reserved for future water use is the approximate center of NW 1/4 Section 6-T3S-R8E (Custer County); S 1/2 SE 1/4 Section 16-T6S-R4E (Custer County); W 1/2 NW 1/4 Section 21-T8S-R5E (Fall River County) and S 1/2 NW 1/4 Section 24-T6S-R5E (Custer County). The water is to be reserved for future water supplies for rural water system use by the system in Fall River, Custer and Pennington Counties. This application does not authorize construction of works or application of water to beneficial use.

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River, Custer and Pennington Counties.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends DEFERRAL of Application No. 2585-2 until an aquifer test pump is completed by the applicant and the effect to Beaver Creek Springs is evaluated.

Any person interested in opposing or supporting these applications must file a written petition with BOTH the applicant and Chief Engineer. The applicant must also file a petition if opposed to 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 July 3, 2006. 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 applications, and the signature and mailing address of the petitioner or the petitioner's legal counsel, if legal counsel is obtained.

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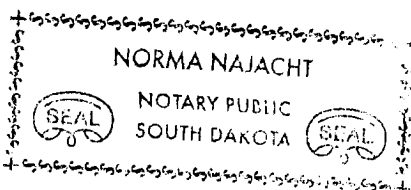
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#190, 6/14, 6/21

RECEIVED
JUL 12 2006
WATER RIGHTS
PROGRAM



Form 8

PROOF OF PUBLICATION

STATE OF SOUTH DAKOTA)
County of Pennington) SS

I, Patricia K. Van Patten

certify that the attached printed Notice was taken

from the Rapid City Journal

printed and published in Rapid City

County of Pennington and

state of South Dakota. The notice was published

in the newspaper on the following two dates:

June 14, 2006

June 21, 2006

Cost of Printing One hundred eighty-nine
dollars and twenty-eight cents (\$189.28)

(Signature)

(Title)

(Date Signed)

June 14, 21 L2315541

NOTICE OF APPLICATION NO. 2580-2 TO APPROPRIATE AND RESERVE WATER FOR FUTURE USE AND APPLICATION NO. 2585-2 TO APPROPRIATE WATER

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Application No. 2585-2 proposes to appropriate 2.67 cubic feet of water per second (1,600 acre-feet of water annually) from the Madison Aquifer located in the W½NE¼ Section 15, T6S-R6E (Custer County). The water is for rural water system use in Fall River, Custer, and Pennington Counties.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends DEFERRAL of Application No. 2585-2 until an aquifer test pump is completed by the applicant and the effect to Beaver Creek Springs is evaluated.

Any person interested in opposing or supporting these applications must file a written petition with BOTH the applicant and Chief Engineer. The applicant must also file a petition if opposed to 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 July 3, 2006. 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 applications, and the signature and mailing address of the petitioner or the petitioner's legal counsel, if legal counsel is obtained.

The Water Management Board will consider these applications at 9:30 a.m. on July 12, 2006, in the Matthew Training Center, Foss Building, 523 E. Capitol Avenue, Pierre, S.D. The Chief Engineer's recommendation is not final or binding upon the Board. The Board is authorized to 1) approve, 2) approve with qualifications, 3) defer, or 4) deny these applications based on the facts presented at the public hearing. The July 12, 2006, hearing date will be automatically delayed for at least 20 days upon written request to the Chief Engineer from the applicant or any interested person opposing the applications. The request for an automatic delay must be filed by July 3, 2006.

Any hearing will be an adversary proceeding. Any person filing a petition and/or the applicant have the right to be represented by a lawyer and may present evidence or cross-examine witnesses according to SDCL 1-26. These and other due process rights will be forfeited if not exercised. Decisions of the Board may be appealed to the Circuit Court and State Supreme Court as provided by law. Contact Eric Gronlund by July 3, 2006, at the above Water Rights Program address to request copies of information pertaining to these applications, to assure access to the hearing by the handicapped or to obtain an interpreter for the hearing impaired.

Since these applications do not involve a monetary controversy in excess of \$2,500.00 or termination of a property right in accordance with SDCL 1-26-18.3, the Chief Engineer has determined this contested case may not be referred to the Office of Hearing Examiners. If any party disagrees with this determination, the Chief Engineer shall be notified by July 3, 2006.

These applications are made pursuant to SDCL 46-1-1 thru 46-1-9, 46-1-12 thru 46-1-16; 46-2-3, 46-2-9, 46-2-11, 46-2-13, 46-2-17; 46-2A-1 thru 46-2A-10, 46-2A-12, 46-2A-14, 46-2A-15, 46-2A-20, 46-2A-21; 46-5-1 thru 46-5-11, 46-5-13 thru 46-5-15, 46-5-24, 46-5-25, 46-5-30.2, 46-5-30.4; 46-5-31; 46-6-3, 46-6-3.1, 46-6-6.1, 46-6-10, 46-6-13, 46-6-14, 46-6-26; and Board Rules ARSD 74:02:01:01 thru 74:02:01:15.

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

RECEIVED
JUN 28 2006
WATER RIGHTS
PROGRAM

NOTICE OF APPLICATION NO. 2580-2 TO APPROPRIATE AND RESERVE WATER FOR FUTURE USE AND APPLICATION NO. 2585-2 TO APPROPRIATE WATER

Notice is given that Southern Black Hills Water System, c/o Robert G Morrison, PO Box 124, Hermosa SD 57744 has filed the following applications.

Application No. 2580-2 proposes to appropriate for future use 1,474 acre-feet of water annually from the Madison Aquifer. The area to be reserved for future water use is the approximate center of NW 1/4 Section 6-T3S-R8E (Custer County); S 1/2 SE 1/4 Section 16-T6S-R4E (Custer County); W 1/2 NW 1/4 Section 21-T8S-R5E (Fall River County) and S 1/2 NW 1/4 Section 24-T6S-R5E (Custer County). The water is to be reserved for future water supplies for rural water system use by the system in Fall River, Custer and Pennington Counties. This application does not authorize construction of works or application of water to beneficial use.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 2580-2 because 1) unappropriated water is available, 2) the quantity of water reserved will be needed by the rural water system, 3) it is a beneficial use of water, and 4) it is in the public interest.

Application No. 2585-2 proposes to appropriate 2.67 cubic feet of water per second (1,600 acre-feet of water annually) from the Madison Aquifer located in the W 1/2 NE 1/4 Section 15-T6S-R6E (Custer County). The water is for rural water system use in Fall River, Custer and Pennington Counties.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends DEFERRAL of Application No. 2585-2 until an aquifer test pump is completed by the applicant and the effect to Beaver Creek Springs is evaluated.

Any person interested in opposing or supporting these applications must file a written petition with BOTH the applicant and Chief Engineer. The applicant must also file a petition if opposed to 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 July 3, 2006. 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 applications, and the signature and mailing address of the petitioner or the petitioner's legal counsel, if legal counsel is obtained.

The Water Management Board will consider these applications at 9:30 AM, July 12, 2006 in the Matthew Training Center, Foss Building, 523 E Capitol, Pierre SD. The Chief

Engineer's recommendations are not final or binding upon the Board. The Board is authorized to 1) approve, 2) approve with qualifications, 3) defer, or 4) deny these applications based on the facts presented at the public hearing. The July 12, 2006 hearing date will be automatically delayed for at least 20 days upon written request to the Chief Engineer from the applicant or any interested person opposing the application. The request for an automatic delay must be filed by July 3, 2006.

Any hearing will be an adversary proceeding. Any person filing a petition and/or the applicant have the right to be represented by a lawyer and may present evidence or cross-examine witnesses according to SDCL 1-26. These and other due process rights will be forfeited if not exercised. Decisions of the Board may be appealed to the Circuit Court and State Supreme Court as provided by law. Contact Eric Gronlund by July 3, 2006, at the above Water Rights Program address to request copies of information pertaining to this application, to assure access to the hearing by the handicapped or to obtain an interpreter for the hearing impaired.

Since these applications do not involve a monetary controversy in excess of \$2,500.00 or termination of a property right in accordance with SDCL 1-26-18.3, the Chief Engineer has determined this contested case may not be referred to the Office of Hearing Examiners. If any party disagrees with this determination, the Chief Engineer shall be notified by July 3, 2006.

These applications are made pursuant to SDCL 46-1-1 thru 46-1-9, 46-1-12 thru 46-1-16; 46-2-3.1, 46-2-9, 46-2-11, 46-2-13, 46-2-17; 46-2A-1 thru 46-2A-10, 46-2A-12, 46-2A-14, 46-2A-15, 46-2A-20, 46-2A-21; 46-5-1 thru 46-5-11, 46-5-13 thru 46-5-15, 46-5-24, 46-5-25, 46-5-30.2, 46-5-30.4, 46-5-31; 46-6-3, 46-6-3.1, 46-6-6.1, 46-6-10, 46-6-13, 46-6-14, 46-6-26; and Board Rules ARSD 74:02:01:01 thru 74:02:01:15. Steven M. Pirner, Secretary, Department of Environment and Natural Resources.

June 13, 20

AFFIDAVIT OF PUBLICATION

State of South Dakota)
) ss.
County of Fall River)

Brett Nachtigall of Hot Springs, Fall River County, South Dakota, being duly sworn, upon oath says that he is the publisher of the Hot Springs Star, is a legal newspaper, as defined in SDCL 17-2-2.1 through 17-2-2.4 inclusive, and is published at Hot Springs, county and state aforesaid; that the advertisement headed —

278- Notice of Application

a true printed copy thereof is hereunto annexed, was published in the said Hot Springs Star, in the regular and entire issue of said paper,

for two

successive issues, beginning with the issue dated _____

June 13, 2006

and ending with the issue dated _____

June 20, 2006

That the full amount of the fee charged for the publication of said notice is

\$ 101.43, and that

no agreement or understanding, for the division thereof, has been made with any other person, and that no part thereof has been agreed to be paid to any person whomsoever, that the whole amount insures to the benefit of the publishers of said newspaper.

Subscribed and sworn to before me

this 20 day of June

20 06

Notary Public

My Commission Expires
June 4, 2009

RECEIVED
JUN 22 2006
WATER RIGHTS
PROGRAM

OK



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

June 9, 2006

Randy Scott
Fall River Water Users District
1 Angostura Highland
Hot Springs SD 57747

Dear Mr. Scott:

Enclosed is a copy of the reports, recommendations and public notice for Future Use Water Permit No. 2580-2 and Water Permit Application No. 2585-2 filed by the Southern Black Hills Water System. The notice will be published in newspapers within the counties proposed to be served by the System. The notice schedules a July 12th hearing before the Water Management Board. Petitions to intervene must be submitted by July 3, 2006.

If you have any questions, please feel free to contact me.

Sincerely,

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

enclosures



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

June 9, 2006

Frank Schroth
7 - 11 Ranch
Box 97
Buffalo Gap SD 57722

Dear Mr. Schroth:

Enclosed is a copy of the reports, recommendations and public notice for Future Use Water Permit No. 2580-2 and Water Permit Application No. 2585-2 filed by the Southern Black Hills Water System. The notice will be published in newspapers within the counties proposed to be served by the System. The notice schedules a July 12th hearing before the Water Management Board. Petitions to intervene must be submitted by July 3, 2006.

This information is being sent because the 7 - 11 Ranch has expressed concerns on development impacting Beaver Creek Springs. If you have any questions, please feel free to contact me.

Sincerely,

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

Enclosures



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

June 20, 2006

Lois Emery
HC 52 Box 136A
Hot Springs SD 57747

Dear Ms. Emery:

As per your request, enclosed is a copy of the report, recommendation and public notice for Water Permit Application No. 2585-2 filed by the Southern Black Hills Water System. The notice will be published in newspapers within the counties proposed to be served by the System. The notice schedules a July 12th hearing before the Water Management Board. Petitions to intervene must be submitted by July 3, 2006.

If you have any questions, please feel free to contact Ken Buhler or me at (605) 773-3352.

Sincerely,

Eric Gronlund
Water Rights Program, DENR

enclosure



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

July 5, 2006

NOTICE

TO: Bob Morrison, Chairman
Southern Black Hills Water System
PO Box 124
Hermosa SD 57744
and Parties of Record (see attached list)

FROM: Garland Erbele, Chief Engineer
Water Rights Program *Garland Erbele*

SUBJECT: Automatic Delay of Hearing on Future Use Permit Application No. 2580-2 and
Water Right Permit Application No. 2585-2

In response to the notice of hearing published in the Rapid City Journal, Hot Springs Star and Custer Co. Chronicle, petitions have been filed to Southern Black Hills Water System's two applications. Copies of the petitions are enclosed in the applicant's mailing. A number of the petitions requested an automatic delay of the July 12th hearing before the Water Management Board. Therefore, the hearing on Application Nos. 2580-2 and 2585-2 is automatically delayed pursuant to SDCL 46-2A-4 and 46-2A-5 and will not be held on July 12, 2006.

The hearing to consider Application Nos. 2580-2 and 2585-2 will be scheduled for the Water Management Board meeting on October 4 and 5, 2006 meeting in Pierre. Future notice will be provided to all parties of record of the time, date and location of the meeting.

Please contact Eric Gronlund, Water Rights Program at (605) 773-3352, if you have any questions.

Enclosure (applicant only)

c: Diane Best, Assistant Attorney General
Ken Royse, Bartlett & West, 3456 E. Century Avenue, Bismarck ND 58503-0737

CERTIFICATION

I hereby certify that on July 5, 2006, I have personally deposited with the United States mail at Pierre, South Dakota, first class postage, prepaid envelopes containing a Notice dated July 5, 2006, regarding Automatic Delay of Hearing on Future Use Application No. 2580-2 and Water Right Permit Application No. 2585-2, Southern Black Hills Water System addressed as stated below and on the Parties of Record list:

Bob Morrison, Chairman
Southern Black Hills Water System
PO Box 124
Hermosa SD 57744

Ken Royse
Bartlett & West
3456 E. Century Avenue
Bismarck ND 58503-0737

A copy of the Notice was sent Inter-office to:

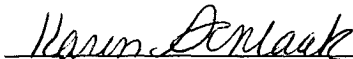
Diane Best, Assistant Attorney General, Capitol Building



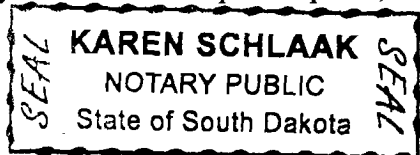
Eric Gronlund
Water Rights Program

STATE OF SOUTH DAKOTA)
) SS
COUNTY OF HUGHES)

Sworn to, before me, this 6th day of July, 2006.



Karen Schlaak
Notary Public
My Commission expires April 1, 2007



PARTIES OF RECORD

Future Use Permit Application No. 2580-2 and Water Permit Application No. 2585-2

Applicant

Bob Morrison, Chairman
Southern Black Hills Water System
PO Box 124
Hermosa SD 57744

Petitioners

Michael Hickey
Attorney for Trout Haven Ranch
Bangs McCullen Law Firm
PO Box 2670
Rapid City SD 57709

Marvin Bishop, Chairman
Custer County Commission
420 Mt. Rushmore Road
Custer SD 57730

James Brickey, Mayor
City of Hill City
PO Box 395
Hill City SD 57745

Harold Heiney
Box 7
Buffalo Gap SD 57722

Frank Scroth
7 - 11 Ranch
PO Box 97
Buffalo Gap SD 57722

Steven L. Knutson, President
Knutson Brothers, Inc.
12838 Cold Brook Road
Hot Springs SD 57747

John Beard
3810 Beaver Creek Rd
Buffalo Gap SD 57722

Lois Emery, Trustee
Lyda Bowker Trust
HC 52 Box 136A
Hot Springs SD 57747

Randy Scroth
PO Box 1
Buffalo Gap SD 57722

Clarence and Carol Foos
PO Box 317
Hermosa SD 57744

Tom Porter, Board Member
Southern Black Hills Water System
Box Z
Edgemont SD 57735

Roger Willey
Argyle Rd
Hot Springs SD 57747

Charles W. Pettee, Chief
Water Rights Branch
National Park Service
1201 Oakridge Drive, Suite 250
Fort Collins CO 80525-5596

Mr. and Mrs. Paul Fugier
27032 Beaver Valley Rd
Buffalo Gap SD 57722

Shawn Fugier
27094 Beaver Valley Rd
Buffalo Gap SD 57722



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

June 26, 2006

Southern Black Hills Water System
c/o Bob Morrison, Chairman
PO Box 124
Hermosa SD 57744

Ken Royse
Bartlett & West
3456 E Century Avenue
Bismarck ND 57503-0737

Gentleman:

Enclosed is a copy of a petition submitted by Harold Heiney regarding Southern Black Hills Water System's future use and water permit applications.

Sincerely,

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

enclosure

June 21, 2006
Buffalo Gap, SD

RECEIVED
JUN 26 2006
WATER RIGHTS
PROGRAM

Chief Engineer, Water Rights Program
Foss Building
523 E. Capitol
Pierre, SD 57501

Dear Sir:

I read with interest the articles concerning the Black Hills Water Right for future use that was printed in the Hot Springs Star, Tuesday, June 20, 2006. Since I am one of the people who use the water that comes from the Madison Aquifer, I thought I needed to express my opinion of the proposal.

In the legal notice, you stated that this does not authorize construction of works or application of water to beneficial use. I am against any drilling for water that bleeds water from the Beaver Creek Springs Water table, since that would affect my use of the water that feeds from the Beaver Creek Spring. I purchased my property 15 Years ago for a retirement home. At that time, I had no water available for human usage, so made arrangements to haul water from the Streeter well when I needed it. .

You said (1) the unappropriated water is available. Just because it has no names on a contract does not mean that it is available. (2) The quantity of water reserved will be needed by the rural water system. What you are saying is that the water I use is needed by the rural water system, so it is there for the taking. (3). It is a beneficial use of water. Beneficial use by whom? Just because this is big business, & people decided to move into this area, does their benefit justify taking my rights to the water so that other people can use it? (4) It is in the public interest. Just who is the "public" that is interested? Certainly not the people who are already using the water. I don't know of any of us that want our rights usurped so that it will satisfy the whims of big business. Who do you consider "the Public". I thought those of us who live along Beaver Creek were part of the "public".

You want a statement describing the petitioner's interest in the application. These are "reasons for opposing (or supporting) the applications". Let me give you a list:

1. The smaller the stream, the less value our land will have.. Right now, it serves as a water source for fish (trout), deer, elk, & other wild life. These are of great value to me. I and my family enjoy watching the wild life, & they will not be here if there is no available water. Your use will eventually bleed the Madison water table & there will be no water for anyone, not even the wildlife. It has happened elsewhere, & it will happen here if the Black Hills Water System has it's way.

2. The temperature of Beaver Creek is ideal now for trout, year round. A loss of water will mean no fishing, as we know it now. They can't endure 75 to 78 degrees. So there would be no fishing for trout by anyone.

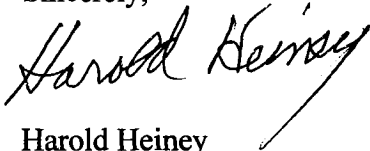
3. Water quality will go down. Taking water from the Madison water table would leave the spring shallow, with a greater per cent of hard water. There would be no irrigation for gardens, or flowers, fruit trees, & other natural usage. This would eventually ruin the soil.

4. The aesthetic value of our property would be a lot less without a stream. The way the water now runs, it is inviting to anyone who wants to come, listen to the water, the rustle of the trees, see wild life & not have to fight traffic. The stream will still be there, but smaller & less inviting.

In reading the article from the Star again, it looks to me like a lot of the decision to sap the Madison Water Aquifer has already been made, with no thought about the future of the stream. The Chief Engineer & the applicant are given a very short time to get the written opposition & the results are probably already decided.

One of the reasons I chose the Black Hills as my retirement home was the abundance of wild life to watch, not a lot of traffic, beautiful trees, hills & mountains to look at, & now, since I am retired because of health, you want to take these things from me. I am opposed to any development of the hills. It detracts from the beauty of the Black Hills that draws tourists from all over the world.

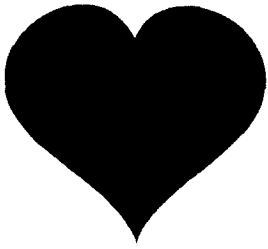
Sincerely,

A handwritten signature in cursive script that reads "Harold Heiney". The signature is written in dark ink and is positioned above the printed name.

Harold Heiney

Box 7

Buffalo Gap, SD 57722



City of Hill City

The Heart of the Hills

RECEIVED
JUN 29 2006
WATER RIGHTS
PROGRAM

324 Main Street, P.O. Box 395 Hill City, South Dakota 57745
Phone: 605.574.2300 Fax: 605.574.4327

June 28, 2006

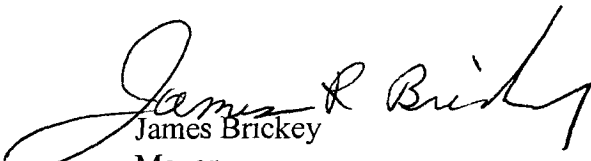
Water Rights Program
Foss Building
523 E Capitol
Pierre SD 57501

Dear Chief Engineer:

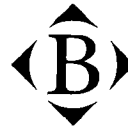
The City Council of Hill City is submitting this petition of support for Application Number 2580-2, to appropriate water for future use and Application Number 2585-2, to appropriate 2.67 c.f.s. of water from the Madison Aquifer, by Southern Black Hills Water System. The City Council believes that these Applications are extremely important for the health of Hill City residents and for the safe, efficient, and orderly future development.

We strongly urge Water Management Board to approve both of these Applications at its July 12th hearing so the Southern Black Hills Water System project may proceed as quickly as possible.

Sincerely


James Brickey
Mayor

Cc: Southern Black Hills Water System



BANGSMcCULLEN
— LAW FIRM —

Reply to Rapid City Office

Writer's e-mail address: mhickey@bangsmccullen.com

RECEIVED

JUN 29 2006

WATER RIGHTS
PROGRAM

June 28, 2006

Mr. Garland Erbele, Chief Engineer
Department of Environment and Natural Resources
Water Rights Program
Joe Foss Building
523 East Capitol
Pierre, SD 57501-3182

Re: *In the Matter of the Applications of Southern Black Hills
Water Systems No. 2580-2 and 2585-2*

Dear Mr. Erbele:

In accordance with the published notice, please find enclosed the Motion for Continuance and Objection filed on behalf of Trout Haven Ranch in the above-referenced matter. A copy has been sent to Southern Black Hills Water System, which is intended as service by mail.

If you have any questions or comments, please advise. Thank you.

Sincerely,

BANG, McCULLEN, BUTLER,
FOYE & SIMMONS, L.L.P.

Michael M. Hickey

mmh:bah:sbh

Enclosure

cc: Client

Mr. Robert G. Morrison

STATE OF SOUTH DAKOTA

BEFORE THE WATER MANAGEMENT BOARD

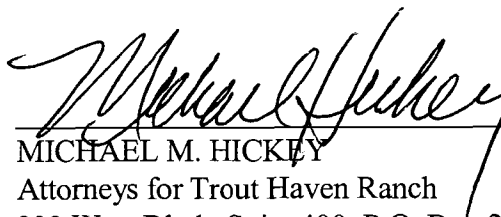
IN THE MATTER OF THE)
APPLICATIONS OF SOUTHERN) **MOTION FOR CONTINUANCE**
BLACK HILLS WATER SYSTEM,)
APPLICATION NO. 2580-2 & 2585-2)

Comes now Trout Haven Ranch, an interested party in the above proceeding, and hereby moves the Chief Engineer to continue the hearing set July 12, 2006, before the Water Management Board. This request is made on the grounds and for the reasons that Trout Haven Ranch needs additional time to review the application and reports prepared in this matter so that it can present evidence and testimony in opposition to the applications filed by Southern Black Hills Water System.

Dated this 28th day of June, 2006.

BANGS, McCULLEN, BUTLER,
FOYE & SIMMONS, L.L.P.

BY:



MICHAEL M. HICKEY

Attorneys for Trout Haven Ranch
333 West Blvd., Suite 400; P.O. Box 2670
Rapid City, SD 57709
Phone: (605) 343-1040

CERTIFICATE OF SERVICE

The undersigned hereby certifies that he served a copy of this legal document upon the persons herein next designated, all on the date below shown, by depositing copies thereof in the United States mail at Rapid City, South Dakota, postage prepaid, in envelopes addressed to said addressees, to wit:

Garland Erbele, Chief Engineer
Water Rights Program
Joe Foss Building
523 East Capitol
Pierre, SD 57501

Southern Black Hills Water System
c/o Robert G. Morrison
P.O. Box 124
Hermosa, SD 57744

which are the last addresses of the addressees known to the subscriber.

Dated this 28th day of June, 2006.



MICHAEL M. HICKEY

STATE OF SOUTH DAKOTA

BEFORE THE WATER MANAGEMENT BOARD

IN THE MATTER OF THE)
APPLICATIONS OF SOUTHERN)
BLACK HILLS WATER SYSTEM,)
APPLICATION NO. 2580-2 & 2585-2)

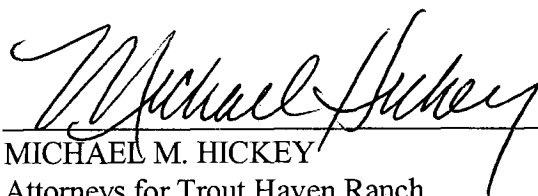
OBJECTION

Comes now Trout Haven Ranch, by and through its undersigned counsel, and hereby objects to the above-described applications to appropriate water filed on behalf of Southern Black Hills Water System. This objection is based upon the grounds and for the reasons that Trout Haven Ranch uses the waters from Beaver Creek and Beaver Creek Springs in the operation of its commercial trout raising business. If the applications are granted, Trout Haven Ranch will be injured and damaged and its operations adversely affected in that the quantity, quality and temperature of water used by Trout Haven Ranch will be detrimentally altered and diminished by the usage envisioned by the applications of Southern Black Hills Water System if approved.

Dated this 28th day of June, 2006.

BANGS, McCULLEN, BUTLER,
FOYE & SIMMONS, L.L.P.

BY:



MICHAEL M. HICKEY

Attorneys for Trout Haven Ranch
333 West Blvd., Suite 400; P.O. Box 2670
Rapid City, SD 57709
Phone: (605) 343-1040

CERTIFICATE OF SERVICE

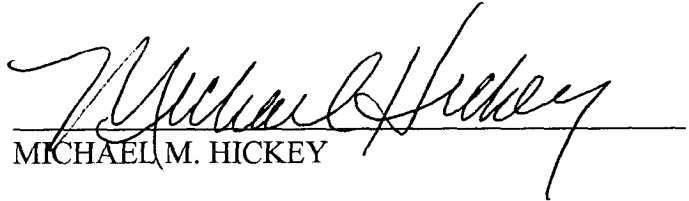
The undersigned hereby certifies that he served a copy of this legal document upon the persons herein next designated, all on the date below shown, by depositing copies thereof in the United States mail at Rapid City, South Dakota, postage prepaid, in envelopes addressed to said addressees, to wit:

Garland Erbele, Chief Engineer
Water Rights Program
Joe Foss Building
523 East Capitol
Pierre, SD 57501

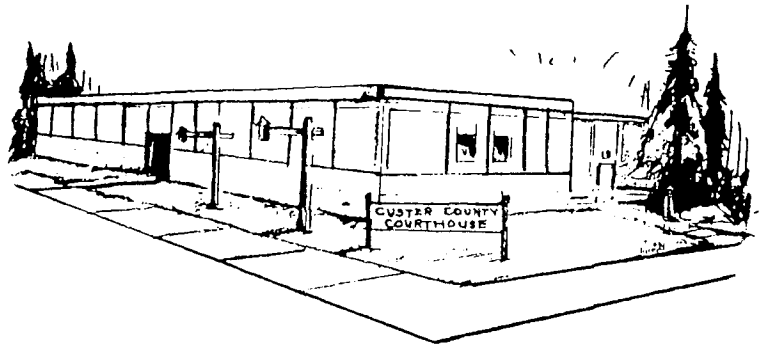
Southern Black Hills Water System
c/o Robert G. Morrison
P.O. Box 124
Hermosa, SD 57744

which are the last addresses of the addressees known to the subscriber.

Dated this 28th day of June, 2006.


MICHAEL M. HICKEY

CUSTER COUNTY
Board of County Commissioners



★ ★ ★ 420 Mt. Rushmore Road

★ ★ ★ Custer, South Dakota 57730 ★ ★ ★

June 27, 2006

Water Rights Program
Foss Building
523 E Capitol
Pierre, SD 57501

RECEIVED

JUN 29 2006

WATER RIGHTS
PROGRAM

Dear Chief Engineer:

The Board of Commissioners for Custer County is submitting this petition of support for Application Number 2580-2, to appropriate water for future use, and Application Number 2585-2, to appropriate 2.67 c.f.s. of water from the Madison Aquifer, by Southern Black Hills Water System. The Board of Commissioners believes that these Applications are extremely important for the health of Custer County residents and for the safe, efficient, and orderly future development within Custer County.

We strongly urge the Water Management Board to approve both of these Applications at its July 12 hearing so the Southern Black Hills Water System project may proceed as quickly as possible.

Sincerely

Marvin Bishop
Chairman

Cc: Southern Black Hills Water System

To: Water Management Board

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JUN 30 2006

WATER RIGHTS
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I am a rancher and also a director on the Southern Black Hills Water System board. At this time we are experiencing a drought that is starting its 6th year. A rural water system would benefit the ranchers and home owners immensely.

This is a very emotional issue for a few individuals, but the benefits a water system will do for several applicants I believe out weighs the emotions.

I have been hauling water out of the Streeter Well for 28 yrs. along with several other users and feel the area will support a rural system. When the system is up and working entirely there will be more than one water source. Hot Springs, and as many as 4 to 5 wells developed in the Hermosa, Minneka area and along hiway 78.

I feel the way to protect our water source is to have a rural system. If you charge for water people will not ~~wast~~ waste it. Also development is coming do we want 500 new wells drilled into the Madison or 5 wells drilled into the Madison.

For the benefit of our communities I would ask you to please approve our application.

Thank you John Beard

13810 Beaver Creek Rd.

Buffalo Gap, S.D. 57722
Maker of the Genuine Swiss Army Knife

FRANK SCHROTH
7-11 RANCH

PO Box 97
Buffalo Gap SD 57722
605-833-6391
schroth@gwtc.net

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June 29, 2006

Garland Erbele, Chief Engineer
Dept of Environment & Natural Resources
523 East Capitol
Pierre, South Dakota 57501

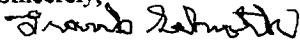
To whom it may concern:

7-11 Ranch has concerns on Water Permit Application No. 2585-2. We agree with recommending a DEFERRAL so the effect on Beaver Creek Springs and the present Well can be evaluated. The effect on the Spring & flowing Well could be catastrophic. This appropriation of 2.67 cu. ft. could possibly leave 8.2 cu. ft. flowing. As 7-11 Ranch is allowed 5.4 Sec./ft for irrigation, if this proposed well takes 2.67 cu. ft., that only leaves about 2 cu. ft. in the creek. 1.0 cu. ft. has to be left in the stream, so that only leaves around 1. cu. ft. for the other irrigators. A lowering of the Potentiometric surface of the Madison Aquifer in the vicinity of these Springs could reduce their discharge. Aquifer characteristics have not been determined for the Madison Aquifer in this area and feel strongly that this Permit should be denied. We also don't know the long term effects it would have on the other Springs around the area that are used for livestock watering, besides the head pressure of the present Well.

We also feel that this water should not be sent to Rapid City, as Southern Black Hills Water Users have already signed up people in the Rapid City area. Water is a very precious & vital commodity. Look at some other States that are in trouble now and we need to have the foresight to not let us get in this position.

South Dakota claims Agriculture as it's #1 industry. All of us on Beaver Creek are in agriculture. If the water supply of Beaver Creek is reduced, the effect it will have, hurts everyone here. We will not be able to run the present amount of cattle, due to not having the hay base to support these cattle. There is presently around 1500 head of cattle that depend on the hay that is presently raised from irrigation on Beaver Creek. Lowering this cattle amount lowers everyone's income and drives agriculture out.

Sincerely,


Frank Schroth

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JUN 30 2006

WATER RIGHTS
PROGRAM

Knutson Brothers, Inc.
12838 Cold Brook Road
Hot Springs, SD 57747

June 28, 2006

Water Rights Program
Foss Building
523 E. Capitol
Pierre, SD 57501

Dear Chief Engineer,

The Board of Commissioner for Custer County is submitting this petition of support for Application Number 2580-2, to appropriate water for future use, and Application Number 2585-2, to appropriate 2.67 c.f.s. of water from the Madison Aquifer, by Southern Black Hills Water System. The Board of Commissioners believes that these Applications are extremely important for the health of Custer County residents and for the safe, efficient, and orderly future development within Custer County.

We strongly urge the Water Management Board to approve both of these Application at its' July 12 hearing so the Southern Black Hills Water System project may proceed as quickly as possible.

Sincerely,

A handwritten signature in black ink, appearing to read "Steven L. Knutson". The signature is fluid and cursive, with a long horizontal stroke at the end.

Steven L. Knutson
President

Cc: Southern Black Hills Water System

LYDA BOWKER TRUST

Lois Emery, Trustee,
HC 52 Box 136A
Hot Springs, SD
57747

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WATER RIGHTS
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Water Rights Program
Foss Building
523 E Capitol
Pierre, SD 57501

As a holder of a down-stream irrigation water right on Beaver Creek, I am concerned about the implications of the well proposed in Water Permit Application No. 2585-2. I would like to go on record approving the recommendation of the Chief Engineer for a Deferral of the Application until an aquifer test pump is completed to evaluate the possible effect of the proposed well on Beaver Creek Springs. I would further contend that a periodic monitoring over a period of several months would give a more accurate evaluation of the effect than a single reading.

I believe a considerable decrease in the flow of Beaver Creek is a threat to an agricultural way of life using water from Beaver Creek for more than a century. Area economics and wildlife are in a position to be adversely affected.

I request information be sent to me concerning any further developments on this issue.

Thank you,



Lois Emery, Trustee,
Lyda Bowker Trust
HC 52 Box 136A
Hot Springs, SD 57747

cc: Southern Black Hills Water System
c/o Robert Morrison
PO Box 124
Hermosa, SD, 57744

June 27, 2006

Tom Porter
Board Member
Southern Black Hills Water Systems
Box Z
Edgemont, SD 57735

Water Rights Program
Foss Building
523 East Capitol
Pierre, SD 57501

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Dear Sirs:

I am presently serving on the board of Southern Black Hills Water Systems. I originally became interested in a rural water project for this area even before this board was in existence. As a group, several people in our immediate area were interested in being serviced by a much-needed rural water system.

I am a third generation rancher in the Edgemont area. I am writing in support of water development for rural water users and communities alike to provide a dependable water supply. We view a safe and affordable water supply as the basic element for economic survival and growth. We support SBHWS acquiring the necessary water permit #2580-2 and any additional water permits necessary to service this very important rural water project for Fall River, Custer, and Pennington Counties. It makes more sense to have a few good, sustainable wells than thousands of individual wells, many of which are unsafe and undependable.

As a board member, I feel confident that the State of South Dakota and SBHWS will adequately monitor and address any adverse effects to the surrounding area if a problem should ever arise. However, at this point, we feel we need to proceed with this very important project.

Sincerely,


Tom Porter

6/29/06

Water Rights Program
Foss Building
523 E. Capitol
Pierre, SD 57501

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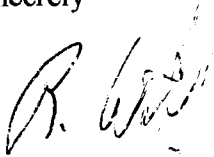
JUL - 3 2006

WATER RIGHTS
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Dear Chief Engineer:

The Argyle Fire Department is submitting this letter in support of the Southern Black Hills Water System Application. This would greatly enhance fire suppression in our coverage area while reducing local homeowners insurance rates due to the availability of water hydrants in proximity to their residence. It would also significantly increase our efforts due to the time it would take to refill water tenders. (currently Pringle is the closest water source).

Sincerely

A handwritten signature in dark ink, appearing to read "R. Willey", is written over the word "Sincerely".

Roger Willey
Assistant Chief – Argyle Fire Dept.

Cc: Southern Black Hills Water System

Clarence and Carol Foos
PO Box 317
Hermosa, SD 57744

Garland Erberle, Chief Engineer DENR
523 East Capitol
Pierre, SD 57501

Dear Garland:

This letter is written in regard to Water Application # 2585-2 and Future Use Water Permit Application # 2580-2.

The plan to dig a well close to Beaver Creek could destroy the future of Beaver Creek irrigators due to possible water shortages.

3

We are not against progress, but do it right from the beginning. there is adequate water in the Missouri Water System to take care of the above mentioned Applications.

Therefore, we feel that digging this well is only a band aid approach in a major undertaking when there is a more stable source available.

We understand that your office plans to dig a test well. How can a test well determine the supply and demand for such a large project. Why waste taxpayers money on an inadequate water source? Remember, the Hills area has experienced drought for the last 6 to 7 years. Who knows how long this will continue and what effect it could have on water sources?

Sincerely,

Clarence Foos

Clarence Foos

Carol Foos

Carol Foos

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WATER RIGHTS
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DENR
Garland Erberle, Chief Engineer
Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501-3182

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Dear Mr. Erberle;

This letter is in regards to water permit applications numbers 2580-2 and 2585-2.

I have grave concerns of the effect these may have on Beaver Creek Springs. I live on Beaver Creek, and our ranch has a water right on Beaver Creek and depends on it for our livelihood.

Having studied many of the possible effects these permits could have on Beaver creek, springs, and other wells in the county, I strongly urge that Southern Black Hills Water System should be required to do testing and studies before these permits are granted.

I will be unable to attend the hearing in July and would like to petition for an automatic delay. I strongly contest these permits.

Sincerely, 

Randy Schroth
P.O. Box 1
Buffalo Gap, SD 57722
833-6447



United States Department of the Interior

NATIONAL PARK SERVICE
Water Resources Division
1201 Oakridge Drive, Suite 250
Fort Collins, Colorado 80525-5596



IN REPLY REFER TO:

June 30, 2006

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L54(2380)
WICA/Water Rights

Mr. Garland Erbele, Chief Engineer
Water Rights Program
Foss Building
523 E. Capitol
Pierre, SD 57501

Southern Black Hills Water System
C/o Mr. Robert G. Morrison
P.O. Box 124
Hermosa, SD 57744

Re: Petition to Intervene with regard to Applications 2580-2 and 2585-2 filed by the
Southern Black Hills Water System

Dear Mr. Erbele and Mr. Morrison,

The National Park Service (NPS) is hereby filing a Petition to Intervene in the matters of Future Use Water Permit Application No. 2580-2 and Water Permit Application No. 2585-2, filed by the Southern Black Hills Water System.

Application No. 2580-2 requests to reserve the use of 1,474 acre-feet per year (afy) of ground water from the Madison aquifer. The proposed water use is for a rural water system and the requested reservation is based on estimated growth of the area through the year 2050. The application lists four points of diversion located throughout the Southern Black Hills area.

The NPS is **concerned** about the Chief Engineer's recommendation to approve Application No. 2580-2. The NPS believes that there currently is insufficient data to determine whether the proposed use is in the public interest given the possibility that the proposed withdrawal may adversely affect the water rights and water-related resources of Wind Cave National Park (Wind Cave NP).

Application No. 2585-2 requests to withdraw 1,600 afy of ground water from the Madison aquifer at an instantaneous rate of 2.67 cubic feet per second. The application states the water is to be used for a rural water system for a regional water supply that includes projected future growth in the area. The proposed well will be approximately 1000 feet deep.

The NPS **supports** the Chief Engineer's recommendation to defer action on Application No. 2585-2 until an aquifer test is completed. The NPS requests the opportunity to review and comment on the testing plan.

The NPS also **requests a delay** of the hearing scheduled for July 12, 2006. We would use the additional time to assemble more information about aquifer characteristics. We also would begin working with the Southern Black Hills Water System to share data and identify areas where we can resolve the issues this application raises.

The NPS is concerned about the potential adverse impacts that may result from withdrawals proposed by these applications on the water rights and water-related resources of Wind Cave NP (Figure 1). The following information provides some background on NPS concerns.

Wind Cave NP Water-Related Resources

Wind Cave NP was established on January 9, 1903, (32 Stat. 765) and enlarged several times in the ensuing years. It was the seventh National Park and the first one designated for the protection of cave features. The main park feature is Wind Cave, located in the Madison Limestone near the park Visitor Center. There are over 121 miles of the Cave discovered to date with many more miles likely to be explored in the future. Artesian ground-water flow has been and continues to be the dominant force in cave formation.

Wind Cave was formed within the Madison Limestone of the Black Hills, probably during Paleocene-Eocene times (40-50 million years ago). The cave developed along gypsum deposits and paleokarst zones and is one of the oldest caves in the world. The cave intersects one of the world's best examples of paleofill, ancient sediment that filled caves and sinkholes that existed before Wind Cave formed. The cave has two natural entrances, one of which is modified, and the cave is associated with numerous natural blowholes. More than 121 miles of passages have been explored and mapped making Wind Cave one of the longest caves in the world. Studies of the airflow for which the cave is named suggest that only a tiny fraction of the cave's potential extent has been discovered. Wind Cave is the world's best known example of a complex rectilinear maze cave. At any given point, from three to five interconnecting levels can occur within 250-vertical feet of rock, creating one of the world's premier maze caves.

Wind Cave's length and passage density are enough to put it into the ranks of world-class caves, but the cave is significant for many other reasons. The best known of these is boxwork. Boxwork is rarely found in other caves but is found in Wind Cave in quantities and qualities that are unparalleled in all of the world's known caves. On-going survey projects continually make new discoveries of unusual features in the cave. The cave is known for its rare and unusual variety of minerals and speleothems. These include unusual helictite bushes, quartz formations, large clusters of frostwork, and fragile growths of gypsum. The cave has a simple, but highly specialized ecosystem that operates independently of photosynthesis. The microbial diversity in the cave is significant, with 12 divisions and subdivisions of bacteria found at Rainbow falls,

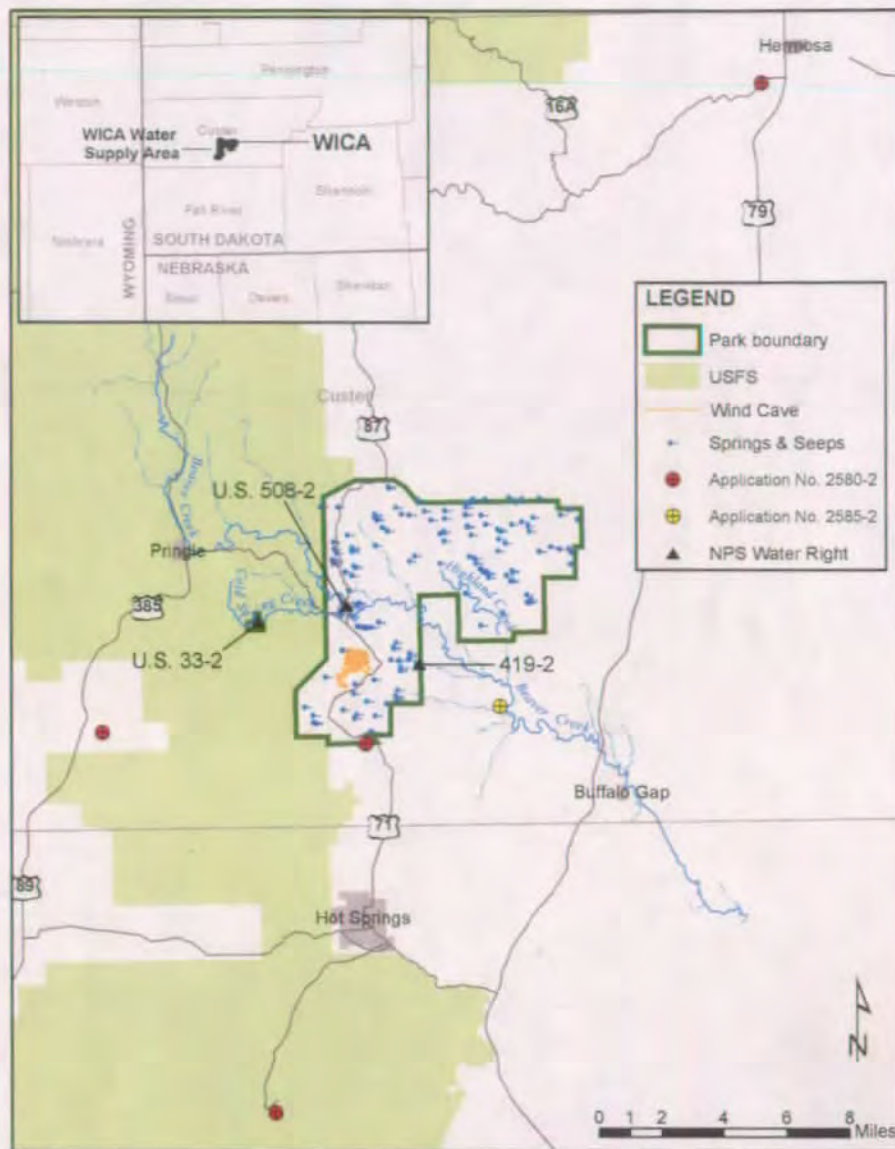


Figure 1. Map showing the location of the proposed well sites, NPS water rights, and the water-dependent resources of Wind Cave NP.

including *Proteobacteria* and *Acidobacteria* and 2 divisions of microbes from the kingdom of *Archaea* (Euryarchaea and Crenarchaea).

There are currently several lakes and pools in the lower reaches of Wind Cave that likely define the ground-water table in this region of the aquifer. Other water resources of high value at Wind Cave NP include three perennial streams (Cold Springs, Beaver, and Highland Creeks), many intermittent and ephemeral stream courses, and over 95 seeps and springs (Figure 1). These water sources are not only important for the flora and fauna that live within or adjacent to the water, but also to the bison, elk, deer and pronghorn that require watering. The distribution of water sources throughout the park

allows the large animals to move from place to place and not overgraze any particular area.

Wind Cave NP Water Rights

Wind Cave NP has three state appropriative water rights that are senior to those sought by the applicant.

Number	Name	Point of Diversion	Rate of Diversion	Purpose	Priority date
US 33-2	Cold Springs Creek	Sec. 32 & 28, T5S, R5E	0.2 cfs	Domestic, recreation, wildlife, fire protection	August 23, 1937
US 508-2	Cold Springs Lake	SW ¼ SE ¼ Sec. 26, T5S, R5E	222.08 afy	Stockwater, recreational	November 4, 1939
419-2	Headquarters well	SE ¼ SE ¼ Sec 6, T6S, R6E	0.44 cfs	Park operations	December 29, 1955

These rights are vital to the continued operation and functioning of the park.

Management and Legislation

The mission of the NPS is stated in the NPS Organic Act and provides the overall objectives for managing NPS units which "...is to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations." (16 U.S.C. 1).

The NPS Statement for Management for Wind Cave NP (National Park Service, 1994) conveys the purpose and legislative intent for the establishment for Wind Cave NP as:

- To preserve and protect the surface and subsurface resources.
- To provide services and facilities necessary and appropriate for public enjoyment and appreciation of the park's resources.

The Statement for Management also lists statements of significance that are provided to capture the essence of Wind Cave NP. This list includes:

- Wind Cave is among the world's longest, oldest, and most three-dimensionally complex cave systems.
- Wind Cave contains the world's largest concentration of boxwork, a cave formation.

- Wind Cave provides a valuable opportunity to observe, study, and interpret the entire hydrologic cycle, especially the hidden part that is the water en route to the aquifer.
- Wind Cave provides a valuable opportunity for visitors to view a mixture of equally significant cave resources and prairie ecosystems and to appreciate the connections between surface and subsurface resources.
- Wind Cave is one of the earliest park areas to be designated a game preserve for the reestablishment of native American bison.
- Wind Cave was one of the earliest national parks and the first to be established to protect a cave.
- Wind Cave is an important part of the region's tourism.

Notable legislation affecting Wind Cave NP includes the National Game Preserve Act (37 Stat. 293) in 1912 which provided for "for the establishment of...the Wind Cave National Game Preserve, upon land embraced within the boundaries of the Wind Cave National Park." This Act created a permanent range for bison to be presented to the American Bison Society. The bison rely on the water sources throughout Wind Cave NP for their survival.

In 1931, the NPS purchased 101 acres in Section 32, T5S, R5E BHB&M to secure a water supply for the park. In 1937, the United States received a State water right permit for use of water originating on this property (U.S. Water Right 33-2).

Public Law 708 expanded the boundaries of Wind Cave NP again in 1946. In addition to creating an area large enough to maintain viable populations of large game animals, the legislation provided that the State allow a minimum of 10,000 gallons per day of water to pass from Custer State Park to Wind Cave NP.

Preliminary Analysis

The NPS has completed a preliminary analysis of potential impacts to the waters and water rights of Wind Cave NP due to the proposed appropriations (see attachment). While the analysis required making simplifying assumptions about a hydrologically complex area, it is a very useful tool in determining the potential effects of the proposed withdrawals. As previously stated, additional time will allow us to better characterize the area's hydrogeology.

The analysis shows that the effects of pumping 1,600 afy from the well site associated with Application No. 2585-2 could potentially affect water levels in the Headquarters Well and Wind Cave within one year of continuous pumping; within 10 years, drawdown of over 40 feet could occur in the Headquarters Well and the cave. This magnitude of drawdown could dewater some lakes and pools within the cave system entirely,

potentially reducing naturally high humidity levels in the cave and impacting biota, speleothems, and mineral resources. In addition, the estimated drawdown could decrease discharge at Wind Cave NP's springs and seeps, which are essential for wildlife management.

The analysis also considered the effects of Future Use Water Permit Application No. 2580-2. The preliminary analysis shows that drawdown due to pumping at one or all of the proposed wells, in addition to the withdrawals outlined in Application No. 2585-2, may be detected at Wind Cave NP sooner and to a larger degree than by Application No. 2585-2 alone. Of particular concern is the close proximity of the proposed Gobbler Pass well site to park water rights and resources.

The NPS is also aware of the potential development of Future Use Application No. 2560-2 by the Fall River Water Users District. This application requested 750 afy from the Madison aquifer in the same general area as the applications proposed by the Southern Black Hills Water System and was approved by the Water Management Board on December 7, 2005. If the water withdrawals proposed by this application are realized, and in combination with the two proposed withdrawals by the Southern Black Hills Water System, it could further reduce the ground-water levels within Wind Cave NP and/or cause the declines to appear sooner.

The State of South Dakota, Water Management Board may approve an application for permit "...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" (§46-2A-9 S.D.C.L.). The NPS believes that water-level changes that may result from the withdrawal proposed by these applications may adversely affect the water rights and water-related resources the NPS is required to protect. The NPS believes that injury to NPS water rights and water-related resources would not be in the public interest.

The above statements are intended solely to express the concern of the NPS to the withdrawals proposed by the applicant. The NPS wishes to cooperate with the State and Southern Black Hills Water Supply System in order to ascertain how the applicant may be able to withdraw the amount of water sought without adversely affecting NPS water-related resources and water rights. There may be pumping scenarios or other well locations that may allow the applicant to withdraw water for the proposed beneficial use without impairing Wind Cave NP water-related resources and water rights. Additionally, monitoring selected NPS resources may be necessary.

Summary

- The NPS is concerned about the Chief Engineer's recommendation to approve Application No. 2580-2. The NPS believes that there currently is insufficient data to determine whether the proposed use is in the public interest given the

possibility that the proposed withdrawal may adversely affect the water rights and water-related resources of Wind Cave National Park.

- The NPS **supports** the Chief Engineer's recommendation to defer action on Application No. 2585-2 until an aquifer test is completed and requests to be involved with review of the aquifer test plan or proposal submitted by the applicant.
- The NPS requests a delay of the hearing on these applications in order to assemble more information about aquifer characteristics.
- The NPS believes that the withdrawal proposed by these applications has the potential to adversely affect the water-related resources and water rights of Wind Cave NP.
- The NPS is willing to cooperate with the Southern Black Hills Water System and the State in attempting to develop a rural water supply system in such a manner that the water-related resources and water rights of Wind Cave NP are protected from impairment.

If you have any questions or concerns related to this matter, please contact me at (970) 225-3505 or Jeff Hughes of my staff at (970) 225-3527.

Sincerely,



Charles W. Pettee
Chief, Water Rights Branch

Cc: (all w\attachment)
WICA – Superintendent
MWRO – Cinnamon

Bcc: SOL (Denver) – Fahmy
2380 (email) – Jackson, Flora, Rosenlieb, Issue File

References Cited

Heakin, Allen J., 2004. Streamflow and Water-Quality Characteristics for Wind Cave National Park, South Dakota, 2002-03. *U.S. Geological Survey SIR 2004-5071*. 68pp.

National Park Service, 1994. Statement for Management, Wind Cave National Park. Technical Information Center, Denver Service Center, National Park Service. 50 pp.

**Calculation of Drawdown with Regard to Permit Application Nos. 2580-2 and 2585-2, Filed
by the Southern Black Hills Water System**

June 27, 2006

Paula A. Cutillo, Ph.D.
Water Rights Branch, Water Resources Division
National Park Service

The Southern Black Hills Water System filed Future Use Water Permit Application No. 2580-2 to appropriate 1,474 acre-ft annually of groundwater from the Madison aquifer in Custer and Fall River Counties, and filed Water Permit Application No. 2585-2 to appropriate 1,600 acre-ft annually of groundwater from the Madison aquifer in Custer County. The National Park Service is concerned that drawdown in the vicinity of Wind Cave National Park will adversely impact the park's water rights and water-dependent resources. The following preliminary analysis was prepared to aid in evaluating potential impacts associated with the proposed appropriations.

Calculation of Drawdown

Wind Cave in Wind Cave National Park is located in the Madison Limestone, and the 787 ft-deep Headquarters Well (Water Right 419-2) is open to about 260 ft of the Madison aquifer. Potential lowering of groundwater levels in the Madison aquifer in the area of Wind Cave National Park was evaluated by estimating the time it would take for the cone of depression produced at the proposed well sites to reach the location of the park's water rights and water-dependent resources. Drawdown due to pumping in a confined aquifer can be calculated using equations developed by Theis (1935). When using the Theis method, several hydrologic and geologic assumptions are made to simplify the mathematical calculations. The major assumptions are that the aquifer properties do not vary with depth or distance in the aquifer, that the aquifer is of uniform thickness and infinite in areal extent, and that the pumping well fully penetrates the aquifer.

To estimate the rate at which the cone of depression may advance, the hydraulic properties of the aquifer material must be known. The Madison aquifer is believed to be confined in the area of the proposed appropriations (Carter et al., 2001). Previous investigations indicate that transmissivity of the Madison aquifer varies several orders of magnitude in the Black Hills area (Carter et al., 2001, Table 14). Greene (1993) estimates (on the basis of aquifer tests) that the transmissivity of the Madison aquifer in the Rapid City area ranges from 1,300 to 56,000 ft²/day, and that the storage coefficient ranges from 0.002 to 0.0004. Carter et al. (2001) (using flows from subarea hydrologic budgets) estimate transmissivity in the area of Wind Cave and the proposed appropriations to be between 90 and 1,500 ft²/day. For the purposes of this analysis, values of transmissivity (T) = 1,300 ft²/day and storage coefficient (S) = 0.0004 were used in the calculation of drawdown to represent confined conditions in the karstic upper part of the Madison Limestone.

The program THWELLS (van der Heijde, 1992) was used to calculate drawdown. THWELLS (van der Heijde, 1992) is a proprietary program distributed by the International Ground Water Modeling Center, Colorado School of Mines, Golden, Colorado, and uses an analytical solution of the Theis relation to calculate drawdown.

Application No. 2585-2 requests 1,600 acre-ft/yr at one well site located on the Streeter Ranch, approximately 4.5 mi from the lakes in Wind Cave and 3 mi from the Headquarters Well. Figure 1 includes estimated drawdown at the location of Wind Cave within the first 10 years of continuous pumping at a pumping rate (Q) of 1,600 acre-ft/yr at the Streeter Ranch well site. Figure 2 shows the estimated extent of the cone of depression produced by the pumping well after 10 years of continuous pumping.

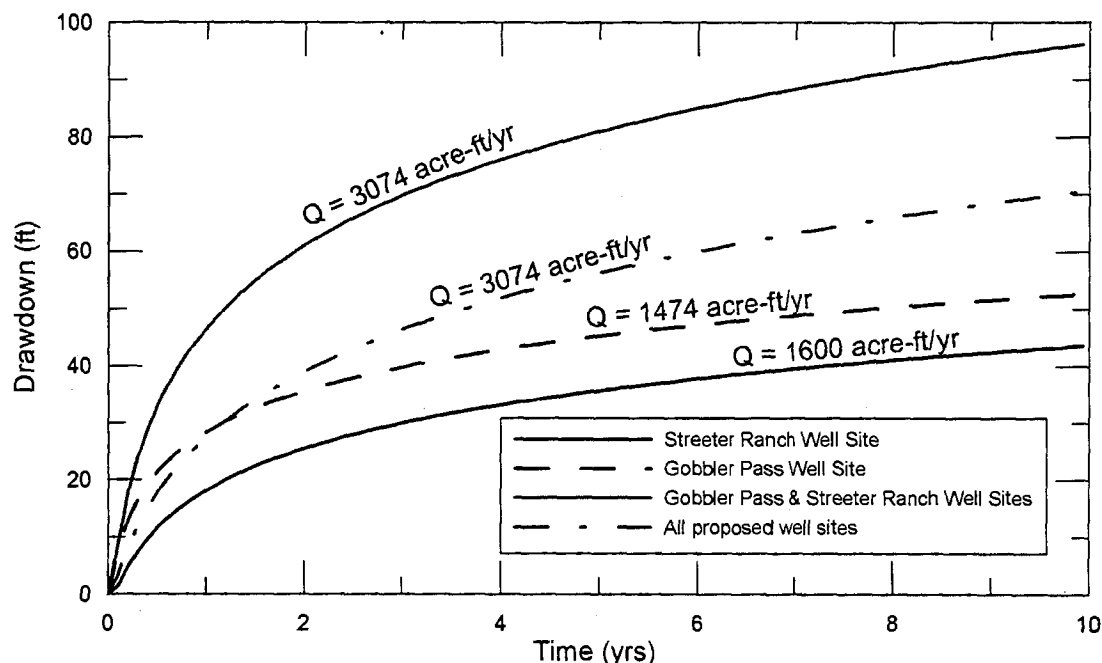


Figure 1. Drawdown over time due to pumping in the area of Wind Cave in Wind Cave National Park. The Streeter Ranch Well site, proposed by Application No. 2585-2, is located approximately 4.5 mi southeast of the lakes in Wind Cave. The Gobbler Pass Well Site, proposed by Application No. 2580-2, is located approximately 2 mi south of the lakes in Wind Cave. The locations of all proposed well sites are shown on Figures 2 through 5. $T = 1,300 \text{ ft}^2/\text{day}$ and $S = 0.0004$ for all pumping scenarios.

Application No. 2580-2 requests 1,474 acre-ft/yr from four well sites, the closest of which is the Gobbler Pass well site, located approximately 2 mi from the lakes in Wind Cave and 3 mi from the park's Headquarters Well. Because the actual pumping rate at each proposed well site is uncertain at this time, drawdown was calculated for a range of pumping scenarios. Figure 1 includes estimated drawdown at Wind Cave within the first 10 years of continuous pumping at a rate of 1,474 acre-ft/yr at the Gobbler Pass well site. Figure 3 shows the estimated extent of the cone of depression produced by the pumping well after 10 years of continuous pumping.

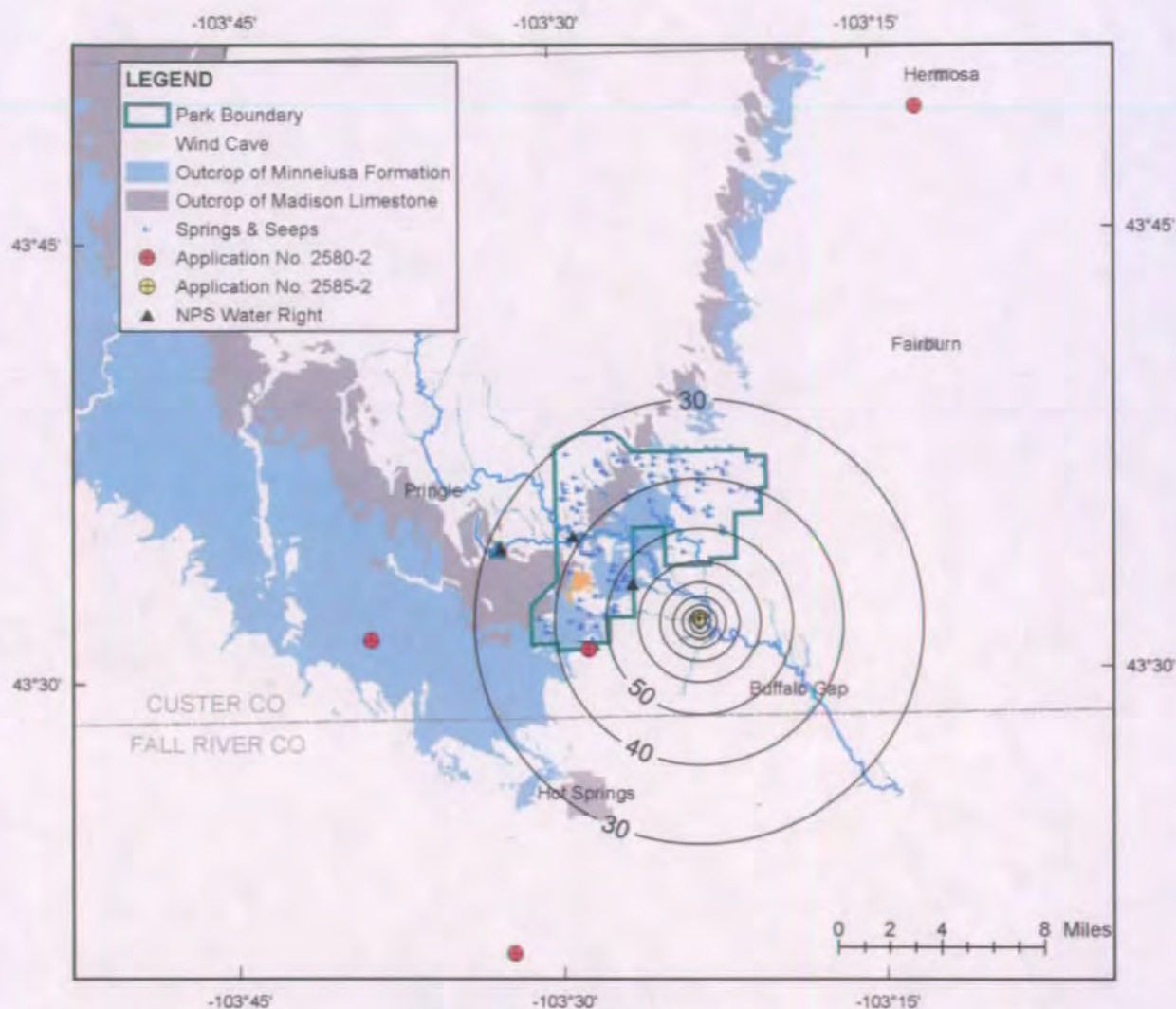


Figure 2. Drawdown (ft) after 10 years of continuous pumping at the Streeter Ranch well site, where $Q = 1,600$ acre-ft/yr, $T = 1,300$ ft²/day, and $S = 0.0004$.

Other pumping scenarios considered in this analysis were drawdown due to continuous pumping at both the Streeter Ranch and Gobbler Pass well sites (Figures 1 & 4), and drawdown due to continuous pumping at all proposed well sites (Figures 1 & 5).

Results

Results of the Theis calculations indicate that groundwater development at the proposed pumping rates has the potential to cause significant declines in groundwater levels in the park within just one year of continuous pumping. The magnitude of estimated drawdown was dependent on the location and number of active pumping wells. The analyses also show that the

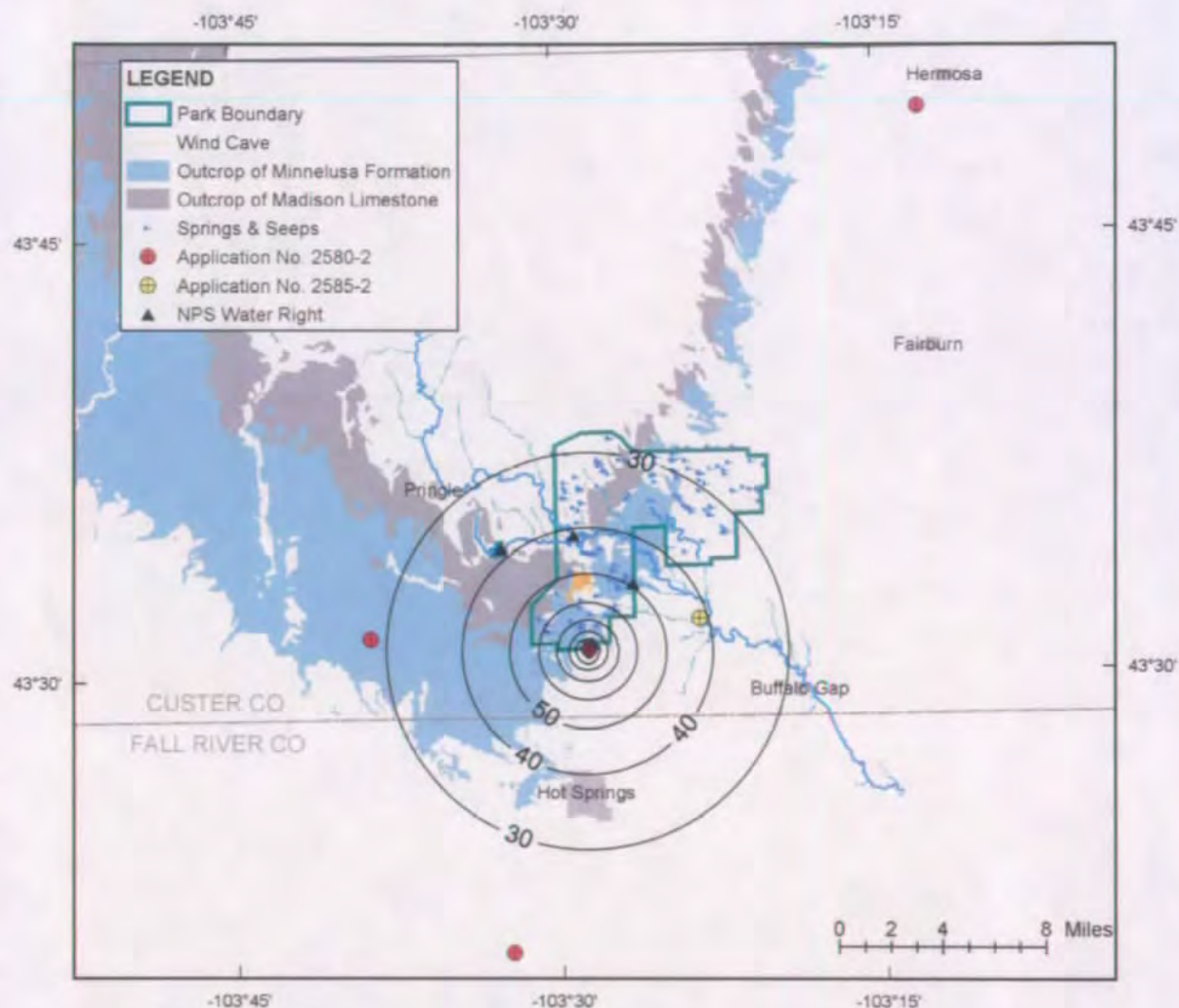


Figure 3. Drawdown (ft) after 10 years of continuous pumping at the Gobbler Pass well site, where $Q = 1,474$ acre-ft/yr, $T = 1,300$ ft²/day, and $S = 0.0004$.

cumulative effects of pumping proposed by both Application Nos. 2580-2 and 2585-2 are greater than single-well pumping scenarios. Drawdown within the area of the cave and the park's water rights could reach over 70 ft within 10 years if all proposed pumping is centered on the two wells located closest to the park. Drawdown will be greater than that calculated above if the pumping wells only partially penetrate the aquifer, due to longer flow paths and the smaller cross-sectional area of the well screen. If an impervious geologic boundary is encountered, drawdown will also be greater than that calculated above.

Factors that would result in less drawdown than that estimated above should also be considered. Drawdown will be less if the aquifer receives recharge during pumping or if the Madison aquifer is more transmissive and/or has higher storage properties than assumed above. The above analyses assumed continuous pumping, whereas pumping during the actual operation

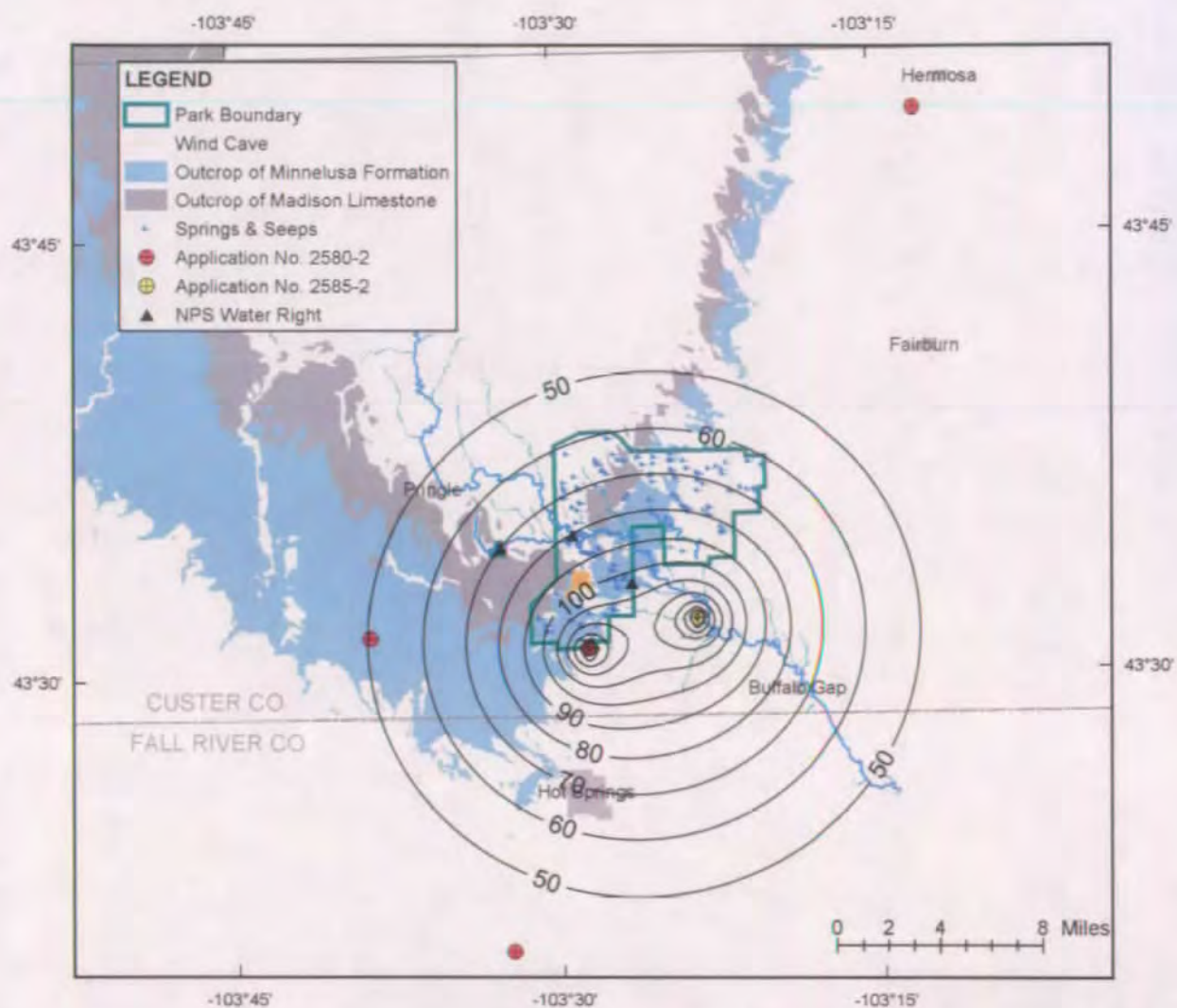


Figure 4. Drawdown (ft) after 10 years of continuous pumping at a rate of 1,474 acre-ft/yr at the Gobbler Pass well site and at a rate of 1,600 acre-ft/yr at the Streeter Ranch well site, where $T = 1,300 \text{ ft}^2/\text{day}$, and $S = 0.0004$.

of the water system may be intermittent. Calculating drawdown due to intermittent pumping is complicated, particularly if the rate and duration of groundwater use are unknown. In general, drawdown will be less than that calculated above if groundwater pumping is not continuous; once a pump is turned off, water levels will begin recovery to the static water level. Complete water-level recovery, however, generally requires considerably more time than the previous pumping period (Driscoll, 1986). Therefore, if the pumping and recovery periods are of equal duration, or if the pumping period is longer than the recovery period, each time the pump is turned back on, drawdown will start from a new level that is slightly below the water level at the start of the previous pumping period, and continued pumping will permanently lower the static water level of the aquifer over time.

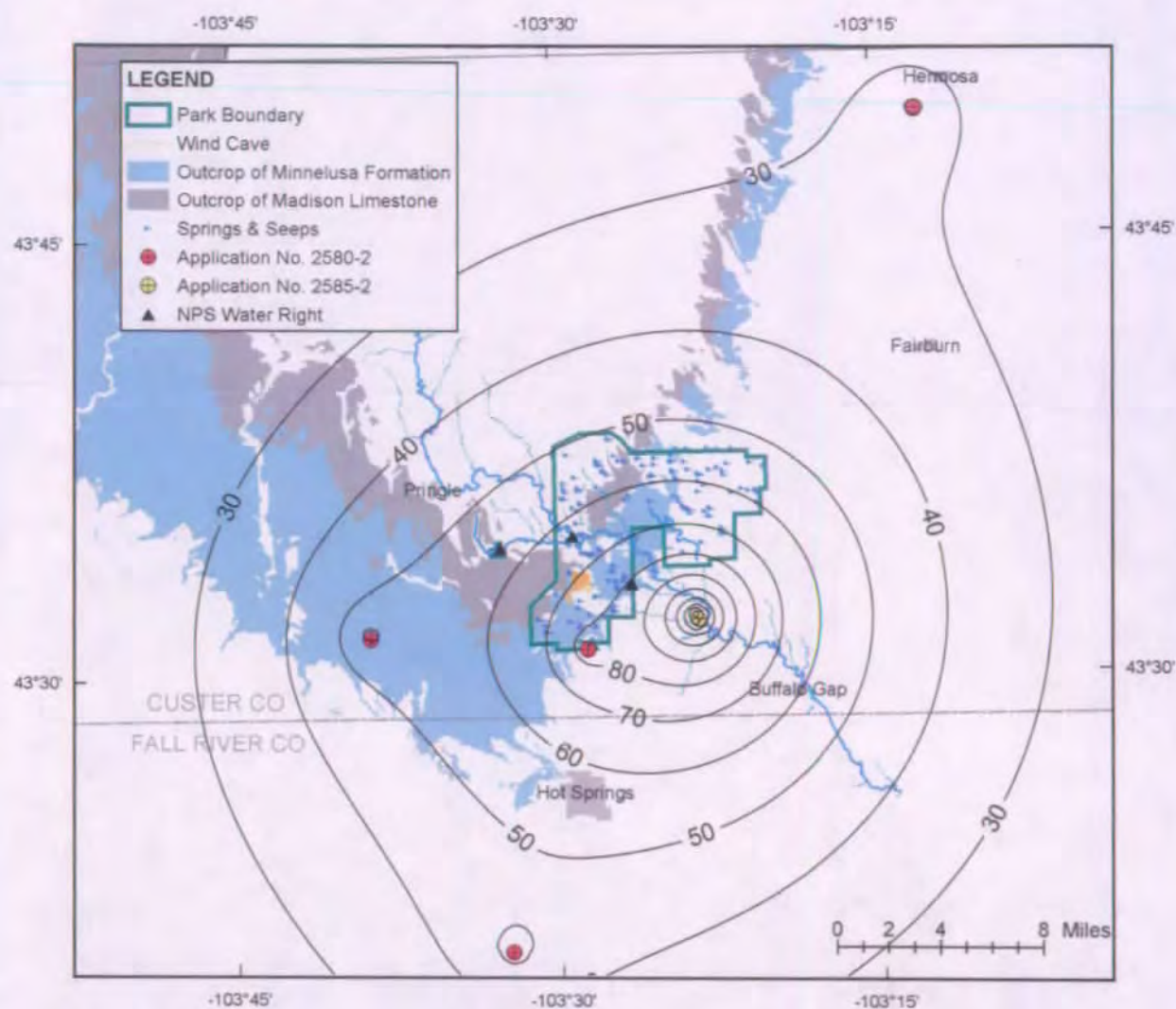


Figure 5. Drawdown (ft) after 10 years of continuous pumping at a rate of 368.5 acre-ft/yr at each well site proposed by Application No. 2580-2, and at a rate of 1,600 acre-ft/yr at the Streeter Ranch well site, where $T = 1,300 \text{ ft}^2/\text{day}$, and $S = 0.0004$.

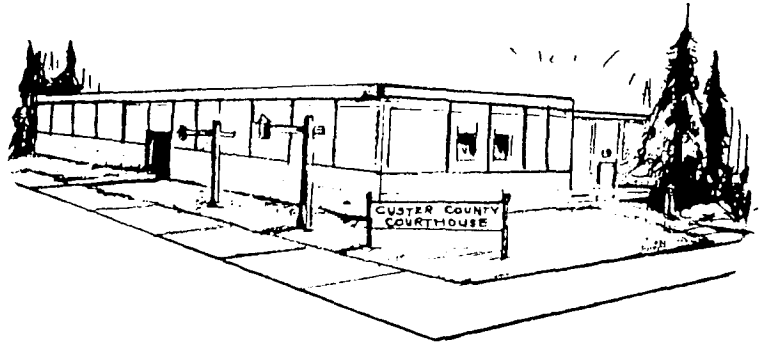
Summary

The Theis drawdown analyses indicate that the proposed appropriations may adversely impact the water rights and water-dependent resources of Wind Cave National Park. The shapes of the estimated drawdown curves and cones of depression are a function of aquifer properties and pumping scenarios, which are uncertain at this time. Aquifer testing, ground-water monitoring and more detailed knowledge of pumping schedules would aid in decreasing the uncertainty associated with estimated impacts to the Madison aquifer in the area of the park.

References

- Carter, J.M., D.G. Driscoll, G.R. Hamade, and G.J. Jarrell, 2001. Hydrologic Budgets for the Madison and Minnelusa aquifers, Black Hills of South Dakota and Wyoming, water years 1987-96, *U.S. Geological Survey Water-Resources Investigations Report 01-4119*, 53 pp.
- Driscoll, F.G., 1986. *Groundwater and Wells*, Second Edition, Johnson Division, St. Paul Minnesota, 1088 pp.
- Greene, E.A., 1993. Hydraulic properties of the Madison aquifer system in the western Rapid City Area, South Dakota, *U.S. Geological Survey Water-Resources Investigations Report 93-4008*, 56 pp.
- Theis, C. V., 1935. The relation between the lowering of the piezometric surface and rate and duration of discharge of a well using groundwater storage. *Trans. Amer. Geophys. Union*, 2, 519-524.
- van der Heijde, P.K.M., 1992. *THWELLS - Version 4.0: Calculating Drawdown Resulting from Multiple Discharge or Recharge Wells in an Isotropic Homogeneous Aquifer with Regional Flow*, BAS-04, IGWMC, Colorado School of Mines, Golden, Colorado.

CUSTER COUNTY
Board of County Commissioners



★ ★ ★

420 Mt. Rushmore Road

★ ★ ★

Custer, South Dakota 57730

★ ★ ★

July 12, 2006

Water Rights Program
Foss Building
523 East Capitol
Pierre, SD 57501

RECEIVED

JUL 14 2006

WATER RIGHTS
PROGRAM

Dear Chief Engineer:

After reviewing the recommendations of Chief Engineer of South Dakota DENR for water permit application No. 2585-2, Southern Black Hills Water System, we want to rescind our letter of support dated June 27, 2006. We will defer our position pending further evaluation as recommended by the Chief Engineer of DENR.

Sincerely,

Marvin Bishop
Chairman

Cc: Southern Black Hills Water System

6-29-06

DENR - Water Rights Program
and Chief Engineer

RECEIVED
JUL - 3 2006
WATER RIGHTS
PROGRAM

Dear Sirs,

It is with great concern that we are writing to you in regard to application # 2585-2 and # 2580-2. We are opposed to the drilling of another well, near the existing artesian well, on the Streeter ranch. This is close to the source of Beaver Creek; which supplies several ranches and Trout Haven Fish Hatchery with water. We depend on this water supply for irrigation of alfalfa and other grains for winter livestock feed.

We would like to suggest that the July 12 hearing date be postponed; to allow us time to research this massive project. We are fearful that the flow of Beaver Creek will be diminished or stopped. This is a great worry to us and we would encourage you to consider the detrimental affect this could have on the flow of Beaver Creek and its economic influence on this area.

Please keep each of us on Beaver Creek advised as to what is going on and the date of the hearing.

Respectfully,
Mr + Mrs Paul Fugier
27032 Beaver Valley Rd.
Buffalo Gap, S. D. 57722

RECEIVED

JUL - 3 2006

WATER RIGHTS
PROGRAM

DENR - Water Rights Program, and Chief Engineer,

I'm writing to you with great concern, about Southern Black Hills Water Systems applications, #2580-2 and #2585-2.

I am extremely concerned about any wells being drilled in close proximity to the Beaver Creek Spring, with the intent to service such a large area, as they have proposed.

I fear that this well, will affect the discharge of the Beaver Creek Spring. My family, and many others, rely heavily on Beaver Creek for irrigation purposes. To sustain our ag operation, we must irrigate hay fields, or our ranch will suffer greatly.

I hope you will take into consideration, the detrimental affect this well, will have on the livelihood of the agricultural sector; our families. I oppose the drilling of this well. I would like to ask you to keep me informed on any thing with this applications and anything that would affect the flow of Beaver Creek Spring, and our water right.

Shawn Fugier

27094 Beaver Valley Rd
Buffalo Gap, SD
57722

833-2780



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL

PIERRE, SOUTH DAKOTA 57501-3182

www.state.sd.us/denr

July 24, 2006

NOTICE

TO: Bob Morrison, Chairman
Southern Black Hills Water System
PO Box 124
Hermosa SD 57744
and Parties of Record (see attached list)

FROM: Garland Erbele, Chief Engineer
Water Rights Program *Garland Erbele*

SUBJECT: Scheduling of Hearing on Future Use Permit Application No. 2580-2 and Water Right Permit Application No. 2585-2, Southern Black Hills Water System

Future Use Permit Application No. 2580-2 proposes to appropriate for future use 1,474 acre-feet of water annually from the Madison Aquifer. The area to be reserved for future water use is the approximate center of NW ¼ Section 6-T3S-R8E (Custer County); S ½ SE ¼ Section 16-T6S-R4E (Custer County); W ½ NW ¼ Section 21-T8S-R5E (Fall River County) and S ½ NW ¼ Section 24-T6S-R5E (Custer County). The water is to be reserved for future water supplies for rural water system use in Fall River, Custer and Pennington Counties.

Water Permit Application No. 2585-2 proposes to appropriate 2.67 cubic feet of water per second (1,600 acre-feet of water annually) from a well completed into the Madison Aquifer located in the W ½ NE ¼ Section 15-T6S-R6E (Custer County). The water is for use in Fall River, Custer and Pennington Counties.

The July 12, 2006 hearing before the Water Management Board was continued at the request of petitioners that intervened in response to the public notice. Previous notice stated the hearing to consider these applications would be at the Board's October 4 and 5, 2006 meeting. However, the Board has altered their meeting schedule and the hearing will now be held at their October 11 and 12, 2006 meeting.

The Water Management Board will consider Application Nos. 2580-2 and 2585-2 on October 11, 2006, at 1:00 PM, in the Visitor Center (west side of Capitol Lake), 650 E. Capitol Avenue, Pierre, SD. The agenda time is an estimate and may be delayed due to prior agenda items. Notice will be provided to parties if there is a change in the hearing time or date.

Applicable provisions of the Notice published in the Custer County Chronicle, Rapid City Journal and Hot Springs Star will still apply at the October 11, 2006 hearing before the Water Management Board. This hearing may be an adversarial proceeding. Any party of record has the right to be present and to be represented by a lawyer. These and other due process rights will be forfeited if they are not exercised. Decisions of the Board may be appealed to the Circuit Court and State Supreme Court as provided by law.

Please contact Eric Gronlund at (605) 773-3352, if you have any questions.

c: Diane Best, Assistant Attorney General
Ken Royse, Bartlett & West, 3456 E. Century Avenue, Bismarck ND 58503-0737

PARTIES OF RECORD

Future Use Permit Application No. 2580-2 and Water Permit Application No. 2585-2

Applicant

Bob Morrison, Chairman
Southern Black Hills Water System
PO Box 124
Hermosa SD 57744

Petitioners

Michael Hickey
Attorney for Trout Haven Ranch
Bangs McCullen Law Firm
PO Box 2670
Rapid City SD 57709

Marvin Bishop, Chairman
Custer County Commission
420 Mt. Rushmore Road
Custer SD 57730

James Brickey, Mayor
City of Hill City
PO Box 395
Hill City SD 57745

Harold Heiney
Box 7
Buffalo Gap SD 57722

Frank Scroth
7 - 11 Ranch
PO Box 97
Buffalo Gap SD 57722

Steven L. Knutson, President
Knutson Brothers, Inc.
12838 Cold Brook Road
Hot Springs SD 57747

John Beard
3810 Beaver Creek Rd
Buffalo Gap SD 57722

Lois Emery, Trustee
Lyda Bowker Trust
HC 52 Box 136A
Hot Springs SD 57747

Randy Scroth
PO Box 1
Buffalo Gap SD 57722

Clarence and Carol Foos
PO Box 317
Hermosa SD 57744

Tom Porter, Board Member
Southern Black Hills Water System
Box Z
Edgemont SD 57735

Roger Willey
Argyle Rd
Hot Springs SD 57747

Charles W. Pettee, Chief
Water Rights Branch
National Park Service
1201 Oakridge Drive, Suite 250
Fort Collins CO 80525-5596

Mr. and Mrs. Paul Fugier
27032 Beaver Valley Rd
Buffalo Gap SD 57722

Shawn Fugier
27094 Beaver Valley Rd
Buffalo Gap SD 57722

CERTIFICATION

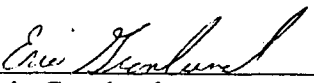
I hereby certify that on July 24, 2006, I have personally deposited with the United States mail at Pierre, South Dakota, first class postage, prepaid envelopes containing a Notice dated July 24, 2006, regarding Scheduling of Hearing on Future Use Application No. 2580-2 and Water Right Permit Application No. 2585-2, Southern Black Hills Water System addressed as stated below and on the Parties of Record list:

Bob Morrison, Chairman
Southern Black Hills Water System
PO Box 124
Hermosa SD 57744

Ken Royse
Bartlett & West
3456 E. Century Avenue
Bismarck ND 58503-0737

A copy of the Notice was sent Inter-office to:

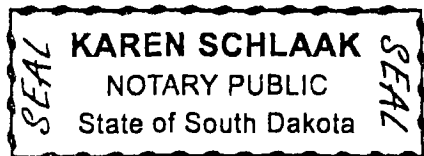
Diane Best, Assistant Attorney General, Capitol Building


Eric Gronlund
Water Rights Program

STATE OF SOUTH DAKOTA)
) SS
COUNTY OF HUGHES)

Sworn to, before me, this 25th day of July, 2006.


Karen Schlaak
Notary Public
My Commission expires April 1, 2007





**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

October 3, 2006

Ken Royse
Bartlett & West
3456 E. Century Avenue
Bismarck ND 58503-0737

Dear Mr. Royse:

I am enclosing copies of the reports, recommendations and petitions in the matter of Future Use Application No. 2580-2 and Water Permit Application No. 2585-2 filed by Southern Black Hills Water System. The hearing on this application is scheduled for 1:00 p.m. (Central Standard Time) on October 11, 2006 in the Visitor Center, 650 E Capitol Avenue, Pierre SD. The Visitor Center is located along the west bank of Capitol Lake near the war memorials.

State law directs the Chief Engineer to provide Water Management Board members with a copy of all pleadings including petitions for each proceeding. In the past the Chief Engineer has typically handed this material out at the time of the meeting. For this Board meeting a new practice is being implemented where the material is being sent to the Board members in advance of the hearing. This packet includes the DENR staff report, Chief Engineer's recommendation and petitions (if any) regarding each case. The same information is also being sent to parties in each respective case.

If you have any questions, please feel free to contact me at (605) 773-3352 or email eric.gronlund@state.sd.us.

Sincerely,

Eric Gronlund
Water Rights Program
605 773-3352

enclosure



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

October 3, 2006

Bob Morrison Chairman
Southern Black Hills Water System
PO Box 124
Hermosa SD 57744

Dear Mr. Morrison:

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Sincerely,

Eric Gronlund
Water Rights Program
605 773-3352

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October 3, 2006

Michael Hickey
Attorney for Trout Haven Ranch
Bangs McCullen Law Firm
PO Box 2670
Rapid City SD 57709

Dear Mr. Hickey:

I am enclosing copies of the reports, recommendations and petitions in the matter of Future Use Application No. 2580-2 and Water Permit Application No. 2585-2 filed by Southern Black Hills Water System. The hearing on this application is scheduled for 1:00 p.m. (Central Standard Time) on October 11, 2006 in the Visitor Center, 650 E Capitol Avenue, Pierre SD. The Visitor Center is located along the west bank of Capitol Lake near the war memorials.

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Water Rights Program
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enclosure



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PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

October 3, 2006

Don Voorhees, Mayor
City of Hill City
PO Box 395
Hill City SD 57745

Dear Mayor Brickey:

I am enclosing copies of the reports, recommendations and petitions in the matter of Future Use Application No. 2580-2 and Water Permit Application No. 2585-2 filed by Southern Black Hills Water System. The hearing on this application is scheduled for 1:00 p.m. (Central Standard Time) on October 11, 2006 in the Visitor Center, 650 E Capitol Avenue, Pierre SD. The Visitor Center is located along the west bank of Capitol Lake near the war memorials.

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Sincerely,

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Water Rights Program
605 773-3352

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October 3, 2006

Frank Scroth
7 - 11 Ranch
PO Box 97
Buffalo Gap SD 57722

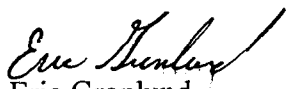
Dear Mr. Scroth:

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Sincerely,


Eric Gronlund
Water Rights Program
605 773-3352

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October 3, 2006

John Beard
3810 Beaver Creek Rd
Buffalo Gap SD 57722

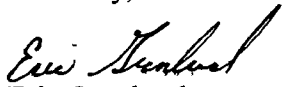
Dear Mr. Beard:

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Sincerely,


Eric Gronlund
Water Rights Program
605 773-3352

enclosure



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and NATURAL RESOURCES**

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PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

October 3, 2006

Randy Scroth
PO Box 1
Buffalo Gap SD 57722

Dear Mr Scroth:

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Sincerely,

Eric Gronlund
Water Rights Program
605 773-3352

enclosure



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

October 3, 2006

Tom Porter Board Member
Southern Black Hills Water System
Box Z
Edgemont SD 57735

Dear Mr. Porter:

I am enclosing copies of the reports, recommendations and petitions in the matter of Future Use Application No. 2580-2 and Water Permit Application No. 2585-2 filed by Southern Black Hills Water System. The hearing on this application is scheduled for 1:00 p.m. (Central Standard Time) on October 11, 2006 in the Visitor Center, 650 E Capitol Avenue, Pierre SD. The Visitor Center is located along the west bank of Capitol Lake near the war memorials.

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Sincerely,

Eric Gronlund
Water Rights Program
605 773-3352

enclosure



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

October 3, 2006

Charles W Pettee Chief
Water Rights Branch
National Park Service
1201 Oakridge Drive Suite 250
Fort Collins CO 80525-5596

Dear Mr. Pettee:

I am enclosing copies of the reports, recommendations and petitions in the matter of Future Use Application No. 2580-2 and Water Permit Application No. 2585-2 filed by Southern Black Hills Water System. The hearing on this application is scheduled for 1:00 p.m. (Central Standard Time) on October 11, 2006 in the Visitor Center, 650 E Capitol Avenue, Pierre SD. The Visitor Center is located along the west bank of Capitol Lake near the war memorials.

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Sincerely,

Eric Gronlund
Water Rights Program
605 773-3352

enclosure



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

October 3, 2006

Shawn Fugier
27094 Beaver Valley Rd
Buffalo Gap SD 57722

Dear Mr. Fugier:

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Sincerely,

Eric Gronlund
Water Rights Program
605 773-3352

enclosure



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and NATURAL RESOURCES**

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PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

October 3, 2006

Marvin Bishop Chairman
Custer County Commission
420 Mt Rushmore Road
Custer SD 57730

Dear Mr. Bishop:

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Sincerely,

Eric Gronlund
Water Rights Program
605 773-3352

enclosure



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

October 3, 2006

Harold Heiney
Box 7
Buffalo Gap SD 57722

Dear Mr. Heiney:

I am enclosing copies of the reports, recommendations and petitions in the matter of Future Use Application No. 2580-2 and Water Permit Application No. 2585-2 filed by Southern Black Hills Water System. The hearing on this application is scheduled for 1:00 p.m. (Central Standard Time) on October 11, 2006 in the Visitor Center, 650 E Capitol Avenue, Pierre SD. The Visitor Center is located along the west bank of Capitol Lake near the war memorials.

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Sincerely,

Eric Gronlund
Water Rights Program
605 773-3352

enclosure



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

October 3, 2006

Steven L Knutson President
Knutson Brothers Inc
12838 Cold Brook Road
Hot Springs SD 57747

Dear Mr. Knutson:

I am enclosing copies of the reports, recommendations and petitions in the matter of Future Use Application No. 2580-2 and Water Permit Application No. 2585-2 filed by Southern Black Hills Water System. The hearing on this application is scheduled for 1:00 p.m. (Central Standard Time) on October 11, 2006 in the Visitor Center, 650 E Capitol Avenue, Pierre SD. The Visitor Center is located along the west bank of Capitol Lake near the war memorials.

State law directs the Chief Engineer to provide Water Management Board members with a copy of all pleadings including petitions for each proceeding. In the past the Chief Engineer has typically handed this material out at the time of the meeting. For this Board meeting a new practice is being implemented where the material is being sent to the Board members in advance of the hearing. This packet includes the DENR staff report, Chief Engineer's recommendation and petitions (if any) regarding each case. The same information is also being sent to parties in each respective case.

If you have any questions, please feel free to contact me at (605) 773-3352 or email eric.gronlund@state.sd.us.

Sincerely,

Eric Gronlund
Water Rights Program
605 773-3352

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523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

October 3, 2006

Lois Emery Trustee
Lyda Bowker Trust
HC 52 Box 136A
Hot Springs SD 57747

Dear Ms Emery:

I am enclosing copies of the reports, recommendations and petitions in the matter of Future Use Application No. 2580-2 and Water Permit Application No. 2585-2 filed by Southern Black Hills Water System. The hearing on this application is scheduled for 1:00 p.m. (Central Standard Time) on October 11, 2006 in the Visitor Center, 650 E Capitol Avenue, Pierre SD. The Visitor Center is located along the west bank of Capitol Lake near the war memorials.

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

October 3, 2006

Clarence and Carol Foos
PO Box 317
Hermosa SD 57744

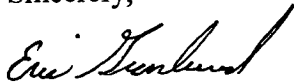
Dear Mr. & Mrs. Foos:

I am enclosing copies of the reports, recommendations and petitions in the matter of Future Use Application No. 2580-2 and Water Permit Application No. 2585-2 filed by Southern Black Hills Water System. The hearing on this application is scheduled for 1:00 p.m. (Central Standard Time) on October 11, 2006 in the Visitor Center, 650 E Capitol Avenue, Pierre SD. The Visitor Center is located along the west bank of Capitol Lake near the war memorials.

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

October 3, 2006

Roger Willey
Argyle Rd
Hot Springs SD 57747

Dear Mr. Willey:

I am enclosing copies of the reports, recommendations and petitions in the matter of Future Use Application No. 2580-2 and Water Permit Application No. 2585-2 filed by Southern Black Hills Water System. The hearing on this application is scheduled for 1:00 p.m. (Central Standard Time) on October 11, 2006 in the Visitor Center, 650 E Capitol Avenue, Pierre SD. The Visitor Center is located along the west bank of Capitol Lake near the war memorials.

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Sincerely,


Eric Gronlund
Water Rights Program
605 773-3352

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and NATURAL RESOURCES**

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

October 3, 2006

Mr & Mrs Paul Fugier
27032 Beaver Valley Rd
Buffalo Gap SD 57722

Dear Mr. & Mrs. Fugier:

I am enclosing copies of the reports, recommendations and petitions in the matter of Future Use Application No. 2580-2 and Water Permit Application No. 2585-2 filed by Southern Black Hills Water System. The hearing on this application is scheduled for 1:00 p.m. (Central Standard Time) on October 11, 2006 in the Visitor Center, 650 E Capitol Avenue, Pierre SD. The Visitor Center is located along the west bank of Capitol Lake near the war memorials.

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Sincerely,

Eric Gronlund
Water Rights Program
605 773-3352

enclosure



South Dakota Chapter
P.O. Box 1624, Rapid City, SD 57709-1624
tel 605.348.1345 fax 605.348.1344

October 2, 2006

Water Management Board
SD State Engineer
523 E Capitol
Pierre, SD 57501

RECEIVED

OCT - 4 2006

WATER RIGHTS
PROGRAM

Re: Proposed Southern Black Hills Water System (SBHWS) and Fall River Water Users District (FRWUD)

Dear Board:

We have recently become very concerned with a proposal by SBHWS to appropriate 5.26 cfs from wells and springs for domestic water supply in the southern part of the Black Hills of South Dakota. The water for these would come from ground water and springs in the Madison Limestone in the area near Hot Springs, Cascade Springs, and Beaver Creek. The FRWUD project would utilize 1 cfs from the Madison Limestone wells near Hot Springs.

We understand that preliminary documents filed by the companies involved estimate the cost of these projects would be approximately \$78 million, partially or fully funded by a loan from an agency of the US Government, perhaps the Rural Development Div, USDA.

The environmental impacts of these two water developments have not been thoroughly evaluated, but three large resurgent springs within 8 miles of Hot Springs are in jeopardy: Evans Plunge and other springs along the Fall River, the resurgent spring along Beaver Creek below Wind Cave, and Cascade Spring south of Hot Springs.

After studying the data on these two projects, one presented by Perry H. Rahn, PhD, PE South Dakota School of Mines and Technology, another by geologists from the National Park Service, and several other concerned citizens, The South Dakota Chapter, Sierra Club requests that one (or more) of the Federal agencies involved immediately start the process needed to complete a thorough Environmental Impact Statement of all of the possible impacts of this project. This project is of such a large magnitude the EIS is necessary prior to the approval of any and all Federal or State Agencies involved.

Please acknowledge receipt of this request and put us on your mailing list as an interested party, and possibly as an Intervener at the State level, although this is not a request for formal SD Intervener status at this time.

Sincerely,

Sam N. Clauson, Conservation Chair
SD Chapter, Sierra Club
snbclaus@rushmore.com

cc: US Sen. John Thune; US Sen. Tim Johnson; US Cong. Stephanie Herseth
Wind Cave NP Supt Linda Stoll; USDA Rural Development
Steve Simpson; Perry Rahn; SBHWS

Gronlund, Eric

From: Lesta [ltconger@gwtc.net]
Sent: Tuesday, October 10, 2006 9:09 AM
To: Gronlund, Eric
Subject: Well permit hearing

Dear Sirs,

We are long standing users of the Streeter Well. And we hold vested water rights on Beaver Creek. We wish to make it known to the Water Rights Board that we stand in opposition to the issuance of this water well permit. The water bearing structures under the Black Hills is very complex. Drawing large quantities of ground water in this area will be very detrimental to the output of surface springs in the Southern Black Hills. It will also be detrimental to the output of the Streeter Well. Which is presently, the source of water for domestic use by a good number of people in the Buffalo Gap area.

Sincerely,

Tom & Lesta Conger
13831 Beaver Creek Road
Buffalo Gap, SD 57722
(605) 833-6345

10/12/2006



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

October 17, 2006

Tom & Lesta Conger
13831 Beaver Creek Road
Buffalo Gap, SD 57722

Dear Mr. and Mrs. Conger:

I am writing to inform you that your email submitted in the matter of Southern Black Hills Water System's water permit and future use applications was presented to the Water Management Board. The Board denied you intervention status based on the fact the email was not filed within the timeframe set to petition to intervene.

Sincerely,

Eric Gronlund
Water Rights Program, DENR
605 773-3352
eric.gronlund@state.sd.us

COPY

STATE OF SOUTH DAKOTA
DEPARTMENT OF WATER & NATURAL RESOURCES
WATER MANAGEMENT BOARD

IN THE MATTER OF FUTURE USE)
PERMIT APPLICATION #2580-2) TRANSCRIPT OF HEARING
AND WATER PERMIT APPLICATION) BEFORE THE BOARD
#2585-2, SOUTHERN BLACK)
HILLS WATER SYSTEM.) October 11, 2006

PROCEEDINGS REPORTED BY MONA G. WEIGER,
Registered Professional Reporter in and
for the State of South Dakota on the
11th day of October, 2006, at the Capitol
Complex Visitor's Center, Pierre, South
Dakota.

BOARD MEMBERS PRESENT:

MR. EVERETT HOYT
MR. JIM HUTMACHER, Chairman
MS. BERNITA LOUCKS
MR. FRANCIS BRINK

MR. JEFF HALLEM
Assistant Attorney General
1302 E. Hwy 14, Suite 1
Pierre, SD 57501;

Counsel for the Board.

APPEARANCES:

MS. DIANE BEST
Ass't Attorney General
1302 E. Hwy 34
Pierre, SD 57501;

Counsel for DENR.

MR. SHANE PENFIELD
Attorney at Law
PO Box 8045
Rapid City, SD 57117;

Counsel for Southern Black
Hills Water System.

MR. MICHAEL HICKEY
Attorney at Law
PO Box 2670
Rapid City, SD 57709;

Counsel for Trout Haven.

MR. PETER FAHMY
Water Rights Branch
1201 Oak Ridge Drive
Ft. Collins, CO 80525;

Counsel for National
Park Service.

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DENR EXHIBITS

Offered

Ruled On

1 - Agency File, 2585-2	21	21
2 - Buhler Vitae	21	21
3 - Agency File, 2580-2	21	21
4 - Map	48	49

1 MR. HUTMACHER: This is going to take a
2 while as I go through this list. We did receive
3 in our Board packet the Future Use and the Water
4 Permit Application, both 2585-2, 2580-2.

5 We received letters from the Custer County
6 Commission dated July 14th; Paul Fugier, July 3rd
7 received; Shawn Fugier on July 3rd; Department of
8 Interior received on July 3rd, National Park
9 Service; July 3rd, Randy Schroth; July 3rd, Tom
10 Porter; Frank Schroth on July 3rd; John Baird on
11 June 30th; Clarence Fuoss on July 3rd; Richard
12 Wyly on July 3rd; Knudson Brothers, Steven L.
13 Knudson on June 30th; Lois Emery for the Lydia
14 Bowker Trust on June 30th; another letter from
15 Custer County Commission, June 29th; letter from
16 Bangs, McCullen, Michael Hickey, June 29th; Hill
17 City Mayor, James Brickey on behalf of the City on
18 June 29th; and then I have June 26th from Harold
19 Heiney, Buffalo Gap.

20 And then we also have the two
21 recommendations from the Chief Engineer for Water
22 Permit 2585-2 and the Future Use Permit 2580-2,
23 and a Motion for Continuance by Michael Hickey.

24 I believe that's what we received in our
25 Board packet.

1 MS. BEST: Good afternoon. For the record,
2 my name is Diane Best. I'm counsel for the Chief
3 Engineer, Water Rights Program and the DENR.

4 Pursuant to statute, the Chief Engineer
5 receives the Petitions to Intervene and all
6 pleadings and is required by law to provide those
7 to the Board. And the Petition standard that the
8 Board Chairman just read does reflect what the
9 Chief Engineer provided to the Board.

10 At this time I would also advise the Board
11 that the Chief Engineer did receive two additional
12 letters from interested parties, both of which
13 were filed after the cut-off date for filing
14 Petitions to Intervene in this proceeding.

15 One was filed on October 4th and it was
16 from the Sierra Club. And a second one was sent
17 to the Division by e-mail yesterday, yesterday
18 morning, and that is from Tom and Lesta Conger at
19 Buffalo Gap, South Dakota, and these were filed
20 with the Board. We obviously did not have a
21 chance to give those to the Board yet.

22 The question is whether the Board intends
23 to take any late filed submissions in this matter.
24 The time for intervention, last date was -- I
25 don't even have it in front of me but these were

1 received well after the last date for intervention
2 in this proceeding.

3 MR. HALLEM: Ms. Best, are you objecting to
4 the intervention?

5 MS. BEST: We are objecting. We think that
6 from the Chief Engineer's perspective that they
7 received a number of inquiries from interested
8 people in response to the newspaper notices,
9 provided information to people in response to the
10 newspaper notices.

11 We have the Affidavits of Publication. We
12 know they were timely. And a number of the folks
13 were able to intervene on a timely basis and
14 they're here.

15 To my knowledge, neither one of these
16 parties -- both sent late files and neither one is
17 here. So I would -- I think we have to receive it
18 for the file, but I would ask the Board to deny
19 any purported Petition to Intervene and not
20 consider any evidence presented after the date for
21 intervention has passed.

22 MR. HOYT: Mr. Chairman?

23 Ms. Best, are there any allegations in the
24 late filed Petitions which would state good cause
25 for a late filing?

1 MS. BEST: No. But certainly I would hand
2 them to you for the purposes of --

3 MR. HOYT: Do they allege, you know, any --

4 MS. BEST: No. There are no allegations of
5 not being aware of it previously. In fact, one of
6 them says, "Put us on your mailing list as an
7 interested party and possibly as an Intervenor in
8 the state level, although this is not a request
9 for formal South Dakota Intervenor status at this
10 time." I don't know what that means. That's the
11 Sierra Club one.

12 And the other one is, "We stand in
13 opposition to the issuance," but neither one gives
14 any indication of why they're late filed. And I
15 have to tell you this is unusual. This typically
16 does not happen. In this particular case we
17 received two of them.

18 MR. HUTMACHER: Do any of the other parties
19 have any comments on Ms. Best's motion to reject
20 those last two late filings?

21 MS. LOUCKS: It seems to me if it goes into
22 the file, we still have to make a formal hearing,
23 don't you?

24 MR. HALLEM: You can make it part of the
25 file for appeal purposes on it. But if you accept

1 the motion, it would not be used in consideration
2 of the Board's decision, and they would not be
3 official parties to the action or even named
4 parties to the action.

5 MR. HUTMACHER: Mr. Hickey, did you have a
6 comment on that?

7 MR. HICKEY: No. I have no objection to
8 whatever the Board wants to do with respect to the
9 letters. I think you're right. I think they're
10 part of the record. As to being substantive
11 evidence, I think they're not timely, absent a
12 showing of good cause. I would agree with that.

13 However, I do want to ask you for your
14 indulgence. Fall River Water Users District did
15 not file, as I understand, a formal objection.
16 But they are present here today and would like to
17 present limited testimony, just so that you're
18 aware of it.

19 MR. HUTMACHER: Is there a motion to accept
20 or deny those last two interventions?

21 MR. HOYT: I would move that the late filed
22 interventions be denied.

23 MR. HUTMACHER: Have a motion by Mr. Hoyt
24 to deny.

25 MS. LOUCKS: I second it with just a

1 comment that, you know, if this is standard
2 procedure then we've got to be consistent.

3 MS. BEST: If you're looking for a comment
4 from the DENR perspective, frankly, we were not
5 aware of Fall River Water Users' interest in
6 intervening until right now. So we haven't had a
7 chance to talk to them to find out if they've got
8 some extenuating circumstances, so I don't know if
9 I would make the same motion on that one or not.
10 I guess I'm willing to --

11 MR. HUTMACHER: Is there a further
12 discussion on the motion to deny the two
13 interventions that were late?

14 If not, all in favor, aye. Opposed?
15 Motion carried. Proceed.

16 MS. BEST: Before I talk about what the
17 case is about and who the DENR is going to have
18 testify, there is a position with Fall River Water
19 Users.

20 And, Mike, are you representing them?

21 MR. HICKEY: Randy Scott, their general
22 manager, is here as well as two Board members.
23 They've asked me just to request the Board's
24 indulgence to allow them to make a comment and
25 present, you know, a very limited statement, as I

1 understand it.

2 But I'm happy to do that on their behalf if
3 that's what they wish. But they're asking for
4 formal approval to intervene in this proceeding.

5 MS. BEST: Now would be the time to explain
6 whether you want to intervene and why you -- to
7 make your pitch.

8 MR. HICKEY: Well, they want to intervene
9 because, obviously, they're a future use -- they
10 have a Future Use Permit in this exact same area.
11 And they're concerned about the Board's action
12 with respect to the granting of these applications
13 because they have an interest in that area.

14 They have future plans to develop a system
15 of water distribution and, obviously, that's in
16 the plans for Southern Hills and so they do have
17 an interest in that proceeding.

18 As to good cause, they were never formally
19 notified. The only notice they got was that in
20 the paper. And it's a board and they're not
21 attuned to things as they should have been so
22 that's the -- that's why they're so late in asking
23 permission to intervene. But they did come down
24 here for the purposes of listening to the
25 testimony and offering very limited comments.

1 MR. BRINK: Do they have a Future Use
2 Permit now?

3 MR. HICKEY: Yes, they do.

4 MR. BRINK: So they have a priority date
5 that would be prior to this one?

6 MR. HICKEY: Well, no. We're concerned, as
7 I understand it, whoever puts the first well in,
8 that changes the analysis as to interference with
9 existing rights. So it is kind of a race to sink
10 the first well.

11 MS. BEST: With respect to Fall River Water
12 User District, you know, I'm not in the business
13 of trying to keep people from testifying in
14 administrative cases, but I do want to clear up
15 the record in this.

16 The DENR did send a letter to Randy Scott
17 on June 9th containing the reports,
18 recommendations and the public notices in this
19 case. So the notice scheduled a July 12th hearing
20 date and indicated that the Petitions to Intervene
21 needed to be submitted by July 3rd. And in fact
22 that was the intervention day. It was July 3rd.

23 And then one or more of the Intervenors
24 invoked the automatic delay provision and that
25 brought us forward to October. So that's been the

1 time frame.

2 But from June 9th until today I don't see
3 anything in the record, anyway, that would
4 indicate that Fall River Water User District
5 intended to intervene so I wanted to set the
6 record straight on that.

7 Obviously, it's up to the Board as far as
8 whether they're going to grant or deny that
9 petition to speak here today. And the Chief
10 Engineer takes no position on that matter.

11 MR. HUTMACHER: Okay. We need some Board
12 discussion on that and/or action whether we're
13 going to permit Fall River Water Users to
14 intervene late.

15 MR. HOYT: Is there an objection by the
16 Applicant?

17 MR. PENFIELD: My name is Shane Penfield.
18 I'm an attorney in Rapid City, South Dakota,
19 Gunderson, Palmer. I represent Southern Black
20 Hills.

21 We would see this as an attempt to come in
22 after the intervening time had expired and,
23 therefore, we would request the Board to deny any
24 opportunity at this time to bring forth testimony.

25 MR. BRINK: Mr. Chairman, if people are

1 here, isn't that the purpose for the hearing? If
2 it's been noticed, it's been advertised and
3 they're here, why can't they be heard without
4 having to file?

5 This is a matter -- tell me if I'm wrong.
6 Does the fact that they didn't file a notice to
7 the Department that they intend to intervene, does
8 that deny them any right to speak to this Board?

9 MR. HALLEM: There's two different things
10 on that, Mr. Brink. One is that if somebody
11 called a witness, they could come and testify. So
12 if Mr. Hickey determined that the Water User
13 District had some relevancy to his, he could have
14 them testify.

15 But intervention is actually a party and a
16 party has certain rights, and that right is to
17 contest and appeal any matter that's before it.
18 So there's a difference between being a party to a
19 proceeding versus being a witness to a proceeding.

20 And what the User District is asking for is
21 to be an actual party and so that would give them
22 all appeal rights.

23 MR. BRINK: So they really didn't make the
24 application for that at the proper time.

25 MR. HALLEM: My understanding from the

1 record is that written notice was sent out to
2 them.

3 MR. HUTMACHER: The Board Chairman is Randy
4 Scott; is that right?

5 MS. BEST: We sent it to Randy Scott, Fall
6 River Water Users District, 1 Angostura Highlands,
7 Hot Springs, South Dakota. I do not know what
8 Mr. Scott's title is.

9 MR. HICKEY: General Manager.

10 MR. HALLEM: Do you have any question as to
11 whether that was received?

12 RANDY SCOTT: Yes, we did receive it.

13 MR. HALLEM: So you had notice at least in
14 writing back in June?

15 RANDY SCOTT: Yes.

16 MR. HALLEM: And just for the record, could
17 you state who you are, please.

18 RANDY SCOTT: I'm Randy Scott, General
19 Manager of the Fall River Water District.

20 MR. HOYT: Mr. Chairman, for the purpose of
21 Board discussion -- and I appreciate your comment
22 about our consistency in these matters. However,
23 I did not sense either a statement of cause in the
24 earlier Petitions, late filed Petitions which we
25 rejected, nor did I see perhaps the compelling and

1 more directly affected interest that I would see
2 in the case of Fall River, which does hold a
3 permit for future use which would be affected by
4 the pending application.

5 So in my own instance, I would see more
6 compelling grounds for Fall River to be able to
7 assert its rights as a party to the proceeding and
8 to assist us perhaps in an appropriate
9 determination.

10 MR. BRINK: I guess that's what I was
11 suggesting, the same thing, that they be heard.

12 MR. HALLEM: In that case then, if you want
13 to grant them intervention, that would be the
14 motion. I just wanted to say that there was a
15 difference between it. But if you grant the
16 intervention, they would have full party status.

17 MR. BRINK: Do any of the other parties
18 have to concur or is that up to this Board?

19 MR. HALLEM: It's up to this Board. If one
20 of the parties disagree with it, they could take
21 it up on appeal. But if you denied it, the party
22 that wasn't allowed to intervene could take it up
23 on appeal.

24 MR. BRINK: I make a motion to allow Fall
25 River to intervene.

1 MR. HOYT: Second.

2 MR. HUTMACHER: We have a motion by Francis
3 and second by Everett to let Fall River intervene.
4 Discussion on the motion?

5 My only question is if they received a
6 letter in June, why didn't they send a reply back?
7 They should have done that.

8 But all in favor vote aye.

9 MR. BRINK: Aye.

10 MR. HOYT: Aye.

11 MR. HUTMACHER: Opposed? No.

12 Bernita, you're voting no?

13 MS. LOUCKS: Well, no, I'm not. I'm
14 outvoted anyway. Whatever.

15 MR. HUTMACHER: Well, no. You're the swing
16 vote here.

17 MS. LOUCKS: No, I'm not. It's two against
18 one.

19 MR. BRINK: You can't abstain because we
20 don't have a quorum on it. It's almost unanimous.

21 MR. HUTMACHER: We've got to have three
22 votes to pass a motion. Everett voted no -- or
23 yes. Fran voted yes and I voted no.

24 MS. LOUCKS: Well, I'll vote yes.

25 MR. HUTMACHER: Motion carried.

1 MR. BRINK: Fall River buys supper.

2 MS. BEST: If I may, the Southern Hills
3 applications are, as you can see by your agenda,
4 twofold. There is both a Water Permit Application
5 and an Application for Future Use.

6 The Future Use Application involves several
7 different locations that the Applicant would look
8 for for water in the future.

9 The legal standard of proof in order to
10 obtain the Future Use requires a showing of
11 availability of unappropriated water and future
12 need. Those are the two criteria. That's a
13 lesser criteria than a full permit for water. So
14 I want to make that distinction because we're
15 doing both here.

16 So the Future Use requires only the showing
17 of availability of unappropriated water and future
18 need. And then the third criteria, of course, is
19 that only certain institutional users may apply
20 for a Future Use Permit. And in this case the
21 Applicant is a rural water supply company and does
22 fit that criteria and I think that's undisputed in
23 this case.

24 So we are looking at the Future Use
25 Application and then also, secondly, there is a

1 Water Permit Application.

2 The Water Permit Application is 2585-2.

3 The Water Permit Application is, obviously, also
4 in Fall River County. That one requires a
5 four-part test.

6 Number one, whether there's a reasonable
7 probability there's unappropriated water
8 available. Number two, whether the water can be
9 developed without unlawful impairment of existing
10 rights. Number three, whether the proposed use is
11 a beneficial use. And number four, whether the
12 proposed use is in the public interest.

13 Having said all that, I'm going to just
14 hand out a sheet that has the two legal standards
15 on it so that you all can look at it and have --
16 so there are different legal standards. I want to
17 point that out.

18 The Chief Engineer has recommended approval
19 for the Future Use Application, and is
20 recommending that the Water Permit Application be
21 deferred for future analysis of the aquifer,
22 basically.

23 Having said that, there's a number of
24 parties here, as you know. They all have
25 different points of view.

1 I'm not going to give anything more for an
2 opening statement describing the water use. Ken
3 Buhler is here. He's an expert in groundwater and
4 he is prepared to testify in this matter on behalf
5 of the DENR. And he would also give the Chief
6 Engineer's recommendation as to the approval on
7 the one hand and the deferral on the other hand.

8 I don't know if anyone else wants to give
9 an opening statement first or whether we should
10 proceed with Mr. Buhler's testimony.

11 MR. HICKEY: Diane, are we going to visit
12 about procedurally where we're at in terms of
13 time?

14 MS. BEST: Yeah, I had forgotten. The
15 attorneys in this case all talked a little bit
16 previously. I'm not sure whether we have a
17 consensus or not, but it's looking like time-wise
18 we are in a position where we're going to need,
19 I'm going to say a minimum of five hours.

20 We understand there is not a quorum
21 tomorrow. The DENR is prepared to be fairly
22 expeditious. I think the other parties have
23 indicated that as well but, of course, there's a
24 due process right to be heard and we fully respect
25 that.

1 Some of the parties would advocate that if
2 we're not done today, that we go back, have
3 another round in November when we meet again. I
4 sincerely hope we can get done today, but I might
5 be asking you to proceed with hearing until
6 8 o'clock tonight. So I don't know if you want to
7 take some evidence and then consider the issue or
8 whether you want to rule on that at this time.

9 MR. HUTMACHER: Before we start, can I ask
10 how many attorneys we have that are party to this
11 thing? I know we have Michael. You two. How
12 many more do I have? Is that it?

13 And I assume you guys are on opposite sides
14 here, somebody is.

15 MR. HICKEY: No, Pete and I are on the same
16 side, Your Honor.

17 MR. FAHMY: My name is Peter Fahmy. I'm
18 water rights counsel for the National Park
19 Service.

20 MS. BEST: We understand also that there
21 are several pro se Intervenors and then, of
22 course, Mr. Scott for the Fall River.

23 MR. HUTMACHER: I wondered how many sides I
24 was trying to get to when we were going to do
25 this.

1 Would either one of you gentlemen like to
2 make opening statements or --

3 MR. FAHMY: Mr. Chairman, I prefer to
4 reserve my opening statements at the beginning of
5 our case.

6 MR. PENFIELD: I would also reserve.

7 MR. HICKEY: Me too.

8 MR. HUTMACHER: Good enough.

9 Mr. Buhler, I think you're up.

10 MS. BEST: Before we start with Ken, I'll
11 just take care of some exhibits. I have three
12 exhibits today and I will ask you to accept all
13 three of them at the same time.

14 DENR Exhibit 1 is the agency file in Water
15 Application 2585-2, and that includes the original
16 Application, the Petitions to Intervene, the
17 newspaper notices and Affidavits of Publication,
18 the Chief Engineer's recommendation and
19 Mr. Buhler's report regarding that recommendation.
20 And that's DENR 1.

21 DENR 3 is the agency file in Water Right
22 Application 2580-2. And that contains the same
23 types of documents only with respect to the other
24 application. So that's DENR 1 and 3.

25 And then finally, DENR 2 is a short vitae

1 of the expert qualifications of Ken Buhler. And
2 Ken has testified many times before this Board.

3 And I've indicated to the other parties
4 that if they have no objection, we will not be
5 going into any foundational testimony regarding
6 his qualifications but would instead put in a
7 short exhibit showing his qualifications.

8 And to my knowledge, the parties have
9 stipulated. I'm not real -- there's enough
10 parties here that I might be speaking out of
11 school.

12 MR. HUTMACHER: Okay.

13 MS. BEST: I would ask for admission of 1,
14 2, 3.

15 MR. HUTMACHER: Any objection to admission
16 of DENR 1, 2 and 3, the three exhibits that
17 Ms. Best just referred to?

18 MR. FAHMY: No objection.

19 MR. PENFIELD: No objection.

20 MR. HICKEY: None.

21 MR. HUTMACHER: With that we'll accept into
22 evidence DENR 1, 2 and 3.

23 MS. BEST: At this time I would ask Ken
24 Buhler to come forward and provide testimony both
25 on the deferral recommendation on the new Water

1 Permit Application and also the approval
2 recommendation on the Future Use Application.

3 KEN BUHLER: Mr. Chairman, members of the
4 Board, my name is Ken Buhler, staff engineer.

5 The Chief Engineer is recommending
6 approval, Water Management Board approval of
7 Permit #2580-2 with qualifications. I'm here to
8 give a foundation for that recommendation.

9 The Board should have received a new
10 handout this afternoon, as opposed to what came in
11 your packet. I need to tell you the reason for
12 that is the Figure 1, which is the vicinity map in
13 your original handout, inadvertently came out
14 black and white and it's hard to see what I wanted
15 to show. So the new one is identical except it
16 actually has a color map so you know what I'm
17 talking about.

18 Water Permit Application 2580-2 proposes to
19 appropriate for future use 1,474 acre-feet per
20 year out of the Madison Aquifer. This application
21 proposes to reserve that water from four sites
22 that we'll refer to as the Hermosa Site, the
23 Argyle Site, the Gobbler Pass Site, the Cascade
24 Springs Site. Those sites are shown on Figure 1
25 in the report.

1 I'm also going to show you on this, which
2 is identical to that -- on this map, which is
3 identical to what you have in front of you, the
4 Hermosa Site is up here. Gobbler Pass Site is on
5 385, basically the intersection of 385 and the
6 7-11 Road; Argyle Site over by Argyle, and we have
7 Cascade Springs Site down by Cascade.

8 The Madison Aquifer, of course, locally is
9 known as the Pahasapa Limestone. It's a medium
10 fine crystalline, cavernous limestone dolomite.
11 It's laterally extensive, covers most of western
12 South Dakota -- western United States. Actually,
13 Fall River and Custer County are very near the
14 eastern extent of the Madison.

15 The Madison contains something like 9.8
16 million acre-feet of recoverable water in storage
17 in Fall River County, something like 9.2 million
18 acre-feet of recoverable water in storage in
19 Custer County.

20 I throw those numbers out to the Board just
21 so you recognize the size of this resource. A
22 huge amount of water -- recoverable water in
23 storage.

24 The site conditions at each of these four
25 proposed geographic areas for the future use are

1 shown in Table 1. Based on my analysis, I'm
2 assuming the top of the Madison is going to range
3 anywhere from 450 feet to 2,600 feet below grade.

4 Madison thickness down in the southern
5 Hills here, we're probably only talking 300 feet
6 thick. It gets a lot thicker as you go north, but
7 here it's only 300 feet.

8 Water levels at these sites, and these are
9 generalizations but generally speaking, the water
10 levels at these sites are going to range from 200
11 feet to 500 feet, depending on the site that we're
12 talking about. Just kind of a point of reference
13 of what we're dealing with with these sites.

14 As Ms. Best pointed out, SDCL 46-2A-10
15 states that a future use can only be approved if
16 there's a reasonable probability there's
17 unappropriated water available, the quantity of
18 water reserved is needed for the entity, and it
19 also says the proposed use must be beneficial use
20 and in the public interest.

21 For our purposes, I'm going to discuss the
22 availability of water and the need, as I stated,
23 by the Applicant and the beneficial use of the
24 public water system.

25 I think the Board has been on record time

1 and time again as to a rural water system is a
2 beneficial use of water. With regard to the
3 public interest, I believe that's what the public
4 testimony is about today. I'll let that stand on
5 its own.

6 With regard to water availability, again
7 we're going to go back to that statute. 46-6-31
8 basically says this Board cannot appropriate more
9 water out of an aquifer than what recharge to the
10 aquifer is. To do that we'll go back and look at
11 the numbers on what recharge to the Madison
12 Aquifer is depending on which resources you use.

13 Woodward and Clyde estimate that recharge
14 is somewhere between 140 and 400,000 acre-feet of
15 water per year. A Black Hills hydrology study
16 estimated the average annual recharge between 1931
17 and 1998 was 137,000 acre-feet of water. That's
18 annual recharge.

19 When we look at use out of the Madison
20 Aquifer, the preponderance of use is water that
21 does require appropriative rights. There are some
22 domestic uses out of it, but most of them require
23 appropriative rights. So we can jump straight to
24 talking about how many permits and rights there
25 are out of the Madison.

1 At the time I wrote the report there were
2 142 water permits or water rights appropriating
3 water out of the Madison Aquifer in South Dakota.
4 In addition to that, there's three Future Uses out
5 of the Madison Aquifer; one for Weston Heights,
6 one for the City of Rapid City and one for Fall
7 River Rural Water.

8 These Future Use Permits reserve 6,108.8
9 acre-feet of water per year. So I bring that up
10 because when we talk about how much water is being
11 used out of the Madison Aquifer and compare that
12 with the amount of water that is being recharged,
13 we have to work in that water which is reserved
14 for future use which can, in theory can also be
15 used.

16 Worst case scenario, if everybody is
17 pumping the maximum that they can pump, if they
18 have a limit on how much water they can pump or in
19 terms of a volume -- we discussed volume versus
20 rate earlier. If everybody is pumping their
21 maximum volume or pumping their maximum diversion
22 rate 60 percent of the time, which is pretty heavy
23 use -- this is worst case scenario -- worst we
24 get, we can give you maybe 50,000 acre-feet a year
25 that we're pumping out of the Madison Aquifer.

1 Remember, recharge estimates are in that 140 to
2 400,000.

3 So we're feeling pretty comfortable that
4 there is unappropriated water available from the
5 Madison Aquifer.

6 Also, if you look at the Black Hills
7 Hydrology Study, between 1987 and 1996 they put a
8 number on what withdrawals from the Madison
9 Aquifer were. They put that number at 10,990
10 acre-feet a year. Again, recharge is over ten
11 times that.

12 This Application proposes to reserve for
13 future use 1,474 acre-feet. Add that on to what
14 we already have appropriated, and there's still
15 unappropriated water available from the aquifer.

16 The Water Rights Program monitors 26
17 observation wells in the Madison Aquifer. That
18 Figure 1 in your report, particularly if you look
19 at the colored version of it, points out where
20 these observation wells are with regard to the
21 sites.

22 This exhibit is also going to show that --
23 it's not going to stand up by itself. The blue
24 dots are observation wells in the Madison Aquifer.
25 The ones that are labeled are the ones that are

1 included in the report. The red squares are the
2 future use sites.

3 I've included hydrographs for six of our
4 observation wells in this report. I think they
5 speak fairly well for themselves.

6 They show that the potentiometric surface
7 fluctuates in the Madison Aquifer between 15 and
8 like 60 feet, depending on the well. They show
9 the same thing we can say about any of our
10 observation wells. They show an excellent
11 response to seasonal and climatic conditions.

12 If you look at these, they show the low
13 water levels in, you know, in the early 1990's.
14 They show high water levels in 2000. You start
15 looking at the first two of those hydrographs,
16 Figure 2 and Figure 3 in the report, which is for
17 PE-95A and CU-93A, you can see the individual
18 spikes which would represent the seasonal
19 fluctuations as well as the climatic fluctuations.

20 The records on these hydrographs don't
21 extend back far enough to where the water levels
22 were lower than our current water levels. Simply
23 don't have enough period of record.

24 But when I take the observation well data
25 from -- take the water level data from these

1 observation wells, compare that with other Madison
2 observation wells we have in the Black Hills
3 outside of this area that do have a longer period
4 of record, we can still come back to the Water
5 Management Board and say this is looking good.

6 We're not seeing the effects of pumping.
7 What we're seeing is climatic conditions. Since
8 we're not seeing pumping, we're going to say the
9 observation wells also support that unappropriated
10 water is available for this future use
11 reservation.

12 Again, the Administrative Rules of this
13 Board, 74:02:01:24.01 require that future use show
14 that there's a need. And it limits the need --
15 limits the volume on a future use to what's either
16 going to be needed by that entity or twice what
17 they're already using.

18 You've got a new party involved here.
19 They're limited to what they think they need.
20 They have come in with an analysis that shows they
21 think they need 3,074 acre-feet per year. This
22 again is an application for 1,474 acre-feet per
23 year.

24 As Ms. Best pointed out and as I've tried
25 to point out, there's only three criteria this

1 Board has for approving a Future Use Permit. It
2 does not include protecting -- analyzing the
3 affect on existing water rights.

4 But we've brought this in front of the
5 Board to say it may not be -- and we've done this
6 on other future uses. We say, yes, there's
7 unappropriated water available. They say they're
8 going to need it.

9 And again, when it comes time to look at
10 actual appropriations, we'll come in front of you
11 and talk about whether it's going to adversely
12 impact existing rights.

13 It may not be prudent for this Board to
14 approve a permit for a future use if there's no
15 way that there's going to be a development out of
16 the future use approved. So we wanted to address
17 that a little bit right here and now.

18 Can we actually develop out of this future
19 use? So we include that extra criteria that's
20 required to develop of, is there going to be --
21 what's the effect upon existing water rights going
22 to be?

23 Table 2 of the report shows the site with
24 regard to water rights that are -- or permits that
25 are appropriating water out of the Madison

1 Aquifer.

2 The Hermosa Site is four miles from the
3 nearest Madison permit or water right. The
4 Gobbler Pass Site is three miles. The Argyle Site
5 is six miles, and the Cascade Spring Site is seven
6 miles from the nearest water permit or water right
7 out of the Madison Aquifer.

8 Therefore, it's really unlikely that well
9 interference caused by this pumping would cause an
10 adverse impact on existing water users, on
11 existing wells supplying permits out of the
12 Madison.

13 In addition, we've got Future Use Permit
14 #2560-2, and that's for Fall River Water User
15 District. Fall River Water User District has a
16 future use that reserves 750 acre-feet of water
17 per year from three areas.

18 When we get down to the Cascade Springs
19 Site on this application, that's about two
20 and-a-half miles from one of Fall River's sites
21 and about six miles from another site.

22 The other sites really should be sufficient
23 enough to allow development of future use without
24 adverse impacts. But really, the exact extent of
25 any interference between a well drilled in Fall

1 River's future use versus the impact of a well
2 drilled in Southern Hills' future use would depend
3 on exactly how much water they're going to pump,
4 exactly what the pump rates are, the specifics of
5 that application -- or the specifics of those
6 appropriations. And those specifics would come
7 with permits to develop that would come to this
8 Board.

9 There's a confusing issue, somewhat
10 confusing but it needs to come up. I think
11 it's -- maybe speaking for Fall River, I think
12 this is where they have a dog in this fight.

13 To appropriate water there's got to be a
14 reasonable probability that proposed diversion can
15 be developed without unlawful impairment of
16 existing rights. I underline the word "existing
17 rights" because it doesn't say prior rights. It
18 says existing rights.

19 So what it comes down to is Fall River
20 Water User District has a senior priority date for
21 an area, senior over Southern Hills' priority
22 date. If Southern Hills -- so if Southern Hills
23 comes in to develop out of their future use and
24 there is not a well in the Fall River Water User
25 District future use area -- I want to go the other

1 way.

2 Southern Hills develops a well in their
3 future use area first. It has a 2006 priority
4 date associated with this future use. Fall River
5 Water User District has a 2005 priority date on
6 their future use. However, the well constructed
7 by Southern Hills was constructed first. That is
8 an existing right.

9 Because that's an existing right, the
10 development of Fall River's Water User District to
11 drill their well, we need to consider how that's
12 going to impact this existing well.

13 Once both wells have been built, Southern
14 Hills Water User District is going to need to
15 control their pumping so they don't affect the
16 senior water right of Fall River. There's a
17 flip-flop here.

18 We typically don't do this. In this case
19 we did look at the public interest, as we did on
20 the Fall River one. In particular, because the
21 Cascade Springs Site is located about a mile
22 and-a-half from Cascade Springs. Now we're
23 getting into the same discussion that we had on
24 the -- that the Water Management Board had on the
25 Fall River Water User District site. The

1 development of future use -- or you want a future
2 use next to this spring.

3 Springs, Madison source, are you going to
4 adversely impact the spring? There was a great
5 deal of discussion on that on Permit #2560-2 for
6 Fall River Water User District because if you
7 lower the water level, you're going to decrease --
8 you run the potential of decreasing spring
9 discharge.

10 Since South Dakota Water Law -- we're back
11 to protects the source, not the means of delivery.
12 Therefore, artesian head pressure is not protected
13 as a means of delivery by South Dakota Water Law.

14 So the springs that are emitting out of the
15 Madison Aquifer are actually relying on artesian
16 head pressure as a means of delivery. So if I'm
17 pumping a well next to your spring and it causes
18 your spring to decrease because the artesian head
19 pressure has dropped, we could certainly argue
20 that I have not adversely impacted your rights
21 because you were depending on artesian head
22 pressure.

23 However, we bring this to the Water
24 Management Board saying it may not be in the
25 public interest to steal from Peter to pay Paul,

1 if you will.

2 And with that consideration, to refresh the
3 Board's memory, when we did this on Fall River
4 Water User District, the Water Management Board
5 approved a permit with a qualification that says,
6 "At such time as definite plans are made to
7 construct works and put water reserved by this
8 permit to beneficial use, special application for
9 all or any part of the reserved water must be
10 submitted and approval to the construction of
11 facilities pursuant to SDCL 46-5-38.1, with
12 particular attention given to the flows in Beaver
13 Spring, Cascade Springs and Hot Springs."

14 So I believe the Board addressed the public
15 interest aspect of it by saying, yes, we will look
16 at these springs.

17 With that the Chief Engineer felt
18 comfortable recommending approval of this Water
19 Permit because there is a reasonable probability
20 that there is 1,474 acre-feet of unappropriated
21 water available from the Madison Aquifer.

22 Chief Engineer's qualification also
23 includes a stipulation that this water, as with
24 any future use, it's going to be reviewed after
25 seven years.

1 Also, we felt -- the Chief Engineer felt
2 that approval of this would be in the public
3 interest with the qualification that at such time,
4 we get the particulars where we can evaluate what
5 the pumping at each site would be. When we get
6 those particulars we will pay particular attention
7 to the springs in the area.

8 Therefore, the Chief Engineer is
9 recommending approval of this application.

10 Are there any questions?

11 MR. HUTMACHER: What's the priority date on
12 Fall River's future use?

13 KEN BUHLER: I believe that's 2005. That
14 is a last December permit, I believe. 2005.

15 MR. HUTMACHER: Any more questions of Ken?

16 MR. HOYT: I have one, Mr. Chairman. See
17 how I can frame it here.

18 In a somewhat related application, 2585-2,
19 the Chief Engineer's recommendation is to defer
20 approval or defer recommendation until such time
21 as a test well can be completed and monitored.
22 Was that your understanding?

23 KEN BUHLER: That's correct. Now, I
24 should -- I'm sorry. I should ask right now. Do
25 you want me to go ahead and do my report on 2585-2

1 right away? And then -- or do we want to do
2 question and answer on this and then do 2585-2 and
3 question and answer?

4 MR. HUTMACHER: I would like to keep them
5 together. If we can keep, you know, the stuff
6 pertaining -- it's not going to be any different,
7 the way I see it, the hydrology on actually the
8 future use and/or the permit. It's just the
9 recommendation is different but the hydrology
10 numbers are going to be the same. So I would like
11 to mix them.

12 That's up to the rest of the Board. As
13 long as you guys can stay straight on what we're
14 talking about.

15 KEN BUHLER: With that being the point,
16 should I now address 2585-2 so that we can get
17 into the deferral versus --

18 MR. HOYT: My question, Mr. Chairman, was
19 going to be essentially in substance that very
20 point. Because Mr. Buhler mentioned that it's not
21 recommended that we grant a Future Use Permit,
22 unless there is the likelihood of development of
23 that future use at some point in the future.

24 And is it then your feeling that there is a
25 basis for supply for the future use, though the

1 exact location of the proposed well in 2585-2 may
2 be questionable?

3 KEN BUHLER: Is the cliché --

4 MR. HOYT: In other words, if we don't
5 develop the resources at the location proposed in
6 2585-2, should we still, in your opinion, proceed
7 to grant the future use knowing that there may be
8 another location other than that proposed at which
9 this future use might be put into effect?

10 KEN BUHLER: I'm sorry. I got confused.
11 There are five sites here. There are four future
12 use and they're quarter-section sites somewhere
13 within 160 acres. And then there is a fifth site
14 where there is a spot on the ground where they
15 intend to drill a well.

16 If I may use the cliché, the devil is in
17 the details. I believe that's the reason why we
18 need to defer the one where we have specifics,
19 know exactly where the well is going to be,
20 exactly how much water they intend to pump out of
21 this.

22 With this future use you're looking at four
23 sites and a volume of water. Nothing is said
24 about the rate out of any of these sites. So by
25 mixing and matching, let's say, I mean certainly

1 we would not have the concern of a
2 ten-gallon-a-minute well as opposed to a
3 thousand-gallon-a-minute well at a location.

4 Or if we had a thousand-gallon-a-minute
5 well a hundred feet from a spring, that's a whole
6 different animal than if we had a
7 thousand-gallon-a-minute well 20 miles from a
8 spring. So in this case, there is a reservation
9 of a volume of water.

10 MR. HUTMACHER: I should have asked before
11 I made the assumption that we'd combine those.

12 Is there objection from Counsel as far as
13 taking those permits together?

14 MS. BEST: I think we had all anticipated
15 that we were going to put the case together as we
16 went along. Ken was just pausing for questions
17 from the Board between the two applications and
18 that's fine, too.

19 KEN BUHLER: Again, the devil is in the
20 details. I didn't know what that meant that they
21 were together, how we do this.

22 2585-2 is a permit to appropriate water
23 from a specific site.

24 I apologize. Thought that was going to
25 work.

1 MS. LOUCKS: We have a question here, Ken.

2 MR. BRINK: Procedural more than anything.

3 MS. LOUCKS: Right. You're talking 2585-2
4 and 2580-2 but you're talking 1,474 acre-feet on
5 one and 2.67 cubic feet on the other. Can't you
6 kind of keep it to -- I mean, how many acre-feet
7 are the cubic feet?

8 MR. BRINK: CFS and total consumption.

9 KEN BUHLER: 2.67 acre-feet -- okay, let me
10 start at the beginning on this.

11 2585-2 is a Water Permit Application. The
12 Chief Engineer is recommending the Water
13 Management Board defer for further information.
14 In support of that recommendation I hope to give
15 you by way of this report.

16 This application proposes to appropriate
17 2.67 cfs. That's a diversion rate. They can pump
18 this at a rate of 2.67 cfs. They also are putting
19 a cap on that of 1,600 acre-feet a year. This one
20 has both.

21 With regard to the future use, in theory,
22 you know, we're talking 1,474 acre-feet per year.
23 I mean you could do that, let's say, with several
24 small rate wells or one large rate well or, you
25 know, you pump at a rate until you achieve a

1 volume. And the volume of the future use, there
2 is no number assigned to what rate you may pump
3 that to get that volume.

4 So although there are four sites associated
5 with this, nothing is said about how many wells
6 it's going to take. If I have, you know, a number
7 of wells, I have a lower diversion rate per well.

8 It's like, if you will, it would be like
9 interest and capital, you know, or interest and
10 principal. Principal is what you have in the bank
11 and interest is what rate it's growing. Well, the
12 diversion rate is, you know, they're separate
13 animals.

14 Did that answer that?

15 MR. BRINK: Not for me.

16 MS. LOUCKS: I think so. I defer to
17 Francis.

18 MR. BRINK: You're -- in the permit 2585-2
19 you are actually -- I know you got a double
20 number, 2.67 cfs and you got 1,600 acre-feet.
21 Sixteen hundred acre-feet is more than the Future
22 Use Permit.

23 KEN BUHLER: What? I'm sorry.

24 MR. BRINK: Well, your 1,600 acre-feet in
25 the permit is larger than what they're asking for

1 in the Future Use Permit.

2 KEN BUHLER: If they pump 2.76 acre-feet
3 continuously, we're looking at a number something
4 like 1,933 acre-feet is what that would mean.
5 What they say is they're only going to pump --

6 MR. BRINK: Why did you say 1,600 then?

7 KEN BUHLER: Because they have limited
8 themselves. They want this diversion rate but we
9 don't need the volume. We're only going to pump,
10 in this case, something like 82 percent of the
11 time at this diversion rate, you know, is how
12 these numbers will work out.

13 MR. BRINK: Is that where the 1,600 comes
14 from? Is it 80 percent of the time?

15 KEN BUHLER: I don't know where that came
16 from but that's what it equates to.

17 MR. BRINK: Well, you guys are -- I'm not
18 sure you're leaving a clear paper trail here then.

19 You're saying in the Future Use Permit
20 they're applying for 1,474 acre-feet. You're
21 going to reserve 1,474 acre-feet --

22 KEN BUHLER: Correct.

23 MR. BRINK: -- in the Future Use Permit.

24 KEN BUHLER: Correct.

25 MR. BRINK: What are we doing issuing a

1 permit for 1,600? Or should we just strike out --

2 KEN BUHLER: We have five sites involved
3 here. In four of these sites they intend to
4 reserve up to 1,474 acre-feet per year, a volume
5 of water that each site -- they intend to pump
6 that site. They're going to drill a well there.
7 Their application in front of you is to drill a
8 well and pump it at a rate of 2.67 cfs.

9 MR. BRINK: Maybe my Norwegian is --

10 KEN BUHLER: It would be like a city, for
11 example, that you have to have a diversion
12 authority to pump at a rate.

13 MR. HALLEM: Could I ask a clarification
14 question?

15 KEN BUHLER: Please.

16 MR. HALLEM: Is the total amount of water
17 acre-feet per year under the two permits that
18 they're seeking would be 3,074 acre-feet?

19 KEN BUHLER: Yes, sir.

20 MR. HALLEM: So that's the total amount of
21 water on the two permits in acre-feet they're
22 looking at.

23 KEN BUHLER: A volume.

24 MR. HALLEM: Volume. 1,474 is future use;
25 1,600 would be current use.

1 KEN BUHLER: Correct.

2 MR. HALLEM: Does that --

3 MR. BRINK: Say that again now.

4 MR. HALLEM: Southern Black Hills Water
5 System, through the two permits, is seeking 3,074
6 acre-feet. In permit 2585-2 they're seeking a
7 current permit to pump and obtain 1,600 acre-feet.
8 They are reserving in 2580-2 the ability to pump
9 and obtain an additional 1,474 acre-feet so
10 that's --

11 MR. BRINK: That's where the numbers come
12 together.

13 MR. HALLEM: That's right. So it's 3,074
14 feet total. Does that clarify?

15 MR. HOYT: Can we go off the record?

16 (Off-the-record discussion was held.)

17 MR. HALLEM: The Board is having some
18 concerns about combining the two, the Future Use
19 and the current application, as it's related to
20 some of the questions on -- they're concerned
21 about an adequate record and especially depending
22 upon how the Board rules, one or more of them may
23 be appealed on it.

24 And combining the two, unless there is a
25 darn good reason to do so, may create more

1 confusion than it would to solve things, given the
2 questions.

3 So the question that the Board had was that
4 given the different standards between the
5 application itself, which is current usage, that
6 the Board would like to go first with that and
7 deal with the current usage permit and go through
8 with it.

9 And then, based upon how the Board does
10 here, could look at the Future Use and it deals
11 with some of the questions that the Board had and,
12 hopefully, avoid some confusion. And more
13 importantly, have a clean record so that none of
14 the parties are prejudiced on it.

15 I think we could -- we're to a point right
16 now where we could recess 2580-2 and then go
17 forward with 2585-2. And then go through that in
18 its entirety and then go back with it and,
19 hopefully, we'd have a little bit cleaner record.

20 MS. BEST: Quite frankly, in preparing for
21 our case, we were back and forth on which way to
22 do it because you have the same parties and
23 similar testimony, whether to put them together or
24 whether to separate them out. So we are just fine
25 with separating them out.

1 MR. HALLEM: Separating them out may work
2 just to clean up the record also, given the
3 different standards and the different locations of
4 the potential well versus the actual well.

5 Did I accurately reflect the Board's
6 concerns?

7 MS. LOUCKS: Right.

8 MR. HOYT: So we would recess 2580-2 and
9 begin the hearing on 2585-2.

10 MR. HALLEM: And then what we do is we
11 treat them separately. If somebody wanted to
12 refer to evidence to facilitate the record,
13 they're more than able to do so.

14 I'm looking for comment from Counsel.

15 MS. BEST: If we would do that, I'd ask for
16 admission of the previous testimony into the
17 record on the new permit hearing as background,
18 you know, just background on the Chief Engineer's
19 recommendation and where we're at and how the two
20 fit together. And then we'd proceed with the new
21 application.

22 MR. HALLEM: Any of the other counsel have
23 any objection to that?

24 MR. FAHMY: No objection.

25 MR. HALLEM: Then what we would do is we'd

1 begin with 2585-2, and then as for part of the
2 record the Board agreed to Ms. Best's request
3 about stipulating the record, prior testimony of
4 Mr. Buhler.

5 MR. HUTMACHER: That should be fine with
6 us. What we're going to do is recess the hearing
7 on the Future Use Permit and we'll start on
8 2585-2, which is the actual water permit.

9 MR. HALLEM: And we would rely on the
10 evidence that's already been submitted in 2580-2
11 as for part of the Board's determination.

12 MS. BEST: Thank you.

13 MR. HALLEM: Mr. Buhler, do you understand
14 where we're at?

15 MS. BEST: Can you, Ken, please give your
16 report on the new permit.

17 KEN BUHLER: 2585-2, Chief Engineer is
18 recommending deferral of this application until an
19 aquifer test can be conducted and evaluated to
20 determine if there would be any effect on Beaver
21 Creek Spring.

22 By way of foundation for that, let me
23 present our report. 2585-2 is an application to
24 appropriate 2.67 cfs. That's like 1,200 gallons a
25 minute, a volume of 1,600 acre-feet a year from a

1 well that's to be completed in the Madison Aquifer
2 in the West Half of the Northeast Quarter of
3 Section 15, Township 6 South, Range 6 East in
4 Custer County.

5 The water is going to be used or is
6 proposed to be used for rural water system use in
7 Fall River, Custer and Pennington County.

8 Again, the Madison underlies 19 million
9 acres of western South Dakota, contains 644
10 million acre-feet of recoverable water in western
11 South Dakota. Tremendous resource.

12 The importance of the Madison is, as an
13 aquifer is primarily because you have these really
14 well developed zones of secondary porosity
15 impermeability, i.e., caves and things that were
16 created by weathering and groundwater solution on
17 unexposed surfaces.

18 The Madison in this area is probably in the
19 neighborhood of, depending on the author you look
20 at, somewhere between 250 and 400 feet thick.

21 This area, by the way, I'd like to show you
22 on this map. I suppose we need to get it admitted
23 as part of the record, DENR exhibit something.

24 MS. BEST: I'd ask for the admission of
25 DENR 4.

1 KEN BUHLER: Hot Springs is located right
2 here.

3 MR. HUTMACHER: Excuse me just a second.
4 Is there any objection to admission of
5 DENR 4?

6 MR. FAHMY: No objection.

7 MR. PENFIELD: No.

8 MR. HICKEY: No objection.

9 MR. HUTMACHER: We'll accept DENR 4.
10 Go ahead.

11 KEN BUHLER: We've got Hot Springs right
12 down here. Highway 79 going to Rapid City. The
13 town of Buffalo Gap is located right here. If
14 you're intimate with the area, you have the Trout
15 Haven cut-across from 79 over to Highway 385.
16 Wind Cave National Park.

17 This application proposes to pump a well
18 located right here. And the legal location of
19 right here is the West Half of the Northwest of
20 Section 15, 6 South, 6 East.

21 MR. HOYT: Excuse me, Mr. Buhler, but while
22 you're there, if you can, could you indicate where
23 Beaver Creek is on that map?

24 KEN BUHLER: Yes. Beaver Creek is a creek
25 that flows through here, and of particular

1 importance to this application is Beaver Creek
2 Springs.

3 Beaver Creek Springs is located right at
4 the end of this blue arrow. This application
5 proposes a well right at the end of the red arrow.
6 Get into the particulars of that as we get a
7 little bit further.

8 This well site is kind of interesting, if
9 you look at the geology of it. There's some neat
10 structure here. There's an anticline here which
11 is beds draped, making a mound. That's probably
12 the reason why an oil test was drilled here called
13 the Streeter Well. And because of this geologic
14 structure here, the anticline, you probably have
15 some areas of some increased permeability and
16 faulting and things like that which make this
17 maybe a little more prolific.

18 Well, for example, the Streeter Well, which
19 is 500 feet from where this application proposes
20 to drill a well, then we penetrate the Madison
21 Aquifer 10 feet and this well flows 150 gallons a
22 minute. Very prolific here.

23 So that structure may have some influence
24 on -- the geologic structure may have an influence
25 on the well. It may also have an influence on why

1 Beaver Creek Spring is located where it's located.

2 The top of the Madison Aquifer is about a
3 thousand feet below grade in this neighborhood.
4 We're looking at hot water here. It's going to be
5 something like 100 degrees Fahrenheit probably.
6 It's going to be fairly hard water but it's going
7 to be relatively low in total dissolved solids.
8 In general, it's going to be a good quality water.

9 Water availability, again there are four
10 criteria for approval of a permit. Is there
11 unappropriated water available? To look at that,
12 is there going to be an adverse impact on existing
13 rights, public interest and beneficial use.

14 To look at the availability of water we
15 again go to 46-6-3A which says the Water
16 Management Board can't approve a permit of an
17 aquifer if withdrawals from the aquifer are going
18 to exceed recharge to the aquifer.

19 The numbers again are pumping no more
20 than -- I mean if everybody -- worst case
21 scenario, we're pumping 50,000 acre-feet, probably
22 talking in the 10 to 15,000 acre-feet per year
23 that we're pumping. Recharge in the 140 to
24 400,000. We're not even close with regard to
25 recharge to this aquifer and what's being

1 withdrawn from it.

2 We do have 142 permits that are withdrawing
3 water and the future use. We've taken that into
4 account in looking at the simple water balance of
5 the numbers.

6 With regard to is there available water,
7 we're talking 1,600 acre-feet here. In these
8 gross numbers we are dealing with 10 to 15,000
9 that we're using, 140 to 400,000 that we got.
10 Yeah, there's water available for 1,600 acre-feet.

11 Again, water availability, we look at
12 observation well data. We've got 26 observation
13 wells in this area in the Black Hills in the
14 Madison Aquifer.

15 The nearest one is an observation well
16 called CU-91A. And that well is located about a
17 mile and three quarters west-southwest of this
18 proposed well site. We've included a hydrograph
19 of that observation well.

20 As the name would imply, the well was
21 constructed in 1991. The water -- the last water
22 level on this hydrograph would be current at the
23 time of drafting the report in June. You can see
24 that water levels fluctuated 25 feet. This is in
25 response to seasonal and climatic conditions.

1 The hydrograph shows that during the late
2 '90s water levels came up, as they did everywhere.
3 They peaked out in 2001 and have been on somewhat
4 of a decline since 2001 in response to less
5 recharge.

6 Observation well data indicates that at the
7 existing level of development the natural
8 influences or the natural influences to the
9 hydrograph so dominate any effects of pumping in
10 the area that without that effect of pumping being
11 obvious, we can say that the observation well data
12 also shows that there's a reasonable probability
13 there's unappropriated water available.

14 Now, there's six water rights or water
15 permits appropriating water within five miles of
16 this proposed well site. I'm showing those water
17 rights in Table 1 on page 3 of our report.

18 You can see that they're in various
19 aquifers; the Minnelusa, Madison, Inyan Kara,
20 Deadwood and Madison. There's always debate on
21 whether there's a hydrologic connection between
22 the Madison and the shallower aquifers. There's
23 certainly a potential there.

24 For example, at the site of our observation
25 well CU-91A, we also have two other observation

1 wells, CU-91B and CU-94A. One's in the Minnelusa
2 Aquifer. One's in the Minnekahta Aquifer. If
3 there were going to be a hydrologic connection
4 between the deeper aquifer and the shallower
5 aquifers, you would see it first in the
6 relationship between the Madison and the
7 Minnelusa.

8 At this particular site the water level in
9 the Minnelusa is something like 160 feet lower
10 than the water level in the Madison. Higher water
11 levels in the Madison would indicate there is a
12 potential for leakage from the Madison up into the
13 Minnelusa, granted. However, there's 160 feet of
14 water level difference in between the two.

15 We need to look at this from a common sense
16 perspective. If there was a hydrologic
17 connection, how in the world -- you know, it gets
18 very difficult to maintain 160 foot of head
19 difference between the two. So I think that this
20 can be used as evidence to show that in this area
21 there's not any great hydrologic connection here
22 and they are distinct aquifers.

23 Above the Minnelusa we have even more
24 confining layers so there's not going to be any
25 leakage from up in the Minnekahta or the Inyan

1 Kara Aquifer. Therefore, any appropriation that
2 this Board were to make out of the Madison Aquifer
3 in this area is not likely to impact shallower
4 appropriations.

5 Now, the lower portion of the Madison --
6 the Madison, when we talk about the impact we
7 almost always talk about the upper portion of the
8 limestone or the Madison Formation because the
9 lower formation is dolomitized. And that
10 crystallization makes it less of a host aquifer,
11 if you will.

12 The lower part of the Madison is typically
13 not considered an aquifer, typically. So in
14 general we say that the lower portion of the
15 Madison is a hydrologic barrier between it and the
16 lower beds. So that's why we're going to come to
17 you and say if there are wells in shallower
18 aquifers than the Madison, they're not going to be
19 affected by this pumping.

20 Now, the Madison is under a thousand feet
21 of artesian pressure. It's confined. The top of
22 the aquifer is a thousand feet. Water level is
23 going to flow in as well.

24 Drawdown in an artesian aquifer does extend
25 over a fairly large area. At this time, because

1 that drawdown is so aquifer characteristic
2 dependent, at this time I'm not able to come to
3 you and say this is how much drawdown there is
4 going to be from this well here or here, because
5 the aquifer characteristics of the Madison Aquifer
6 fluctuate. They're highly variable.

7 It's been documented by researcher after
8 researcher the variability of the aquifer. Not
9 only that, but it's really variable in, if you
10 pump a well you might get more drawdown in one
11 direction than in another direction. So that
12 variability is really well documented.

13 Although I can't come in and tell you how
14 much drawdown I'm going to get on your well, if
15 you pump this well, how much drawdown is going to
16 be on the well at a given distance, I can come and
17 tell you that we do not believe there will be an
18 adverse impact on existing wells because,
19 remember, we have a thousand feet of artesian head
20 pressure.

21 South Dakota Water Law protects the source,
22 not the means of delivery.

23 If a domestic user needs to lower his pump,
24 that's not an adverse impact. This thousand feet
25 of head pressure -- and in fact the Board has

1 ruled in the past that if we're going to protect
2 that artesian head pressure, then that could be in
3 conflict with SDCL 46-1-4 which says we're going
4 to put water to maximum beneficial use. So that's
5 why the rules are set up the way they're set up
6 to, yeah, you need to lower your pump.

7 So therefore, we don't feel groundwater
8 rights would be adversely impacted. I can tell
9 you that even without the details of this, that
10 it's probable they would not be impacted.

11 It's unlikely that any domestic well that's
12 completed in the Madison Aquifer would experience
13 interference that would be considered adverse. So
14 we don't think that would be a probability.

15 But now the proximity to this site to
16 Beaver Creek Springs. We have a spring located
17 three quarters of a mile -- again on the map,
18 Beaver Creek Springs is located in Section 14 and
19 this proposed well site is in Section 15. Less
20 than three quarters of a mile away is this spring
21 that discharges an estimated 10 to 15 cubic feet
22 per second.

23 It's probably a Madison source spring.
24 There's no reason to argue that it's not a Madison
25 source spring, and lots of reasons to argue that

1 it is.

2 This 10 to 15 cfs constitutes the base flow
3 for Beaver Creek Spring -- for Beaver Creek, I'm
4 sorry. The 10 to 15 cfs discharging from this
5 spring constitutes the base flow for Beaver Creek.
6 As you can see on Figure 3, we have a flow
7 duration curve for Beaver Creek below -- and this
8 is below Beaver Creek Spring, and the flows in the
9 spring -- or the flows in Beaver Creek pretty much
10 all coming out of Beaver Creek Spring. Okay.

11 So if something is done that would diminish
12 the discharge of Beaver Creek Spring, it could
13 lead to less water in Beaver Creek. This wouldn't
14 necessarily be an adverse impact because Beaver
15 Creek Spring, remember, is an artesian spring.
16 It's artesian head pressure dependent.

17 But the question we bring to the Board is,
18 is it in the public interest to deplete the -- or
19 the question we want you to consider is, would it
20 be in the public interest to decrease the stream
21 flows? And possibly some of the downstream water
22 rights would not have -- there may not be water
23 for appropriative rights or domestic rights from
24 Beaver Creek if Beaver Creek Spring's discharge
25 decreases. They're not adversely impacted.

1 However, it certainly may be a public interest if
2 the Board chooses to make it a public interest
3 issue.

4 The other thing we need to look at with
5 regard to, is approval of this water right going
6 to adversely impact existing water rights. We get
7 down to what we discussed. I talked -- never
8 mind.

9 Fall River Water User District has a future
10 use. This future use is permit 2560-2. It's for
11 750 acre-feet from three areas. And the well
12 proposed by this location is two and a third miles
13 northwest of one of these areas. So the extent of
14 interference between this well and that future use
15 area would depend on the exact location of where
16 Fall River wanted to put their well, so on and so
17 forth.

18 But back to 46-2A-9 which says you need to
19 protect existing rights, if this well was
20 constructed it may -- what's the word I want to
21 use? It may obstruct Fall River Water Users
22 ability to develop anywhere they want to develop
23 within their future use.

24 Because remember, for them to develop
25 within their future use which has a 2005 priority

1 date, we need to look at whether it's going to
2 impact existing users.

3 The well, if it was constructed first, it's
4 an existing user. There could be -- approval of
5 this permit could impact how and if and when they
6 would develop that.

7 So to try to sum this up, the Madison
8 Aquifer is a prolific aquifer. There's reasonable
9 probability that there's unappropriated water
10 available. The Madison is a confined aquifer or
11 artesian in this condition. Drawdown from pumping
12 a well at 2.67 cfs could extend over a fairly
13 large area.

14 The extent of the proposed drawdown can't
15 be evaluated. I mean I can't put a number on how
16 much water or how much drawdown this is going to
17 cause. However, I can say that it's not likely
18 that existing water rights would be adversely
19 impacted.

20 The impact of this drawdown on Beaver Creek
21 Spring and, consequently, Beaver Creek is unknown.

22 Discharge -- or I'm sorry -- decreased flow
23 of Beaver Creek would amount to -- could affect a
24 number of users, both downstream water rights and
25 downstream domestic users.

1 Again this permit could affect the
2 development from Future Use Permit 2560-2.

3 As we're routine, information is not
4 available to approve this without a 20-year term
5 limit on it. And the Water Management Board must
6 determine the public interest aspects of this
7 application.

8 Therefore, the Chief Engineer is
9 recommending the Water Management Board defer
10 Water Permit Application 2585-2 until an aquifer
11 test pump can be completed by the Applicant, the
12 effect of Beaver Creek Spring can be evaluated.
13 That aquifer test pump proposal must be submitted
14 to Water Rights for review and approval prior to
15 it being conducted.

16 Is there any questions?

17 MS. LOUCKS: Is there an estimated time
18 frame here or are we just waiting until --

19 KEN BUHLER: I could give you my estimate.
20 I believe they probably have their own estimate.
21 I think we're talking in the, realistically,
22 before this Board would see this again, I would
23 say two years realistically.

24 They may have a different number but those
25 are based on funding, drilling observation.

1 You're going to drill a well, determine how hard
2 you're going to pump it, therefore, how deep or
3 how far away your observation wells are going to
4 be.

5 So you need the funding, then you need to
6 drill the well, then you need to come up with an
7 aquifer test, then you need to evaluate the
8 aquifer test. This is -- what people are telling
9 me and what I'm putting together in my head is a
10 year and-a-half, two years.

11 MR. HOYT: Mr. Buhler, do you have any
12 record that you have available to you at the
13 present time as to downstream water rights and
14 domestic users below Beaver Creek Springs on
15 Beaver Creek?

16 KEN BUHLER: I think so.

17 MR. HOYT: You may have provided it.

18 KEN BUHLER: I don't believe it's in this
19 report. I do not have that at my fingertips.
20 What I can tell you is Beaver Creek Spring is
21 overappropriated. Beaver Creek is
22 overappropriated. Not the spring. Take the word
23 spring out of that.

24 There are more water rights to use water
25 than there is median flow. I want to say it's in

1 the 18 cfs neighborhood, 21 cfs, something like
2 that. I want to say there's like 11 of these
3 water rights. I looked at that but I didn't bring
4 it.

5 MR. HOYT: And then in addition to those,
6 would there be domestic users?

7 KEN BUHLER: Yes, sir, which would include
8 stock wells.

9 MR. HOYT: We may be dealing with a fairly
10 substantial number of people in this instance,
11 users of Beaver Creek?

12 KEN BUHLER: Yes.

13 MR. HOYT: I know substantial is subject to
14 definition, but somewhere between 30 and 50?

15 KEN BUHLER: I'm sorry. I don't have a
16 real good feel for the domestic use on Beaver
17 Creek. I think once you get past Highway 79, I'm
18 really struggling on what exactly domestic use is
19 there. I think your number is a little high
20 but --

21 MR. HOYT: Ms. Best, could that number for
22 existing rights, water rights and domestic users
23 be provided for the record?

24 MS. BEST: We would have -- for domestic
25 users, we would have domestic users for which a

1 well log has been filed. And I don't know that we
2 necessarily know of all the users. We certainly
3 would have had the appropriative water users, as
4 well as the exact amount of the appropriations.

5 The domestic ones, in fact, Ken had given
6 it to one of the other experts who will testify
7 here today. So he's got some notes now on that.

8 KEN BUHLER: What I want to do, I want to
9 qualify this thing. Dr. Rahn asked me to provide
10 him this answer. I had Ron Duvall of our office
11 send him the water right information. That
12 information was compiled in a report that I
13 believe Dr. Rahn is going to be presenting.

14 In that we're talking -- and so I'm
15 assuming that he has correctly represented it
16 here. I have 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11,
17 12. Twelve water rights from Beaver Creek. And
18 4, 9, 13, 16, 17, 29 -- call it 34 cfs. I didn't
19 add it up exactly but those are the kind of
20 numbers we're dealing with.

21 Domestic use I think is real variable,
22 certainly not what this is but domestic has been
23 primarily livestocked.

24 MR. HUTMACHER: Any more questions from the
25 Board?

1 If not, I guess I would have one. The
2 aquifer test that you want them to do, I'm
3 assuming we're going to drill one hole and test
4 pump with observation wells in a circle outside of
5 it some given distance? Is that what you're
6 looking at?

7 KEN BUHLER: That would be the minimum of
8 what we would need. You would have to have a well
9 that you would pump and measure the stress of that
10 pumping on another well so that you can get these
11 two values we always throw at you, transmissivity
12 and storativity of the aquifer.

13 And from that we can make some predictions
14 on how far the drawdown will extend and what the
15 drawdown will extend both in time and distance.

16 MR. HUTMACHER: What the impression is
17 going to be, in other words, from the well at a
18 given --

19 KEN BUHLER: At a given time, rate and
20 distance.

21 MR. HUTMACHER: Have you conveyed that
22 information to them, what you want? In other
23 words, distance or I mean what the minimum is you
24 will accept. Do they know what that is?

25 KEN BUHLER: I think they do. We've dealt

1 with their consultants on this a little bit on the
2 phone on a very informal basis. I don't think
3 that there has been anything in writing between
4 us, but I mean that's industry standard.

5 MR. HUTMACHER: Yeah, I understand that.
6 But I'm just wondering if they understand.

7 KEN BUHLER: And certainly by the time that
8 the pencil comes to the paper there would be some
9 clarification of, you know, everybody's going to
10 be on the same page.

11 MR. HUTMACHER: Okay. Further questions
12 from anyone else for Mr. Buhler?

13 MR. FAHMY: I have a series of questions
14 for Mr. Buhler if Ms. Counsel for the --

15 MS. BEST: Well, if I may, because of the
16 status of the record, I find myself in a situation
17 where I need to make sure that we've admitted the
18 proper exhibits into the record.

19 I would ask that DENR 1, 2 and 4 be
20 admitted into the record for this case. I think I
21 already asked for them to be admitted into the
22 record and I think that record is the future use
23 case. And I just want them admitted into the
24 recorded for this case.

25 MR. HUTMACHER: Diane, number 3 was the

1 Application for the Future Use, right?

2 MR. HALLEM: And DENR 1 is the file and 2
3 is the vitae.

4 MR. HUTMACHER: And 4 is the map up there.

5 MS. BEST: So it would be 1, 2 and 4 I
6 would ask for.

7 MR. HUTMACHER: Is there any objection to
8 introduction of DENR 1, 2 and 4? One is the file
9 for the Water Permit and the Petitioners and the
10 Intervenors. Number two is Mr. Buhler's
11 background. Number 4 is this map up here.

12 MR. FAHMY: No objection.

13 MR. PENFIELD: No objection.

14 MR. HICKEY: No objection.

15 MR. HUTMACHER: With that we'll accept it
16 into evidence.

17 MS. BEST: I have no additional questions
18 of Mr. Buhler.

19 KEN BUHLER: Can I add one thing here that
20 I screwed up on?

21 In that water appropriation out of Beaver
22 Creek I threw the number out there, something like
23 34 cfs. Eleven cfs of that number is a
24 non-consumptive use so we really need to talk
25 about taking 11 off of that. Talking the 23

1 neighborhood instead of the 34 neighborhood.

2 Sorry about that.

3 MR. HUTMACHER: Okay. Any more questions
4 of the Board?

5 Counsel. Mr. Fahmy.

6 MR. FAHMY: Yes. Ms. Best, you have no
7 questions, I take it.

8 MS. BEST: I have none.

9 MR. FAHMY: I guess the order of the
10 procedure, I mean I'm new here so isn't it the
11 Applicant would then have the next opportunity
12 perhaps in the cross-examination?

13 MR. PENFIELD: We have no questions.

14 MR. FAHMY: If Mr. Hickey doesn't object.

15 CROSS-EXAMINATION

16 BY MR. FAHMY:

17 Q. Mr. Buhler, first I want to commend you on your
18 report before the Board. I just have some
19 questions related to the contents of the report
20 and with the recommendation.

21 And first of all, I want to make it clear
22 that the National Park Service does not have any
23 objection to the recommendation that has been made
24 to the Board by the Chief Engineer.

25 But I think there were some questions that

1 the Board posed to you with regards to this
2 aquifer stress test that you're recommending. And
3 you said you've had some conversations with the
4 consulting engineers or geologists from the
5 Southern Black Hills District. Is that fair?

6 A. That's correct.

7 Q. Now, with regards to those parameters, I think you
8 testified that what you would be looking for is
9 some valid numbers with regards to storage
10 coefficient and transmissivity, correct?

11 (Brief pause in the proceedings.)

12 So I was asking you about the values, what
13 you hope to get out of this stress test. Was it
14 your earlier testimony the values, the most
15 important values you're looking for is storage
16 coefficient and transmissivity?

17 A. Yeah, those would be -- those would certainly be
18 two of the most important values, yeah.

19 Q. You had earlier testified that there was an
20 existing well, I believe the Streeter Well is how
21 you --

22 A. Yes.

23 Q. Which is within, I think you said 500 feet?

24 A. That's the best information I got.

25 Q. In your opinion, would that constitute a possible

1 observation point, or is there problems with use
2 of that well as an observation point relative to
3 the aquifer stress test that you're recommending?

4 A. The devil is in the details again. In my opinion,
5 were I the Applicant, I'd look really careful at
6 the Streeter Well, whether I'm using it.

7 This well was constructed in 1949, not too
8 long ago. When was this -- before 1994 anyway,
9 the well was recased. There was a Dakota
10 Geophysics out of Dickinson, North Dakota, ran a
11 log on this. They couldn't get their
12 inch-and-a-quarter probe below 230 feet on this
13 well.

14 Warren Dowlen (sp), our driller out of
15 Rapid City, went and had to reline this well,
16 relined it and cemented it. Presumably had to
17 reline it because of casing failure.

18 Now, what is the exact, you know, would I
19 be willing personally -- I mean this is what the
20 hydrologic consultants are getting paid to figure
21 out. Personally, would I rely heavily on this
22 well? I'd need to know a lot more about it and
23 I'd need to put a lot more consideration into the
24 construction of that well.

25 Q. Would the fact -- I think you earlier testified

1 that this well is completed in the first, I think
2 ten feet?

3 A. Yeah, that's the information we got. In the top
4 ten feet of the Madison.

5 Q. So it's a partially completed well. It's not
6 fully penetrating; correct?

7 A. That's correct.

8 Q. Would that bear into your consideration as to
9 whether it would be a valid site for an
10 observation well?

11 A. With the hydrologic background, you're going to
12 say yes, absolutely, you need to have a fully
13 penetrating well to get a good aquifer test. That
14 just gets hammered on you. That's necessary.

15 However, the Water Rights Program has
16 constructed a number of observation wells. I'm
17 going to give you an example of four of them in
18 the City of Rapid City. PE-89A -- five of them --
19 A, B, C, D and E.

20 These wells were all used as part of the
21 Rapid City aquifer testing that was done by the
22 USGS, along with another well that we drilled for
23 the USGS that was fully penetrating because
24 they're true hydrologists and wanted this
25 absolutely fully penetrating.

1 At the end of the day it didn't matter
2 whether it was fully penetrating or partially
3 penetrating. So would I consider that on the
4 Streeter Well or throw it out because it's not
5 fully penetrating? No.

6 Q. Do you have any opinion with regards to what the
7 thickness of the Madison Formation might be at the
8 site of this proposed --

9 A. Yeah. I believe I cited that. According to
10 Allen -- I used two sources on that, Allen and
11 others. You know, they're talking about 250 feet
12 thick.

13 The Black Hills hydro study, if you take
14 Carter and Redden, if you take the structure
15 contour map of the top of the Madison and the
16 structure contour map of the top of the Deadwood,
17 you're going to get 500 feet in between there.
18 Now, how much Englewood and stuff, you know, it
19 sits somewhere between 500 and 250.

20 Q. Okay. Thank you.

21 With regards to the number of observation
22 points around this proposed well, what in your
23 estimation would be the minimum number necessary
24 to get valid values for storage coefficient and
25 transmissivity?

1 A. You got some words in there that kind of -- valid
2 and all this stuff and the other.

3 In theory you need a test well and -- you
4 need a test well and a production well -- a
5 monitoring well. And because everything that
6 everybody is going to use is going to say we've
7 got an anisotropic homogeneous aquifer which
8 behaves the same no matter which direction we do
9 it until you prove otherwise.

10 And so all the assumptions any hydrologist
11 is going to use is going to assume that. So
12 therefore, minimum you're going to need a
13 monitoring well and a production well.

14 Would I come in front of this Board with
15 one monitoring well and one production well?
16 Probably not. But in answer to what do you need,
17 you need two wells; pump one and measure the
18 other.

19 Q. What would you come in front of this Board and
20 recommend in terms of number of observation
21 points?

22 A. Depends on whose money I'm spending. But if -- I
23 mean there's that engineering economic factor that
24 I'm not privy to with Southern Hills' permit. But
25 I think that it would behoove them to have

1 certainly at least two observation wells, one in
2 each direction.

3 Q. Thank you. With regards to -- I think you
4 testified about an existing observation well you
5 have. I believe you termed it CU-91A?

6 A. Correct.

7 Q. And I'm just curious. With regards to the
8 hydrograph, how frequently do you measure water
9 levels in this particular observation well?

10 A. Once per hour.

11 Q. Once per hour?

12 A. Oh, yes. That observation well, we have three
13 observation wells at that site, as I referred to.
14 Now, as that site -- I want to point out on the
15 map exactly where that's at so that we're all
16 clear here.

17 That site is essentially the intersection
18 of Sections 16, 17, 20 and 22. Therefore,
19 approximately a mile and-a-half to the southwest,
20 west of this proposed site.

21 We have continuous recording equipment on
22 those wells that are measuring water levels
23 hourly. We also field truth those, measure --
24 have seasonal help that's measuring that
25 approximately once every three weeks. And during

1 the rest of the year we're going to get it about
2 once a month.

3 And if you want to -- if you want to
4 measure it, I'll give you my key and you can
5 measure it anytime you want. I'm not being
6 facetious but what I'm saying is those wells are
7 available for most people to use.

8 Q. So you said there were three wells there in
9 completely, in different formations?

10 A. Right. Right. We have a well in the Minnelusa.
11 That is CU-91A is completed in the Minnelusa -- in
12 the Madison Aquifer. CU-91B is completed in the
13 Minnelusa Aquifer. And then I think it's 94A,
14 might be 95A is completed in the Minnekahta
15 Aquifer, because we really wanted to see whether
16 there's a hydrologic connection.

17 We wanted to compare those aquifers at that
18 site. So I think we have 18 or 19 of these
19 co-located sites through the Black Hills where we
20 have wells.

21 Q. Thank you. Earlier in your testimony you were
22 talking about the recharge. And I want to explore
23 with you your testimony with regards to
24 availability.

25 And I think you testified that there was

1 something on the order of 644 million acre-feet of
2 recoverable water in storage.

3 A. Sure. In South Dakota.

4 Q. Yes. So but that's a gross estimate for the
5 entire Madison Aquifer; isn't that the case?

6 A. Yes. If we want to talk -- if we want to break it
7 down to just Fall River County, then we'd probably
8 talk something like 9.8 million acre-feet of
9 recoverable water in storage.

10 But the only reason why we're throwing
11 these numbers out is just to say this is a huge
12 resource. You can put a number on huge. That's
13 the way I put my number on it.

14 Q. But you're not suggesting that the entire amount
15 of water can be recoverable?

16 A. Is pumpable here, no.

17 Q. So are you familiar with -- I think you had
18 testified about the Black Hills Hydrologic Study
19 earlier.

20 A. Yes.

21 Q. And are you familiar with the USGS publications
22 associated with that study?

23 A. Yes. I was on the steering committee for that.

24 Q. So are you familiar with the fact that in that
25 context of the study the USGS developed hydrologic

1 budgets?

2 A. Yes.

3 Q. And in that study did they not break down the
4 Madison Aquifer and the Minnelusa into sub areas?

5 A. Yeah.

6 Q. And so isn't it true that there are recharge
7 numbers -- we're comfortable, I guess the better
8 term would be recoverable water in storage numbers
9 for those sub areas that are substantially less
10 than the overall gross estimate for the Madison
11 Aquifer?

12 A. Yeah. But I think to get to the end of the day
13 here, I think what you're asking me is, is it
14 possible. And I'm putting words in your mouth and
15 I apologize.

16 But I think where we want to talk about is,
17 we have this tremendous resource. There's a lot
18 of water here. Is it possible that we could have
19 a water short area? Yeah, we talk these gross
20 numbers and what recharge is. Can we have a water
21 short area?

22 Certainly we could have a water short area.
23 But would that come before we had impairment of
24 rights? Probably not. So that's why I did not
25 break it down, you know, and talk about these sub

1 areas and water short areas.

2 Q. I think earlier in your testimony you talked about
3 springs.

4 A. Pardon me?

5 Q. You talked about springs.

6 A. Yes.

7 Q. And you talked about the role of artesian pressure
8 in springs. And I guess it's my understanding,
9 though I'm not a hydrologist, that the very
10 existence of springs is dependent on artesian
11 pressure; is it not?

12 A. No, not necessarily. In this case certainly
13 but --

14 Q. But in this case, that's what I'm referring to.

15 A. To reference Dr. Rahn's report which -- help me
16 out. I need the number on it. Large Springs.

17 It's RI 107. I believe there are three types of
18 springs that they categorize there. And you have
19 some springs which are drainage and, yeah, but we
20 want to talk artesian springs here.

21 Q. But Beaver Creek Springs is one of those artesian
22 springs; is it not?

23 A. Probably, yes.

24 Q. So its bare existence depends on the maintenance
25 of artesian pressure?

1 A. Yes.

2 Q. Following your preparation of the report that was
3 submitted to the Board did you review any
4 additional technical or scientific reports or
5 data?

6 A. Say that again.

7 Q. You prepared a report on this particular
8 application; correct?

9 A. Yes.

10 Q. After preparation of that report did you review
11 any other scientific or technical information that
12 might have come to your attention?

13 A. Yes. We have from the United States Department of
14 Interior a letter dated June 30, 2006, which
15 includes a hydrologic analysis and I did review
16 that.

17 In addition to that, Dr. Rahn submitted a
18 white paper on this, which I don't have in front
19 of me at the time, which I reviewed both before,
20 during and after this preparation.

21 Q. In looking at the material that you reviewed, did
22 it in any way influence your opinion with regards
23 to the necessity for conducting an aquifer stress
24 test?

25 A. Oh, no. I think it all supports that this is a --

1 I'm going to use my word, nobody else's. This is
2 a sensitive area or could be considered a
3 sensitive area from a public interest aspect and,
4 therefore, we need some more information before we
5 could recommend. But I think everything is
6 supporting data to that.

7 Q. Finally, Mr. Buhler, in your discussion with
8 regards to existing water rights and the public
9 interest that you talked about in your report, did
10 you consider any water related resources within
11 the National Park?

12 Did you have any knowledge of any water
13 related resources in the National Park that you
14 considered in making that analysis, such as water
15 in Wind Cave National Park?

16 A. What I considered was Water Permit 419-2 for the
17 National Park, which when it was -- yes, whether
18 that water right would be impaired.

19 Q. So it was just whatever was on record in the
20 offices of the Chief Engineer is what you looked
21 at in terms evaluating impairment to existing
22 water rights?

23 A. There would be the domestic component of that,
24 too, which is assumed not -- you know, so I took
25 into account any domestic uses which would include

1 livestock, things like that.

2 So I don't think it's fair to say the only
3 thing I looked up is 419-2. You have the other
4 component, too.

5 Q. But you, for instance, wouldn't have considered
6 anything with regards to effect on the water in
7 the cave itself, which is not a matter of public
8 record in the offices of the Chief Engineer?

9 A. I've considered it. I don't remember whether it
10 was before, during or after. Yeah, that was
11 considered.

12 Q. But you're not sure whether you considered it
13 before you prepared this report to the Board?

14 A. Sure. Sure, because we've looked at this in other
15 water permits and what is going to be the impact
16 on a cave, what's going to be -- yeah.

17 Q. All right. I wasn't sure what extent of your, you
18 know, the consideration was in this case.

19 Finally, one question. And you may not
20 know the answer to this.

21 Do you have any information with regards
22 to -- I think you mentioned water quality in the
23 Streeter Well. Do you have any information with
24 regards to the water quality characteristics and
25 whether they meet standards that have been set for

1 safe drinking water such as arsenic. Do you have
2 any information about that or is that part of your
3 analysis whatsoever?

4 A. Streeter Well information I've got on file with
5 the -- there are two Water Permits for the
6 Streeter Well. Okay? There's 2302-2 and Water
7 Permit 2546-2.

8 In the public record the files on those
9 permits is a water quality analysis from the
10 Streeter Well shows calcium 41 parts per million,
11 fluoride, 24.7 parts per million. I was just
12 going to throw it out and say this shows it's a
13 good quality water.

14 Q. But is there any information with regard to
15 arsenic in the water?

16 A. I haven't seen anything, no.

17 Q. And I think this will be my final question, and
18 I'm skipping around a little bit.

19 But getting back to the aquifer stress
20 test, which I think is central to the
21 recommendation that the Chief Engineer is giving,
22 given the amount of head on the Streeter Well, I
23 think you said it flowed at 150 gpm.

24 A. When it was first built, yeah.

25 Q. Given the amount of head that exists in the

1 Streeter Well, how does that influence, let's say
2 the duration of the aquifer testing?

3 Do you think you need to pump for a
4 substantially long time in order to see what the
5 effect would be or does that --

6 A. That would depend on the rate you're pumping the
7 well, the distance between the wells and the
8 aquifer characteristics, what impact there would
9 be measurable on the Streeter Well.

10 Q. I don't know if you can answer this, but would the
11 Chief Engineer's office have any objection or
12 concern if other -- if the Petitioners in this
13 case such as the National Park Service were to
14 wish to participate in the formulation of the
15 aquifer stress test parameters?

16 A. I'm going to have to give that some thought. I'm
17 not clear on that.

18 Q. Perhaps get back to us.

19 MR. HOYT: Is that an offer of funding?

20 MS. BEST: I was just waiting until break
21 time to put my hand out.

22 MR. FAHMY: For the record, I think I can
23 state that funding will perhaps -- much of the
24 funding may come from a norm of federal government
25 in the rural utility service. So we certainly

1 would think we would have some input in this
2 important process.

3 Thank you. I have no further questions.

4 MR. HUTMACHER: Does anyone else have
5 questions of Mr. Buhler?

6 MR. HICKEY: Just a couple, Your Honor.
7 Thank you.

8 CROSS-EXAMINATION

9 BY MR. HICKEY:

10 Q. Mr. Buhler, I represent Steve Simpson, Trout
11 Haven.

12 Would you show the Board where Trout Haven
13 is vis-a-vis first Beaver Creek Springs and then
14 the well that's being proposed?

15 A. Okay. Beaver Creek Springs is located in
16 Section 14. Downstream of that, actually down the
17 road, I'm going to say a half a mile-ish from
18 Beaver Creek Spring down, I'm going to call it the
19 Trout Haven cut-across road, one half mile in
20 Section 14, the east half of Section 14, is Trout
21 Haven Ranch.

22 Beaver Creek Spring is located in the west
23 half of Section 14. Both of those are right along
24 the cut-across road. And approximately three
25 quarters of a mile to the northwest of Beaver

1 Creek Spring in Section 15, the Northeast Quarter
2 of Section 15 is the proposed well site.

3 Q. So approximately three quarters of a mile from the
4 well site to the springs and maybe a mile from the
5 well site to --

6 A. I think we're less than a mile.

7 Q. And as I understand it, the origin of Beaver Creek
8 is the springs; correct?

9 A. Yeah. Numbers really look that way once you get
10 below this point.

11 Q. So all of the uses, all of the domestic uses and
12 the appropriative uses on Beaver Creek are
13 dependent upon the existence of that spring; true?

14 A. That's correct.

15 Q. So if there's a lot of artesian pressure so that
16 that spring dries up, all of the appropriators on
17 that creek are not going to be able to have water?

18 A. Right. And therein lies our concern and why we
19 are recommending deferral.

20 Q. And that's why you think the Board -- or that's
21 why you're asking the Board to determine the
22 public interest with respect to those users on
23 that stream?

24 A. That's why we're saying -- I think that's why
25 we're saying, Board, if you wish this to be a

1 public interest issue, we're there with you and
2 would like to run an aquifer test so we can
3 address the public interest issue.

4 Q. And I want to know, during the time that the test
5 is being administered, what kind of protections
6 are you going to have for the people on Beaver
7 Creek so that the test itself doesn't adversely
8 impact and affect their operations?

9 A. Adverse impact from a water rights perspective I
10 don't think is going to happen. You know, again,
11 as I went over in my report, I don't believe
12 there's, from a Water Law perspective, I don't
13 believe there would be an adverse impact.

14 But from the public interest side of
15 things, would this be detrimental? What kind of
16 safeguards would there be in there? I see no
17 reason in the world why we couldn't work that in.
18 We, of course, get to review that test plan. I
19 see no reason in the world we couldn't incorporate
20 something into that.

21 Q. For example, my client raises trout. You're aware
22 of that; correct?

23 A. Yes.

24 Q. And the importance of water, not only the
25 temperature of water, the pH of water, the flow of

1 water, all of those things are vitally important
2 to him; correct?

3 A. Correct.

4 Q. And normally you wouldn't care much about the pH
5 of water or the temperature of water. You mostly
6 care about the flow of water; right?

7 A. Right.

8 Q. So the test could basically be putting my client
9 out of business while you guys are testing, making
10 a stress test of the aquifer; correct?

11 A. After this discussion I don't think that would be
12 correct. I think that -- and under the guise of
13 public interest, now that we're aware that that is
14 a component, that's something that it would
15 certainly be foolish for us to come in front of
16 the Board saying we've adopted this plan that
17 didn't look at that after you made a point of it.
18 So I think we could work that in.

19 Q. I guess that's my question. I didn't see anyplace
20 in your report where you addressed any of those
21 legitimate concerns of my client with respect to
22 his livelihood and his operation.

23 And now you're saying that you're willing
24 to consider that, I guess?

25 A. I'm going to step back just a second and defend

1 our report procedure.

2 Typically what we look at is, is there
3 unavailable water -- is there water available for
4 the appropriation? Is it going to have an impact
5 on existing rights?

6 The other two components of approving a
7 permit, the beneficial use and public interest,
8 historically, we have always allowed public
9 testimony to determine public interest.

10 In this case, we did throw that red flag
11 up. We didn't throw every public interest red
12 flag up.

13 Q. But that's an obligation of the Applicant, is it
14 not, to show that this usage is in the public
15 interest; correct?

16 MS. BEST: Objection. Calls for a legal
17 conclusion.

18 MR. HUTMACHER: Sustained.

19 BY MR. HICKEY:

20 Q. The other question I have is what, if any,
21 accommodations have you made to measure the flow
22 at Beaver Creek Springs while you're doing this
23 test? Are you envisioning weirs or measuring
24 devices?

25 A. We are not going to be doing the test. You meant

1 "you" generically. I just want to make sure the
2 record is clean. DENR is not operating the test.
3 The consultants, Leggette, Brashears & Graham out
4 of Sioux Falls, I have not seen any details on a
5 test. In fact, I don't believe they even have
6 details on a test.

7 But in light of our public interest
8 concern, certainly we would look for a component
9 on adequate measure in Beaver Creek.

10 Q. The same question as Mr. Fahmy. Are you going to
11 allow Intervenors and other parties an opportunity
12 to have some input into the parameters of that
13 test and how that's going to be monitored so that
14 it doesn't put my client out of business over the
15 next year and-a-half or two years before we get
16 back to this Board?

17 A. I think that's up to the Applicant. I sensed they
18 will be more than happy to. But I don't know that
19 we can dictate to them, You need to let Mr. Hickey
20 tell you how much money your test is going to
21 cost.

22 Q. No, that's not my question.

23 A. But I think that's -- and that's a question for
24 Leggette, Brashears & Graham. But I think they're
25 going to take that into consideration.

1 Q. You agree that this Board can set whatever
2 conditions --

3 A. Certainly.

4 Q. -- and qualifications on a test --

5 A. Certainly.

6 Q. -- that they think is relevant and important,
7 including the opportunity to allow the
8 Intervenor --

9 A. Absolutely.

10 Q. -- a voice in that; correct?

11 A. Absolutely. I would not argue with that.

12 Q. I didn't think you would but I just --

13 A. No. The question you asked was different than --
14 I wish I would have just answered it, the Board
15 can qualify this permit any way they choose to
16 qualify it.

17 Q. And there isn't any question in your mind that the
18 source of the Beaver Creek water is the Madison
19 Formation?

20 A. Would I argue that it's not Madison water? No, I
21 wouldn't.

22 Is there any question in my mind? See,
23 determining that it's Madison water depends on
24 geochemistry. And geochemistry is one of these
25 strange black boxes that you need to take on face

1 value and there's nothing intuitive about it.and
2 so when the geochemists tell me that it's Madison
3 water, I need to accept that.

4 Is it definite? No.

5 Do I think it is? Yes.

6 Q. I think your report says "in all probability."

7 A. Yeah. I want to keep it at that.

8 MR. HICKEY: Thank you. That's all the
9 questions I have.

10 MR. PENFIELD: Mr. Chairman, I had a couple
11 of questions.

12 CROSS-EXAMINATION

13 BY MR. PENFIELD:

14 Q. There was some confusion at the beginning of the
15 hearing regarding the two permits.

16 I want to make clear, your recommendation
17 for the future appropriation is not dependent upon
18 the approval of the current well permit for 2585?

19 A. Approval of the future use is not dependent on the
20 outcome of this permit?

21 Q. Correct.

22 A. That's correct.

23 MR. PENFIELD: Thank you.

24 MR. HUTMACHER: Any more questions of
25 Mr. Buhler?

1 Our court reporter will appreciate that.

2 Thank you.

3 We're going to take about a 10-minute
4 break.

5 (A recess was taken.)

6 MR. HUTMACHER: Call this hearing back to
7 order again. Diane?

8 MS. BEST: Thank you. As I indicated at
9 the beginning of the presentations regarding these
10 Southern Hills applications, the parties are aware
11 that a Board quorum will not be available tomorrow
12 to finish this case.

13 The time is now 5:45 and the first witness
14 has completed his testimony. We've got
15 approximately, in my best guess, we've got about
16 five more hours of testimony based on what the
17 different parties have told me that they have to
18 offer.

19 A number of us have met. A number of the
20 parties certainly have no objection to continuing
21 the matter until the next Board meeting. And
22 there are some of the parties who feel quite
23 strongly that they would like to be heard yet
24 today.

25 So I'm here to tell you we don't have a

1 consensus but DENR would make a motion to ask for
2 delay at this time until the next Board meeting,
3 at which time we would -- it would be
4 November 29th and 30th that we would ask to go
5 forward.

6 I guess I'll leave it up to any other party
7 to state their position.

8 MR. HUTMACHER: I guess we can start with
9 whoever.

10 MR. PENFIELD: All right. I believe that
11 this is the proper route to go, considering the
12 late hour, the amount of testimony that remains to
13 be put into the record.

14 I think it would also give the parties some
15 time to use their best efforts in order to come up
16 with a stipulation on this issue, which I think
17 would be a good time well served for everyone
18 involved. So we do support the motion to continue
19 to the 29th and 30th.

20 MR. FAHMY: I would agree. I just want to
21 clarify what Mr. Penfield said about this issue.

22 I think the issue is the parameters for an
23 aquifer stress test. What my client is willing to
24 do, respond to a proposal that would be made by
25 the Southern Black Hills Water System with regards

1 to how an aquifer stress test would be conducted.

2 We would respond in a timely fashion,
3 whether we thought that was acceptable. And if
4 there were differences in opinion, we would agree
5 to probably meet on a telephone conference call to
6 see if we can hash out those differences.

7 That, hopefully, would include
8 representatives of the Chief Engineer's office,
9 from Trout Haven Ranch and from the Southern Black
10 Hills, of course, to see if we can come to some
11 agreement, using our best efforts, by
12 November 29th on the terms and conditions for an
13 aquifer stress test on Application #2585-2.

14 And we would fully support the continuance
15 of the hearing on the Future Use reservation
16 Application 2580-2 until November 29th and 30th.

17 MR. HUTMACHER: Mr. Hickey.

18 MR. HICKEY: On behalf of Trout Haven, we
19 would agree with those conditions. And we would
20 use our best efforts to participate and,
21 hopefully, and come back here with a settled
22 agreement for your approval or we will present
23 testimony if we weren't able to reach an
24 agreement.

25 In view of the fact that there may be some

1 pro se litigants, I would have no objection to the
2 Board allowing them to make their testimony or
3 their statements so that if they didn't want to
4 come back on the 29th, they wouldn't have to.

5 I'm not exactly sure who has objections.
6 But from our standpoint, we don't care if you want
7 to go ahead on that limited basis and allow that
8 to happen.

9 MS. BEST: Yeah, I think the parties back
10 here -- I don't know how many parties it is that wish
11 to speak or how much time they need to take yet
12 today. But it's been conveyed to me that we have
13 folks that drove on icy roads all the way from the
14 Black Hills to Pierre. They came to talk and they
15 want to.

16 MR. HALLEM: I guess the best way would be
17 is if you're a party Intervenor, if you would come
18 up and identify yourself and the party that you're
19 representing on it. And if you have any comments
20 and if you want to speak, any of the other
21 parties. Because if we don't hear anything, all
22 we've heard right now is that a continuance should
23 be granted.

24 Any other Intervenor want to have anything
25 to say? Please, come on up.

1 RANDY SCHROTH: My name is Randy Schroth.
2 I live on Beaver Creek --

3 MR. HUTMACHER: Hold it. If we're going to
4 do this, we need to swear you in.

5 MR. HALLEM: Well, his position first on
6 the motion.

7 RANDY SCHROTH: I have no problem with a
8 continuance.

9 My name is Randy Schroth. I live on Beaver
10 Creek on a ranch down there.

11 MR. HUTMACHER: Would you rather come back
12 when we're doing the full blown thing or do you
13 want to --

14 RANDY SCHROTH: I'd just as soon come back
15 because I would like to be a party to the deal.

16 MR. HALLEM: Any other parties, Intervenors
17 wish to speak?

18 MR. HUTMACHER: Or your option is to come
19 back the 29th.

20 MR. HICKEY: On behalf of Fall River, they
21 would be willing to come back on the 29th if we
22 were not able to reach an agreement as well.

23 MR. HUTMACHER: Okay. With that, we are
24 going to -- oh, wait a minute.

25 SHAWN FUGIER: I just have a question. Is

1 this going to be -- the 29th we're going to be
2 through with this or are we going to carry it
3 overnight into the next day? I mean there's a lot
4 of us that ranch there and we have cattle to feed.

5 MR. HUTMACHER: How is the best -- Eric?
6 What we're going to schedule is a two-day meeting
7 for the 29th and 30th probably and --

8 ERIC GRONLUND: Is it okay for me to --

9 MR. HUTMACHER: Yeah.

10 ERIC GRONLUND: My name is Eric Gronlund.
11 I do a lot of the scheduling for the Board.

12 My proposal right now would be -- I don't
13 think we have a very large agenda set right now
14 for the November meeting. This morning we just --
15 the Board moved it to the 29th and the 30th.

16 What I would propose right now to do would
17 be to set a Board meeting to start, in all
18 likelihood, the afternoon of the 29th for the
19 other business. And then set aside that Thursday
20 morning, the 30th, to hit the ground rolling with
21 the Southern Black Hills applications.

22 MR. HALLEM: And that could go the full day
23 then.

24 ERIC GRONLUND: Knowing that that could go
25 the full day. And that way we wouldn't get caught

1 in the position we obviously got caught in today.

2 MR. HALLEM: Does that answer your
3 question?

4 SHAWN FUGIER: Well, if that's what you're
5 going to do, yeah.

6 MR. HUTMACHER: That seems like the most
7 workable solution because I was thinking about
8 something similar so we didn't get caught in an
9 overnight situation. And we would if we tried to
10 do it all in one day. We're not going to make it.

11 MR. BRINK: What do we call it,
12 Mr. Chairman, a continuance or --

13 MR. HUTMACHER: We are calling a
14 continuance on the hearing.

15 MR. HALLEM: Recess both hearings and have
16 a continuance until the morning of November 30th.

17 MR. HUTMACHER: Is that okay, Diane?

18 MS. BEST: Eric was talking to me at the
19 same time. I'm sorry.

20 MR. HUTMACHER: If we recess the one Future
21 Use Permit until later today, we need to recess
22 both hearings, schedule a continuance for 8:30 on
23 the 30th.

24 MS. BEST: The DENR certainly has no
25 objection to that. We've got a couple of

1 procedural things that we can bring up.

2 One of the things, Mike made this offer of
3 if there is somebody here that feels like driving
4 in to Pierre on November 30th is going to be a
5 hardship, and they've got a short piece of
6 testimony to give and they want to speak their
7 piece today, his point is well taken. We
8 certainly don't object to that either.

9 MR. HALLEM: I think we could do that
10 before the recess, if anybody has something they
11 want to say today.

12 MR. HUTMACHER: If you can't be back on
13 November 30th or don't want to make the trip, take
14 the chance, we'll gladly take your testimony here
15 today if you're here to do it. I mean that's --
16 we're trying to be as accommodating as we can.

17 SHAWN FUGIER: Yeah, I guess I'd like to
18 address the Board.

19 MR. HUTMACHER: I need to swear you in
20 first. Do you swear to tell the truth, the whole
21 truth and nothing but the truth?

22 SHAWN FUGIER: I do.

23 MR. HUTMACHER: State your name and address
24 for the court reporter, please.

25 SHAWN FUGIER: My name is Shawn Fugier,

1 27094 Beaver Valley Road, Buffalo Gap.

2 Decided maybe I better say something now in
3 case we got a storm. I'll try and keep it short
4 here.

5 Just a little bit of history. Myself and
6 my folks, we operate a ranch. We irrigate off of
7 Beaver Creek. We have to irrigate hay fields in
8 order to feed cows all winter long. We don't have
9 enough pasture ground to carry cattle all winter.
10 The snow gets kind of deep sometimes.

11 There's several water rights holders on the
12 creek. It was brought up earlier there was 12.
13 This stuff that was sent to me from you guys was
14 there was 13 but that's...

15 I've got a concern about the wells being
16 drilled in the area of Beaver Creek Springs and
17 the effect it would have on those springs. I'm
18 afraid that it's going to greatly affect the flow
19 of those springs that supply Beaver Creek.

20 Right now -- you were talking about the,
21 earlier, that the creek is overappropriated. The
22 Water Rights department will call from time to
23 time if that creek level gets too low. We as
24 irrigators will adjust our outtake of that creek
25 to keep an adequate flow in the creek. You know,

1 that's what -- we work together to try and make
2 everybody happy and so that we can still irrigate.

3 I guess I have a question as to what's
4 going to happen if a well is drilled there and it
5 diminishes the flow of that creek in any form.
6 It's going to be less water going down the creek
7 for us to divvy up.

8 The other thing, I guess, that's a concern
9 with the well there is the creek, the water in
10 that creek is fairly hard at this time. The way I
11 understand it from what I've been told, it runs
12 about 2,000 parts per million.

13 And I understand that at 3,000 parts per
14 million that alfalfa won't grow. You can't
15 irrigate with that kind of water.

16 And I guess things I've picked up along the
17 way, it sounds like, you know, this well may be
18 taking some of the deeper water which is the
19 softer water, leaving us with -- as water rights
20 holder on that creek with hard water. Even if
21 there's water there, it isn't going to do us any
22 good.

23 There's four of the ranches that have put
24 in an extensive buried pipe from the creek to
25 their ranches to irrigate with. Previously it was

1 open ditch. Our ranch is included in this. We
2 put in a buried pipe so we can conserve the water
3 from Beaver Creek.

4 We've cut down on evaporation and seepage
5 and loss from the creek. We've got quite a little
6 money tied up in that.

7 Another thing, if they put a well in this
8 vicinity, anywhere in the vicinity of these
9 springs, I'm afraid that that is going to deplete
10 the flow of that creek.

11 We do have water rights on that creek. We
12 talked about, you know, water right holders and
13 the rights of water right holders earlier here.

14 I know on Rapid Creek the City of Rapid
15 City had to buy the water rights from the farmers
16 down Rapid Valley, if they were willing to sell to
17 them.

18 I guess in my opinion, if a well is stuck
19 close to this spring, that's basically going to be
20 stealing water, stealing our water rights. No
21 one's approached us about wanting to sell our
22 water rights, not that we would.

23 You know, I can go back to some of these
24 statistics here that were sent to me from, I
25 believe Eric Gronlund sent this stuff to me in

1 this packet.

2 Just to touch on a couple things. The
3 drawdown from this appropriation, which is 2585-2,
4 this is the one I'm quoting from here, "...could
5 extend over a fairly large area. And that a
6 lowering of the potentiometric surface of the
7 Madison Aquifer in the vicinity of these springs
8 could reduce their discharge and, consequently,
9 the flow in Beaver Creek." It's right in here.
10 That's from you guys, really.

11 Another consideration is the trout hatchery
12 that is on Beaver Creek. Trout Haven has been a
13 long-time business, a family business, an ag
14 business. It's very sensitive to the water
15 quality, temperature. There's a number of things
16 that I'm sure will be touched on on the 30th.

17 It comes down to all of these businesses,
18 you know, whether it be a ranch or the trout
19 hatchery, they're all valuable to these area towns
20 and cities. It takes a lot of money for a ranch
21 or hatchery to operate and, you know, we spend a
22 lot of money in the businesses in town.

23 I guess I'd like to ask you to keep the ag
24 sector in mind. The last I knew, it was the
25 number one state industry. Here's a chance to

1 protect it and protect the creek, protect the
2 streams of the Black Hills and keep them flowing.

3 It only stands to reason, if you start
4 sucking water out, these streams are going to dry
5 up all over the Hills, not just Beaver Creek.
6 We're talking Fall River, Cascade, any of them.

7 There's already, you know, a couple other
8 water systems in place up there that I think could
9 handle the need for the water. That's just my
10 opinion.

11 But I'd ask you to please keep us in mind
12 in your decisions here. That's all I have.

13 MR. HUTMACHER: Thank you.

14 Are there questions of the Board?

15 MR. HOYT: Just a follow-up, perhaps, on
16 your statement that there are other water systems
17 that provide water to potential customers. What
18 would they be? Who would they be?

19 SHAWN FUGIER: Well, there's Fall River
20 Water Users District is already in place down
21 there. They're mainly in Fall River County and
22 they're looking to expand north.

23 There's a system up -- I don't know the
24 exact name of it, but Hermosa, maybe it's Hermosa
25 Water Users. They have a system in place already.

1 There's also a small one over by Ardmore,
2 Edgemont area.

3 MR. HOYT: Do you know whether they would
4 currently have water supplies sufficient to --

5 SHAWN FUGIER: I have no idea.

6 MR. HUTMACHER: Any other questions of the
7 Board?

8 If not, Counsel?

9 MR. PENFIELD: No questions.

10 MR. FAHMY: No questions.

11 MS. BEST: I have one question. You
12 referred to a document that Eric Gronlund had sent
13 you. Is that the -- can I take a look at it?

14 SHAWN FUGIER: Um-hum.

15 MS. BEST: Okay. That is the report.

16 I'd like the record to reflect that the
17 document that this witness referred to is the
18 report developed by Ken Buhler that he has been
19 provided for this hearing. I just wanted to make
20 sure we have the same document.

21 MR. HUTMACHER: Anyone else have further
22 questions? If not, thank you.

23 SHAWN FUGIER: Thank you.

24 MR. HUTMACHER: Is there anyone else who
25 would like to testify that won't be back on the

1 30th or worried about the weather? Last call.
2 Anyone else?

3 Otherwise, I'll entertain a motion to
4 recess the Future Use Permit hearing 2580-2 and
5 the Water Permit Application 2585-2 until
6 November 30th, 8:30 a.m.

7 MR. BRINK: Mr. Chairman, I so move.

8 MS. LOUCKS: Second.

9 MR. HUTMACHER: Motion by Francis, second
10 by Bernita.

11 All in favor vote aye. Opposed? Motion
12 carried.

13 MS. BEST: I have a point of order that I
14 needed. There are Board members that are not
15 present at today's meeting. It's assumed that
16 those Board members would be present for Board
17 proceedings in late November.

18 And it would be the DENR's intention to get
19 those folks a transcript of this proceeding and
20 ask them to be involved in the consideration of
21 this case.

22 I'm just clearing the air so before we're
23 sending Board members transcripts, I want them all
24 to know that that's what our intention was and we
25 would ask them to do that. And if there are some

1 objections in that regard, I suppose now would be
2 the time to do so.

3 MR. FAHMY: We think that would be proper
4 and fitting.

5 MR. HICKEY: I think it would. After
6 what's been said, I think they have to have a
7 transcript.

8 MR. PENFIELD: No objection.

9 MR. HUTMACHER: Okay.

10 MR. BRINK: Are we adjourned?

11 MR. HUTMACHER: Yes.

12 (Proceedings concluded.)
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1 STATE OF SOUTH DAKOTA)
2 COUNTY OF HUGHES)

CERTIFICATE

3
4 I, Mona G. Weiger, Registered Professional
5 Reporter and Official Court Reporter in and for the
6 State of South Dakota, do hereby certify that the
7 Transcript of Board Meeting contained on the foregoing
8 pages was reduced to stenographic writing by me and
9 thereafter transcribed; that said proceedings commenced
10 on the 11th day of October, 2006, in the Capitol Complex
11 Visitor's Center, Pierre, South Dakota, and that the
12 foregoing is a full, true and complete transcript of my
13 shorthand notes of the proceedings had at the time and
14 place set forth above.

15 Dated this 13th day of November, 2006.

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17
18 Mona G. Weiger, RPR
19 Official Court Reporter
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**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

October 16, 2006

NOTICE

TO: Bob Morrison, Chairman
Southern Black Hills Water System
PO Box 124
Hermosa SD 57744
and Parties of Record (see attached list)

FROM: Garland Erbele, Chief Engineer
Water Rights Program *Garland Erbele*

SUBJECT: Future Use Permit Application No. 2580-2 and Water Right Permit Application
No. 2585-2, Southern Black Hills Water System

The Water Management Board recessed the hearing on Application Nos. 2580-2 and 2585-2 on October 11, 2006 after Water Right staff engineer Ken Buhler and petitioner Shawn Fugier concluded their testimony. It was evident that there was not sufficient time at the October meeting for all parties to complete their testimony.

The Water Management Board will reconvene the hearings on Application Nos. 2580-2 and 2585-2 on November 30, 2006, at 8:30 AM (CDT), in the Pierre Chamber of Commerce meeting room, 800 West Dakota Avenue, Pierre SD. The Chamber of Commerce building is located by turning right immediately upon crossing the Missouri River coming into Pierre. Notice will be provided to parties if there is a change in the hearing time or date.

Please contact Eric Gronlund at (605) 773-3352, if you have any questions.

c: Diane Best, Assistant Attorney General
Ken Royse, Bartlett & West, 3456 E. Century Avenue, Bismarck ND 58503-0737

PARTIES OF RECORD
Future Use Permit Application No. 2580-2 and Water Permit Application No. 2585-2

Applicant

Bob Morrison, Chairman
Southern Black Hills Water System
PO Box 124
Hermosa SD 57744

Shane Penfield, Attorney
PO Box 8045
Rapid City SD 57709

Petitioners

Michael Hickey
Attorney for Trout Haven Ranch
Bangs McCullen Law Firm
PO Box 2670
Rapid City SD 57709

Marvin Bishop, Chairman
Custer County Commission
420 Mt. Rushmore Road
Custer SD 57730

Peter A. Fahmy
Water Rights Branch
National Park Service
1201 Oak Ridge Drive
Ft. Collins, CO 80525

James Brickey, Mayor
City of Hill City
PO Box 395
Hill City SD 57745

Harold Heiney
Box 7
Buffalo Gap SD 57722

Shawn Fugier
27094 Beaver Valley Rd
Buffalo Gap SD 57722

Frank Scroth
7 – 11 Ranch
PO Box 97
Buffalo Gap SD 57722

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12838 Cold Brook Road
Hot Springs SD 57747

Randy Scott, Manager
Fall River Water User District
1 Angostura Highland
Hot Springs SD 57747

John Beard
3810 Beaver Creek Rd
Buffalo Gap SD 57722

Lois Emery, Trustee
Lyda Bowker Trust
HC 52 Box 136A
Hot Springs SD 57747

Randy Scroth
PO Box 1
Buffalo Gap SD 57722

Clarence and Carol Foos
PO Box 317
Hermosa SD 57744

Tom Porter, Board Member
Southern Black Hills Water System
Box Z
Edgemont SD 57735

Roger Willey
Argyle Rd
Hot Springs SD 57747

Charles W. Pettee, Chief
Water Rights Branch
National Park Service
1201 Oakridge Drive, Suite 250
Fort Collins CO 80525-5596

Mr. and Mrs. Paul Fugier
27032 Beaver Valley Rd
Buffalo Gap SD 57722

CERTIFICATION

I hereby certify that on October 16, 2006, I have personally deposited with the United States mail at Pierre, South Dakota, first class postage, prepaid envelopes containing a Notice dated October 16, 2006, regarding Scheduling of Hearing on Future Use Application No. 2580-2 and Water Right Permit Application No. 2585-2, Southern Black Hills Water System addressed as stated below and on the Parties of Record list:

Ken Royse
Bartlett & West
3456 E. Century Avenue
Bismarck ND 58503-0737

A copy of the Notice was sent Inter-office to:

Diane Best, Assistant Attorney General, Capitol Building



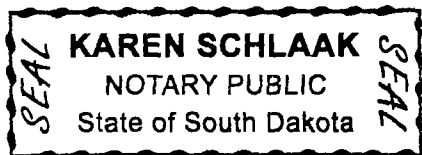
Eric Gronlund
Water Rights Program

STATE OF SOUTH DAKOTA)
) SS
COUNTY OF HUGHES)

Sworn to, before me, this 17th day of October, 2006.



Karen Schlaak
Notary Public
My Commission expires April 1, 2007





**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

October 17, 2006

Sam N. Clauson
SD Chapter, Sierra Club
PO Box 1624
Rapid City SD 57709-1624

Dear Mr. Clauson:

I am writing to inform you that Sierra Club's letter in the matter of Southern Black Hills Water System's water permit and future use applications was presented to the Water Management Board. The Board denied intervention status to the Sierra Club based on the fact the letter was not filed within the timeframe set to petition to intervene.

Sincerely,

Eric Gronlund
Water Rights Program, DENR
605 773-3352
eric.gronlund@state.sd.us

S O U T H D A K O T A C H A P T E R S I E R R A C L U B
PO BOX 1624 1101 E PHILADELPHIA
RAPID CITY, SD 57709

October 27, 2006

Mr Eric Gronlund
Water Rights Program, DENR
PMB 2020624
523 E Capitol
Pierre, SD 57501

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OCT 30 2006

WATER RIGHTS
PROGRAM

Re: Proposed SBHWS/ FRWUD Water permit application

Dear Mr Gronlund:

Thank you for responding (10/17/06) to my letter of September 27, 2006, regarding the above project, however, the only thing you replied to was the Intervention status that I did not request!

I believe we were very clear that we would not request Intervenor status at this time, and that was the least of our concerns.

From my understanding most of the proceedings that went on at your October 10th meeting was a presentation by Alan Buhler of DENR, and that most of the Intervenor (or their agents/experts/Attorneys) were not able to present their testimony and the meeting was re-scheduled for November 10th or thereabouts.

I am disappointed that no-one in your office or the State Engineering's addressed my concerns, or replied to my question about and EIS.

We understand that the State Engineer has already recommended approval of a test Madison well for SBHWS, is this so?

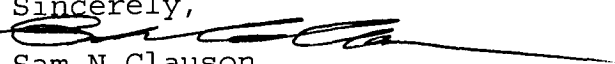
There have been even more concerns expressed to us over this request and several other firm's interest in drilling for even more water from the Madison Formation some time in the near future.

I will again send copies of my original letter and your response to all of the Agencies and political offices involved, and hopefully someone can address our request that the scope of this project and a myriad of other projects coming needs a full Environmental Impact Statement.

We are very much aware of the Black Hills Hydrology study completed a few years ago, but the SD Chapter Sierra Club and now a lot of local folks share a very deep concern about the present & future status of the Madison formation, & pre-existing water/irrigation rights to surface and underground sources.

The Sierra Club is run by volunteers, and we do not have the time nor resources to hire an Attorney just to represent us at several formal "Intervenor"-type hearings at this time, but we speak for nearly a thousand members is South Dakota alone, and nearly a half-million nationally, and our questions deserve a more complete reply.

Sincerely,


Sam N Clauson
Conservation Chair
SD Chapter, Sierra Club
PO Box 1314, Rapid City, SD 57709
Rapid City, SD 57709

cc: Thune, Johnson, Herseth, WCNP, USDA, SBHWS, FRWUD, Simpson, Rahn

BANGSMcCULLEN
— LAW FIRM —

Reply to Rapid City Office

Writer's e-mail address: mhickey@bangsmccullen.com

November 15, 2006

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WATER RIGHTS
PROGRAM

Mr. Garland Erbele, Chief Engineer
Department of Environment and National Resources
Water Rights Program
Joe Foss Building
523 East Capitol
Pierre, SD 57501-3182

Re: *In the Matter of the Applications of Southern Black Hills
Water Systems No. 2580-2 and 2585-2*

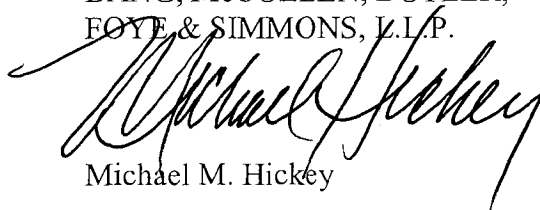
Dear Mr. Erbele:

Please find enclosed the Objections filed on behalf of Fall River Water Users District for the above-referenced matters. A copy has been sent to Southern Black Hills Water System, which is intended as service by mail.

If you have any questions or comments, please advise. Thank you.

Sincerely,

BANG, McCULLEN, BUTLER,
FOYE & SIMMONS, L.L.P.


Michael M. Hickey

mmh:bah:sbh

Enclosures

cc: Client; Bob Morrison; Diane Best; Shane Penfield; Ken Royse; James Brickey; Frank Scroth; John Beard; Roger Wiley; Mr. and Mrs. Paul Fugier; Randy Scroth; Tom Porter; Charles W. Pettee; Shawn Fugier; Marvin Bishop; Harold Heiney; Steve L. Knutson; Lois Emery; Clarence & Carol Foos; Scott A. Roetzel; Steve Simpson

STATE OF SOUTH DAKOTA

BEFORE THE WATER MANAGEMENT BOARD

IN THE MATTER OF THE)
APPLICATIONS OF SOUTHERN) **OBJECTION**
BLACK HILLS WATER SYSTEM,)
APPLICATION NO. 2580-2)

Comes now Fall River Water Users District, by and through its undersigned counsel, and hereby objects to the above-described application to appropriate water filed on behalf of Southern Black Hills Water System. This objection is based upon the grounds and for the reasons that Fall River Water Users District has a future use permit (Future Use Permit No. 2560-2) which may be adversely impacted and interfered with by the application of Southern Black Hills Water System if approved.

Fall River Water Users District also objects to this application on the grounds that any well allowed by this application will interfere with and adversely affect existing water rights and is not in the public interest.

Dated this 15th day of November, 2006.

BANGS, McCULLEN, BUTLER,
FOYE & SIMMONS, L.L.P.

BY: 
MICHAEL M. HICKEY
Attorneys for Fall River Water Users District
333 West Blvd., Suite 400; P.O. Box 2670
Rapid City, SD 57709
Phone: (605) 343-1040

CERTIFICATE OF SERVICE

The undersigned hereby certifies that he served a copy of this legal document upon the persons herein next designated, all on the date below shown, by depositing a copy thereof in the United States mail at Rapid City, South Dakota, postage prepaid, in an envelope addressed to said addressees, to wit:

Bob Morrison, Chairman
Southern Black Hills Water System
PO Box 124
Hermosa, SD 57744

Diane Best, Esq.
Assistance Attorney General
Counsel for Dept. of Environment &
Natural Resources, Div. Of Environmental
Regulation
500 East Capitol Avenue
Pierre, SD 57501

Shane Penfield
Gunderson, Palmer, Goodsell &
Nelson, LLP
PO Box 8045
Rapid City, SD 57709-8045

Ken Royse
Barlett & West
3456 East Century Avenue
Bismarck, ND 58503-0737

James Brickey, Mayor
City of Hill City
PO Box 395
Hill City, SD 57745

Frank Scroth
7-11 Ranch
PO Box 97
Buffalo Gap, SD 57722

John Beard
3810 Beaver Creek Road
Buffalo Gap, SD 57722

Randy Scroth
PO Box 1
Buffalo Gap, SD 57722

Tom Porter, Board Member
Southern Black Hills Water System
Box Z
Edgemont, SD 57735

Charles W. Pettee, Chief
Water Rights Branch
National Park Service
1201 Oakridge Drive, Suite 250
Fort Collins, CO 80525-5596

Shawn Fugier
27094 Beaver Valley Road
Buffalo Gap, SD 57722

Marvin Bishop, Chairman
Custer County Commission
429 Mt. Rushmore Road
Custer, SD 57730

Harold Heiney
Box 7
Buffalo Gap, SD 57722

Steve L. Knutson, President
Knutson Brothers, Inc.
12838 Cold Brook Road
Hot Springs, SD 57747

Lois Emery, Trustee
Lyda Bowker Trust
HC 52 Box 136A
Hot Springs, SD 57747

Roger Willey
Argyle Road
Hot Springs, SD 57747

Clarence and Carol Foos
PO Box 317
Hermosa, SD 57744

Mr. and Mrs. Paul Fugier
27032 Beaver Valley Road
Buffalo Gap, SD 57722

Scott A. Roetzel
Assistant United States Attorney
United States Attorney's Office
Federal Building; PO Box 7240
225 S. Pierre Street, Suite 337
Pierre, SD 57501

Mr. Steve Simpson
PO Box 147
Buffalo Gap, SD 57722

which are the last addresses of the addressees known to the subscriber.

Dated this 15th day of November, 2006.


MICHAEL M. HICKEY

HC 83 BOX 74
Custer State Park
Custer, SD 57730
605-255-4772
FAX 605-255-4706
Reservations: 1-800-658-3530



Operators of
Blue Bell Lodge & Resort
Legion Lake Resort
State Game Lodge & Resort
Sylvan Lake Lodge & Resort
in the Black Hills of South Dakota

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November 13, 2006

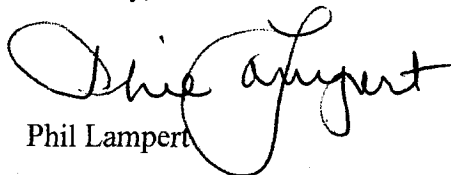
Water Management Board
Joe Foss Building
523 East Capitol Avenue
Pierre, SD 57501

Dear Members of the Board,

As a resident of Custer County, I want you to know that I enthusiastically support the efforts of the Southern Black Hills Rural Water System to provide fresh clean water to our Community. I believe that the establishment of the water rights to the Streeter Well is a key to the success of this project. I represent a Community of Custer people who know that we must act now to provide a source of water for the future of our Community and for the ranchers and homeowners in the area who have a need for this water.

As a businessman, homeowner, and civic leader; I encourage the Water Management Board to act now to secure water for the Southern Black Hills.

Sincerely,


Phil Lampert



Town of Keystone

P.O. Box 689
Keystone, South Dakota 57751
605/6664827

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NOV 17 2006

WATER RIGHTS
PROGRAM

November 13, 2006

Water Management Board
Floyd Mathews Training Center
523 East Capitol Avenue
Pierre, South Dakota 57501

Dear Members of the Board.

As Board President, I want you to know that we enthusiastically support the efforts of the Southern Black Hills Rural Water System to provide fresh clean water to our Community. I believe that establishment of the water rights to the Streeter Well is a key to the success of this project. I represent a Community of 311 people who know that we must act now to provide a source of water for the future of our Community and for the ranchers and homeowners in the area who have a need for this water.

Thank you for your time and attention with this matter.

Sincerely,

A handwritten signature in black ink, appearing to read "Raymond J. [unclear]". The signature is fluid and cursive, with a large initial "R" and a circular flourish at the end.

Town of Keystone

P.O. Box 689
Keystone, South Dakota 57751
605/6664827

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NOV 17 2006

WATER RIGHTS
PROGRAM

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WATER RIGHTS
PROGRAM

November 15, 2006

Department of Environment and Natural Resources
Joe Foss Building
523 East Capitol
Pierre, SD 57501-3182

Attn: Water Management Board
c/o Garland Erberle, Chief Engineer
RE: Southern Black Hills Water System
Future User Permit No. 2580-2

Dear Mr. Erberle,

Please accept this letter as support from The Town of Keystone for the permit applications noted above as submitted to your office by the Southern Black Hills Water System.

The Southern Black Hills Water System represents a comprehensive approach and effort to resolve the critical water supply and distribution needs of our part of the State within Fall River, Custer, and Pennington Counties. Our community, as well as many others in this area, have been strong supporters and financial contributors to this effort since inception of the group and we continue to view the efforts of the SBH as the most practical and most likely means of resolving the water issue of this area. In addition to our own community financial support for this project we are also aware that approximately 700 rural residents of Fall River, Custer, and Pennington counties have made financial commitments to this project in the form of a good intention fee.

We believe the SBH accurately represents the needs of area and has a broad base of support from the users of the area which your Water Management Board should be aware.

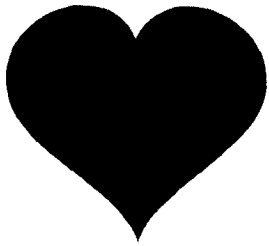
Please follow the recommendations of your technical and legal staff in granting approval of the Future Water Permit No. 2680-2 and Deferral of Water Permit No. 2585-2.

Sincerely,

Vanessa Row, Finance Officer


Raymond French, Board President





City of Hill City

The Heart of the Hills

324 Main Street, P.O. Box 395 Hill City, South Dakota 57745

Phone: 605.574.2300 Fax: 605.574.4327

November 17, 2006

Water Management Board
Floyd Maltheus Training Center
523 East Capitol Avenue
Pierre, SD 57501

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**WATER RIGHTS
PROGRAM**

Dear Members of the Board:

As Mayor, I want you to know that we enthusiastically support the efforts of the Southern Black Hills Rural Water System to provide fresh clean water to our community. I believe that establishment of the water rights to the Streeter Well is a key to the success of this project. I represent a community of 850 people who know that we must act now to provide a source of water for the future of our community and for the ranchers and homeowners in the area who have a need for this water.

Thank you for your time and attention with this matter.

Sincerely,

Don Voorhees
Mayor of Hill City



FALL RIVER COUNTY COUNTY COMMISSIONERS

**COURTHOUSE
906 NORTH RIVER ST
HOT SPRINGS, SOUTH DAKOTA 57747
PHONE: (605) 745-5132**

November 28, 2006

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WATER RIGHTS
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To Whom It May Concern:

I fully support Southern Black Hills Water System, Inc. efforts to build and operate a regional water system to serve the Southern Black Hills. I believe that a regional system in the long run will be cheaper to build, serve many more consumers, have more affordable rates, do a better job of getting water to consumers and be more efficient than several smaller individual systems. I am very disappointed to see important water projects being jeopardized by what seems to be personality and power conflicts among the involved individuals. At the present time there are communities, homeowners, farms, ranches and their livestock in our area that are in great need of good water.

I believe that our present aquifers can handle the proposed well by Southern Black Hills Water System, Inc. and support their conducting a pumping test of the aquifer from the Streeter well, permit number 2585-2, that is close to the proposed well site. I applaud their efforts in this regard to protect the aquifer, not diminish the stream flow in Beaver Creek and protect the water for Wind Cave. If the pumping test does not confirm this, they should be required to find an alternate well site.

Sincerely,

Michael P. Ortner
Vice Chairman
Fall River County Commission
PO Box 629
Hot Springs SD 57747



FALL RIVER COUNTY COUNTY COMMISSIONERS

**COURTHOUSE
906 NORTH RIVER ST
HOT SPRINGS, SOUTH DAKOTA 57747
PHONE: (605) 745-5132**

11-27-06

State of South Dakota
Department of Environment and
Natural Resources
PMB 2020
Joe Foss Building
523 East Capital
Pierre, SD 57501-3182

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NOV 29 2006

**WATER RIGHTS
PROGRAM**

Re: Southern Black Hills Water System, Inc
Permit to drill well

Mr. Garland Eberle:

The Fall River Board of County Commissioners met in Hot Springs, SD on November 21st, 2006. In action taken by the Board, the following motion was approved and passed:

“Motion by Falkenburg, seconded by Ortner to support the Southern Black Hills Water System Inc. in conducting a pumping test on the Streeter well, which is near the proposed well site. With no further discussion, and all voting yes, the motion carried.”

If you have any questions, please contact me at 605-745-5132.

Sincerely,

Glen Reaser
Chairman of the Board
Fall River County

November 28, 2006

Department of Environment and Natural Resources
Joe Foss Building
523 East Capitol
Pierre, SD 57501-3182

Attn: Water Management Board
c/o Garland Erberle, Chief Engineer

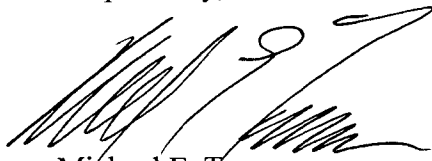
Dear Mr. Erberle,

This letter is being provided as support for the Southern Black Hills Water System with their pending Future Water Permit No. 2580-2 and Water Permit No. 2585-2.

I support the Southern Black Hills Water System in their efforts to address and resolve the water supply and delivery problems of this part of the State. As a commercial and residential developer, I can attest to the necessity of obtaining a good and clean water supply for residential areas and an adequate supply for commercial ventures.

Please follow the recommendations of your technical and legal staff in granting Approval of the Future Water Permit No. 2580-2 and Deferral of Water Permit No. 2585-2.

Respectfully,



Michael E. Tennyson

cc: Southern Black Hills Water System

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WATER RIGHTS
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You Should See The Hills From Here!

November 27, 2006

Water Management Board
Floyd Mathews Training Center
523 East Capitol Avenue
Pierre, SD 57501

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NOV 29 2006
WATER RIGHTS
PROGRAM

Dear Members of the Board,

As Executive Director of the Custer Area Chamber of Commerce, I want you to know that we enthusiastically support the efforts of the Southern Black Hills Rural Water System to provide fresh water to our community. I believe that establishment of the water rights to the Streeter Well is a key to the success of this project. We represent an area of 8500 people who know that we must act now to provide a source of water for the future of our area and our community.

We hope you will see the necessity and the concerns we are faced with. Thank you for your time and attention with this matter.

Sincerely,

David Ressler
Executive Director

CUSTER AREA CHAMBER OF COMMERCE

615 Washington Street ♦ Custer, South Dakota 57730 ♦ (605)673-2244 ♦ 800-992-9818

Web Site: www.custersd.com ♦ E-Mail: info@ustersd.com ♦ Fax: (605)673-3726



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

December 5, 2006

NOTICE

TO: Bob Morrison, Chairman
Southern Black Hills Water System
PO Box 124
Hermosa SD 57744
and Parties of Record (see attached list)

Talbot Wieczorek, Attorney
PO Box 8045
Rapid City SD 57709

FROM: Garland Erbele, Chief Engineer
Water Rights Program

SUBJECT: Preparation of Findings of Fact, Conclusions of Law and Final Decisions

The Water Management Board directed Talbot Wieczorek, counsel for Southern Black Hills Water System, to prepare proposed Findings of Fact, Conclusions of Law and the Final Decisions in the approval of Future Use Permit Application No. 2580-2 and deferral of Water Permit Application No. 2585-2. The Board will consider adoption of Findings, Conclusions and Final Decisions at 1:00 PM (CDT) on Wednesday, March 7, 2007, in the meeting room of the Floyd Matthew Training Center, Joe Foss Building, 523 E. Capitol Avenue, Pierre SD 57501. Notice will be provided to parties if there is a change in the hearing time.

The Board requested that a copy of the proposed Findings, Conclusions and the Final Decisions be mailed to each Board member and parties by January 25, 2007. Written objections or comments in support of the proposed Findings, Conclusions and the Final Decisions, or alternative Findings, Conclusions and Final Decisions are to be mailed to each Board member, the Board attorney (mailing list enclosed) by February 23, 2007.

At the Board's discretion, oral arguments by parties who timely filed written comments in opposition or support of the proposed Findings, Conclusions and Final Decisions, or alternative Findings, Conclusions and Final Decisions may be made on March 7, 2007. The public hearing was completed on November 29, 2006. No additional testimony will be received on March 7, 2007.

Any party having questions about the findings process, may contact Eric Gronlund at (605) 773-3352 or Diane Best, Assistant Attorney General at (605) 773-3215.

Enclosure

c: Jeff Hallem, Assistant Attorney General
Diane Best, Assistant Attorney General
Ken Royse, Bartlett & West, 3456 E. Century Avenue, Bismarck ND 58503-0737

PARTIES OF RECORD

Future Use Permit Application No. 2580-2 and Water Permit Application No. 2585-2

Applicant

Bob Morrison, Chairman
Southern Black Hills Water System
PO Box 124
Hermosa SD 57744

Talbot Wieczorek, Attorney
PO Box 8045
Rapid City SD 57709

Petitioners

Michael Hickey
Attorney for Trout Haven Ranch
Bangs McCullen Law Firm
PO Box 2670
Rapid City SD 57709

Peter A. Fahmy
Water Rights Branch
National Park Service
1201 Oak Ridge Drive
Ft. Collins, CO 80525

Shawn Fugier
27094 Beaver Valley Rd
Buffalo Gap SD 57722

Randy Scott, Manager
Fall River Water User District
28298 Angostura Road, Suite 2
Hot Springs SD 57747

John Beard
3810 Beaver Creek Rd
Buffalo Gap SD 57722

Randy Scroth
PO Box 1
Buffalo Gap SD 57722

Charles W. Pettee, Chief
Water Rights Branch
National Park Service
1201 Oakridge Drive, Suite 250
Fort Collins CO 80525-5596

CERTIFICATION

I hereby certify that on December 5, 2006, I have personally deposited with the United States mail at Pierre, South Dakota, first class postage, prepaid envelopes containing a Notice dated December 5, 2006, 2006, regarding preparation of Findings of Fact, Conclusions of Law and Final Decision in the matters of approval of Future Use Application No. 2580-2 and the deferral of Water Right Permit Application No. 2585-2, Southern Black Hills Water System addressed as stated below and on the Parties of Record list:

Ken Royse
Bartlett & West
3456 E. Century Avenue
Bismarck ND 58503-0737

A copy of the Notice was sent Inter-office to:

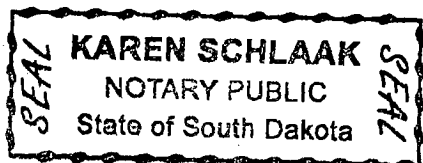
Diane Best, Assistant Attorney General, 1302 E. Hwy 14, Suite 1, Pierre SD 57501
Jeff Hallem, Assistant Attorney General, 1302 E. Hwy 14, Suite 1, Pierre SD 57501

Eric Gronlund
Eric Gronlund
Water Rights Program

[illegible]

Sworn to, before me, this 6th day of December, 2006.

Karen Schlaak
 Karen Schlaak
 Notary Public
 My Commission expires April 1, 2007





DEPARTMENT OF GAME, FISH AND PARKS
DIVISION OF PARKS AND RECREATION
CUSTER STATE PARK
13329 US HWY 16A
CUSTER, SOUTH DAKOTA 57730-9705
TELEPHONE: (605) 255-4515 FAX: (605) 255-4460

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DEC - 5 2006

WATER RIGHTS
PROGRAM

November 29, 2006

Department of Environment and Natural Resources
Joe Foss Building
523 East Capitol
Pierre, SD 57501-3182

Attn: Water Management Board
c/o Garland Erbele, Chief Engineer

RE: Southern Black Hills Water System
Future User Permit No. 2580-2
Water Permit No. 2585-2

Dear Mr. Erberle:

Please accept this letter as support from Custer State Park for the continued study and pursuit of a rural water system in the southern Black Hills.

The Southern Black Hills Water System represents a comprehensive approach and effort to resolve the critical water supply and distribution needs of our part of the State within Fall River, Custer, and Pennington Counties. Custer State Park, in addition to other communities in this area, has been a supporter and financial contributor to this effort since inception of the group and we continue to view the efforts of the SBH as practical and a likely means of resolving the water issues of this area. In addition to our own financial support for the study of this project we also understand that approximately 700 rural residents of Fall River, Custer, and Pennington counties have also made financial commitments to this project.

We believe the SBH represents the needs of the area and has a broad base of support from the users of the area which your Water management Board should be aware.

Sincerely,

Richard W. Miller
Superintendent



**Black Hills
Electric Cooperative, Inc.**
P.O. Box 792
Custer, South Dakota 57730-0792

Telephone: (605) 673-4461
Toll Free: (800) 742-0085
E-mail: bhec@bhec.coop

January 4, 2007

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JAN - 5 2007
**WATER RIGHTS
PROGRAM**

Mr. Garland Erberle, Water Management Board
Department of Environment and Natural Resources
Joe Foss Building
523 East Capitol
Pierre SD 57501-3182

Dear Mr. Erbele,

On behalf of the of the Board of Directors of Black Hills Electric Cooperative I would like to express the cooperative's support for the Southern Black Hills Water System.

Black Hills Electric Cooperative provides electric service to several small communities in the southern Black Hills and to hundreds of homes, businesses, ranches, and farms in the area. The cooperative supports the Southern Black Hills Water System in their efforts to help solve the water supply and delivery problems of this part of the state.

In much of the cooperative's service territory in the southern Black Hills, water wells are impractical because of the depth required or the uncertainty of finding a source of suitable flow and quality. Many cooperative members have inadequate supplies of domestic and/or livestock water, or they are forced to use poor quality water. Many haul water, which has become an increasing hardship with the ongoing drought and escalating fuel costs.

Black Hills Electric Cooperative supports the Water Management Board's decisions on Permits No. 2580-2 and 2585-2 and encourages continued support for the objectives of the Southern Black Hills Water System.

Thank you.

Sincerely,

BLACK HILLS ELECTRIC COOPERATIVE, INC.

Daniel E. Hutt
General Manager and Executive V.P.

CC: Southern Black Hills Water System
BHEC Board of Directors



GUNDERSON, PALMER, GOODSSELL & NELSON, LLP

ATTORNEYS AT LAW

J. CRISMAN PALMER
G. VERNE GOODSSELL
JAMES S. NELSON
DANIEL E. ASHMORE
TERENCE R. QUINN
DONALD P. KNUDSEN
PATRICK G. GOETZINGER
TALBOT J. WIECZOREK
MARK J. CONNOT
JENNIFER K. TRUCANO
DAVID E. LUST

ASSURANT BUILDING
440 MT. RUSHMORE ROAD
POST OFFICE BOX 8045
RAPID CITY, SOUTH DAKOTA 57709-8045
TELEPHONE (605) 342-1078 • FAX (605) 342-0480
www.gundersonpalmer.com
ATTORNEYS LICENSED TO PRACTICE IN
SOUTH DAKOTA, NORTH DAKOTA, IOWA, NEBRASKA
COLORADO, MONTANA, WYOMING & MINNESOTA

THOMAS E. SIMMONS
TERRI LEE WILLIAMS
PAMELA SNYDER-VARNS
SARA FRANKENSTEIN
AMY K. KOENIG
JASON M. SMILEY
SHANE C. PENFIELD
JONATHAN M. OOSTRA
MATTHEW E. NAASZ
WYNN A. GUNDERSON
Of Counsel

January 25, 2007

Garland Erbele
Chief Engineer
Water Rights Program
DENR
523 East Capitol
Pierre, SD 57501-3182

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JAN 26 2007

WATER RIGHTS
PROGRAM

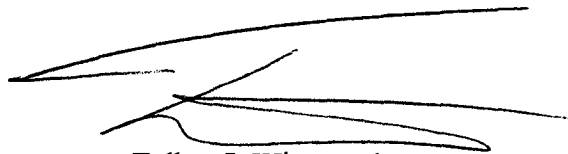
RE: Findings of Fact, Conclusions of Law and Final Decisions
Southern Black Hills Water System Future Use Permit Application No. 2580-2
and deferral of Water Permit Application No. 2585-2
GPGN File No. 7653.040635

Dear Mr. Erbele:

Pursuant to your December 5, 2006 Notice, enclosed please find a copy of Southern Black Hills Water System's Proposed Findings of Fact, Conclusions of Law and Final Decisions in both matters as referenced above. I have provided a copy to all Board members and parties of record.

If you have any questions, please contact me.

Sincerely,



Talbot J. Wieczorek

TJW:klw

Enclosures

c: Jeff Hallem, Assistant Attorney General
Diane Best, Assistant Attorney General
Board Members and All Parties
Ken Royse
Clients

STATE OF SOUTH DAKOTA
BEFORE THE WATER MANAGEMENT BOARD

IN THE MATTER OF WATER PERMIT)
APPLICATION #2585-2,)
and)
IN THE MATTER OF FUTURE USE)
PERMIT APPLICATION #2580-2)
SOUTHERN BLACK HILLS WATER)
SYSTEM

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that on the **25th** day of **January, 2007**, I mailed, via U. S. First Class Mail, postage paid, a true and correct copy of Applicant's Proposed Findings of Fact, Conclusions of Law and Final in the above-entitled matters to:

Michael Hickey Bangs McCullen Law Firm PO Box 2670 Rapid City SD 57709	Peter A. Fahmy Water Rights Branch, NPS 1201 Oak Ridge Drive Ft. Collins CO 80525	Charles W. Pettee, Chief Water Rights Branch, NPS 1201 Oak Ridge Drive Ft. Collins CO 80525
Shawn Fugier 27094 Beaver Valley Road Buffalo Gap SD 57722	Randy Scott, Manager Fall River Water User District 28298 Angostura Rd, Suite 2 Hot Springs, SD 57747	Randy Scroth PO Box 1 Buffalo Gap SD 57722
John Beard 3810 Beaver Creek Road Buffalo Gap SD 57722	Bob Morrison, Chairman Southern Black Hills Water System PO Box 124 Hermosa, SD 57744	Ken Royse Bartlett & West 3456 E. Century Avenue Bismarck ND 58503-0737
Francis E. Brink 1214 S Wells Street Aberdeen SD 57401-7351	Leo Holzbauer PO Box 877 Wagner, SD 57380-9681	Rodney Freeman, Jr. PO Box 176 Huron SD 57350-0176
Everett Hoyt 4422 Carriage Hills Drive Rapid City SD 57702-6874	Jim Hutmacher 802 E 7 th Street Oacoma SD 57365	Bernita Loucks 219 42 nd Street Rapid City SD 57702-0240
Jeff Halem, Asst Attorney General Office of the Attorney General Natural Resources Section Geo. S. Michelson Criminal Justice Center 1302 W Hwy 14, Suite 1 Pierre SD 57501	Garland Erbele, Chief Engineer Water Rights Program Joe Foss Bldg 523 W Capitol Pierre SD 57501-3181	Diane Best, Assistant Attorney General Office of the Attorney General Natural Resources Section Geo. S. Michelson Criminal Justice Center 1302 W Hwy 14, Suite 1 Pierre SD 57501


Talbot J. Wiczorek

STATE OF SOUTH DAKOTA

BEFORE THE WATER MANAGEMENT BOARD

IN THE MATTER OF WATER PERMIT)	APPLICANT'S PROPOSED
APPLICATION #2585-2,)	FINDINGS OF FACT,
SOUTHERN BLACK HILLS WATER)	CONCLUSIONS OF LAW
SYSTEM)	AND FINAL DECISION

FINDINGS OF FACT

1. This is an Application to appropriate 2.7 cubic-feet per second of water (1,600 acre-feet per year) from the Madison aquifer. The water will be used by the applicant to supply a regional water system that will serve primarily rural domestic needs in the southern Black Hills.
2. The appropriated water will be the first well supplying a regional water system being developed by Southern Black Hills Water System, Inc. (hereinafter "Southern Black Hills Water").
3. Southern Black Hills Water is a non-profit corporation formed to develop a regional water supply system in the rural areas of the southern Black Hills. Southern Black Hills Water is will be serving a large geographic area in the Southern Black Hills. This area includes rural parts of Custer, Fall River and Pennington counties.
4. The water appropriated under this permit would be used to begin serving the northern area of Fall River County and some of the southern area of Custer County. It may also be used to serve other areas that have needs or demands for water. The primary use of water in this part of the project would be for domestic use, both existing residences and future development, and agriculture operations. The water would also be used for some commercial use. However, the primary use will be residential in nature.
5. The proposed well site is in the West Half of the Northeast Quarter of Section 15, Township 6 South, Range 6 East in Custer County.

6. It is reliably estimated that the Madison aquifer contains 640 million acre-feet of recoverable water in western South Dakota. It constitutes a tremendous water resource for the State of South Dakota. In the area of the proposed well, the Madison is somewhere between 250 and 400 feet thick.. The Madison aquifer contains approximately 9.8 million acre-feet of recoverable water and storage in Fall River County and approximately 9.2 million acre-feet of recoverable water and storage in Custer County.

7. The Madison aquifer is very prolific in this area. A well close to the proposed site, commonly referred to as the Streeter well, penetrates the Madison aquifer by approximately 10 feet and the well flows naturally in excess of 100 gallons per minute.

8. The Streeter well flows approximately 110 gallons per minute through a one and one-half inch (1.5") pipe. There is no pump. The shut in pressure is at 12 to 14 PSI. The water produced by the Streeter well is good quality water.

9. The Streeter well has shown that water in this area of the Madison has good quality with a low number of dissolved solids. Testing for EPA parameters shows the water is high quality water. This means that if the water quality is similar at the proposed well site all Southern Black Hills Water will have to do to prepare the water for domestic use is chlorinate the water.

10. Drilling a large capacity well is costly. A well with a six or eight inch casing at the proposed site would likely cost \$180,000. If the well casing was ten to twelve inches, it would most likely be \$280,000 to drill. Thus, knowing that there are wells with a good water flow in the area is important because it makes the possibility of drilling a dry hole well less likely.

11. There is available water in the Madison aquifer to supply this requested appropriated amount. Under a worse case scenario, the current appropriated rights in the Madison could pump 50,000 acre-feet per year but studies have shown they are far more likely to be pumping in the 10,000 to 15,000 acre-feet per year. Meanwhile, recharge in the Madison is taking place at 140,000 to 400,000 acre-feet per year.

12. An observation well in the area that was installed in 1991 shows a fluctuation of approximately 25 feet in the Madison. The current water level is higher than it was in the early 1990s. This observation well indicates a reasonable probability that there is unappropriated water available in the immediate area.

13. The proposed well location is in the vicinity of springs that fed into Beaver Creek. There are 13 water rights on Beaver Creek with a total combined prior appropriation of 34 cubic-feet per second. Eleven (11) cfs of these water rights is non-consumption use. These water rights are for agriculture use such as irrigation.

14. Area wide water supply problems are evidenced by the numerous and continuous requests for funds to various state and federal programs for funds for securing a water supply. The state Department of Environment and Natural Resources (DENR) has received recent water source request for funding from Edgemont, Custer, Hermosa, Hermosa Rural Water, Fall River Rural Water, Pringle and other communities in the area.

15. Southern Black Hills Water is designed as a water system for the southern Black Hills. Southern Black Hills Water is designed as a regional water system for the southern Black Hills. The sponsors have been working closely with the Water Resource Assistance Program, a separate program within the DENR. After the Southern Black Hills Water System was formed,

the Water Resource Assistance Program endorsed, and the Board of Water and Natural Resources awarded a grant of \$50,000 of money which required a 20% local match.

16. In addition to the initial \$50,000 the State of South Dakota has awarded Southern Black Hills Water, it has also awarded an additional \$125,000. Southern Black Hills Water has produced a 20% match in relationship to these awards.

17. Interest throughout the southern Black Hills for the regional water system has been high. Already Southern Black Hills Water has collected checks from approximately 500 lots current residential lots, both established homes and vacant lots, in the amount of \$150 each to help support the formation of a regional water system. These people have been primarily in the vicinity of the western part of Fall River, all of Custer County and southern Pennington County.

18. Moreover, other residents have sent in money or have pledged money but at this point the money has been refused by Southern Black Hills Water because it cannot provide these people a definite timeline when Southern Black Hills Water would be built out to serve their area.

19. The growth around Custer and in the southern hills continues to put pressure on the existing water systems and has resulted in applications for permits for smaller developments.

20. Residential growth is continuing and escalating in Custer County and there is a need for good quality and available water in Custer County.

21. In rural Custer County, approximately 60% of new home applicants are using cisterns. Even those people who in the initial building permits in Custer County designate they will drill wells, often end up using cisterns because they have been unable to access the water table through drilling.

22. There is an immediate need for a regional water system within Custer County.

23. The City of Custer has always had problems with the water quality and supply.

The City of Custer supports the Southern Black Hills Water Permit Application. While the City of Custer may not receive water directly from this well, it will be able to receive water from the completed system. This well is a starting point for service in an area that has a great need for quality water and available potable water.

24. Southern Black Hills Water has received financial support from the cities of Custer, Keystone, Hill City, Hermosa, Hot Springs and Edgemont. The County Commissioners in both Custer County and Fall River County support Southern Black Hills Water application. Southern Black Hills Water has also received financial support from Custer and Fall River counties. Custer State Park has also contributed money to the project

25. The communities of Edgemont, Pringle, Custer, Hill City, Keystone and Hermosa all support the Southern Black Hills Water project. These municipalities alone represent 4,258 people based on the 2000 Census. Moreover, these communities have high summertime tourism that places a great demand on the water supply. Both the Custer State Park and the Crazy Horse Memorial support the project and have a need for water.

26. Southern Black Hills Water's plan is to construct a regional water system with the purpose of providing safe and dependable water to all current and future residents, businesses and communities in the southern Black Hills that are in need of water, by the most economic and timely means available.

27. Southern Black Hills Water has a planned four phased project to build out the water system. The well in this application would serve the first phase and part of the second phase.

28. In the first phase of the plan for the regional water development, which would be served by this appropriation, there are already approximately 275 hookups signed up. There is a potential in that area for another 250 to 300 additional hookups. These people primarily need the water for domestic use.

29. Because of the aridness of the region and the occurrence of drought years back-to-back at times, the southern Black Hills faces a critical need for available quality water for both residences and livestock. The proposed project will provide livestock and pasture water service in an area of the state which is currently in a long term drought condition which is under severe economic hardship because of the lack of water to farms and ranches in the area.

30. The expansion of SD Highway 79 to a four-lane south out of Rapid City to Hot Springs at the Hot Springs turnoff has increased development along this corridor in Custer and Fall River counties. A need for water exists in this area.

31. Currently, due to the lack of a regional water supply, when a subdivision moves in, often there are multiple wells drilled. For example, one new subdivision west of Hermosa, along SD Highway 40, will have ten to 15 individual wells. In the last five years, there have been as many as 300 new residential wells in that area alone. It is preferable to have a regional system as opposed to hundreds of smaller residential wells. A regional system with limited number of high capacity wells better serves the public, better protects the water resource and the general public and is more efficient. Private wells do not have a requirement of monitoring or testing. Thus, it is impossible to know the quality of water people are receiving.

32. The Southern Black Hills Water System project has received an approval for \$625,000 in additional funding. This funding is awaiting final approval from the Legislature.

33. Southern Black Hills Water has had a preliminary engineering report completed and provided to USDA Rural Development.

34. The water appropriated pursuant to this permit and the Future Use Permit #2580-2, will not allow Southern Black Hills Water to fulfill the projected residential need in the area it intends to serve. Southern Black Hills Water will have to either work with communities that may have excess water supplies or seek additional water in the future.

35. Southern Black Hills Water has already had an environmental assessment performed in the area, an income survey and engineering analysis, and held public meetings to build support for the project in the area.

36. Department of Environmental and Natural Resources (DENR) has concluded that it is not probable that any ground water rights would be adversely impacted by this permit. This conclusion was not disputed.

37. The question of whether adverse impairment would occur must be considered. In that regard, the water use of prior appropriators and domestic users is a priority right as against the proposed use, so long as the delivery of their water is independent of artesian head pressure. To the extent, however, that water users from Beaver Springs are relying on artesian head pressure as a means of delivery, their right to use water is not automatically protected as against this use. This analysis speaks to the question of the likelihood of impairment of existing rights. The competing uses here are not that between two competing wells or individual surface water rights; use here is a potential decrease in spring output. Based on these considerations, DENR did raise a question as to whether the Board should consider a large decrease in spring output as impacting a public interest if such a decrease would occur.

38. The Chief Engineer for DENR recommended an aquifer test pump be completed by the Applicant to determine if, and, to what extent any effect on Beaver Creek might occur. DENR requested that the aquifer test pump proposal be submitted to DENR for review and approval prior to being conducted.

39. The Chief Engineer has concluded that there is unappropriated water available at this site from the Madison aquifer. The Chief Engineer has further stated in his report that the appropriation proposed does not adversely affect existing wells, and that any decreased discharge into Beaver Creek is not considered an adverse effect. The Board agrees with those findings.

40. Southern Black Hills Water is willing to perform an aquifer pump test.

41. Representatives of Southern Black Hills Water have discussed this approach with the National Park Service expert who has indicated support for an aquifer pump test.

42. A Shawn Fugier testified. He possesses a water right to withdraw water from Beaver Creek for agricultural purposes. He opposed granting any permit. Mr. Fugier also opposed even proceeding with any pump test to gauge the ability the aquifer to supply the application under a claim that it could impact Beaver Creek. He had no evidence that any impact would occur and his testimony is based on pure speculation.

43. The models presented by the National Park Service expert, Ms. Cutillo, assumed recharge being equal to current discharge. However, recharge of the Madison greatly exceeds the annual appropriated amounts.

44. For purposes of a pump test, Ms. Cutillo stated a week-long free-flow testing from the Streeter well will be enough to get a value for transmissivity. A regional value on transmissivity would allow all parties to better gauge any potential local impact the appropriation of water would have.

45. National Park Service testified that the pools found in Wind Cave are 500 feet below the surface, are not accessible to the general public and have not been studied or analyzed.

46. The National Park Service contends the possibility of an impact on the park may exist if the water levels in the underground caves were lowered. However, the National Park Service witnesses agreed that the level of the water in the caves is the top level of the Madison aquifer and these levels vary greatly depending on climatic conditions and that the caves have been naturally, slowly draining over the course of several thousand years. The caves were actually created by the draining and seepage of water.

47. The monitoring of the cave lakes started in approximately 1968. Between 1968 and 1992, the lakes dropped six feet. From 1992 to 1999, the lakes rose 19 feet. Since 1999 to the present, the lakes have dropped six feet. The cave's water level is currently seven feet above the 1968 level. This results from the water tables fluctuating and depending on dry years and years of heavy precipitation that affect the recharge of the Madison aquifer. The lake area of the Cave is less than one-half percent of the Cave area.

48. Steve Simpson, the proprietor of Trout Haven, which is along Beaver Creek, opposed the permit although he agreed there is a need for water in the region. However, Mr. Simpson's expert, Perry Rahn, agreed to the deferral and concurred in pursuing a pump test. Mr. Rahn stated that he believes the testing will show an impact on the creek, but he also agreed the testing would give everyone better information as to the extent, if any, of impact on Beaver Creek and Beaver Creek Springs.

49. There exists reasonable probability that there is unappropriated water available for the Applicant's proposed use under this permit.

50. The proposed diversion can be developed without unlawful impairment of existing rights.

51. The proposed use in the permit is beneficial use.

52. The DENR has suggested that there may be an argument that if there was an impact on Beaver Creek or the springs that feed Beaver Creek, depending on the extent of the impact, that impact might be considered under the public interest prong of the statute. Based on this, the DENR recommended deferral for a pump test.

53. To the extent that any of these Findings of Fact are determined to be Conclusions of Law, they should be deemed Conclusions of Law.

CONCLUSIONS OF LAW

1. The South Dakota Water Management Board conducted a hearing on this application for future appropriation of water under the authority of SDCL Ch. 46-2 and Ch. 46-2A.

2. Unappropriated water is available for the Application. There currently exists a need for quality water for domestic uses that this Application would help satisfy.

3. Southern Black Hills Water System is one of several water systems in the State of South Dakota that has been recognized by the legislature as a system necessary for the general welfare of the people of the state and is a preferred priority objective of the state. SDCL 46A-1-2.1

4. Southern Black Hills Water System is a non-profit rural water supply company as defined by SDCL 10-36A-1.

5. The proposed diversion can be developed without unlawful impairment of existing rights to other permit holders. SDCL 46-2A-9.

6. The proposed use is a beneficial use and a public benefit.
7. The proposed use would be an efficient use of the water resources in the state.
8. The Board has determined in the past that a rural water system use of water is a beneficial use. SDCL 46-2A-9 and SDCL 46-1-4.
9. The South Dakota Water Management Board is not required to maintain artesian head pressure when considering the location and capacity of a large capacity well for domestic purposes. SDCL 46-6-6.1.
10. The well to be established under this permit will be a domestic use well.
11. Beaver Creek is fed by an artesian spring.
12. When considering whether adverse impairment is an issue, this Board recognizes that it cannot guarantee specific water level of pools found in underground caves.
13. As to public interest, the Board is reserving its decision on this issue until further information is supplied. The Board reserves the following questions as they may relate to public interest. Whether testing will show any evidence of impact on the flow in Beaver Creek? What evidence of impact, if any, will the testing show on the lakes in Wind Cave? If any impact is shown, what is the extent of that impact and how that impact, if any, should be considered in making a determination of whether the application is in the public interest? The Board hereby concludes that deferral of the pending permit application is warranted until the applicant files additional information regarding the impact, if any, the well may have on the flow in Beaver Creek and until further information is gathered as to the potential impact of the water level in the Wind Cave. In this regard, further evidence in the future will be limited to the results of aquifer pump testing and conclusions to be drawn therefrom. This deferral pertains to the public interest criteria for approval of a water permit.

14. To the extent that any of these Conclusions of Law are determined to be Findings of Fact, they should be deemed Findings of Fact.

DECISION

Application No. 2585-2 is hereby deferred until an aquifer test pump is completed by the Applicant and the effect to Beaver Creek Springs is evaluated. An aquifer test pump proposal must be submitted to the Chief Engineer for review and approval prior to the test pump being conducted. Further evidence taken on this Application in the future will be limited to the results of aquifer pump testing and conclusions to be drawn there from. This deferral pertains to the public interest criteria for approval of a water permit.

BY THE BOARD:

DATED: _____

STATE OF SOUTH DAKOTA
BEFORE THE WATER MANAGEMENT BOARD

IN THE MATTER OF WATER)
PERMIT APPLICATION #2585-2)
and)
IN THE MATTER OF FUTURE USE)
PERMIT APPLICATION #2580-2)
SOUTHERN BLACK HILLS)
WATER SYSTEM)

CERTIFICATE
OF
SERVICE

The undersigned hereby certifies that a true and correct
copy of DENR Response to Proposed Findings of Fact, Conclusions
of Law and Final Decision In the Matter of Water Permit
Application #2585-2, and In the Matter of Future Use Permit
Application #2580-2 Southern Black Hills Water System, was
served by United States mail, first class, postage prepaid, upon
the following this 16th day of February, 2007.

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cos DB 02 15 07 Application #2585-2 (Southern Black Hills) kak

STATE OF SOUTH DAKOTA
BEFORE THE WATER MANAGEMENT BOARD

IN THE MATTER OF FUTURE USE	)	DENR RESPONSE TO APPLICANT'S
PERMIT APPLICATION #2585-2,	)	PROPOSED FINDINGS OF FACT
SOUTHERN BLACK HILLS	)	CONCLUSIONS OF LAW
WATER SYSTEM	)	AND FINAL DECISION

COMES NOW, the South Dakota Department of Environment and Natural Resources, Water Rights Program (DENR) and makes its response to the Applicant's Proposed Findings of Fact, Conclusions of Law, and Final Decision in the above-referenced matter.

FINDINGS OF FACT

The DENR urges adoption of the Applicant's proposal with the following changes:

1. Finding of Fact 3 contains a typographical error in the third line. The word "is" should be deleted.
2. The last sentence of Finding of Fact 10 contains the words "a dry hole well." The DENR submits that the proper engineering terminology would be to refer to this as a "dry hole."
3. Finding of Fact 11 refers to water pumped in the Madison aquifer. It appears that the word "range" is missing from the end of the second sentence.

4. The DENR would also make changes on Finding of Fact 13. The second to the last sentence should state that the water rights involved are "for non-consumptive use" rather than the language given. Further, the last sentence should indicate that the water rights are for fish and wild life production as well as agricultural use such as irrigation.

5. The DENR also recommends a small change on Finding of Fact 15. The first and second sentences are redundant and one should be deleted.

6. Finding of Fact 39 should reflect that the Chief Engineer's report stated that the proposed use "should not adversely affect existing wells." The proposed water system is not constructed yet, so the use of the word "does" should be changed to "should."

7. Finding of Fact 43 relates to the testimony of National Park Service Expert Ms. Cutillo. If the second sentence is intended to be based on the Cutillo testimony, the DENR would propose deletion of that second sentence.

8. The DENR proposes an alternative Conclusion of Law 9:

The protection SDCL 46-6-6.1 provides prior appropriators and domestic users supplied by wells, including the "Streeter Well" is without the necessity of requiring maintenance of artesian head pressure in the wells of such prior appropriators or domestic users.

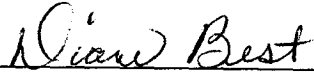
9. Conclusion of Law 10 should be changed to reflect that the proposed well will be a rural water system well rather than a domestic well.

10. The DENR recommends that the proposed Decision be deleted and replaced with the following:

Application No. 2585-2 is hereby deferred until the public interest questions regarding the potential impact to Beaver Creek and the cave pools can be addressed. An aquifer pump test is to be completed by the Applicant and the effect of Beaver Springs and the cave pools is to be evaluated. An aquifer test pump proposal must be submitted to the Chief Engineer for review and approval prior to the test pump being conducted. Upon completion of the pump testing, and submission of the results to all parties, the Chief Engineer is to schedule an additional hearing before the Board. This deferral pertains to the affect that operation of the proposed permit would have on Beaver Springs and the cave pools and, accordingly, the resulting public interest associated with any such affects.

Dated this 16th day of February, 2007.

Respectfully submitted,


Diane Best
Assistant Attorney General
Office of Attorney General
1302 E. Highway 14, Suite 1
Pierre, SD 57501
Telephone (605) 773-3215

STATE OF SOUTH DAKOTA

BEFORE THE WATER MANAGEMENT BOARD

IN THE MATTER OF WATER PERMIT	)	NATIONAL PARK SERVICE'S
APPLICATION #2585-2,	)	RESPONSE TO APPLICANT'S
SOUTHERN BLACK HILLS WATER	)	PROPOSED FINDINGS OF FACT,
SYSTEM	)	CONCLUSION OF LAW,
	)	AND FINAL DECISION

COMES NOW, the National Park Service (NPS), Water Resources Division, on behalf of Wind Cave National Park, and makes its response to the Applicant's Proposed Findings of Fact, Conclusions of Law, and Final Decision in the above-referenced matter.

FINDINGS OF FACT

The NPS urges adoption of the Applicant's proposal with the following changes:

1. Finding of Fact 1. Change "2.7" to "2.67"
2. Finding of Fact 6. The Chief Engineer's Report for this application states these numbers are estimates. Please change the statement to begin "It is estimated that the Madison aquifer..."
3. Finding of Fact 12. No well is identified in this paragraph so it is not known for certain which well is being discussed. While water levels, when combined with other information such as spring flow, streamflow, pumping from other wells, etc. is useful to determine available water, water levels from one observation well are not sufficient to determine water availability. Please delete this sentence.
4. Finding of Fact 13. In the first sentence, change the word "fed" to "feed".
5. Finding of Fact 36. Contrary to the proposed finding, the NPS disputed this statement and testified that federal reserved water rights may be adversely impacted. The second sentence should be deleted.

6. Finding of Fact 39. The Chief Engineer and the Water Management Board considered the potential of decreasing spring discharge as the result of well interference a "public interest" concern. Omitting the public interest concerns of the Chief Engineer is misleading, and they should be included in the Findings of Fact.

7. Finding of Fact 43. Contrary to the proposed finding, appropriated well withdrawals are not the only discharge from the aquifer. In fact, natural discharge from the Madison aquifer includes artesian springs and leakage to other aquifers, (Page 1, Cutillo Expert Witness Statement) and this natural discharge is greater than well withdrawals at this time. The second sentence should be deleted.

8. Finding of Fact 43. Contrary to the proposed finding, NPS did not testify that pools in Wind Cave have not been studied or analyzed, and in fact testified to past and ongoing research in the cave. This finding should be deleted.

9. Finding of Fact 46. Contrary to the proposed finding, Wind Cave was not formed by the draining and seepage of water. Please delete this statement.

10. Finding of Fact 47. The text should be revised as follows: "The lake area of the Cave is less than one-half percent of the known Cave area."

11. Conclusion of Law 5. The text states "The proposed diversion can be developed without unlawful impairment of existing rights to other permit holders." This has not been proven and is the reason the aquifer pump test has been required. Please delete this Conclusion.

12. Conclusion of Law 12. Contrary to the proposed conclusion, the Board did not recognize, discuss, or state that it cannot guarantee specific water level of pools found in underground caves. Please delete this Conclusion.

In addition to the above comments on the draft Findings of Fact, Conclusions of Law, and Final Decision, the NPS submits these additional items to be included in the Findings of Fact section. (Note: Page and line numbers refer to the locations of the statements in the official transcripts of the November 30, 2006 Hearing on this matter.)

13. Wind Cave National Park (Wind Cave NP) was established on January 9, 1913 in order to, among other things, protect the cave system. (Page 206, lines 5 - 8). Wind Cave NP is to be managed to conserve the scenery and the natural and historic objects and the wildlife therein, and to provide for the enjoyment of the same in such manner as will leave them unimpaired for the enjoyment of future generations (Page 208, lines 20 - 24).

14. Water was crucial to formation of Wind Cave and remains so. The cave was formed 50-60 million years ago when the water table was higher than the cave. The water level started draining 470,000 years ago and has been draining at a rate of 1.3 ft/1,000 years, eventually leaving behind several dozen lake sites within Wind Cave. (Page 208, lines 10 - 14 and Page 235, lines 1 and 2). At this rate, it would take 15,000 years for the lakes to completely disappear. (Page 228, lines 1-11; Page. 229, lines 8-14). Water continues to support the caves' environmental, mineralogical, or biological systems (Page 229, lines 15-23). Accelerated drainage of the lakes due to pumping will likely impair these systems, and lead to at least a partial defeat of the purposes for which Wind Cave was established.

15. Wind Cave uses a well completed in the Madison, Englewood and Deadwood formations to support park purposes. (Page 245, lines 5 - 7). This use is permitted by South Dakota Water Right License 419-2 for 0.15 cfs with a priority date of

December 29, 1955 (Page 244, lines 10 – 16). Wind Cave NP is also entitled to Federal reserved water rights to support the purposes for which the park was created. The right is presently inchoate and unquantified and has a priority date of January 9, 1903 (Page 246, lines 6 – 10).

16. The Madison aquifer receives recharge through infiltration of precipitation and streamflow losses in the outcrop area. Natural discharge from the Madison aquifer occurs at artesian springs that originate from the Madison aquifer and to a lesser degree, leakage to other aquifers. [Page 177; Written Testimony of Cutillo, p 1]

17. NPS testified that all water discharged from the proposed well in the Madison aquifer must be balanced by a combination of decreased natural discharge and a loss from aquifer storage. A decrease in natural discharge will cause decreased artesian springflow, and a loss in aquifer storage will lower the potentiometric surface in the Madison aquifer. NPS rights to the water level in Wind Cave may be injured by falling water levels, and rights to surface streams fed by natural discharge may be injured by decreased springflow. [Oral Testimony of Cutillo, pp 184-185; Written Testimony of Cutillo, p 2]

Dated this 22nd day of February, 2007.

Respectfully submitted,

A handwritten signature in dark ink, appearing to read "Peter A. Fahmy", written over a horizontal line.

Peter A. Fahmy
Water Rights Attorney
Office of the Solicitor
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FEB 26 2007
WATER RIGHTS
PROGRAM

STATE OF SOUTH DAKOTA
BEFORE THE WATER MANAGEMENT BOARD

IN THE MATTER OF WATER	)	CERTIFICATE
PERMIT APPLICATION #2585-2	)	OF
and	)	SERVICE
IN THE MATTER OF FUTURE USE	)	
PERMIT APPLICATION #2580-2	)	
SOUTHERN BLACK HILLS	)	
WATER SYSTEM	)	

The undersigned hereby certifies that a true and correct copy of NPS Response to Proposed Findings of Fact, Conclusions of Law and Final Decisions In the Matter of Water Permit Application #2585-2, and In the Matter of Future Use Permit Application #2580-2 Southern Black Hills Water System, was served by United States mail, first class, postage prepaid, upon the following this 22nd day of February, 2007.

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By Hand Delivery:

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A handwritten signature in black ink, appearing to read "Peter Fahmy", written over a horizontal line.

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Attorneys also admitted in
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BANGSMcCULLEN
 — LAW FIRM —

Reply to Rapid City Office

Writer's e-mail address: mhickey@bangsmccullen.com

RECEIVED

FEB 26 2007

**WATER RIGHTS
 PROGRAM**

February 23, 2007

Mr. Garland Erbele, Chief Engineer
 Department of Environment and National Resources
 Water Rights Program
 Joe Foss Building
 523 East Capitol
 Pierre, SD 57501-3182

Re: *In the Matter of the Applications of Southern Black Hills
 Water Systems No. 2580-2 and 2585-2*

Dear Mr. Erbele:

Pursuant to your Notice dated December 5, 2006, please find enclosed the following documents filed on behalf of Trout Haven Ranch:

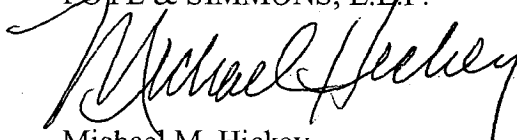
1. Trout Haven Ranch's Proposed Findings of Fact, Conclusions of Law and Final Decision; and
2. Trout Haven Ranch's Objection to Applicant's Proposed Findings of Fact, Conclusions of Law and Final Decision.

By copy of this letter, copies have been sent to all Board members and parties of record, which is intended as service by mail upon them.

If you have any questions or comments, please advise. Thank you.

Sincerely,

BANG, McCULLEN, BUTLER,
 FOYE & SIMMONS, L.L.P.



Michael M. Hickey

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mmh:bah:sbh

Enclosures

cc/encl: Mr. Talbot J. Wiczorek; Mr. Peter A. Fahmy; Mr. Charles W. Pettee; Shawn Fugier; Randy Scott; Randy Scroth; John Beard; Bob Morrison; Ken Royse; Francis Brink; Leo Holzbauer; Rodney Freeman, Jr.; Everett Hoyt; Jim Hutmacher; Bernita Loucks; Jeff Halem; Diane Best

Bangs, McCullen, Butler, Foye & Simmons, L.L.P.

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STATE OF SOUTH DAKOTA

BEFORE THE WATER MANAGEMENT BOARD

IN THE MATTER OF THE	)	
APPLICATIONS OF SOUTHERN	)	TROUT HAVEN RANCH'S PROPOSED
BLACK HILLS WATER SYSTEM,	)	FINDINGS OF FACT, CONCLUSIONS OF
APPLICATION NO. 2585-2	)	LAW AND FINAL DECISION

The above-entitled matter came on for hearing before the South Dakota Department of Environment & Natural Resources, Water Management Board, on October 11, 2006, and on November 30, 2006, in Pierre, South Dakota. The Applicant, Southern Black Hills Water System, appeared through their counsel, Talbot J. Wieczorek. Diane Best appeared on behalf of the Department of Environment & Natural Resources. Peter A. Fahmy appeared on behalf of the National Park Service, and Michael M. Hickey appeared on behalf of Trout Haven Ranch and Fall River Water Users District. The Water Management Board having heard the testimony of the witnesses and the evidence introduced and having considered the arguments of the parties, and having hereinbefore made and announced its oral Decision which is incorporated herein by this reference, now hereby makes and enters the following:

FINDINGS OF FACT

1. The Decision is incorporated herein by reference. In the event of conflict between the Decision and these findings, the Decision controls.
2. Applicant, Southern Black Hills Water System, Inc., filed an application to appropriate 2.67 cubic feet per second of water (1600 acre-feet per year) from the Madison aquifer.
3. According to the Applicant, if the application is approved the water will be used to supply water to a rural water system being proposed by the Applicant for use in Fall River, Custer and Pennington Counties, South Dakota.

4. The concept of a centralized rural water system originated with the Department of Environment and Natural Resources.

5. The Applicant, with funding from the State of South Dakota, on March 17, 2005, formed a nonprofit corporation, South Black Hills Water System, Inc.

6. The Applicant has no existing customers or users for the water it intends to appropriate but has a list of names of individuals that sent in a nonrefundable "good intention fee" of \$150.00. Certain individuals, however, in the Cascade falls area were only required to contribute \$50 if they could prove that they had earlier paid \$100 for a previous feasibility study. No promises were made, however, by the Applicant that any individual who submitted a fee would be supplied with water.

7. These "good intention fees" were used as the local match in an effort to obtain federal funding for this project.

8. Various communities in the Southern Black Hills have made financial commitments to the project of varying amounts.

9. The Applicant has obtained approximately \$175,000 in funds from the State of South Dakota and hopes to obtain an additional \$625,000 which will serve as the source of funds to conduct aquifer stress tests.

10. The Applicant agrees with the recommendation of the Department that its application be deferred so that a phased in pump test can be done.

11. Originally the Applicant intended to serve that portion of Fall River County, Custer County and southern part of Pennington County that was not getting served with water. At the time of the hearing, however, the Applicant has scaled back the project.

12. The Applicant has no existing contracts to supply water to any customer or community.

13. At the time of the hearing, the Applicant had approximately \$30,000, which it claimed was available to be used to perform the recommended pump test.

14. The proposed geographic service area was adjusted after Fall River Water Users District had gotten approval for its Northern Expansion Plan. According to the Applicant, the area that it intends to serve is not currently served by other water systems.

15. According to Applicant's Chairman of the Board, the site selected for the first well (Streeter well) was due to the fact that there was an existing well already there, the water quality was good and there was the potential to supply a fairly good amount of water.

16. It would be a waste of resources for the Applicant to provide water to an area that already has an existing supply of water.

17. The Applicant intends to do this project in phases. Phase one was to construct a water line from Hot Springs north to the Argyle Road, west on Argyle Road to the Lone Elk and Argyle Fire Department area.

18. The Applicant stated that it wanted to be good neighbors and that it did not want to drill a well that was going to cause problems for anyone which was why they wanted to do the phased test.

19. Prior to filing the application, the Applicant did not discuss its plans to drill near the Beaver Creek Springs with Trout Haven Ranch or Fall River Water Users District.

20. John Beard, who is a member of the Board of Directors of Applicant, testified that he currently hauls water from the Streeter well.

21. Beard lives in the Northern Expansion of the Fall River Water Users District but stated that he may get water from Applicant as it is interested in supplying water to everybody that needs water as economical as they can get it. He further stated that the Applicant would intend to serve individuals living in the Northern Expansion. This testimony was contradicted by the testimony of Ken Royse who stated that the Applicant did not intend to supply water to anyone that lies within the boundary of the Fall River Water Users District.

22. Applicant hired Barlett and West Engineers to perform a feasibility study for a regional water system. This feasibility study was based upon existing data and determined that it was economically feasible to construct a regional water system to supplement the municipal needs and water service for rural customers.

23. Exhibit 10 is a packet of information concerning the proposed project.

24. Phase one of the project deals with supplying water to the 7-11 Road area. The intent was to drill a new well near the existing Streeter well. Applicant would not use the existing Streeter well because it is not permitted for this use.

25. The new well would be approximately less than a mile from Beaver Creek Springs.

26. Under the project this new well would serve 1300 to 1600 potential customers.

27. The Applicant has been attempting to negotiate a contract with the City of Hot Springs for the purchase of water, but no firm contract has been reached. This contract would be an alternative source of supply to the proposed Streeter well.

28. As the project is currently envisioned, phase one will involve the construction of a 12-inch trunk line, (which would carry approximately 500 gallons per minute) from the proposed Streeter well along Argyle Road, terminating at the reservoir site.

29. Applicant knows of approximately 250 to 300 potential water users, but hopes to increase this to 400 people under phase one. No contracts or commitments have been made to any potential customer, however.

30. Under Water Permit 2585-2 the Applicant is requesting 1600 acre-feet of water at the rate of 2.67 cfs (1200 gallons per minute at peak withdrawal or 990 gallons per minute on a steady basis).

31. Royse testified that any excess water produced by the proposed Streeter well could be sent east, or maybe provided to Fall River Rural Water, or sent north to Hermosa.

32. The Applicant's plans and proposals for this project are indefinite and uncertain.

33. The Applicant currently does not have any funding to proceed forward with this project. While they have a funding request currently before the South Dakota Legislature, USDA Rural Development, no funding has been finalized.

34. At the time of the hearing, Applicant stated it had approximately \$30,000 in the bank which is not sufficient to perform the various tests contemplated by the DENR and the other parties.

35. The Applicant did not talk with Trout Haven, Fall River Water Users District or the other individuals in the vicinity of the proposed Streeter well prior to commencing this proceeding.

36. There are alternative sites available for the Applicant to obtain water for this project. This including a well site near Argyle offered by Mr. Knutson and other potential locations, obtaining water from Mni Wiconi or purchasing water rights from other sources, but the Applicant has not looked at those alternative sites.

37. The Applicant has agreed with the Chief Engineer that its application be deferred pending the completion of certain aquifer pumping tests that are needed to help determine the site specific aquifer characteristics at the Streeter well site.

38. The Applicant proposed to utilize a phased approach to collect background information prior to drilling a new well. This approach would be done under the direction of the Chief Engineer and would include input from Trout Haven and the National Parks Service.

39. This approach initially consists of the construction of a temporary v-notch weir to measure the discharge of Beaver Creek Springs. The accuracy of the weir is of crucial importance and the parties want the weir to be as accurate as technically possible.

40. Secondly, chemistry data will be collected from the existing Streeter well, Beaver Creek Springs, Wind Cave Headquarters, Wind Cave underground lakes, the observations wells of the DENR and such additional locations as deemed reasonable or necessary.

41. Thereafter, the Applicant would conduct a flow test from the existing Streeter well to see what impact such flows would have at Beaver Creek Springs, Wind Cave and the other monitoring locations. The length of time over which this flow test would be performed has not been determined as yet. The Applicant believes that a week may be sufficient, but Dr. Perry Rahn testified that the test should be run over 30 days. It is hoped that this information would

assist in the development of more accurate aquifer characteristics including transmissivity and storage coefficient. This information would again be shared with all parties.

42. Thereafter the Applicant would design and conduct an aquifer pumping test that would be satisfactory to the Chief Engineer and the other interested parties.

43. Thereafter the Applicant would design and conduct a finite element model to establish the change in elevation of the water table and determine the amount of reduction of flow of springs and streams.

44. The Applicant will share all information obtained from these tests and observations with all parties.

45. The Applicant is responsible for all costs and expenses necessary to perform all of the tests specified herein.

46. During the testing process, the Applicant would be responsible for monitoring the pH, temperature, conductivity, turbidity of the water in Beaver Creek above and below Trout Haven as requested by Steve Simpson.

47. If any problems develop in the operation of Trout Haven as a result of such testing, the Applicant will take the steps necessary to correct the problem and shall be responsible for any losses or damages done to Trout Haven as a result of such testing.

48. The proposed Streeter well is approximately three miles from Wind Cave, and is located approximately three quarters of a mile from Beaver Creek Spring.

49. As testified to by Paula Cutillo, all water extracted by ground water wells must be balanced by an increase in recharge to the aquifer, a decrease in natural discharge, a loss from aquifer storage or some combination of these factors.

50. The pumping from wells as contemplated by the Applicant will result in loss of aquifer storage, reduction in spring flow and a lowering of water levels in Wind Cave.

51. Dr. Rahn has studied the Madison aquifer for forty years, and is as familiar with the aquifer as anyone in the country.

52. In the Southern Hills there are three giant springs that exist on the outside edge of the limestone belt: Beaver Creek Spring (10 cfs), Cascade Spring (20 cfs) and Fall River in Hot Springs (22 cfs). The Madison is the primary source of water for these warm artesian springs.

53. The 1973 report published by Dr. Rahn shows the directional flow lines of water at Beaver Creek Spring and the Streeter Well. It shows that the water at Beaver Creek Spring comes right straight down from the north through the Streeter Well.

54. Dr. Rahn described the Madison aquifer as an underground lake and the springs act as the overflow point or relief valve. They are the sensitive discharge points for the aquifer. Which means if you withdraw water from the aquifer, the springs are going to suffer.

55. There is a relationship between ground water and surface water, and if you withdraw ground water near springs you will have a reduction in flow from the springs.

56. Dr. Rahn testified that the Applicant should prepare an environmental impact statement and do a finite model to show what the impacts are going to be.

57. Large scale development of the Madison aquifer will diminish artesian spring flow and adversely impact surface water resources.

58. There are alternatives to pumping from the Madison aquifer in close proximity to Beaver Creek Springs. Those alternatives include drilling a well in the Madison aquifer near

Argyle, which would not be located near any springs, obtain water from the Mni Wiconi project, and buy water rights from current users.

59. Dr. Rahn has concerns about the accuracy of the weir that is going to be installed by the Applicant. He testified that the weir contemplated might have a 10 percent error, which equals approximately 1 cfs. The flow test as contemplated by the Applicant will not accurately register on that weir. Dr. Rahn believed that a sharp-crested weir should be used as it is more accurate.

60. Dr. Rahn testified that while the flow tests contemplated by the Applicant may shed addition information on transmissivity, it does not establish the long-term effects on the spring.

61. Dr. Rahn testified that the chemical test contemplated by the Applicant may provide some general information about direction of flow of movement, but it will not answer the questions posed by this application.

62. Dr. Rahn has concerns about the length of time over which the flow test should be administered. He testified that he believes the same should be done over a 30-day period.

63. Dr. Rahn testified that the Applicant should drill wells away from the springs. He stated that the average yield of a Madison well in the Black Hills are a couple hundred of gallons a minute, but some are up to 2000 gallons a minute.

64. Dr. Rahn testified that it is possible to locate a productive well by drilling the well on a fracture trace which could be located on an aerial photo.

65. Dr. Rahn testified that the quality of water is more difficult to predict, but that the closer you are to the outcrops, the fresher the water is.

66. Dr. Rahn stated that he was not opposed to utilizing the Madison aquifer, but wants it used wisely. He does not believe a well should be allowed near a spring that has appropriative rights, unless a finite element model is performed, then you would have an accurate estimate as to the impact on the spring.

67. The gross amount of water available within the Madison aquifer is not an accurate number and a more accurate number is the water available in sub areas of the Madison.

68. Steve Simpson is the owner of Trout Haven Ranch. He is a fish farmer and raises trout for a living. His family has run the business since the early 1950's.

69. Trout Haven sells fish in about 16 states and 3 Canadian provinces.

70. Because of the quality of the water, Trout Haven is a disease-free hatchery.

71. The water from Beaver Creek Springs is perfect for the raising of trout. Because of this, Trout Haven is able to raise almost double the amount of fish raised at the State hatchery in Rapid City.

72. The temperature of the water is approximately 60 degrees, which is a real good temperature for trout.

73. Trout Haven needs a constant and consistent flow of water on a year round basis in order to supply fish to its customers on a year round basis. A ten percent reduction in available water would put Trout Haven out of business.

74. A ten percent reduction in flow would alter the temperature of the water and adversely impact the business. If this occurred in the summer, the water would become too warm and it would not be possible to raise fish in the summer. If the loss of flow occurred in the winter, the water would become too cool and would slow the growth rate of the fish.

75. Additionally if you raise fish in a stressed condition they will become sick which will cause Trout Haven to go out of business because it will be unable to sell its fish to its customers.

76. The pH of the water is also crucial to raising fish. The pH of the water at Beaver Creek Springs is between 7.4 and 7.6, which is perfect for trout. A pH in that range generates slime, which protects the fish from diseases.

77. Trout Haven is concerned about the impact that tests contemplated by the Chief Engineer will have on its operation. If the flow and quality of the water is upset during testing and Trout Haven loses its crop, it is out of business.

78. The sale of fish is done on a contract basis which requires that Trout Haven meet certain deadlines for the delivery and number of fish. If it fails to do so, it is in default under its contract. The sale of fish is not like the sale of cattle or other type of agricultural crop where you can also take it to the elevator or sale barn. Fish cannot be taken to a sale barn. Everything is done ahead of time pursuant to contracts.

79. Trout Haven intends to hatch 700,000 steelhead trout for sale to Canada. Those fish are very fussy and will die if the water temperature reaches 74 degrees.

80. Trout Haven monitors the pH, temperature and quality of its water in order to determine the metabolism of the fish to determine what they should eat to get the proper growth rate.

81. The clarity of the water is also a concern. If the water becomes too cloudy, baby fish cannot survive in water that is turbid.

82. Trout Haven does not oppose the Applicant from getting future use of water from the Madison aquifer. It does oppose the well site as contemplated in Permit 2585-2.

83. Trout Haven uses approximately 11 cfs of water on a non-consumptive basis. The water in Beaver Creek is then used by the subsequent irrigators and cattle producers downstream. Those water rights are set out in the report of Dr. Rahn.

84. Fall River Water Users District was organized in 1990 for the purpose to providing quality domestic water to the residents within the area it serves at the lowest possible price with the best service.

85. Fall River currently has approximately 300 meters and about 310 miles of pipeline covering 800 square miles in eastern Fall River County. The District is currently in the process of expanding to the north.

86. Fall River has a need for another source of water and obtained a Future Use Permit from the state (Future Use Permit 2560-2) whereby it can withdraw 750 acre-feet of water from the Madison aquifer from three possible locations.

87. The Future Use Permit issued to Fall River requires it to pay particular attention to stream flows, particularly Cascade, Beaver and Fall River, and not drill immediately adjacent to the springs.

88. The District believes the Streeter well site is a sensitive area that needs to be protected, and even a comprehensive pump test as proposed could possibly have a devastating effect on current water users on Beaver Creek.

89. The District also believes that the Streeter well site could have an adverse impact on its future use permit, by physically impacting its future well sites.

90. The District opposes permits 2585-2 and 2580-2.

Based upon the forgoing Findings of Fact, the Water Board hereby makes and enters the following:

CONCLUSIONS OF LAW

1. That the Department of Environment and Natural Resources Water Board has jurisdiction over the subject matter and parties to this matter.
2. To the extent that any Finding of Fact is improperly designated as such, then the same should be considered as a Conclusion of Law. Likewise, to the extent any Conclusion of Law is improperly designated as such, then it should be considered as a Finding of Fact.
3. The Applicant has the burden of proof to establish all of the requirements necessary to obtain a permit under the provisions of SDCL 46-2A-9.
4. The Applicant has not established that it can develop its proposed use without unlawfully impairing existing rights of other permit holders.
5. The Applicant has failed to establish that its proposed use is in the public interest.
6. The use proposed in Permit 2585-2 unlawfully impairs existing rights of other permit holders and is not in the public interest.
7. The application of Southern Black Hills Water System, Inc. is denied.

LET A FINAL DECISION BE ENTERED ACCORDINGLY.

FINAL DECISION

Application No. 2585-2 is hereby denied as the Applicant has failed to establish that the proposed use can be developed without unlawful impairment of existing rights and the proposed use is not in the public interest.

Dated this ____ day of _____, 2007.

SOUTH DAKOTA DEPARTMENT OF
ENVIRONMENT & NATURAL RESOURCES,
THE WATER MANAGEMENT BOARD

BY: _____
Jim Hutmacher, Chairman

CERTIFICATE OF SERVICE

The undersigned hereby certifies that he served copies of this legal document upon the persons herein next designated, all on the date below shown, by depositing copies thereof in the United States mail at Rapid City, South Dakota, postage prepaid, in envelopes addressed to said addressees, to wit:

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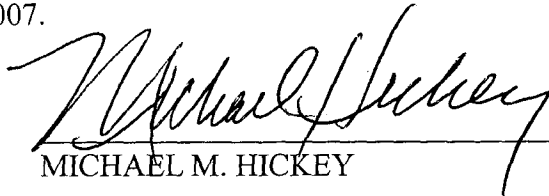
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which are the last addresses of the addressees known to the subscriber.

Dated this 23rd day of February, 2007.


MICHAEL M. HICKEY

STATE OF SOUTH DAKOTA

BEFORE THE WATER MANAGEMENT BOARD

IN THE MATTER OF WATER PERMIT)	WATER MANAGEMENT
APPLICATION #2585-2,)	BOARD RULINGS ON APPLICANT'S
SOUTHERN BLACK HILLS WATER)	PROPOSED FINDINGS OF FACT,
SYSTEM)	CONCLUSIONS OF LAW AND FINAL
)	DECISION; DENR AND NPS'S
)	RESPONSES TO APPLICANT'S PROPOSED
)	FINDINGS OF FACT, CONCLUSIONS OF
)	LAW AND FINAL DECISION; AND
)	TROUT HAVEN RANCH AND FALL RIVER
)	WATER USERS DISTRICT'S PROPOSED
)	FINDINGS OF FACT, CONCLUSIONS
)	OF LAW AND FINAL DECISION

Pursuant to the directions of the Water Management Board, counsel for Applicant timely submitted Proposed Findings of Fact, Conclusions of Law and Final Decision. Subsequently, counsel for the Department of Environment and Natural Resources (DENR) submitted DENR's Response to Applicant's Proposed Findings of Fact, Conclusions of Law and Final Decision; counsel or Intervenor National Park Service (NPS) submitted National Park Service's Response to Applicant's Proposed Findings of Fact, Conclusions of Law and Final Decision; counsel for Intervenor Trout Haven Ranch submitted Trout Haven Ranch's Objections to Applicant's Proposed Findings of Fact, Conclusions of Law and Final Decision; and counsel for Intervenor Fall River Water Users District submitted Fall River Water Users District's Objections to Applicant's Proposed Findings of Fact, Conclusions of Law and Final Decision. The Board, upon review of the

parties' submissions, the administrative record, and having orally entered its decision, hereby makes the following rulings:

A. Applicant's proposed Findings of Fact Nos. 2, 4, 7, 8, 9, 14, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 37, 40, 41, 42, 44, 48, 49, 50, 51 and 53 are accepted by the Board.

B. Applicant's proposed Finding of Fact No. 1 is accepted by the Board as modified below to more accurately reflect the administrative record:

1. This is an application to appropriate 2.67 cubic-feet per second of water (1,600 acre-feet per year) from the Madison aquifer. The water will be used by the Applicant to supply a regional water system that will serve primarily rural domestic needs in the southern Black Hills.

C. Applicant's proposed Finding of Fact No. 3 is accepted by the Board with second sentence modified for grammatical purposes, deleting the word "is."

D. That Applicant's proposed Finding of Fact No. 5 is accepted by the Board as modified below to more accurately reflect the administrative record:

5. The proposed well site is in the West Half of the Northeast Quarter of Section 15, Township 6 South, Range 6 East in Custer County. This site is located

approximately 3 to 5 miles from Wind Cave in Wind Cave National Park and 3/4 of a mile from Beaver Creek Springs that feeds into Beaver Creek.

E. Applicant's proposed Finding of Fact No. 6 is accepted by the Board as modified below to more accurately reflect the administrative record:

6. It is reliably estimated that the Madison aquifer contains 640 million acre-feet of recoverable water in western South Dakota. It constitutes a tremendous water resource for the State of South Dakota. In the area of the proposed well site, it is estimated that the Madison formation is somewhere between 250 and 400 feet thick. It is further estimated that the Madison aquifer contains approximately 9.8 million acre-feet of recoverable water in storage in Fall River County, and approximately 9.2 million acre-feet of recoverable water in storage in Custer County.

F. Applicant's proposed Finding of Fact No. 10 is accepted by the Board with the modification of deleting the word "well" following "dry hole" in the last sentence to more accurately reflect drilling terminology.

G. Applicant's proposed Finding of Fact No. 11 is accepted by the Board with the modification of including the

word "range" at the end of the second sentence to more accurately reflect the administrative record.

H. Applicant's proposed Finding of Fact No. 12 is accepted by the Board as modified below to more accurately reflect the administrative record:

12. Data from observation well CU-91A that is located in the vicinity of the proposed well site shows a fluctuation of approximately 25 feet in the Madison aquifer since 1991. The current water level at this observation well is higher than it was in the early 1990's. This observation well data and data from other observation wells indicates a reasonable probability that there is unappropriated water available from the Madison aquifer in the immediate area of the water permit applied for by Southern Black Hills Water.

I. Applicant's proposed Finding of Fact No. 13 is accepted by the Board as modified below to more accurately reflect the administrative record and the Board's modification to Finding of Fact No. 5:

13. There are 13 water rights on Beaver Creek below Beaver Creek Springs with a combined prior appropriation of 34 cubic-feet per second (cfs). Eleven (11) cfs of these water rights are for non-

consumptive use. The water rights are for agricultural use such as irrigation, and for fish and wildlife production. Beaver Creek is an over-appropriated stream.

J. Applicant's proposed Finding of Fact No. 15 is accepted by the Board as modified by deleting the repetitive first sentence for grammatical purposes.

K. Applicant's proposed Finding of Fact No. 36 is accepted by the Board as modified below to more accurately reflect the administrative record:

36. The Department of Environment and Natural Resources (DENR) has concluded that it is not probable that any ground water rights would be adversely impacted by the permit.

L. Applicant's proposed Finding of Fact No. 38 is accepted by the Board as modified below to more accurately reflect the administrative record:

38. The Chief Engineer for DENR raised a public interest issue regarding the potential affect the proposed well would have on Beaver Creek Springs and the resulting flow in Beaver Creek. Currently, there is not enough information regarding the Madison aquifer in the area of the proposed well site and Beaver Creek Springs to determine what impact pumping

might have on discharges from the springs and on Beaver Creek flows, and what impact pumping may have on the holders of water rights from Beaver Creek. Given this public interest issue, the Chief Engineer recommended that an aquifer test pump be completed by the Applicant to determine if, and, to what extent pumping from the proposed well site might have on flows in Beaver Creek. DENR requested that the aquifer test pump proposal be submitted to DENR for review and approval prior to being conducted.

M. Applicant's proposed Finding of Fact No. 39 is accepted by the Board as modified below to more accurately reflect the administrative record:

39. Notwithstanding the public interest issue, the Chief Engineer has concluded that there is unappropriated water available at the proposed well site from the Madison aquifer. The Chief Engineer's report states that the proposed appropriation should not adversely affect existing wells, and that any decreased discharge into Beaver Creek from Beaver Creek Springs is not considered a protected adverse affect. The Board agrees with these statements but feels a decreased discharge may be considered as a public interest issue.

N. Applicant's proposed Finding of Fact No. 43 is accepted by the Board as modified below to more accurately reflect the administrative record:

43. The models presented by the National Park Service's Expert Ms. Cutillo, assumed recharge being equal to current discharge.

O. Applicant's proposed Finding of Fact No. 45 is accepted by the Board as modified below to more accurately reflect the administrative record:

45. National Park Service witnesses testified that the pools found in Wind Cave National Park are approximately 500 feet below the surface, and are not accessible to the general public.

P. Applicant's proposed Finding of Fact No. 46 is accepted by the Board with the modification of deleting the final sentence to more accurately reflect administrative record.

Q. Applicant's proposed Finding of Fact No. 47 is accepted by the Board with modification of the last sentence by including the word "known" before "Cave."

R. Applicant's proposed Finding of Fact No. 52 is accepted by the Board as modified below to more accurately reflect the administrative record, the Board's Findings and its Final Decision of deferring any decision until the completion of the aquifer test pump and study:

52. Intervenors Shawn Fugier, Randy Schroth, Trout Haven Ranch through the testimony of Steve Simpson, and National Parks Service through the testimony of its various witnesses support the public interest issue raised by the State Engineer involving the possible impact pumping from the proposed well site may have on the artesian flows from Beaver Creek Springs and NPS's public interest issue regarding the possible impact on the cave pools in Wind Cave National Park. Currently there is not sufficient information regarding the Madison aquifer in the general area of the proposed well site to make any determination regarding the impact on cave pool levels in Wind Cave National Park and discharges from Beaver Creek Springs due to pumping at the proposed well site in the amounts applied for by Southern Hills Water. Data obtained from the State Engineer's recommended aquifer test pump will likely provide information regarding these potential impacts.

S. Applicant's proposed Conclusions of Law Nos. 2, 3, 4, 5, 6, 7, 8, 13, and 14 are accepted by the Board.

T. Applicant's proposed Conclusion of Law No. 1 is accepted by the Board as modified below to more accurately reflect the administrative record:

1. The South Dakota Water Management Board conducted a hearing on this application for issuance of the requested ground water permit under the authority of SDCL Ch. 46-2 and Ch. 46-2A, and ARSD Ch. 74:02:01.

U. Applicant's proposed Conclusion of Law No. 9 is refused, and in its stead, the Board accepts DENR's proposed alternative Conclusion of Law No. 9 set forth in DENR Response No. 8 for reason DENR's alternative is a more accurate statement of law:

9. The protection SDCL 46-6-6.1 provides prior appropriators and domestic users supplied by wells, including the "Streeter well" is without the necessity of requiring maintenance of artesian head pressure in the wells of such appropriators or domestic users.

V. Applicant's proposed Conclusion of Law No. 10 is accepted by the Board as modified below to more accurately reflect the record and the applicable provisions in SDCL 46-6-1.

10. The large capacity well to be established under this water permit application is a nonprofit rural water supply company well.

W. Applicant's proposed Conclusion of Law No. 11 is accepted by the Board as modified as follows to more accurately reflect the Board's decision and current State law:

11. Beaver Creek is fed by an artesian spring, Beaver Creek Springs. The only protection South Dakota law provides when considering an application for an underground water permit for flow from an artesian spring is under the public interest criteria.

X. Applicant's proposed Conclusion of Law No. 12 is refused by the Board on the ground that it is unnecessary to support its decision to defer a decision on the water permit application.

Y. Applicant's proposed Final Decision is refused by the Board on the ground the proposal does not adequately and fully state the Board's decision regarding deferral. In its stead, the Board accepts DENR's recommended proposed Final Decision as set forth in DENR Response No. 10, as further modified by the Board in recognition of Intervenor's public interest issue regarding flows from Beaver Creek:

Application No. 2585-2 is hereby deferred until the public interest issues regarding the potential impact to Beaver Creek and the cave pools of Wind Cave National Park can be addressed through additional testing and study of the Madison aquifer in the area of the proposed well site. An aquifer test pump is to be completed by Applicant and the effects on Beaver Creek Springs and the cave pools are to be evaluated.

An aquifer test pump proposal must be submitted to the Chief Engineer for review and approval prior to the test pumping being conducted. In reviewing the proposal for approval, the Chief Engineer shall evaluate whether the test pump proposal adequately addresses Intervenor's concerns about reduction of flows, water quality, pH, temperature and clarity in Beaver Creek which would adversely affect the operation of Trout Haven Ranch to a significant extent during the testing. Upon completion of the test pumping, and submission of the results to all parties, the Chief Engineer is to schedule an additional hearing before the Board. This deferral pertains to the affect that the operation of the proposed permit would have on Beaver Creek Springs and the cave pools at Wind Cave National Park and, accordingly, the resulting public interests associated with any such affects.

Z. DENR's Response to Applicant's Proposed Findings of Fact and Conclusions of Law and Final Decision Nos. 1 through 10 are substantively accepted by the Board as set forth in the Board's rulings on Applicant's Proposed Findings of Fact, Conclusions of Law and Final Decision set forth above.

AA. Nation Park Service's Response to Applicant's Proposed Findings of Fact, Conclusions of Law and Final Decision Nos. 1, 2, 4, 5, 7, 8, 9 and 10 are substantively accepted by the Board as set forth in the Board's rulings on Applicant's proposed Findings of Fact.

BB. National Park Service's Response No. 3 objecting to Applicant's proposed Finding of Fact No. 12 is refused as being inconsistent with the record except to the extent that the objection is consistent with the Board's modification of Applicant's proposed Finding of Fact No. 12.

CC. National Park Service's Response No.6 objecting to Applicant's proposed Finding of Fact No. 39 is refused on the ground that the additional statements regarding public interest are inappropriate for this Finding of Fact. Further, the Board has adequately entered findings regarding the relevant public interest issues elsewhere in its rulings set forth above.

DD. National Park Service's Response No. 11 objecting to Applicant's proposed Conclusion of Law No. 5 is refused. Proposed Conclusion of Law No. 5 is an accurate statement of the law as applied to the facts found by the Board in this matter. There was no evidence submitted at the hearing that there will be unlawful impairment by granting the water permit application to the existing rights of other water permit holders. Reduction in discharge from Beaver Creek Springs and resulting flow in

Beaver Creek would not constitute an unlawful impairment.

Further, as set forth below, there was no evidence submitted at the hearing to support a finding, let alone a conclusion that Wind Cave National Park has a federal reserve water right that was established when the Park was created that would be unlawfully impaired by granting of the water permit.

EE. National Park Service's Response No. 12 proposing deletion of Applicant's proposed Conclusion of Law No. 12 is accepted. Applicant's proposed Conclusion of Law No. 12 is unnecessary to the Board's decision to defer the water permit application.

FF. National Park Service's Response Nos. 13 and 16 setting forth additional proposed Findings of Fact are accepted by the Board.

GG. National Park Service's Response No. 14 proposing an additional Finding of Fact is refused. The findings stated therein regarding Wind Cave are not necessary to the Board's decision. Further, to the extent that the proposed Finding addresses impact regarding pumping, such facts are inconsistent with the record. No evidence was submitted as to the actual impact, if any, pumping will have on the water level in Wind Cave or if there is a reduction in water level what affect such reduction would have on the environmental, mineralogical or biological systems in the cave.

HH. National Park Service's Response No. 15 proposing an additional Finding of Fact is accepted by the Board as modified below to delete references to a federal reserved water right. This portion of the Finding is refused on the ground that no evidence, other than an unsupported assertion, was submitted regarding a federal reserved water right. Further, any such finding is unnecessary to support the Board's determination to defer any decision on the water permit application:

Wind Cave National Park uses a well completed in the Madison, Englewood, and Deadwood formations for park purposes. This use is permitted by South Dakota Water Right License No. 419-2 for 0.15 cubic feet per second with a priority date of December 29, 1955.

II. National Parks Services Response No. 17, proposing an additional Finding of Fact is refused on the ground that the findings stated therein are already addressed in the Board findings as set forth in its rulings set forth above.

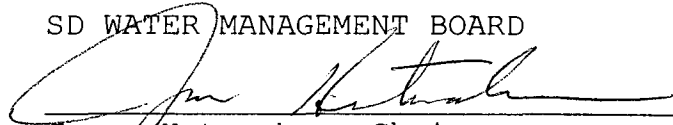
JJ. That the Board has reviewed Fall River Water Users District's and Trout Haven Ranch's proposed Findings of Fact, Conclusions of Law and Final Decision which are virtually identical documents. The Board, after reviewing said documents, refuses them in total for four reasons: (1) Many of the Findings of Fact proposed by Trout Haven Ranch and Fall River Water Users District are substantively included in the Findings as accepted

by the Board. (2) A number of the proposed Findings of Fact are simply unnecessary to support the Board's deferral decision; (3) a number of the proposed Findings of Facts are inconsistent and contrary to the Board's Findings as set forth in its above rulings; and (4) The proposed Conclusions of Law and Final Decision are either incorporated in the Board's accepted Conclusions of Law or are contrary to the Board's accepted Conclusions of Law, Findings of Fact, and Final Decision as set forth in the above rulings.

The Board attorney is directed to prepare Findings of Fact, Conclusions of Law and Final Decision consistent with the above rulings to be executed by the Chairman of the Board or designee without any further motion or hearing.

Dated this 19 day of March, 2007.

SD WATER MANAGEMENT BOARD



James Hutmacher, Chairman

STATE OF SOUTH DAKOTA

BEFORE THE WATER MANAGEMENT BOARD

IN THE MATTER OF WATER PERMIT)	FINDINGS OF FACT,
APPLICATION #2585-2,)	CONCLUSIONS OF LAW,
SOUTHERN BLACK HILLS WATER)	AND
SYSTEM)	FINAL DECISION

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FINDINGS OF FACT

1. This is an application to appropriate 2.67 cubic-feet per second of water (1,600 acre-feet per year) from the Madison aquifer. The water will be used by the Applicant to supply a regional water system that will serve primarily rural domestic needs in the southern Black Hills.

2. The appropriated water will be the first well supplying a regional water system being developed by Southern Black Hills Water System, Inc. (hereinafter "Southern Black Hills Water").

3. Southern Black Hills Water is a non-profit corporation formed to develop a regional water supply system in the rural areas of the southern Black Hills. Southern Black Hills Water will be serving a large geographic area in the Southern Black Hills. This area includes rural parts of Custer, Fall River and Pennington counties.

4. The water appropriated under this permit would be used to begin serving the northern area of Fall River County and some of the southern area of Custer County. It may also be used to

serve other areas that have needs or demands for water. The primary use of water in this part of the project would be for domestic use, both existing residences and future development, and agriculture operations. The water would also be used for some commercial use. However, the primary use will be residential in nature.

5. The proposed well site is in the West Half of the Northeast Quarter of Section 15, Township 6 South, Range 6 East in Custer County. This site is located approximately 3 to 5 miles from Wind Cave in Wind Cave National Park and 3/4 of a mile from Beaver Creek Springs that feeds into Beaver Creek.

6. It is reliably estimated that the Madison aquifer contains 640 million acre-feet of recoverable water in western South Dakota. It constitutes a tremendous water resource for the State of South Dakota. In the area of the proposed well site, it is estimated that the Madison formation is somewhere between 250 and 400 feet thick. It is further estimated that the Madison aquifer contains approximately 9.8 million acre-feet of recoverable water in storage in Fall River County, and approximately 9.2 million acre-feet of recoverable water in storage in Custer County.

7. The Madison aquifer is very prolific in this area. A well close to the proposed site, commonly referred to as the Streeter well, penetrates the Madison aquifer by approximately

10 feet and the well flows naturally in excess of 100 gallons per minute.

8. The Streeter well flows approximately 110 gallons per minute through a one and one-half inch (1.5") pipe. There is no pump. The shut in pressure is at 12 to 14 PSI. The water produced by the Streeter well is good quality water.

9. The Streeter well has shown that water in this area of the Madison has good quality with a low number of dissolved solids. Testing for EPA parameters shows the water is high quality water. This means that if the water quality is similar at the proposed well site all Southern Black Hills Water will have to do to prepare the water for domestic use is chlorinate the water.

10. Drilling a large capacity well is costly. A well with a six or eight inch casing at the proposed site would likely cost \$180,000. If the well casing was ten to twelve inches, it would most likely be \$280,000 to drill. Thus, knowing that there are wells with a good water flow in the area is important because it makes the possibility of drilling a dry hole less likely.

11. There is available water in the Madison aquifer to supply this requested appropriated amount. Under a worse case scenario, the current appropriated rights in the Madison could pump 50,000 acre-feet per year but studies have shown they are

far more likely to be pumping in the 10,000 to 15,000 acre-feet per year range. Meanwhile, recharge in the Madison is taking place at 140,000 to 400,000 acre-feet per year.

12. Data from observation well CU-91A that is located in the vicinity of the proposed well site shows a fluctuation of approximately 25 feet in the Madison aquifer since 1991. The current water level at this observation well is higher than it was in the early 1990's. This observation well data and data from other observation wells indicates a reasonable probability that there is unappropriated water available from the Madison aquifer in the immediate area of the water permit applied for by Southern Black Hills Water.

13. There are 13 water rights on Beaver Creek below Beaver Creek Springs with a combined prior appropriation of 34 cubic-feet per second (cfs). Eleven (11) cfs of these water rights are for non-consumptive use. The water rights are for agricultural use such as irrigation, and for fish and wildlife production. Beaver Creek is an over-appropriated stream.

14. Area wide water supply problems are evidenced by the numerous and continuous requests for funds to various state and federal programs for funds for securing a water supply. The state Department of Environment and Natural Resources (DENR) has received recent water source request for funding from Edgemont,

Custer, Hermosa, Hermosa Rural Water, Fall River Rural Water, Pringle and other communities in the area.

15. Southern Black Hills Water is designed as a regional water system for the southern Black Hills. The sponsors have been working closely with the Water Resource Assistance Program, a separate program within the DENR. After the Southern Black Hills Water System was formed, the Water Resource Assistance Program endorsed, and the Board of Water and Natural Resources awarded a grant of \$50,000 of money which required a 20% local match.

16. In addition to the initial \$50,000 the State of South Dakota has awarded Southern Black Hills Water, it has also awarded an additional \$125,000. Southern Black Hills Water has produced a 20% match in relationship to these awards.

17. Interest throughout the southern Black Hills for the regional water system has been high. Already Southern Black Hills Water has collected checks from approximately 500 lots current residential lots, both established homes and vacant lots, in the amount of \$150 each to help support the formation of a regional water system. These people have been primarily in the vicinity of the western part of Fall River, all of Custer County and southern Pennington County.

18. Moreover, other residents have sent in money or have pledged money but at this point the money has been refused by

Southern Black Hills Water because it cannot provide these people a definite timeline when Southern Black Hills Water would be built out to serve their area.

19. The growth around Custer and in the southern hills continues to put pressure on the existing water systems and has resulted in applications for permits for smaller developments.

20. Residential growth is continuing and escalating in Custer County and there is a need for good quality and available water in Custer County.

21. In rural Custer County, approximately 60% of new home applicants are using cisterns. Even those people who in the initial building permits in Custer County designate they will drill wells, often end up using cisterns because they have been unable to access the water table through drilling.

22. There is an immediate need for a regional water system within Custer County.

23. The City of Custer has always had problems with the water quality and supply. The City of Custer supports the Southern Black Hills Water Permit Application. While the City of Custer may not receive water directly from this well, it will be able to receive water from the completed system. This well is a starting point for service in an area that has a great need for quality water and available potable water.

24. Southern Black Hills Water has received financial support from the cities of Custer, Keystone, Hill City, Hermosa, Hot Springs and Edgemont. The County Commissioners in both Custer County and Fall River County support Southern Black Hills Water application. Southern Black Hills Water has also received financial support from Custer and Fall River counties. Custer State Park has also contributed money to the project.

25. The communities of Edgemont, Pringle, Custer, Hill City, Keystone and Hermosa all support the Southern Black Hills Water project. These municipalities alone represent 4,258 people based on the 2000 Census. Moreover, these communities have high summertime tourism that places a great demand on the water supply. Both the Custer State Park and the Crazy Horse Memorial support the project and have a need for water.

26. Southern Black Hills Water's plan is to construct a regional water system with the purpose of providing safe and dependable water to all current and future residents, businesses and communities in the southern Black Hills that are in need of water, by the most economic and timely means available.

27. Southern Black Hills Water has a planned four phased project to build out the water system. The well in this application would serve the first phase and part of the second phase.

28. In the first phase of the plan for the regional water development, which would be served by this appropriation, there are already approximately 275 hookups signed up. There is a potential in that area for another 250 to 300 additional hookups. These people primarily need the water for domestic use.

29. Because of the aridness of the region and the occurrence of drought years back-to-back at times, the southern Black Hills faces a critical need for available quality water for both residences and livestock. The proposed project will provide livestock and pasture water service in an area of the state which is currently in a long term drought condition which is under severe economic hardship because of the lack of water to farms and ranches in the area.

30. The expansion of SD Highway 79 to a four-lane south out of Rapid City to Hot Springs at the Hot Springs turnoff has increased development along this corridor in Custer and Fall River counties. A need for water exists in this area.

31. Currently, due to the lack of a regional water supply, when a subdivision moves in, often there are multiple wells drilled. For example, one new subdivision west of Hermosa, along SD Highway 40, will have ten to 15 individual wells. In the last five years, there have been as many as 300 new residential wells in that area alone. It is preferable to have a

regional system as opposed to hundreds of smaller residential wells. A regional system with limited number of high capacity wells better serves the public, better protects the water resource and the general public and is more efficient. Private wells do not have a requirement of monitoring or testing. Thus, it is impossible to know the quality of water people are receiving.

32. The Southern Black Hills Water System project has received an approval for \$625,000 in additional funding. This funding is awaiting final approval from the Legislature.

33. Southern Black Hills Water has had a preliminary engineering report completed and provided to USDA Rural Development.

34. The water appropriated pursuant to this permit and the Future Use Permit #2580-2, will not allow Southern Black Hills Water to fulfill the projected residential need in the area it intends to serve. Southern Black Hills Water will have to either work with communities that may have excess water supplies or seek additional water in the future.

35. Southern Black Hills Water has already had an environmental assessment performed in the area, an income survey and engineering analysis, and held public meetings to build support for the project in the area.

36. The Department of Environment and Natural Resources (DENR) has concluded that it is not probable that any ground water rights would be adversely impacted by the permit.

37. The question of whether adverse impairment would occur must be considered. In that regard, the water use of prior appropriators and domestic users is a priority right as against the proposed use, so long as the delivery of their water is independent of artesian head pressure. To the extent, however, that water users from Beaver Creek Springs are relying on artesian head pressure as a means of delivery, their right to use water is not automatically protected as against this use. This analysis speaks to the question of the likelihood of impairment of existing rights. The competing uses here are not that between two competing wells or individual surface water rights; use here is a potential decrease in spring output. Based on these considerations, DENR did raise a question as to whether the Board should consider a large decrease in spring output as impacting a public interest if such a decrease would occur.

38. The Chief Engineer for DENR raised a public interest issue regarding the potential affect the proposed well would have on Beaver Creek Springs and the resulting flow in Beaver Creek. Currently, there is not enough information regarding the Madison aquifer in the area of the proposed well site and Beaver

Creek Springs to determine what impact pumping might have on discharges from the springs and on Beaver Creek flows, and what impact pumping may have on the holders of water rights from Beaver Creek. Given this public interest issue, the Chief Engineer recommended that an aquifer test pump be completed by the Applicant to determine if, and, to what extent pumping from the proposed well site might have on flows in Beaver Creek. DENR requested that the aquifer test pump proposal be submitted to DENR for review and approval prior to being conducted.

39. Notwithstanding the public interest issue, the Chief Engineer has concluded that there is unappropriated water available at the proposed well site from the Madison aquifer. The Chief Engineer's report states that the proposed appropriation should not adversely affect existing wells, and that any decreased discharge into Beaver Creek from Beaver Creek Springs is not considered a protected adverse affect. The Board agrees with these statements, but feels a decreased discharge may be considered as a public interest issue.

40. Southern Black Hills Water is willing to perform an aquifer pump test.

41. Representatives of Southern Black Hills Water have discussed this approach with the National Park Service expert who has indicated support for an aquifer pump test.

42. A Shawn Fugier testified. He possesses a water right to withdraw water from Beaver Creek for agricultural purposes. He opposed granting any permit. Mr. Fugier also opposed even proceeding with any pump test to gauge the ability the aquifer to supply the application under a claim that it could impact Beaver Creek. He had no evidence that any impact would occur and his testimony is based on pure speculation.

43. The models presented by the National Park Service's Expert Ms. Cutillo, assumed recharge being equal to current discharge.

44. For purposes of a pump test, Ms. Cutillo stated a week-long free-flow testing from the Streeter well will be enough to get a value for transmissivity. A regional value on transmissivity would allow all parties to better gauge any potential local impact the appropriation of water would have.

45. National Park Service witnesses testified that the pools found in Wind Cave National Park are approximately 500 feet below the surface, and are not accessible to the general public.

46. The National Park Service contends the possibility of an impact on the park may exist if the water levels in the underground caves were lowered. However, the National Park Service witnesses agreed that the level of the water in the caves is the top level of the Madison aquifer and these levels

vary greatly depending on climatic conditions and that the caves have been naturally, slowly draining over the course of several thousand years.

47. The monitoring of the cave lakes started in approximately 1968. Between 1968 and 1992, the lakes dropped six feet. From 1992 to 1999, the lakes rose 19 feet. Since 1999 to the present, the lakes have dropped six feet. The cave's water level is currently seven feet above the 1968 level. This results from the water tables fluctuating and depending on dry years and years of heavy precipitation that affect the recharge of the Madison aquifer. The lake area of the Cave is less than one-half percent of the known Cave area.

48. Steve Simpson, the proprietor of Trout Haven, which is along Beaver Creek, opposed the permit although he agreed there is a need for water in the region. However, Mr. Simpson's expert, Perry Rahn, agreed to the deferral and concurred in pursuing a pump test. Mr. Rahn stated that he believes the testing will show an impact on the creek, but he also agreed the testing would give everyone better information as to the extent, if any, of impact on Beaver Creek and Beaver Creek Springs.

49 There exists reasonable probability that there is unappropriated water available for the Applicant's proposed use under this permit.

50. The proposed diversion can be developed without unlawful impairment of existing rights.

51. The proposed use in the permit is beneficial use.

52. Intervenors Shawn Fugier, Randy Schroth, Trout Haven Ranch through the testimony of Steve Simpson, and National Parks Service through the testimony of its various witnesses support the public interest issue raised by the State Engineer involving the possible impact pumping from the proposed well site may have on the artesian flows from Beaver Creek Springs and NPS's public interest issue regarding the possible impact on the cave pools in Wind Cave National Park. Currently there is not sufficient information regarding the Madison aquifer in the general area of the proposed well site to make any determination regarding the impact on cave pool levels in Wind Cave National Park and discharges from Beaver Creek Springs due to pumping at the proposed well site in the amounts applied for by Southern Hills Water. Data obtained from the State Engineer's recommended aquifer test pump will likely provide information regarding these potential impacts.

53. Wind Cave National Park (Wind Cave NP) was established on January 9, 1913 in order to, among other things, protect the cave system. Wind Cave NP is to be managed to conserve the scenery and the natural and historic objects and the wildlife therein, and to provide for the enjoyment of the same in such

manner as will leave them unimpaired for the enjoyment of future generations.

54. Wind Cave NP uses a well completed in the Madison, Englewood, and Deadwood formations for park purposes. This use is permitted by South Dakota Water Right License No. 419-2 for 0.15 cubic feet per second with a priority date of December 29, 1955.

55. The Madison aquifer receives recharge through infiltration of precipitation and streamflow losses in the outcrop area. Natural discharge from the Madison aquifer occurs at artesian springs that originate from the Madison aquifer and to a lesser degree, leakage to other aquifers.

56. To the extent that any of these Findings of Fact are determined to be Conclusions of Law, they should be deemed Conclusions of Law.

CONCLUSIONS OF LAW

1. The South Dakota Water Management Board conducted a hearing on this application for issuance of the requested ground water permit under the authority of SDCL Ch. 46-2 and Ch. 46-2A, and ARSD Ch. 74:02:01.

2. Unappropriated water is available for the Application. There currently exists a need for quality water for domestic uses that this Application would help satisfy.

3. Southern Black Hills Water System is one of several water systems in the State of South Dakota that has been recognized by the legislature as a system necessary for the general welfare of the people of the state and is a preferred priority objective of the state. SDCL 46A-1-2.1

4. Southern Black Hills Water System is a non-profit rural water supply company as defined by SDCL 10-36A-1.

5. The proposed diversion can be developed without unlawful impairment of existing rights to other permit holders. SDCL 46-2A-9.

6. The proposed use is a beneficial use and a public benefit.

7. The proposed use would be an efficient use of the water resources in the state.

8. The Board has determined in the past that a rural water system use of water is a beneficial use. SDCL 46-2A-9 and SDCL 46-1-4.

9. The protection SDCL 46-6-6.1 provides prior appropriators and domestic users supplied by wells, including the "Streeter well" is without the necessity of requiring maintenance of artesian head pressure in the wells of such appropriators or domestic users.

10. The large capacity well to be established under this water permit application is a nonprofit rural water supply company well.

11. Beaver Creek is fed by an artesian spring, Beaver Creek Springs. The only protection South Dakota law provides when considering an application for an underground water permit for flow from an artesian spring is under the public interest criteria.

12. As to public interest, the Board is reserving its decision on this issue until further information is supplied. The Board reserves the following questions as they may relate to public interest. Whether testing will show any evidence of impact on the flow in Beaver Creek? What evidence of impact, if any, will the testing show on the lakes in Wind Cave? If any impact is shown, what is the extent of that impact and how that impact, if any, should be considered in making a determination of whether the application is in the public interest? The Board hereby concludes that deferral of the pending permit application is warranted until the applicant files additional information regarding the impact, if any, the well may have on the flow in Beaver Creek and until further information is gathered as to the potential impact of the water level in the Wind Cave. In this regard, further evidence in the future will be limited to the results of aquifer pump testing and

conclusions to be drawn therefrom. This deferral pertains to the public interest criteria for approval of a water permit.

14. To the extent that any of these Conclusions of Law are determined to be Findings of Fact, they should be deemed Findings of Fact.

DECISION

Application No. 2585-2 is hereby deferred until the public interest issues regarding the potential impact to Beaver Creek and the cave pools of Wind Cave National Park can be addressed through additional testing and study of the Madison aquifer in the area of the proposed well site. An aquifer test pump is to be completed by Applicant and the effects on Beaver Creek Springs and the cave pools are to be evaluated. An aquifer test pump proposal must be submitted to the Chief Engineer for review and approval prior to the test pumping being conducted. In reviewing the proposal for approval, the Chief Engineer shall evaluate whether the test pump proposal adequately addresses Intervenor's concerns about reduction of flows, water quality, pH, temperature and clarity in Beaver Creek which would adversely affect the operation of Trout Haven Ranch to a significant extent during the testing. Upon completion of the test pumping, and submission of the results to all parties, the Chief Engineer is to schedule an additional hearing before the Board. This deferral pertains to the affect that the operation

of the proposed permit would have on Beaver Creek Springs and the cave pools at Wind Cave National Park and, accordingly, the resulting public interests associated with any such affects.

BY THE BOARD:

A handwritten signature in dark ink, appearing to read "John H. ...", is written over a horizontal line.

DATED: 3-19-07



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

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

March 22, 2007

NOTICE

TO: Bob Morrison, Chairman
Southern Black Hills Water System
PO Box 124
Hermosa SD 57744
and Parties of Record (see attached list)

Talbot Wieczorek, Attorney
PO Box 8045
Rapid City SD 57709

FROM: Garland Erbele, Chief Engineer
Water Rights Program *Garland Erbele*

SUBJECT: Adoption of Findings of Fact, Conclusions of Law and Final Decisions

This is to notify you that the Board's rulings and the Final Decisions, including Findings of Fact and Conclusions of Law, were adopted March 7, 2007, by the Water Management Board approving Future Use Permit No. 2580-2 and deferring Water Permit Application No. 2585-2 filed by Southern Black Hills Water System. A copy of the Board rulings and signed Findings of Fact, Conclusions of Law and Final Decisions are enclosed.

South Dakota statutes provide that decisions of the Board may be appealed to the Courts. Notice of appeal of the Board's decision must be filed within thirty days of this notice and be in accordance with procedures established in SDCL 1-26-31.

Enclosures

c: Jeff Hallem, Assistant Attorney General
Diane Best, Assistant Attorney General
Ken Royse, Bartlett & West, 3456 E. Century Avenue, Bismarck ND 58503-0737

PARTIES OF RECORD

Future Use Permit Application No. 2580-2 and Water Permit Application No. 2585-2

Applicant

Bob Morrison, Chairman
Southern Black Hills Water System
PO Box 124
Hermosa SD 57744

Talbot Wieczorek, Attorney
PO Box 8045
Rapid City SD 57709

Petitioners

Michael Hickey
Attorney for Trout Haven Ranch
Bangs McCullen Law Firm
PO Box 2670
Rapid City SD 57709

Peter A. Fahmy
Water Rights Branch
National Park Service
1201 Oak Ridge Drive
Ft. Collins, CO 80525

Shawn Fugier
27094 Beaver Valley Rd
Buffalo Gap SD 57722

Randy Scott, Manager
Fall River Water User District
28298 Angostura Road, Suite 2
Hot Springs SD 57747

John Beard
3810 Beaver Creek Rd
Buffalo Gap SD 57722

Randy Scroth
PO Box 1
Buffalo Gap SD 57722

Charles W. Pettee, Chief
Water Rights Branch
National Park Service
1201 Oakridge Drive, Suite 250
Fort Collins CO 80525-5596

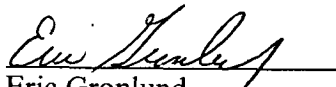
CERTIFICATION

I hereby certify that on March 22, 2007, I have personally deposited with the United States mail at Pierre, South Dakota, first class postage, prepaid envelopes containing a Notice dated March 22, 2007, regarding the Board's rulings and adoption of Findings of Fact, Conclusions of Law and Final Decision in the matters of approval of Future Use Application No. 2580-2 and the deferral of Water Right Permit Application No. 2585-2, Southern Black Hills Water System addressed as stated below and on the Parties of Record list:

Ken Royse
Bartlett & West
3456 E. Century Avenue
Bismarck ND 58503-0737

A copy of the Notice was sent Inter-office to:

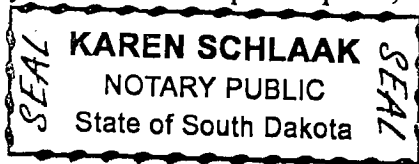
Diane Best, Assistant Attorney General, 1302 E. Hwy 14, Suite 1, Pierre SD 57501
Jeff Hallem, Assistant Attorney General, 1302 E. Hwy 14, Suite 1, Pierre SD 57501

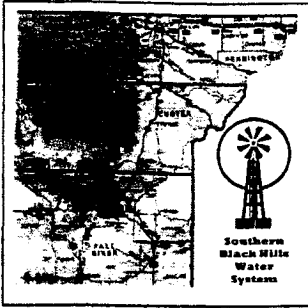

Eric Gronlund
Water Rights Program

STATE OF SOUTH DAKOTA)
) SS
COUNTY OF HUGHES)

Sworn to, before me, this 22nd day of March, 2007.


Karen Schlaak
Notary Public
My Commission expires April 1, 2007





SOUTHERN BLACK HILLS WATER SYSTEM

HC 56 BOX 53A

Oral, South Dakota 57766

Phone 605-424-2066

RECEIVED

APR 12 2007

**WATER RIGHTS
PROGRAM**

April 9, 2007

Steve Simpson

Trout Haven Ranch

P.O. Box 147

Buffalo Gap, SD 57722

Re: Southern Black Hills Water System, Water Permit Application #2585-2
Request for information

Dear Mr. Simpson:

As I am sure you know, the SD Water Management Board (Board) of the SD Department of Water and Natural Resources has approved the Findings and Conclusions for Water Permit Application #2585-2 filed by the Southern Black Hills (SBH) Water System. Application #2585-2 request a water right from the Madison Aquifer near the Streeter Ranch located in the West ½ of the Northeast ¼ of Section 15, Township 6 South, Range 6 E, in Custer County.

You were represented at both the initial permit hearing for this request and at the hearing for the Proposed Findings and Conclusions for the Permit. At both the initial hearing and at the hearing for the Findings, you represented (or it was represented on your behalf) that the water quality and quantity of Beaver Creek Springs is of importance in the ability for you to maintain the fishery business you have on your property.

At the hearing, there were various legal issues in front of the Board and one of the questions was whether to defer Water Permit Application #2585-2 for further testing before deciding the public interest portion of the permit analysis that the Board undertakes. The Board granted a deferral and in its decision granting the deferral, the Board gave various directions to SBH regarding information needed by the Board to complete its analysis of the public interest portion of Water Permit Application #2585-2. Such conditions require the SBH to perform an aquifer pump test that includes an analysis of the potential impacts to the flow and water quality of Beaver Creek Springs. At your attorney's request, the Board included a reference to reduction of flows, water quality, pH, temperature and clarity issues in Beaver Creek. It is the intent of SBH to complete a thorough test proposal for the Chief Engineer's review.

To address the requests of the Board, SBH is formulating a proposal to provide the requested information. To ensure a more complete analysis, including addressing the issues raised by you and your attorney, any assistance you could provide would be greatly appreciated. Your assistance can help in preventing any impact on your operation. Thus, below is a possible approach SBH is preparing.

Directory

- ◆ **Bob Peplinski**
Vice Chairman
Pringle, SD
605-745-7674
- ◆ **Rebecca Phillips**
Treasurer
Rapid City, SD
605-390-6974
- ◆ **Mike McMahon**
Secretary
Custer, SD
605-673-8174
- ◆ **Tom Porter**
Member
Edgemont, SD
605-662-7934
- ◆ **John Beard**
Member
Buffalo Gap, SD
605-833-6771
- ◆ **Don Kraus**
Member
Custer, SD
605-673-2027
- ◆ **George Vansco**
Advisory
SD Rural Water
605-642-4031
- ◆ **Dave Ryan**
Advisory
SD Dept. of Env./Nat. Res.
605-773-4216
- ◆ **Ken Royse**
Engineer
Bartlett & West Engineers
701-258-1110
- ◆ **Don Peterson**
Sign-up Coordinator
Bartlett & West Engineers
605-424-2066

1. Testimony offered at the permit hearing, including that of your expert, indicated that the water flow in the creek should be measured. The most logical measurement location will be downstream of the springs feeding Beaver Creek. It may also be helpful to perform some measurements on your property. Therefore, in the near future SBH will have a representative contact you for more discussion on this and potentially to secure your permission to enter your property for the purpose of water quality sampling and flow measurement. Also, any historical information you may have on water flow would be appreciated.
2. Because you have stated a specific concern regarding the temperature, pH and clarity of Beaver Creek, SBH would like to access what records you may have on these issues. You stated at the hearing that you have kept records for the purposes of monitoring your holding ponds and water flows into your holding ponds. It would be helpful to get this information from you to provide some historical knowledge of what the water quality, temperature and clarity of Beaver Creek within your facility has been. To that end, SBH would like to set up a time to have one of the consultants working with SBH, Mitch Kannenberg, sit down with you to discuss what type of testing you have completed and what type of records you have historically kept and look at the possibility of making copies of those records. SBH, of course, will pay for any copies. When obtaining this information, it will be important to know the specific locations of flow measurements and water quality testing. Would you be willing to provide the location descriptions or walk the SBH's representative around and show where you have historically collected your flow measurements and water quality samples?
3. A series of water quality sampling and analyses need to be collected from various locations in Beaver Creek to provide information regarding potential water quality changes with location in the Creek. SBH understands that water quality parameters (inclusive of temperature, pH, and clarity) are of concern to you. As noted above, the Board included some of the testing at the request of your counsel. Because of this, when SBH's consultant meets with you he will want to get any information you have on your testing, as discussed above, and also permission to come onto your property to perform testing in the future. Furthermore, SBH understands that you occasionally supplement the water in your holding ponds with a private well you have on the property. SBH is requesting that you allow us to perform water quality testing of your private well and provide us with the construction details of the well (depth, screen location, etc.)
4. Relative to water quality SBH understands that you have attempted to maintain the water quality of the creek to specific criteria. If you can provide the technical publications that detail the water quality specifications required to maintain your fishery business, that information will be helpful in designing a test. Any industry studies you have relied upon in determining the optimum water quality you feel is needed for this creek would be helpful. If you have any data that correlates specifically the requirements of clarity, temperature, and pH, SBH would like that information. If you provide citations of publications to Mr. Kannenberg, he can secure copies of publications. If the documentation is not available in the public domain, any reports or records you might have specific to the water quality requirements of your specific fishery would assist SBH in ensuring that the appropriate water quality monitoring is performed during the aquifer pumping test. Again, SBH will pay a reasonable fee for copying such information.
5. As noted above, SBH understands that you occasionally supplement the creek flow with well water pumped directly from a shallow well located near your ponds. As a control measure for our testing SBH would like to review the water quality of your well and your records of pumping. If you require a reasonable fee for copying such records SBH would be happy to accommodate that.

If you need to seek any clarification on any of the items requested or to set up a time to meet, please call Mr. Mitch Kannenberg, (605-334-6000) of LBG directly. SBH would like to try to get this meeting set up in the next 30 days, with the ability to access the records at the time of the meeting. Therefore, Mr. Kannenberg will call you the next time he will be in your area to see if a meeting time can be arranged.

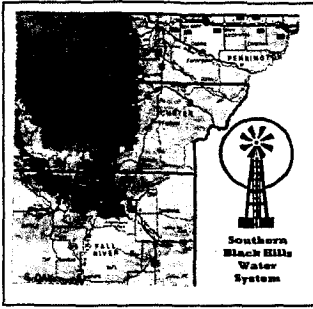
Thank you in advance for your assistance and cooperation. The items requested are meant to allow SBH and the Chief Engineer to address specific issues you have raised to the Board.

Sincerely,



 Bob Peplinski, Chairman
Southern Black Hills Water System

cc: Ken Royse, BW
SBH files
Mike Hickey, Attorney at Law
Talbot Wieczorek, Attorney at Law
Garland Erberle, SDDENR
Mitch Kannenberg, LBG

**Directory**

- ◆ **Bob Peplinski**
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Vice-Chairman
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- ◆ **Ted Wick**
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Advisory
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701-258-1110
- ◆ **Don Peterson**
Sign-up Coordinator
Bartlett & West, Inc.
605-424-2066

SOUTHERN BLACK HILLS WATER SYSTEM
27819 Hidden Valley Road
Oral, South Dakota 57766
Phone 605-424-2066

April 7, 2008

Mr. Garland Eberle
 SD Department of Environment & Natural Resources
 Joe Foss Building
 523 East Capitol
 Pierre, SD 57501-3181

RECEIVED

APR - 9 2008

**WATER RIGHTS
PROGRAM**

Re: Well Construction, Southern Black Hills Water System

Dear Mr. Eberle:

As you are aware, the Southern Black Hills Water System (SBH) has pending Water Permit Application # 2585-2. Pursuant to A.R.S.D. 74:02:04:21, please accept this letter as SBH's request for authorization to construct a well on the Streeter Ranch in southern Custer County, SD. The general site location has been provided previously in Permit No. 2585-2; the new well is envisioned to be approximately 500' north of the existing Streeter Well on that site. SBH understands that an authorization granted under A.R.S.D. 74:02:04:21 does not constitute a water right.

Construction of the well at this time will assist in determination of the specific capacity of the Madison Aquifer at that location. Once constructed, this well can then be considered when developing a comprehensive aquifer test program, which will be developed pursuant to the Water Management Board's decision of March 19, 2007. For your information, the SBH may also install an observation well in this same area. We understand no permit for an observation well is needed.

We understand that the testing performed at this site and with this well is not the pump test your office has requested however will be a more detailed and comprehensive pumping test than would usually be performed on a new well on completion of construction.

Please process this request at your earliest convenience. If more is needed on this please contact us.

Sincerely,

for Bob Peplinski, Chairman
 Southern Black Hills Water System

cc: BW - Ken Royse - Don Peterson
 LBG - Mitch Kannenberg
 Talbot Wiczorek



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

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

April 15, 2008

Dear Parties,

The Water Rights Program has received a request from Southern Black Hills Water System for construction and development of a well at the Streeter well site. This well will be used in conducting an aquifer pump test pending an approved aquifer test pump plan, pursuant to the Water Management Board ruling on March 19, 2007.

We will be issuing an approval for construction pursuant to ARSD 74:02:04:21 on Monday, April 21st. This approval does not grant the right to conduct an aquifer pump test or grant any water rights. The only water that will be withdrawn is water used for the development of the well and to determine sufficient information for the well driller to file the well construction report with the water rights program.

Should you have any questions please contact the Water Rights Program at 773-3352.

Sincerely,

Garland Erbele, Chief Engineer
Water Rights Program



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

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

April 21, 2008

Bob Peplinski, Chairman
Southern Black Hills Water System
27819 Hidden Valley Road
Oral, SD 57766

Dear Mr. Peplinski:

As requested, pursuant to South Dakota Well Construction Standard 74:02:04:21, Southern Black Hills Water System is authorized to construct a test well in Section 16, T6S-R6E prior to approval of a water permit. The well will be completed into the Madison aquifer. The test well must be constructed in accordance with the SD Well Construction Standards. Any test holes that are abandoned must be plugged pursuant to the SD Well Construction Standards.

Authorization must be obtained before water from the well can be used. Approval of this test well does not assure issuance of a water permit. The Water Management Board may reconsider Water Permit Application No. 2585-3 upon completion of the aquifer pump test analysis. The Water Management Board will assess the availability of water, the potential impacts to existing users, the beneficial use, and the public interest of a permit as part of their consideration.

Very truly yours,

JAMES A. GOODMAN, P.E.
Natural Resources Engineer
for GARLAND ERBELE, Chief Engineer
Water Rights Program
(605) 773-3352

c: parties of record

PARTIES OF RECORD

Water Permit Application No. 2585-2

Applicant

Bob Peplinzski
Southern Black Hills Water System
27819 Hidden Valley Rd
Oral SD 57766

Talbot Wieczorek, Attorney
PO Box 8045
Rapid City SD 57709

Petitioners

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Randy Scroth
PO Box 1
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Charles W Pettee, Chief
Water Rights Branch
National Park Service
1201 Oakridge Drive Suite 250
Fort Collins CO 80525-5596

cc: Diane Best, Attorney General's Office, 1302 E Hwy 14, Suite 1, Pierre SD 57501

LEGGETTE, BRASHEARS & GRAHAM, INC.

PROFESSIONAL GROUND-WATER AND ENVIRONMENTAL ENGINEERING SERVICES

140 EAST HINKS LANE, SUITE 126
SIOUX FALLS, SD 57104
605-334-6000
FAX 605-334-1850
www.lbgweb.com

April 28, 2008

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APR 29 2008

WATER RIGHTS
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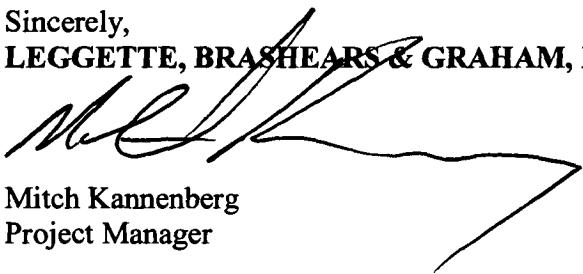
Mr. Ken Buhler
Water Rights Program, DENR
Joe Foss Building
Pierre, SD 57501-3181

RE: Southern Black Hills Water System
Ground-Water Geochemical
Sampling & Analysis Report

Dear Mr. Buhler:

Enclosed is a report prepared by Leggette, Brashears & Graham, Inc. (LBG) on behalf of Southern Black Hills Water System, Inc. Copies of this report have also been provided to Mr. Jeff Hughes of the National Park Service and Mr. Andrew Long of the United States Geological Survey. Copies will also be provided to Trout Haven Ranch and Fall River Water User's District. Please contact me at (605) 334-6000 with any questions or if you need additional information. Thank you.

Sincerely,
LEGGETTE, BRASHEARS & GRAHAM, INC.


Mitch Kannenberg
Project Manager

G:\...hydro\SBH\Buhler Geochem Rep TRS

Enclosure – Ground-Water Geochemical Sampling & Analysis Report, dated 04/22/08

pc: Mr. Bob Peplinski, Chairman, SBH Water System, w/out enclosure
Mr. Don Peterson, Bartlett & West, Inc., w/out enclosure
Mr. Ken Royse, Bartlett & West, Inc., w/out enclosure
Mr. Talbot Wiczorek – Gunderson, Palmer, Goodsell & Nelson, w/out enclosure
Mr. Andrew J. Long, USGS – w/out enclosure
Mr. Jeffrey C. Hughes, NPS – w/out enclosure

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APR 29 2008

**WATER RIGHTS
PROGRAM**

**GROUND-WATER GEOCHEMICAL SAMPLING & ANALYSIS
SOUTHERN BLACK HILLS IN THE VICINTY
OF THE STREETER RANCH AND WIND CAVE
CUSTER AND FALL RIVER COUNTIES,
BLACK HILLS, SOUTH DAKOTA**

Prepared For
Southern Black Hills Water System, Inc.
HC 56-Box 53A
Oral, SD 57766

April 22, 2008

LEGGETTE, BRASHEARS & GRAHAM, INC.
Professional Ground-Water and Environmental Engineering Services
140 East Hinks Lane, Suite 126
Sioux Falls, SD 57104
(605) 334-6000

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**GROUND-WATER GEOCHEMICAL SAMPLING & ANALYSIS
SOUTHERN BLACK HILLS IN THE VICINTY
OF THE STREETER RANCH AND WIND CAVE
CUSTER AND FALL RIVER COUNTIES,
BLACK HILLS, SOUTH DAKOTA**

1.0 INTRODUCTION

1.1 Purpose and Objectives

The purpose of this report is to provide the results of geochemical sampling and analysis performed by the United States Geological Survey (USGS) for the National Park Service (NPS) and Southern Black Hills Water System, Inc. (SBH). The purpose of the geochemical sampling and analysis is to provide information regarding ground-water flow-paths in the Madison aquifer in the Southern Black Hills Region. This information will be utilized to assist the SBH Board of Directors with decisions regarding the potential development of a SBH well at the Streeter Ranch.

1.2 Scope of Work

Ten wells, eight springs, two streams, four underground pools in Wind Cave, and three drips (places in Wind Cave where ground-water seeps into the cave) were sampled for this project. The sampling was conducted by the USGS and the NPS. Approximately two-thirds of the project cost was funded by the NPS, and one-third was funded by SBH. The USGS provided all of the sampling and analysis data from the project, as well as some historical sampling data for some of the sites, to LBG and to the NPS.

The scope of work completed by LBG for this project included the following:

1. Observing the sampling of five sites (those funded by SBH) on three different sampling events;
2. Providing liaison services between SBH and the NPS and the USGS;
3. Reviewing and evaluating the project data, and
4. Preparing this report providing the project results.

A listing of the sampling locations is provided in Table 1. The approximate locations of the sampling locations are shown in Figure 1. The names of the wells included in the project, all of which are domestic wells (privately-owned) except for State of South Dakota observation wells located at the 7-11 Ranch, were determined by the USGS and NPS and are intended to protect the privacy of the well owners. To maintain consistency with the USGS/NPS well-naming protocol, the existing Streeter well is hereafter referred to in this report as the STR well.

1.3 Summary of the Geology of the Project Area

The Black Hills are an uplifted area that is approximately 110 miles long and 60 miles wide, with the long axis trending north to northwest. Locally, the Black Hills are divided into the southern and northern Black Hills, with the informal dividing line located south of Rapid City, at approximately 44 degrees latitude.

The distinguishing feature of the southern Black Hills is the Precambrian Harney Peak Granite. The Harney Peak Granite is a batholith (a solidified large intrusion of magma or molten rock) that forms some of the major Black Hills landmarks, including Harney Peak, Mount Rushmore, Thunderhead Mountain (Crazy Horse Monument) and the Needles. There are also large areas of Precambrian metamorphosed phyllites, schists and graywackes in the southern Black Hills. Associated with the Harney Peak granite are pegmatites, which are very coarse-grained granitic bodies (dikes and sills) emplaced within the Precambrian metamorphosed units (Gries, 1996).

The Precambrian rocks form what the USGS has termed the crystalline core of the Black Hills (Driscoll, et. al., 2002). Draped along the flanks of the Black Hills are numerous sedimentary formations deposited in the Paleozoic and Mesozoic eras. These units were originally flat-lying, and covered the Precambrian crystalline core. The Black Hills were uplifted during a mountain building event approximately 60 to 65 million years ago (Driscoll, et. al., 2002), and the sedimentary rocks were eroded at the highest points of the uplift, exposing the Precambrian crystalline core.

A complete description of all of the geologic formations in the Black Hills is beyond the

scope of this report. For the purposes of this report, the rock units within the project area and the hydrogeologic features are summarized below, in order of oldest to youngest.

Crystalline Core (Precambrian)

The crystalline core is comprised of granite, slate, phyllite and schists that, where fractured, are utilized as ground-water sources in the central Black Hills. The City of Custer obtains its water source from Precambrian fractured rock.

Deadwood Formation (Cambrian)

The Deadwood Formation is comprised of sandstone with shale, limestone and a basal conglomerate. It is an aquifer. Thickness ranges from 400 feet to 5 feet (Gries & Martin, 1985). The thickness of the Deadwood Formation within Wind Cave National Park is approximately 20 feet (Hughes, written communication, 2008).

Englewood Formation (Ordovician-Devonian-Mississippian)

The Englewood Formation is a pink to purple slabby limestone that is from 30 to 60 feet thick. Gries and Martin (1985) suggest that, in the southern Black Hills, the Englewood Formation be considered a member of the Madison Limestone.

Madison Limestone (Mississippian)

Also called the Pahasapa Limestone, the Madison Limestone is a massive and cavernous limestone and dolomite that varies in thickness from 300 to 600 feet (Gries & Martin, 1985). At the top of the formation, it often forms a karst topography, caused by dissolution of the limestone and dolomite, and characterized by sinkholes, caves, and underground drainage. Many caves are present in the Madison Limestone, including Wind Cave and Jewell Cave.

The aquifer is recharged by infiltration of precipitation at the outcrop areas of the formation, and by streams that lose some or all of their flow to sinkholes or stream-flow loss zones located at that portion of the stream-reach that crosses the Madison Limestone outcrop.

The Madison Limestone forms a major physiographic feature along the western flanks of the Black Hills called the Limestone Plateau. The Limestone Plateau is a large outcrop of the Madison Limestone located at a high elevation relative to the elevation of the Madison Limestone outcrop along the eastern flanks of the Black Hills.

The Madison aquifer is the most important aquifer in the Black Hills. Wells intersecting portions of the aquifer with large solution openings can produce large amounts of ground-water (over 1,000 gallons per minute). The Madison aquifer, especially in areas near the outcrop, also provides some of the highest quality ground water available in the Black Hills. Lower yield wells and even dry wells are possible in the Madison aquifer where the porosity is low and not enhanced by fractures and subsequent dissolution. Because of the cavernous and karstic nature of the aquifer, ground-water flow paths can vary significantly with location and local geologic structure. Anisotropy in the aquifer (different aquifer transmissivity in different directions) has been documented by Green (1993).

There is often a residual (developed by weathering) red clay-stone at the top of the Madison Limestone (Gries & Martin, 1985) that may act as a confining layer or semi-confining layer separating the Madison aquifer from the overlying Minnelusa aquifer.

Minnelusa Formation (Permian/Pennsylvanian)

The Minnelusa Formation has three major units, including an upper sandstone, a middle dolomite, sandstone, shale and anhydrite, and lower sandstones and dolomites. The Minnelusa formation is up to 800 feet thick in the southern Black Hills.

The Minnelusa formation is an important aquifer in the southern Black Hills, and there are many domestic wells completed in the Minnelusa aquifer. The aquifer is recharged by infiltration of precipitation at the outcrop areas of the formation, and by streams that lose some or all of their flow to sinkholes or stream-flow loss zones located at that portion of the stream reach that crosses the Minnelusa Formation outcrop.

Water quality in the Minnelusa aquifer is generally not as good as Madison aquifer water quality. Good water quality is available from parts of the Minnelusa aquifer, but in areas of the

formation that have large amounts of anhydrite, sulfate and other dissolved constituents can be high enough to render the water unsuitable for drinking water. The degree of hydraulic interconnection of the Minnelusa aquifer and the Madison aquifer is variable with location, and is an important consideration in ground-water development.

Opeche Shale (Permian)

The Opeche Shale is a red shale with variable thickness up to 90 feet. It often is a confining layer between the underlying Minnelusa aquifer and overlying Minnekahta Limestone. However, there are areas where it does not appear to impede ground-water flow from the Minnelusa Formation.

Minnekahta Limestone (Permian)

The Minnekahta Limestone is a massive, purple limestone that is approximately 40 feet thick. It is an aquifer, but due to its relatively low saturated thickness is generally not considered a likely source for high-yield wells.

Spearfish Formation (Permian/Triassic) and Sundance Formation (Jurassic)

The Spearfish Formation is composed of red, sandy shale and contains anhydrite and gypsum lenses. It is soft and easily erodable, and forms what is known locally as the "red valley" circling the entire Black Hills. The thickness of the formation along the eastern side of the Black Hills is 375 to 450 feet (Gries & Martin, 1985). The Spearfish Formation is a minor aquifer in areas where the gypsum and anhydrite have been dissolved, increasing the porosity and permeability (Driscoll, et. al., 2002).

The Sundance Formation overlies the Spearfish Formation and is composed of glauconitic sandstone and shales from 250 to 350 feet thick (Gries & Martin, 1985). There are local aquifers in the sandstone units of the formation.

In general, the Spearfish and Sundance formations form a confining layer above the Minnekahta Limestone and/or the Minnelusa Formation (in those areas where the Opeche Shale does not act as a confining layer for the Minnelusa Formation).

1.4 Springs in the Project Area

Springs sampled as part of this project are of three main types: 1) springs that are located near the contact between the Minnekahta Limestone and the Spearfish Formation (Beaver Creek Springs, Hot Springs Intake Springs); 2) springs that are located near Madison Limestone outcrops (Hot Brook Springs) or near the contact between the Madison Limestone and the Minnelusa Formation (Elk Mountain Spring, Witch Spring); and 3) springs that are located in the Precambrian crystalline core (RG Pegmatite Spring, Sutherland Spring). The eight springs sampled as part of this project are listed in Table 1.

Beaver Creek Springs are relatively large springs compared to most Black Hills springs with Rahn & Gries (1973) reporting an average discharge of 8.56 cubic feet per second (cfs). Other discharge estimates, as cited in the June 8, 2006, Chief Engineer recommendation for deferral of Water Right Permit Application submitted by SBH for a well at the Streeter Ranch, estimate the flow of the springs to be from 10 to 15 cfs. A USGS stream-flow gaging station is located approximately 6½ miles downstream from the springs (Beaver Creek gaging station near Buffalo Gap, SD). The springs provide the baseflow of the Creek, and the mean annual flow of Beaver Creek near Buffalo Gap is shown in Figure 2. With the exception of some rainy periods in the late 1940's and late 1990's, the flow of the Creek generally appears to range from 6 cfs to 9 cfs.

There are several surface water diversions for irrigation purposes from Beaver Creek in that portion of the stream reach between the springs and the USGS gaging station. When water is diverted from the stream by the irrigators, the flow of Beaver Creek, as measured at the USGS gaging station, is reduced relative to the flow directly downstream of the springs and prior to any diversions.

Beaver Creek supplies water for a commercial fish hatchery (Trout Haven Ranch) and downstream irrigation users. The stream is over-appropriated (Stroup, 2005). Irrigators and the Trout Haven Ranch are concerned that development of a Madison aquifer water source for the SBH in the vicinity of Beaver Creek Springs could decrease the discharge rate of the springs.

Hot Springs (also called Fall River springs) has numerous rises within the City Limits of Hot Springs. The City of Hot Springs obtains a portion of its municipal water supply from an intake structure near these springs. This portion of the springs is called the Hot Springs Intake Springs. The discharge from these springs is relatively constant with an average discharge of approximately 22 cfs (Rahn & Gries, 1973), and these springs provide the baseflow for the Fall River. Hot Brook Springs discharge approximately 2 cfs (Rahn & Gries, 1973) and also contributes to the baseflow for the Fall River.

LBG does not have discharge data for the remaining five springs sampled as part of this project, but the discharge from these five springs is significantly less than the three larger springs sampled for the project. Each of these five springs likely discharges less than 1 cfs of ground water.

1.5 Ground Water/Surface Water Interaction in the Project Area

The Madison Limestone is a karstic aquifer and there is significant interaction between ground water and surface water. In the Black Hills, streams that originate at elevations above the elevation of the Madison outcrop often disappear completely into the Madison Limestone where the stream crosses the outcrop. An example of this in the project area is Beaver Creek.

Beaver Creek, and its tributaries Highland Creek and Reaves Gulch, originate in the crystalline core south of Custer, SD, and north and west of the Beaver Creek sampling location shown in Figure 1. A portion of Beaver Creek upstream of Beaver Creek Springs is an ephemeral stream and only flows during periods of relatively large precipitation events or during the spring thaw. In those periods when Beaver Creek is flowing bankfull, and the alluvial aquifer associated with the stream valley is fully saturated, the USGS has estimated that Beaver Creek can lose approximately 5 cfs of flow into sinkholes along the stream reach that crosses the Madison

Limestone, Minnelusa Formation and Minnekahta Limestone outcrops (Hortness & Driscoll, 1998). This is called the Beaver Creek loss zone. Beaver Creek downstream of Beaver Creek Springs is a perennial stream (flows constantly).

Wind Cave is a large cave in the Madison Limestone. Some of the passages in the cave are completely filled with ground water, others are partially filled with ground water (What the Hell Lake), and there are also streams (Rebel River) and drips in the cave. Water levels in the underground caverns of the cave rose significantly in the late 1990's, and are currently approximately seven feet higher today than when the lakes were first discovered in 1968 (NPS, 2006). For example, What the Hell Lake got its name because in 1996 it was discovered that a passageway that had been dry for 20 years now contained water, and the room nearly filled with water in 1999 (National Park Service, 2007). The water in the cave is ground water of the Madison aquifer. Wind Cave National Park personnel are concerned that development of a water source in the Madison Limestone in the southern Black Hills could impact water levels in the cave.

1.6 Summary of the Hydrogeologic Setting of the Project Area

The hydrogeologic setting of the project area is complex. The Madison Limestone is karstic, and in places has well developed solution openings developed along structurally induced fractures. In other areas, it is more massive, with no solution openings. The interaction with surface water can be recharge-dominated at the stream-flow loss zones or discharge-dominated at locations where springs discharge ground water. A schematic showing a simplified hydrogeologic setting of the Black Hills is shown in Figure 3 (Driscoll, et. al., 2002).

A well intersecting a large conduit or cavernous area of the aquifer could produce large amounts of water, but depending on the origin of the conduit or cavern, could have significant impact on water levels or head in the same conduit or cavernous zone at locations some distance from the well. For example, if a well intersects a conduit or cavernous zone that is orientated north to south, impacts to water levels in the north to south direction may extend a much further distance from the pumping well than in the east and west directions, where the aquifer is more

massive and less transmissive. Conversely, a well intersecting a massive portion of the formation that has little to no enhanced secondary porosity may not have the potential to impact surrounding wells or other hydrogeologic features such as springs or underground lakes in caves, but also would not likely produce much water.

2.0 PROJECT RESULTS

As indicated previously, the sample locations are listed in Table 1 and shown in Figure 1. LBG first proposed the geochemical sampling and analysis to the SBH (and to the NPS) in a letter dated November 17, 2006. In that letter, LBG recommended sampling the STR well, Beaver Creek Springs, ground-water from a Wind Cave underground lake, the Wind Cave Headquarters wells, and South Dakota Department of Environment and Natural Resources (DENR) Madison and Minnelusa aquifer observation wells (7-11 Madison well and 7-11 Minnelusa well). It was recommended that these sites be sampled for stable isotopes, tritium, major ions, and trace elements.

During the first sampling event, conducted on March 14, 2007, LBG was informed that the NPS and USGS had developed a sampling and analysis plan that varied from the above-recommendations and included additional sampling sites. It was later mutually agreed that SBH would fund the sampling and analysis for five sampling sites, including the STR well, the HUN well, the 7-11 Madison Well, Beaver Creek Springs, and Hot Brook Springs.

The NPS and the USGS selected the remaining sampling sites and sample parameters, and determined the sampling schedule. A matrix showing locations sampled, sample dates, and analyzed sample parameters is provided in Table 2. A summary of the wells sampled for the project (project wells) is provided in Table 3, and a simplified schematic showing the elevations and depths of the wells is shown in Figure 4.

The five SBH-funded sampling sites at which LBG observed and assisted in the sampling are the Madison aquifer well at the Streeter Ranch (STR well), a domestic well, believed to be completed in either the bottom of the Minnelusa Formation or top of the Madison Limestone

(HUN well), Beaver Creek Springs, Hot Brook Spring, and a DENR Madison aquifer observation well (7-11 Madison well).

The results from the sampling and analyses are presented in tables and in graphs. Interpretation of the results is generally focused on the geochemical characteristics of ground-water in the vicinity of the STR well, particularly in comparison with the geochemical data from ground water in Wind Cave and the surface water quality of Beaver Creek Springs.

Also included in this report are historical data from the 7-11 Minnelusa well, which is co-located with the 7-11 Madison well. The 7-11 Minnelusa well was not sampled as part of this project and the historical data from it and from the 7-11 Minnekahta aquifer well are included for comparison with the data from the project wells. The historical data for the 7-11 Minnelusa well and 7-11 Minnekahta well are from USGS reports, primarily a geochemical report by Naus, et. al. (2001).

2.1 Field Parameters, Major Ions, Trace Elements and Nitrite plus Nitrate

Parameters measured in the field included dissolved oxygen, specific conductance, pH, and alkalinity. Field parameters were determined and samples were collected using USGS standard protocols and analytical methods.

Major ions sampled included the cations (positively-charged ions) calcium (Ca), magnesium (Mg), potassium (K), and sodium (Na), and the anions (negatively-charged ions) bicarbonate (HCO_3), carbonate (CO_3), chloride (Cl) and sulfate (SO_4). Additional ions sampled include the cation silica (Si), and the trace element cations arsenic (As) and manganese (Mn). The source of the major ions and trace elements dissolved in the ground water is the composition of the rocks comprising the aquifer matrix in which the ground water resides. The ground water dissolves these solids from the aquifer matrix. Concentration trends for the major ions and trace elements can provide information regarding the aquifer matrix.

Samples were also analyzed for nitrite plus nitrate (as nitrogen). Nitrogen is a common nutrient, and can occur in ground water in the form of nitrate (NO_3), nitrite (NO_2), ammonium (NH_4) and ammonia (NH_3), nitrogen (N_2), nitrous oxide (N_2O) and organic nitrogen (Freeze &

Cherry, 1979). Nitrate is often an indicator of contamination from fertilizer runoff or from wastewater disposal systems. The reason the nitrite plus nitrate samples were collected for this project was that unpublished water quality data from the lakes in Wind Cave had indicated high concentrations of nitrates as high as 10 mg/L present in ground water in Wind Cave (Andrew J. Long, oral commun.).

The field parameters, major ions, trace elements and nitrite plus nitrate data are shown in Table 4. The dissolved oxygen data are shown in Figure 5, the temperature data in Figure 6, the pH and alkalinity data in Figure 7 and the specific conductance data in Figure 8. Some parameters were measured twice at the same sampling location for quality assurance and quality control purposes.

2.1.1 Discussion of Field Parameter Data

The field parameters are inter-related and can be complex. For example, alkalinity is a measure of the samples acid-neutralizing capability and pH is a measure of how acidic or alkaline the water is. An acidic water (pH less than 7) will more readily dissolve carbonate material than an alkaline (pH greater than 7) water will. A high concentration of alkalinity may indicate that the ground water has had a longer residence time in the carbonate aquifer and therefore has a greater concentration of dissolved carbonate minerals relative to ground water that has had less residence time in the aquifer. A ground water with a high pH may indicate ground water that was recently recharged.

Factors that can influence dissolved oxygen concentrations in ground water and surface water include the temperature of the water (all other things being equal, colder water will generally have a higher DO concentration than warmer water). In wells, in addition to the temperature, the elapsed time since the ground water was in contact with the atmosphere will also influence the DO concentration. This can be a function of the distance of the aquifer from the recharge area and the completion depth of the well in the aquifer.

Factors influencing temperature in ground water include the depth of the ground water, the residence time in the aquifer, and geologic factors including subsurface "hot spots." Possible

causes of subsurface "hot spots" are the presence of magma or the presence of radioactive materials in the vicinity of the well or spring. There is a subsurface heat source in the southern Black Hills as evidenced by the "hot" springs. The exact nature or source of the hot spot in the southern Black Hills is unknown.

For the purposes of this project, discussion of the field parameter data is generally limited to comparisons of the field data among the sampled sites, and relatively broad generalizations regarding the hydrogeologic setting suggested by the field parameter data. In general, ground water in a cavernous portion of the Madison aquifer that has high secondary porosity and permeability due to the dissolution of the carbonate aquifer matrix by infiltrating precipitation will have higher DO concentrations, lower temperatures, less alkalinity, and a higher pH than would ground water in a more massive portion of the aquifer. For example, if two wells in the Madison aquifer are equally distant from the outcrop of the Madison Limestone, but one is completed in a cavernous portion of the aquifer and the other in a massive portion of the aquifer, the ground water in the cavernous portion of the aquifer will have likely been recharged more recently than ground water in the massive portion of the aquifer.

This is a simplification. In a complex environment such as the southern Black Hills, other factors can have a significant influence on the field parameter data. For example, the presence of a "hot spot" due to a nearby magmatic or radioactive source can increase the temperature, increasing the ability of the ground water to dissolve aquifer material, so that even if the well is completed in a cavernous portion of the formation, the temperature may be high relative to other wells completed in a cavernous portion of the aquifer.

The dissolved oxygen (DO) data are shown graphically in Figure 5. Also shown in Figure 5 are the mean DO concentrations reported for the Madison and Minnelusa aquifers (Williamson & Carter, 2001). The highest DO concentrations measured during the project were from surface water samples collected from Highland Creek and ground-water samples from the lakes, Rebel River, and the "Drips" in Wind Cave. The relatively high DO concentration for the Wind Cave sites is consistent with the hydrogeologic setting in the cave, where the ground water in the caverns is in contact with the atmosphere within the caverns. The relatively high DO

concentration for Highland Creek is consistent with the DO expected for a cold water surface water stream.

In general, all of the project wells have DO concentrations higher than the reported Madison aquifer mean DO concentration except for the MIL well, the 7-11 Madison well, and the NPS #2 well. The relatively low DO concentrations measured in the MIL well is likely a function of the distance of the well from the Madison Limestone outcrop (approximately 14 to 15 miles, see Figure 1).

The DO concentrations measured in the 7-11 Madison well and the NPS Well #2 (4 mg/L and 3.9 mg/L, respectively) appear low relative to the other project wells. The difference does not appear to be due to temperature differences between the wells, or to distance from the outcrop, as other Madison aquifer wells sampled during the project have similar or even higher temperatures, are located at equal or even greater distances from the outcrop area, and have higher DO concentrations than these two wells. It is possible that these two wells are completed in a more massive portion of the Madison aquifer that is not in direct connection with a cavernous, fractured or karstic part of the aquifer.

The temperature data are shown in Figure 6. The highest water temperatures recorded for the project were at the Hot Springs Intake Springs, Hot Brook Springs, and the MIL well. Elevated ground-water temperatures in these sample sites are consistent with historical data from this portion of the southern Black Hills and the presence of a "hot spot" in the southern Black Hills. The lowest temperatures were recorded from the CON well, which is consistent with the well depth of 100 feet.

The temperature of the STR well is slightly above the mean temperature reported for the Madison aquifer, and a degree or two higher than the temperature of Beaver Creek Springs. The temperature of the underground water bodies in Wind Cave (Windy City Lake, What the Hell Lake) are less than the STR well and less than the temperature of Beaver Creek Springs. The lower temperature of the Wind Cave "lakes" is likely due to two factors: 1) contact with the atmosphere in the caverns, and 2) less residence time within the aquifer due to closer proximity to the recharge area (outcrop and/or Beaver Creek loss zone).

The pH and alkalinity data are shown in Figure 7. The mean pH reported for the Madison aquifer is 7.4 (Williamson & Carter, 2001). The pH measured in the project wells are near this value, with the lowest pH of 7.3 being measured in the MIL and NPS #1 wells and the highest pH of 7.8 being measured in the BOG well.

Qualitatively, the pH measured in the ground water from Wind Cave and from the two surface water sources (Highland Creek and Beaver Creek) is generally higher than the pH measured in the project wells. In the Black Hills, the pH of ground water is typically less than the pH of surface water. The alkalinity data are variable, with no clear correlations corresponding to sample type (i.e., ground water, springs, cave water, or surface water).

Specific conductance is a general indicator of the total dissolved solids or degree of mineralization of a water sample. The specific conductance data are shown graphically in Figure 8, as are the mean specific conductance values reported for the Madison and Minnelusa aquifers (Williamson & Carter, 2001). The well with the greatest specific conductance is the MIL well (743 millisiemens per centimeter, or ms/cm), which is the deepest well and the farthest from the recharge area. The well with the least specific conductance is the STR well (343 ms/cm).

The specific conductance measured in Hot Springs Intake Springs and Hot Brook Springs are significantly higher than the specific conductance measured in the project wells. The specific conductance measured at Beaver Creek Springs is approximately two times greater than that measured in the Hot Springs Intake Spring and approximately four to five times greater than the specific conductance measured in the STR well or in the ground water in Wind Cave. This indicates that the water in Beaver Creek Springs is much more highly mineralized than the other springs, surface water bodies, cave water, or well water sampled as part of this project.

2.1.2 Discussion of Major Ions Data

The major ions data from the sampled sites are shown in Table 4, and in Figures 9 through 16. As with the field parameters, discussion is generally limited to comparisons of the results among the sampled sites, particularly in the vicinity of the STR well and Wind Cave.

Mean major ions concentrations for the Madison and Minnelusa aquifers shown in Figures 9 through 16 are from Williamson & Carter (2001).

The dissolved calcium results are shown in Figure 9. Calcium concentrations at Beaver Creek Springs are more than four times higher than the other sampled sites. Calcium concentrations at the MIL well, Hot Springs Intake Springs, Hot Brook Springs and the CON well are also elevated relative to the other sampled sites and the mean calcium concentration for the Madison aquifer. The calcium concentrations measured in the remaining sampled sites are generally either at or below the mean calcium concentration of 70 mg/L for the Madison aquifer. Calcium concentrations for the STR Well (39 mg/L) and Wind Cave sites (34.4 to 47.4 mg/L) are similar.

The dissolved magnesium results are shown in Figure 10. Magnesium concentrations at Beaver Creek Springs are more than two times higher than the other sampled sites. Magnesium concentrations at the MIL well, Hot Springs Intake Springs, SVE well, BOG Well, CON well and What the Hell Lake are slightly elevated relative to the other sites and relative to the reported mean magnesium concentration of 26 mg/L for the Madison aquifer. The magnesium concentrations measured in the remaining sampled sites are below the mean magnesium concentration of 26 mg/L for the Madison aquifer.

The dissolved potassium results are shown in Figure 11. Potassium concentrations at the Hot Springs Intake Springs are elevated relative to the mean Madison aquifer potassium concentration (6 mg/L) and the concentrations measured at the other sites. Potassium concentrations at the springs sites are generally higher than potassium concentrations measured in the project wells.

Dissolved sodium concentrations are shown in Figure 12. The sodium concentration in NPS Well #2 is significantly higher than the other sampled sites. With the exception of NPS Well #2 and the MIL well, sodium concentrations are generally higher in the springs than in the project wells. Sodium concentrations in the wells (except NPS Well #2) are below the Madison aquifer mean concentration (39 mg/L).

Bicarbonate concentrations are shown in Figure 13, the mean bicarbonate concentration reported for the Madison aquifer is 250 mg/L and the mean bicarbonate concentration reported for the Minnelusa aquifer is 252 mg/L (Williamson & Carter, 2001). Therefore, the "approximate" means bicarbonate concentration for both aquifers is shown in Figure 13 as 251 mg/L. The project data are generally consistent with the reported mean bicarbonate concentration for the two aquifers.

With the exception of Highland Creek and Beaver Creek, and the three drip sites in Wind Cave, no carbonate ions were measured in the sampled sites. Carbonate ion data are not shown graphically for this reason. Bicarbonate is the dominant ionic species of inorganic carbon in ground water (Freeze & Cherry, 1979), and the general lack of a carbonate ion at the sampled sites is consistent with the hydrogeologic setting of the Madison aquifer.

Dissolved chloride concentrations are shown in Figure 14. The dissolved chloride measured at the Hot Springs Intake Springs is elevated relative to the Madison aquifer mean chloride concentration (55 mg/L) and the other project sites. The chloride concentrations measured at the remaining sampled sites are below the Madison aquifer mean chloride concentration. As with many of the other ions, dissolved chloride concentrations are generally higher in the springs than in the wells.

Dissolved sulfate concentrations are shown in Figure 15. The dissolved sulfate concentrations measured in Beaver Creek Springs (1,280 mg/L and 1,290 mg/L) are more than six times the concentration measured in the Hot Springs Intake Springs (168 mg/L) and more than 10 times the concentration measured in the STR well (11.2 mg/L). Naus, et. al., (2001) states that, "The high sulfate concentration in Beaver Creek Springs indicates substantial influence from the Minnelusa Formation (either flow contributions or rock/water interactions.)" Sulfate is also elevated, relative to the Madison aquifer mean sulfate concentration (96 mg/L), at the MIL well and at Hot Springs Intake Springs. The sulfate concentrations measured in the STR well (11.2 mg/L) and in the Wind Cave sites (6.62 to 21.3 mg/L) are similar.

The dissolved silica concentrations are shown in Figure 16, and are all greater than the mean silica concentrations for the Madison (11 mg/L) and Minnelusa (9.8 mg/L) aquifers. The

highest concentrations were measured in Hot Springs Intake Springs, the MIL well, Drip Site 3 and Highland Creek. There are no significant differences between the silica concentrations measured in Beaver Creek Springs and the Wind Cave sites with the silica concentration measured in the STR well.

2.1.3 Discussion of Trace Elements Data

The dissolved arsenic concentrations are shown in Figure 17. Arsenic concentrations are generally elevated in Wind Cave and in NPS Well #2. Most of the arsenic concentrations measured as part of the project are higher than the mean arsenic concentrations for the Madison (3.6 mg/L) and Minnelusa (4.9 mg/L) aquifers. The lowest arsenic concentrations in the project wells were measured in the MIL well, which is located farthest from the recharge area, and the 7-11 Madison well, which is postulated to be completed in a portion of the aquifer that does not contain significant enhanced porosity or permeability due to dissolution features. The arsenic concentration in Beaver Creek Springs is low relative to the Madison and Minnelusa aquifer mean concentrations and the other ground water samples.

No graph was constructed for the dissolved manganese data. The dissolved manganese measured in the sampled sites are all generally within a few tenths of a milligram per liter of each other, with the exception of the MIL well and the 7-11 Madison well. The cause of the elevated manganese concentrations in these two wells is unknown, but is not significant relative to the project goals.

2.1.4 Discussion of Nitrite plus Nitrate Data

Nitrite plus nitrate data are shown in Figure 18. The concentrations are somewhat elevated in Wind Cave. This is likely due to the reported problems with wastewater disposal at Wind Cave National Park. Nitrite plus nitrate concentrations are relatively elevated in the CON well, which is 100 feet deep. This may also be indicative of potential contamination from human sources. The nitrite plus nitrate data are reported and discussed herein for completeness, but are generally not significant relative to the project objectives.

2.2 Oxygen and Deuterium Isotopes

Stable isotopes of oxygen and hydrogen (deuterium) do not decay. Stable oxygen and hydrogen isotopes are affected by meteorological processes but are not affected by interactions between minerals or ground water at temperatures less than 100 degrees Celsius (212 degrees Fahrenheit), and are therefore ideal for use as possible indicators of ground-water flow paths (Naus, et. al., 2001).

Oxygen isotopes are presented as the ratio of heavy (^{18}O) and light (^{16}O) isotopes, and hydrogen isotopes are also presented as a ratio of heavy (^2H , or deuterium) and light (^1H) compared to a reference standard. The ratios are expressed as a difference (in delta notation, or δ) in parts per thousand from the reference standard (Naus, et. al., 2001). The reference standard is the Vienna Standard Mean Ocean Water. Lighter isotope values are more negative, for example, a $\delta^{18}\text{O}$ value of -18 is lighter than a $\delta^{18}\text{O}$ value of -17. The same is true for δ deuterium values.

The isotopes in precipitation are influenced by temperature and elevation. Precipitation falling in areas of higher elevation will tend to have lighter stable hydrogen and oxygen isotope ratios (Fetter, 1988). Rain or snow occurring at colder temperatures and higher altitudes will be relatively depleted of the heavier isotopes than rain or snow occurring at warmer temperatures and lower altitudes. "Rainout" is a term to describe the relative depletion of heavier isotopes by the passage of clouds and subsequent precipitation in higher altitude or mountainous areas (Naus, et. al, 2001).

In the Black Hills, precipitation in the northern Black Hills and the west flank along the Limestone Plateau are isotopically depleted due to rainout in crossing the Rocky Mountains. Conversely, the lower elevations in the southern Black Hills, combined with weather patterns from the south, result in precipitation that is isotopically heavier (Naus, et. al, 2001).

The isotope data are shown in Table 5, and presented graphically in Figures 19 and 20. Isotope data from 1994 and 1997 (Naus, et. al, 2001) are also included for the Minnelusa and Minnekahta aquifer wells at the 7-11 Ranch location for comparison. The stable oxygen and hydrogen isotope data are consistent with each other. The lightest isotopes were measured in the

MIL well, indicating that the likely origin of ground water in the Madison aquifer at this location is from the Limestone Plateau on the west flank of the Black Hills. Ground water is isotopically depleted (or relatively light) in the SVE well, Hot Springs Intake Springs, and Hot Brook Springs.

The heaviest isotopes were measured in Drip Site 2 and Drip Site 3 in Wind Cave. Generally heavier isotopes are present in all the remaining sampling sites except Beaver Creek Springs, which is isotopically depleted relative to nearby wells (the STR Well, 7-11 Ranch Madison, Minnelusa and Minnekahta wells) and isotopically depleted relative to the Wind Cave sites.

The differences in Beaver Creek Springs isotope data relative to the nearby wells and to Wind Cave may be due to mixing of isotopically light ground water originating from the higher elevation recharge areas to the west with isotopically heavier ground water recharged locally. This isotopically light ground water (relative to the isotopically heavier ground water from local recharge) originating from the western flanks of the Black Hills may follow structurally controlled preferential flow paths, in the Madison aquifer, the Minnelusa aquifer, or both aquifers, to Beaver Creek Springs. Additional discussion of flow path considerations is provided in a later section of this report.

2.3 Age Dating

Age dating of the water from the sampled sites was estimated from tritium (another stable isotope of hydrogen) concentration data and from chlorofluorocarbon (CFC) species concentrations. Each method is described and discussed separately below.

2.3.1 Tritium Data and Discussion

Tritium (^3H) is an unstable isotope of hydrogen with a half-life of 12.4 years, that prior to 1953, was present in rainwater at concentrations less than 10 tritium units (Fetter, 1988). Subsequent to testing of nuclear weapons, the concentration of tritium in water vapor within the atmosphere rose, with a resulting increase of tritium concentrations in ground water. Since the

cessation of atmospheric testing of nuclear weapons, tritium concentrations in water vapor in the atmosphere have been declining, and are now less than the “bomb-peak” years of the mid-1960’s. Comparisons of tritium concentrations in ground water can provide qualitative or approximate information regarding the time that recharge occurred. The historical variations of tritium concentrations in the atmosphere and in surface water streams, and the potential for mixing of tritium-containing water with non-tritium containing ground water, make precise age-determinations from tritium data impossible.

Qualitative descriptions of ground-water age based on tritium concentrations are commonly referred to as “pre-bomb” or “post-bomb.” Post-bomb water is also commonly referred to as modern water.

Any measurable concentration of tritium in ground-water in the Black Hills likely indicates some proportion of modern water, and tritium concentrations from 1 to 5 tritium units (TU) likely indicate ground-water that is dominantly pre-bomb (Naus, et. al, 2001). Further precision in age estimates from tritium concentration data are not possible.

Eight of the 27 sites sampled as part of this project were sampled for tritium. The results are shown in Table 6. Also shown in Table 6 are historical tritium data collected from the 7-11 Minnelusa well and the 7-11 Minnekahta well. Because the data from the 7-11 Minnelusa well and the 7-11 Minnekahta well are from 1994 and 1997, respectively, and because tritium concentrations in the atmosphere have generally been decreasing since 1963, the tritium concentrations in these two wells can not be directly compared to the concentrations measured in the 2007 samples. The data are included to provide qualitative information on the three aquifers (Madison, Minnelusa and Minnekahta) in this area.

The tritium data from the 7-11 Madison well indicate no modern or post-bomb water, as do the tritium data from the 7-11 Minnelusa well obtained in 1994. These two wells are DENR observation wells, and are seldom pumped which could limit the influx of modern water into the wells. The tritium data for the other six sites sampled for tritium indicate at least some presence of modern water.

The tritium data are shown graphically in Figure 21. The tritium data for Hot Brook Spring (1.19 TU) and Beaver Creek Springs (1.41 TU), which are both less than 5.0 TU, suggest that water from these two springs is predominantly pre-bomb.

The highest concentration of tritium measured in the 2007 samples was from Beaver Creek (15.74 TU). The Beaver Creek sample is surface water from a location on the creek just upstream of the Madison Limestone outcrop.

The highest tritium concentration measured in 2007 in a project well was 8.43 TU in the HUN well. This well is completed at a depth of 820 feet, and due to the relatively vague geologic descriptions in the well log, it is uncertain whether this well is completed in the bottom of the Minnelusa aquifer or the top of the Madison aquifer. The tritium data suggest the presence of modern water, likely from local recharge at the Minnelusa Formation or Madison Limestone outcrops west of the well.

The tritium concentrations from What the Hell Lake (4.92 TU) and from Drip Site 3 (9.22 TU) indicate the presence of modern water in Wind Cave. This is consistent with the discovery of water in a formerly dry passageway at What the Hell Lake in 1996. The higher tritium concentration at the Drip Site 3 relative to What the Hell Lake suggests that modern water is continuing to seep into the cave.

The tritium concentration in the STR well is 5.2 TU. This indicates the presence of modern water in the STR well, and is similar in concentration to the tritium concentration measured in What the Hell Lake. This suggests that the water in the STR well likely contains some component of locally recharged water.

The USGS did not sample the 7-11 Minnekahta well as part of this project. Based on the 1997 results, it is likely that the tritium concentration in ground water in the Minnekahta aquifer in the vicinity of the 7-11 Ranch would indicate a significant portion of post-bomb water. This is consistent with the nearby location of the Minnekahta Limestone outcrop.

It is reiterated that the tritium concentration in ground water in the Minnekahta aquifer is likely significantly less in 2007 than it was in 1997. For example, the tritium concentration measured in the STR well was 11.7 TU in 1997 (Naus, et. al., 2001) compared to 5.2 TU in

2007, or less than half what it was in 1997. If the same ratio of decay were assumed for tritium concentrations in the 7-11 Minnekahta well, the tritium concentration in 2007 would likely be less than half of the 1997 concentration of 24.8 TU (perhaps 12 TU).

The relatively high concentration of tritium measured in the 1997 sample from the 7-11 Minnekahta well suggests one possible source of the relatively low concentration of tritium measured in Beaver Creek Springs. Beaver Creek Springs are located along the contact of the Minnekahta Limestone with the Spearfish Formation, and it is likely that there is some contribution of ground water from the Minnekahta Limestone to the springs. This mixing of relatively high tritium concentration ground water from the Minnekahta aquifer with ground water from the Minnelusa or Madison aquifers with relatively low tritium concentrations could account for the tritium concentration measured in Beaver Creek Springs. It is also possible that locally recharged ground water from the Minnelusa or Madison aquifers, containing higher concentrations of tritium, are mixing with lower tritium concentration Minnelusa or Madison aquifer water that was recharged at a greater distance from Beaver Creek Springs.

2.3.2 Chlorofluorocarbons Data and Discussion

All information contained in this report regarding the use of chlorofluorocarbons (CFCs) for ground-water age-dating and as potential ground-water flow path tracers was obtained from USGS sources. The introductory information presented below is summarized from a report by Putnam and Long (2007).

CFCs concentrations in the atmosphere, due to CFCs releases from industrial and refrigerant applications, generally increased from the 1960's to the late 1990's, and in 2002 began decreasing slightly. CFC gases dissolve into water contained in the atmosphere. Rain and snow infiltrating the aquifers as recharge contain the dissolved CFCs. CFC concentrations in ground water that is not in contact with the atmosphere generally remain stable, although some changes in CFCs concentrations can occur in ground water located in the upper three feet of shallow water table aquifers. CFC data can be utilized in conjunction with tritium data to estimate the age of modern ("post-bomb") ground water.

In karstic aquifers, such as the Madison Limestone, ground-water can infiltrate into caverns that remain open to the atmosphere, a good example of this is Wind Cave. The ground-water in the caves can be under atmospheric conditions in those areas where the water is exposed to the atmosphere from air movement within the cave or within cavernous portions of the aquifer. In this hydrogeologic setting, it is possible that CFCs can suggest that the water is younger than the age indicated by tritium dating.

Dissolved gas samples are also collected along with the CFC samples. The ratios of various dissolved gases, particularly nitrogen and argon ratios, are used to estimate recharge temperatures and can also indicate if excess air trapped in the recharge water artificially increased the CFC concentrations. The dissolved gases results for the project indicate that there was generally no excess air trapped in the samples, and that the CFC data are not artificially elevated due to the presence of excess air. A trace concentration of methane was noted for the 7-11 Madison sample. Some microbial processes, such as methagenesis, can degrade CFCs, resulting in a CFC-determined age that is older than the actual age. The dissolved gases data are provided in Appendix A.

Samples collected as part of this project were analyzed for three species of CFCs (CFC-11, CFC-12 and CFC-113). The USGS utilizes two primary methods of interpreting the CFC concentration data. One is termed the "piston model" and is based on the assumption that the tracer concentration (the CFCs) in the water sample has been unaffected by mixing processes in the aquifer or sampling process (Plummer and Busenberg, 2006). The other is called a binary mixing model, and is based on a simplifying assumption that the mixture of water is from two sources (a CFCs-containing water and a non-CFCs containing water).

The results are summarized in Table 7. Also shown in Table 7 are the recharge dates estimated by the USGS, and the percentage or fraction of young water as estimated by Back and Long (2007). Young water is defined as water that contains any detectable concentration of tracer (in this case, CFCs), or water that was recharged after the 1940's, or a mixture of water that contains at least some fraction of water that was recharged after the 1940's (Plummer & Busenberg, 2006).

The earliest recharge date estimated by the USGS for ground water sampled for the project, based on the CFC data, is the 7-11 Madison well. A trace of methane gas was detected in this sample, which as indicated previously could result in an artificially older age. However, the CFC data are consistent with the tritium results from the 7-11 Madison well. Because of the apparent age of the 7-11 Madison well water, no fraction of young water could be estimated. The age dating methods utilized in this project can not provide age estimates for old water, or water that contains no measurable concentrations of the modern age-dating tracers of tritium and CFCs.

The youngest water sampled for the project, based on the CFC data, is from What the Hell Lake in Wind Cave. The estimated recharge date for the water in What the Hell Lake is the mid to late 1980's, and the percentage of young water is from 70 to 74 percent. This is consistent with the discovery of ground water in this formerly dry passage in 1996, and generally consistent with the tritium data.

The age of Beaver Creek Springs water is estimated to be the mid-1960's, with an estimated fraction of young water from 18 to 65 percent. This is also generally consistent with the tritium data for Beaver Creek Springs.

The age of water from the STR well is estimated to be the early 1970's, with an estimated fraction of young water from 34 to 65 percent. This is consistent with the tritium data from the STR well.

2.3.3 Age-Dating Summary

Due to complexities in the hydrogeologic setting, and variations in the age-dating tracers (tritium and CFCs) in the atmosphere over time, precise determination of the date of recharge is not possible. The age-dating data can be interpreted broadly to indicate the following:

- 1.) the 7-11 Madison well sample contained the least amount of young water;
- 2.) the youngest water sampled during the project is from Wind Cave; and,
- 3.) with the exception of 7-11 Madison well water, the ground-water sampled for the project is generally a varying mixture of older water and younger water.

The data generally suggest that Beaver Creek Springs water is older, or contains a larger fraction of older water, than ground water from the STR well, and ground water from the STR well is likely older than the ground water in Wind Cave.

3.0 FLOW PATH CONSIDERATIONS RELATIVE TO PROJECT OBJECTIVES

The overall purpose of the geochemical sampling and analysis was to obtain information regarding ground-water flow paths in the Madison aquifer in the southern Black Hills. LBG recommended that SBHWS participate in the project as part of a phased approach to obtaining site specific aquifer characteristics at the Streeter Ranch. This phased approach included the geochemical sampling & analysis, Beaver Creek Springs discharge monitoring by the USGS, a limited flow test (allow the existing STR well to flow while collecting discharge and pressure data), estimating the transmissivity at the STR well, conducting analytical modeling utilizing data from the flow test and other sources, and designing an aquifer pumping test (Kannenberg, 2006). Based on the data obtained during this phased approach, the evaluation of the Streeter Ranch as a proposed water source could be modified as required, based on hydrogeological and SBH engineering considerations.

There are significant geologic structural features in the project area, including the Buffalo Gap monocline (a fold), the Dudley anticline (a fold), the Cascade anticline and numerous unnamed faults (Figure 1). Folding and faulting can produce fractures or zones of weakness in the rock, and in the carbonate aquifers (the Madison Limestone, the upper portion of the Minnelusa Formation), ground-water percolation can migrate preferentially along the fractures and create zones of increased permeability and porosity (solutional conduits). This can cause aquifer anisotropy, which has been documented in the Madison aquifer in the Rapid City area by Green (1993).

Wind Cave is an example of aquifer anisotropy. The mapped passages of Wind Cave are shown in Figure 1. The passages have a clear alignment, trending northwest to southeast.

The USGS postulated a possible flowpath in the Madison aquifer extending from the Hot Springs area to Beaver Creek Springs, based on stable isotope and tritium data (Naus, et. al., 2001). The data from this project, particularly the isotope data, generally support that hypothesis. The geologic structural features in the project area, particularly the southwest to northeast trends of the large anticlines (Cascade and Dudley anticlines) could provide a mechanism for solutional conduit development from the Hot Springs area to the Beaver Creek Springs area.

It has been further postulated by the USGS and others (Naus, et. al., 2001, Hayes, 1999, Rahn & Gries, 1973) that Beaver Creek Springs and other large springs (Cascade Springs, Fall River or Hot Springs Intake Springs) water is primarily Madison aquifer water that has leaked upward through the Minnelusa aquifer. Under this hypothesis, the high sulfate concentrations in the springs are due to dissolution of anhydrite in the Madison aquifer and/or in the Minnelusa aquifer.

Another possible explanation is that Beaver Creek Springs water is derived primarily from the Minnelusa Formation. The Minnelusa Formation in the vicinity of Beaver Creek Springs is approximately 800 feet thick, and could contain sufficient water to supply the springs. It is also possible that the Madison aquifer and Minnelusa aquifer are in strong hydraulic connection in the vicinity of Beaver Creek Springs, and could therefore be considered a single aquifer.

The data from this project suggest that water from the Beaver Creek Springs is a mixture of relatively old water with young water. The data from this project also suggest that the water from the STR well is also a mixture. There are significant differences in the water quality of the STR well compared to the water from Beaver Creek Springs, particularly the isotope data and the major ions data. In general, the project data suggest that water in the STR well likely contains a greater fraction of young water, likely from local recharge, than does the water from Beaver Creek Springs.

It is not possible to definitively state whether the source of the water supplying Beaver Creek Springs is isolated from the source supplying the STR well. The potential impacts to the discharge of Beaver Creek Springs will depend upon numerous currently unknown geologic

controls. For example, if the source of Beaver Creek Springs is primarily the Minnelusa aquifer, and the Minnelusa aquifer and Madison aquifer are not hydraulically connected in the vicinity of the springs and the Streeter Ranch, withdrawals from the Madison aquifer at the Streeter Ranch would have no impact to Beaver Creek Springs. Conversely, if the source of Beaver Creek Springs is primarily ground water from the Madison aquifer that has leaked upward through the Minnelusa Formation and other formations, withdrawals from the Madison aquifer at the STR well site could reduce the pressure in the Madison aquifer and decrease the discharge of Beaver Creek Springs.

The geochemical water quality of the STR well compared to the geochemical water quality of ground water in Wind Cave is nearly identical. The geochemical data suggest that a large portion of the water in Wind Cave is young water from local recharge (Madison outcrop, and Madison outcrop loss zone at Beaver Creek). This is consistent with the relatively recent increases (late 1990's) in the amount of water observed in the cave. The similarity in geochemical water quality between the STR well and ground water in Wind Cave could indicate a common source of ground water recharge for the STR Well and for Wind Cave.

If the STR well withdraws water from solutional conduits and these conduits are in direct connection with the saturated caverns of Wind Cave, excessive withdrawals from the STR well could in time result in measurable impacts to the water levels in the cave. The similar geochemical water quality results measured in the STR well and the Wind Cave sampled sites indicates that it is possible that ground water in the vicinity of the STR well and the ground water in the passages of Wind Cave share a common source. The historically changing water-levels in Wind Cave will make it difficult to determine with any certainty whether water-level changes are due to new ground-water withdrawals or to changes in recharge caused by climatic changes. If an aquifer test is conducted at the Streeter Ranch location, as required by the Water Management Board, it is recommended that SBH work closely with the NPS to monitor not only water levels in the cave but also in the two NPS Park wells during the test. This information could provide some indication of whether additional ground-water withdrawals from Streeter Ranch could impact water-levels in Wind Cave.

It is also possible that the ground water in the passages of Wind Cave and in the vicinity of the STR well, while being largely supplied by local recharge, is not directly linked by solutional conduits extending from the Cave to the Streeter Ranch. For example, the presence of the cave indicates the dominance of solutional conduits, and it is likely that recharge to those conduits of Wind Cave is connected to the Beaver Creek loss zone (that portion of the stream reach that crosses the Madison Limestone outcrop). The orientation of the cave passages are dominantly northwest to southeast, and there is at least one fold (a northeast to southwest trending syncline) located between the cave and the STR well. The STR well is located on the axis of an anticline that is generally orientated north to south. It is possible that solutional conduits in the vicinity of the STR well are orientated in a direction different than the orientation of the Wind Cave passages (for example, parallel or perpendicular to the axes of the major structural features represented by the anticline and syncline). If the solutional conduits providing water to the STR well are orientated in a different direction than those of the Wind Cave passages, the degree of connection between the solutional conduits in the vicinity of the STR well and the solutional conduits comprising Wind Cave may be minimal. If this is the case, withdrawals from the STR well may not have any measurable impact to water levels in the cave.

4.0 CONCLUSIONS AND RECOMMENDATIONS

It is not possible, based on the available data, to definitively conclude if withdrawals from the proposed SBH Madison aquifer well at the Streeter Ranch will impact the Water Resources of Wind Cave National Park or the discharge of Beaver Creek Springs. Conversely, it is also not possible to determine conclusively if there will be no impacts to the discharge of Beaver Creek Springs or the water resources of Wind Cave National Park. The differences in the geochemical data between the STR well and Beaver Creek Springs suggest that the sources of ground water for the well and the springs are different. However, the geochemical data do not preclude the possibility that the STR well and Beaver Creek Springs share a common source.

The water from the Streeter well is geochemically nearly identical to the ground water in Wind Cave, and suggests a significant component of local recharge. This may indicate a common recharge source and a direct hydraulic connection between the cave and the Madison aquifer at the Streeter Ranch. It is also possible that the major geologic structures in the Streeter Ranch vicinity have produced solutional conduits that are oriented in a different direction than are the northwest to southeast trending solutional conduits of Wind Cave. This aquifer anisotropy, if present, could have the effect of limiting the connection between the Madison aquifer in Wind Cave and the Madison aquifer at the Streeter Ranch.

A properly designed aquifer test will provide information regarding the aquifer anisotropy in the vicinity of the Streeter Ranch. The aquifer test would ideally be conducted with the assistance and cooperation of NPS personnel and would include monitoring water-levels in the NPS wells and in the instrumented portions of Wind Cave. The test should also include monitoring the discharge rate of Beaver Creek Springs. The site specific aquifer characteristics determined by an aquifer test conducted at the Streeter Ranch, as well as information that could potentially be obtained regarding ground-water and surface water interaction in the vicinity of caves and springs, could provide useful insight into the hydrogeology in this and other areas of the southern Black Hills.

It is important to note that the results from a properly-designed and executed aquifer test, while they can be used to estimate the effect of long-term pumping, are not without uncertainty, especially for a cavernous aquifer. The uncertainty inherent in estimating the effect of long-term pumping is compounded by changes in recharge, such as the large amount of precipitation in the 1990's that brought about a substantial rise in water-levels in Wind Cave, or the current drought, which is likely the cause of recent water-level declines in Wind Cave.

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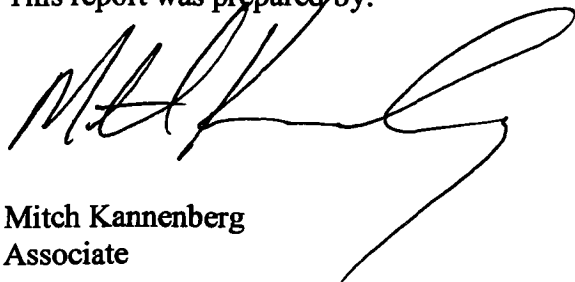
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TABLES

Table 1. Geochemical Sampling Sites

Sample Site	Township (T), Range (R) and Section	Latitude	Longitude	Approximate Ground Surface Elevation	Sample Type
MIL Well	T7S, R3E, Section 36	43.23.40	103.42.15	4201	Well
Hot Springs Intake Springs	T7S, R5E, Section 14	43.26.32	103.28.53	3487	Spring
Hot Brook Spring	T7S, R5E, Section 10	43.27.03	103.30.28	3627	Spring
SVE Well	T7S, R4E, Section 4	43.28.25	103.39.12	4348	Well
HUN Well	T6S, R5E, Section 23	43.30.34	103.28.47	4265	Well
KAI Well	T6S, R5E, Section 24	43.31.14	103.28.16	4115	Well
7-11 Madison Well	T6S, R6E, Section 21	43.31.15	103.25.14	3644	Well
Beaver Creek Springs	T6S, R6E, Section 14	43.31.28	103.22.34	3455	Spring
STR Well	T6S R6E, Section 15	43.31.57	103.23.13	3520	Well
BOG Well	T6S, R5E, Section 31	43.28.58	103.33.42	4266	Well
CON Well	T6S, R4E, Section 1	43.33.26	103.35.20	4523	Well
Witch Spring	T5S, R4E, Section 35	43.33.59	103.36.11	4603	Spring
Woodcock Spring	T6S, R5E, Section 21	43.30.56	103.32.22	4235	Spring
Elk Mountain Spring	T6S, R5E, Section 2	43.33.33	103.29.19	4317	Spring
RG Pegmatite Spring	T5S, R5E, Section 23	43.35.51	103.29.19	4366	Spring
Sutherland Spring	T4S, R4E, Section 25	43.40.21	103.35.01	5300	Spring
NPS Well 1	T6S, R6E, Section 6	43.33.09	103.26.30	3814	Well
NPS Well 2	T6S, R6E, Section 6	43.33.11	103.26.31	3814	Well
Windy City Lake	T6S, R5E, Section 12	43.32.55	103.28.29	4136	Cave Pool
What the Hell Lake	T6S, R5E, Section 12	43.32.58.91	103.28.39.01	4156	Cave Pool
Petey's Puddle	T6S, R5E, Section 12	43.33.19.24	103.28.54.02	4130	Cave Pool
Rebel River	T6S, R5E, Section 12	43.32.56.69	103.28.38.73	4146	Cave Pool
Drip site 1	T6S, R5E, Section 12	43.33.17.05	103.28.36.86	4080	Cave Drip
Drip site 2	T6S, R5E, Section 12	43.33.17.76	103.28.34.82	4062	Cave Drip
Drip site 3	T6S, R5E, Section 12	43.33.25.74	103.28.44.75	4101	Cave Drip
Highland Creek	T5S, R6E, Section 8	43.37.45	103.26.19	4284	Stream
Beaver Creek	T5S, R6E, Section 25	43.58	103.48	4133	Stream

Latitude and Longitude are in degrees, minutes, seconds and in some cases, hundredths of seconds.

Table 2. Sample Sites, Dates and Parameters Matrix

Sample Location	Date	Field Parameters	Major Ions	Alkalinity/Bicarbonate, Carbonate	Nitrite + Nitrate	Arsenic	Tritium	Stable Isotopes	CFCs	Dissolved Gases
Beaver Creek	4/16/2007	X	X	X	X	X	X	X		
MIL Well	4/23/2007	X	X	X	X	X		X		
Hot Springs Intake Springs	3/15/2007	X	X		X	X		X		
Hot Springs Intake Springs	4/17/2007	X	X	X	X	X		X		
Hot Springs Intake Springs	7/9/2007	X		X				X		
Hot Brook Spring	3/15/2007	X	X		X	X		X		
Hot Brook Spring	4/20/2007	X	X	X	X	X	X	X	X	X
Hot Brook Spring	7/9/2007	X		X				X		
SVE Well	4/23/2007	X	X	X	X	X		X		
BOG Well	4/26/2007	X	X	X	X	X		X	X	X
HUN Well	3/14/2007	X	X		X	X		X		
HUN Well	4/17/2007	X	X	X	X	X	X	X	X	X
7-11 Madison Well	4/20/2007	X	X	X	X	X	X	X	X	X
Beaver Creek Springs	3/14/2007	X	X		X	X		X		
Beaver Creek Springs	4/17/2007	X	X	X	X	X	X	X	X	X
Beaver Creek Springs	7/10/2007	X	X	X		X		X		
STR Well	3/14/2007	X	X		X	X		X		
STR Well	4/17/2007	X	X	X	X	X	X	X	X	X
STR Well	7/10/2007	X		X				X		
KAI Well	7/9/2007							X		
Windy City Lake	4/18/2007	X	X	X	X	X		X		
What the Hell Lake	4/18/2007	X	X	X	X	X	X	X	X	X
Petey's Puddle	4/27/2007	X	X	X	X	X		X		
Rebel River	4/18/2007	X	X	X	X	X		X		
Drip Site 1	4/27/2007	X	X	X	X	X		X		
Drip Site 2	4/25/2007	X	X	X	X	X		X		
Drip Site 3	4/25/2007	X	X	X	X	X	X	X		
NPS Well 1	5/24/2007	X	X	X	X	X		X		
NPS Well 2	5/24/2007	X	X	X	X	X		X		
CON Well	4/23/2007	X	X	X	X	X		X		
Highland Creek	3/15/2007	X	X		X	X		X		
Highland Creek	4/26/2007	X	X	X	X	X		X		
Highland Creek	7/9/2007			X		X		X		

Table 3. Project Wells Sampled

Sample Site	Latitude	Longitude	Aquifer	Top of Well Elevation	Well Depth	Bottom of Well Elevation
MIL Well	43.23.40	103.42.15	Madison	4201	2135	2066
SVE Well	43.28.25	103.39.12	Madison	4348	883	3465
HUN Well	43.30.34	103.28.47	Minnelusa/ Madison?	4265	820	3445
KAI Well	43.31.14	103.28.16	Madison	4115	780	3335
7-11 Madison Well	43.31.15	103.25.14	Madison	3644	1165	2479
STR Well	43.31.57	103.23.13	Madison	3520	939	2581
BOG Well	43.28.58	103.33.42	Madison	4266	660	3606
CON Well	43.33.26	103.35.20	Madison	4523	100	4423
NPS Well 1	43.33.09	103.26.30	Multiple	3814	795	3019
NPS Well 2	43.33.11	103.26.31	Madison	3834	685	3149

Notes:

NPS Well 1 completed in the Madison aquifer, the Englewood Limestone, the Deadwood aquifer, and the Precambrian aquifer.

It is uncertain whether the HUN well is completed in the bottom of the Minnelusa aquifer or the top of the Madison aquifer.

Table 4. Field Data, Major Ions, Trace Elements, and Nitrite plus Nitrate

Sample Location	Date	Time	DO (mg/L)	pH	SC (ms/cm)	Temp (C°)	Calcium (mg/L)	Magnesium (mg/L)	Potassium (mg/L)	Sodium (mg/L)	Alkalinity (mg/L as CaCO ₃)	HCO ₃ (mg/L)	CO ₃ (mg/L)	Chloride (mg/L)	Silica (mg/L)	SO ₄ (mg/L)	NO ₂ + NO ₃ (mg/L)	Arsenic (ug/L)	Manganese (ug/L)
MIL Well	4/23/2007	1430	3.9	7.3	743	21.5	77.8	26.6	5.5	37.5	212	257	0	48	22.1	110	0.112	0.99	38.6
Hot Springs Intake	4/17/2007	1630	5.4	7.2	1030	27.3	89.2	29.1	8.34	71.9	198	240	0	99.1	22.7	168	0.456	5.7	0.2
Hot Springs Intake	3/15/2007	1100	5	7.3	1020	27.2	87.5	28	8.31	70				97.5	23.8	167	0.45	5.8	0.2
Hot Brook Spring	3/15/2007	1000	6.8	7.3	683	23.9	63.9	24.7	5.19	36				45.6	18.2	69.3	0.431	6.6	0.2
Hot Brook Spring	4/20/2007	1600	6.9	7	700	24	64.5	25.3	5.15	36.9	208	253	0	45.5	18.1	67.5	0.417	7.2	0.2
Hot Brook Spring	4/20/2007	1605	6.9	7	700	24	65.4	25.8	5.27	37.2				45.4	18.4	67.4	0.423	7.2	0.2
SVE Well	4/23/2007	1800	8.4	7.7	455	12.1	53	26.8	1.96	4.67	231	281	0	1.86	12.6	8.61	0.451	3.9	0.6
HUN Well	3/14/2007	1100	7.3	7.5	400	15.1	48.2	17.1	2.98	9.57				5.88	15.5	17.3	0.589	7.9	0.3
HUN Well	4/17/2007	940		7.3	419	15.3	50.5	18.1	2.98	10.1	190	230	0	5.97	15.4	17.2	0.608	7.7	0.5
7-11 Madison Well	4/20/2007	1150	4	7.3	403	13.4	40.4	19.6	3.27	16.4	170	206	0	5.95	12.8	23.5	0.31	0.28	86.3
7-11 Madison Well	4/20/2007	1155	4	7.3	403	13.4	40.1	19.1	3.28	16.3				5.96	12.3	23.5	0.313	0.25	84.9
Beaver Creek Springs	3/14/2007	1500	4.8	7.3	2260	18	460	76.8	5.18	29.2				32.5	16	1280	0.409	2.1	0.6
Beaver Creek Springs	4/17/2007	1230	6.2	7.1	2390	19.1	443	73.3	4.69	27.4	179	217	0	32.9	14.9	1290	0.39	2.1	0.5
STR Well	3/14/2007	1400	6.7	7.7	327	12.8	39	13.8	2.44	9.08				2.48	16.3	11.2	0.511	8.9	0.2
STR Well	4/17/2007	1430	7.4	7.5	343	20	39.8	14.1	2.35	9.32	157	190	0	2.55	16.4	11	0.52	8.5	0.1
BOG Well	4/26/2007	1730	8.4	7.8	466	15.2	44.7	29.9	1.97	6.29	217	262	0	2.63	12.7	10.5	1.29	15.8	0.3
CON Well	4/23/2007	1200	8.6	7.7	579	8.7	65.4	29.9	4.13	10.8	240	292	0	8.1	12.6	28.9	2.24	6.4	1.6
CON Well	4/23/2007	1205	8.6	7.7	579	8.7	66.5	30.3	4.25	10.9				7.95	13.1	28.3	2.24	6.4	1.4
NPS Well #1	5/24/2007	1230	7.5	7.3	385	13.8	46.2	15.9	2.94	12.8	178	217	0	5.1	16.1	17.9	0.569	8.5	0.2
NPS Well #2	5/24/2007	1330	3.9	7.7	586	14.9	24.3	13.5	3.37	91.8	223	270	0	20.2	11.1	43.8	0.21	26.7	1.6
Windy City Lake	4/18/2007	1430		8	335	14.8	35.7	19.4	2.28	7.67	149	180	0	4.46	13.9	9.17	2.38	16.4	0.6
What the Hell Lake	4/18/2007	1230		7.8	427	13.8	47.4	27.1	1.71	5.08	211	255	0	3.02	13.2	6.91	1.32	12.8	0.2
Petey's Puddle	4/27/2007	1200	9.4	8.1	331		34.4	19.8	2	4.47	157	189	0	3.07	12.6	6.62	0.959	13.1	0.2
Rebel River	4/18/2007	1600		7.8	435	13.8	43.2	25.1	1.65	4.86	182	221	0	2.96	13.4	6.76	1.29	12.6	0.2
Drip Site 1	4/27/2007	1400	9.5	8.3	385		35.4	16.9	4.48	12.6	139	167	1	13.2	17.6	21.3	1.36	34.2	0.2
Drip Site 2	4/25/2007	1200	9.6	8.4	339		45.7	13	3.8	4.29	157	188	2	3.88	17.5	10.7	1.55	29.3	0.2
Drip Site 3	4/25/2007	1400	9.7	8.4	252		37.2	8.19	2.81	0.97	120	144	1	1.27	19.3	7.44	0.455	25.2	0.2
Highland Creek	3/15/2007	1230	10.4	8.8	286	11.4	38.9	7.25	2.09	7.93				3.06	19.2	14.5	0.27	3.3	2.1
Highland Creek	4/26/2007	1015	10.2	9.2	288	14.8	41.3	7.46	1.86	8.24	131	146	7	3.01	17.4	14.6	0.161	3	1.8
Beaver Creek (above Madison outcrop)	4/16/2007	1800		8.1	538		68.2	21.7	4.45	13.7	196	236	1	14.3	14.8	39.7	0.013	3.7	5.1

Notes:

- DO - dissolved oxygen
- Temp - temperature in degrees Celsius
- HCO₃ - bicarbonate
- CO₃ - carbonate
- SO₄ - sulfate
- NO₂ - nitrite
- NO₃ - nitrate
- SC - specific conductance
- mg/L - milligrams per liter
- ug/L - micrograms per liter
- ms/cm - millisiemens per centimeter

Table 5. Stable Oxygen & Hydrogen Isotopes

Sample Site	Sample Date	Ground Surface Elevation	Delta ² H x 1000	Delta ¹⁸ O x 1000
MIL Well	4/23/2007	4201	-124.95	-16.64
Hot Springs Intake Springs	3/15/2007	3487	-119.76	-16.02
Hot Springs Intake Springs	4/17/2007	3487	-120.03	-16.13
Hot Springs Intake Springs	7/9/2007	3487	-120.13	-15.97
Hot Brook Spring	3/15/2007	3627	-112.82	-15.05
Hot Brook Spring	4/20/2007	3627	-113.22	-15.07
Hot Brook Spring	4/20/2007	3627	-113.32	-15.11
Hot Brook Spring	7/9/2007	3627	-114.49	-15.08
SVE Well	4/23/2007	4348	-114.46	-15.14
HUN Well	3/14/2007	4265	-90.37	-12.17
HUN Well	4/17/2007	4265	-92.36	-12.23
KAI Well	7/9/2007	4115	-90.14	-12.24
KAI Well	7/9/2007	4115	-93.28	-12.28
7-11 Madison Well	4/20/2007	3642	-89.72	-11.98
7-11 Madison Well	4/20/2007	3642	-90.64	-11.93
7-11 Minnelusa Well	4/5/1994	3642	-93.3	-12.38
7-11 Minnekahta Well	11/13/1997	3642	-94.5	-12.44
Beaver Creek Springs	3/14/2007	3455	-109.67	-14.42
Beaver Creek Springs	4/17/2007	3455	-109.65	-14.4
Beaver Creek Springs	7/10/2007	3455	-110.23	-14.41
STR Well	3/14/2007	3518	-89.28	-11.86
STR Well	4/17/2007	3518	-88.17	-11.87
STR Well	7/10/2007	3518	-88.49	-11.84
BOG Well	4/26/2007	4266	-99.03	-12.9
CON Well	4/23/2007	4523	-98.6	-12.86
CON Well	4/23/2007	4523	-99.33	-12.82
Witch Spring	4/26/2007	4603	-92.43	-11.64
Woodcock Spring	4/26/2007	4235	-97.6	-12.76
Elk Mountain Spring	4/26/2007	4317	-93.83	-12.33
RG Pegmatite Spring 1	4/26/2007	4366	-92.22	-12.32
Sutherland Spring	4/27/2007	5300	-91.16	-12.58
NPS Well #1	5/24/2007	3814	-89.9	-12.01
NPS Well #2	5/24/2007	3814	-87.14	-11.88
Windy City Lake	4/18/2007	4127	-90.51	-12.15
What the Hell Lake	4/18/2007	4127	-90.14	-12.11
Petey's Puddle	4/27/2007	4127	-91.5	-12.25
Rebel River	4/18/2007	4127	-90.67	-12.12
Drip site 1	4/27/2007	4127	-90.86	-12.42
Drip site 2	4/25/2007	4127	-85.12	-11.69
Drip site 3	4/25/2007	4127	-84.37	-11.61
Highland Creek	3/15/2007	4284	-87.57	-11.95
Highland Creek	4/26/2007	4284	-87.73	-11.9
Highland Creek	7/9/2007	4284	-87.1	-11.78
Beaver Creek	4/16/2007	4133	-90.12	-11.92

Table 6. Tritium Concentrations

Sample Site	Date	Tritium (picocuries per liter)	Tritium (Tritium Units)
Beaver Creek	4/16/2007	50.2	15.74
Hot Brook Spring	4/20/2007	3.8	1.19
HUN Well	4/17/2007	26.9	8.43
7-11 Madison Well	4/20/2007	0.6	0.19
7-11 Minnelusa Well (04/05/94)	4/5/1994	<1	<0.3
7-11 Minnekahta Well (11/13/97)	11/13/1997	79	24.8
Beaver Creek Springs	4/17/2007	4.5	1.41
STR Well	4/17/2007	16.6	5.20
What the Hell Lake	4/18/2007	15.7	4.92
Drip Site 3	4/25/2007	29.4	9.22

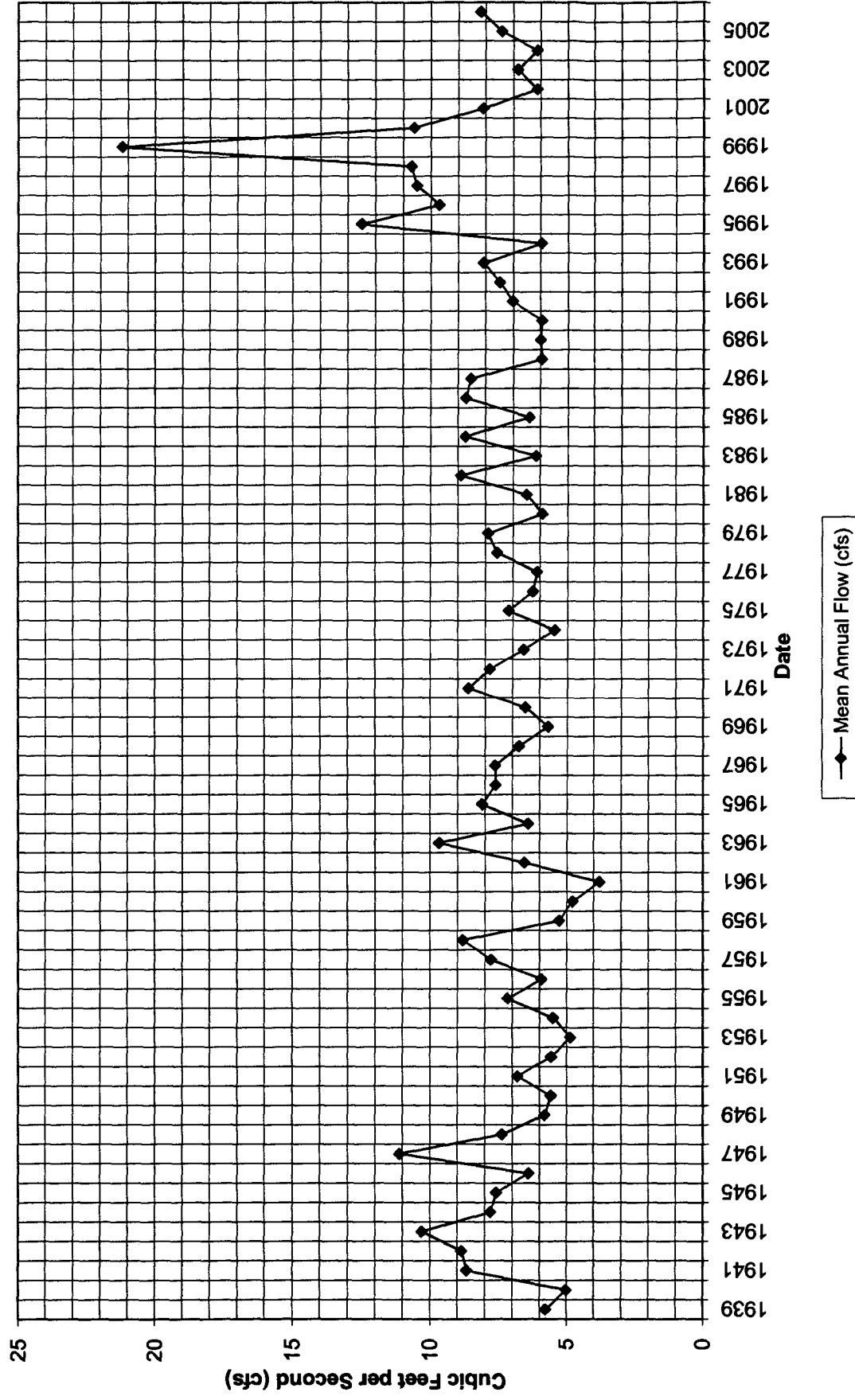
Table 7. Chlorofluorocarbons Data

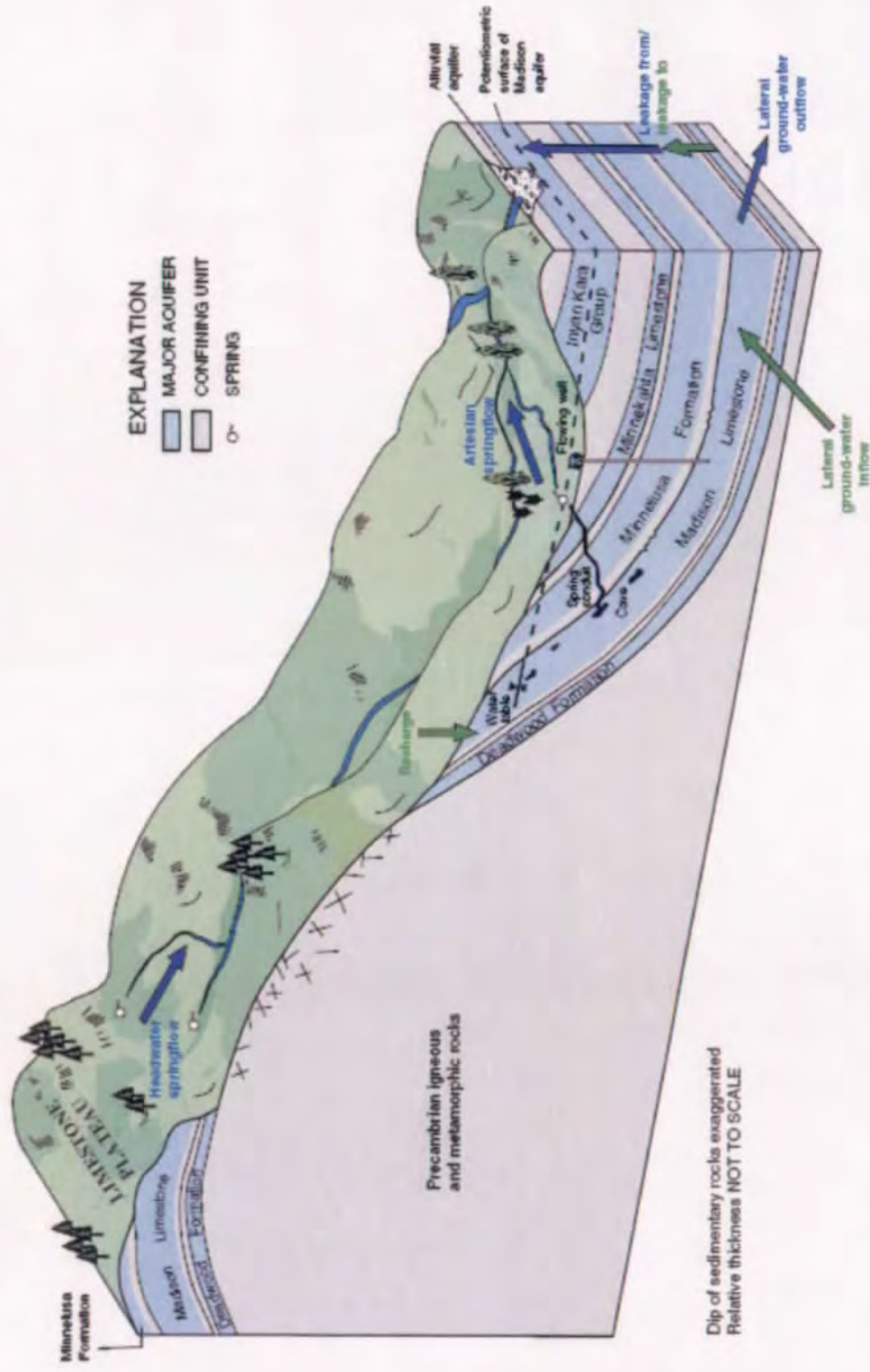
Sample Site	Date	Excess Air (cc/kg)	Calculated Atmospheric Mixing Ratio (pptv)			Recommended Age Based On:	USGS Recharge Date Estimates & Comments	Percentage of Young Water
			CFC-11	CFC-12	CFC-113			
7-11 Madison Well	04/20/07	2.0	4.9	3.1	0.0	CFC-12 & CFC-113	Mid to late 1940's (trace methane)	Not Possible
7-11 Madison Well	04/20/07	2.0	4.2	2.9	0.0			
Beaver Creek Springs	04/17/07	1.5	30.5	83.3	14.2	CFC-11 & CFC-12	Mid 1960's. (Possible Mixture)	18 to 65
Beaver Creek Springs	04/17/07	1.5	30.9	78.7	7.8			
Beaver Creek Springs	04/17/07	1.5	34.2	86.1	9.0	CFC-11 & CFC-12	Mid to late 1960's. (Possible Mixture)	24 to 85
Hot Brook Spring	04/20/07	0.0	44.3	106.3	14.4			
Hot Brook Spring	04/20/07	0.0	44.2	108.4	10.2	All	Mid to late 1970's. (Possible Mixture)	64 to 72
HUN Well	04/17/07	1.8	132.8	287.6	35.8			
HUN Well	04/17/07	1.8	123.6	275.8	34.6			
HUN Well	04/17/07	1.8	131.8	286.2	36.5			
STR Well	04/17/07	2.5	69.3	149.8	16.7	CFC-11 & CFC-12	Early 1970's. (Possible Mixture)	34 to 65
STR Well	04/17/07	2.5	71.0	148.9	18.7			
STR Well	04/17/07	1.8	71.6	158.9	18.3	CFC-12 & CFC-113	Mid to late 1980's.	70 to 74
What the Hell Lake	04/18/07	2.0	196.5	446.0	54.8			
What the Hell Lake	04/18/07	2.0	197.1	433.6	55.2	CFC-11 & CFC-12	Early 1970's. (Possible Mixture)	35 to 84
BOG Well	04/26/07	1.1	77.5	165.4	24.0			
BOG Well	04/26/07	1.1	95.9	173.6	24.9			
BOG Well	04/26/07	1.1	116.2	171.4	22.9			

Notes: cc/kg cubic centimeters per kilogram
pptv parts per trillion by volume
Young Water contains detectable CFCs, water recharged after the 1940's, or a mixture of post 1940's water with older water

FIGURES

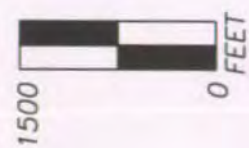
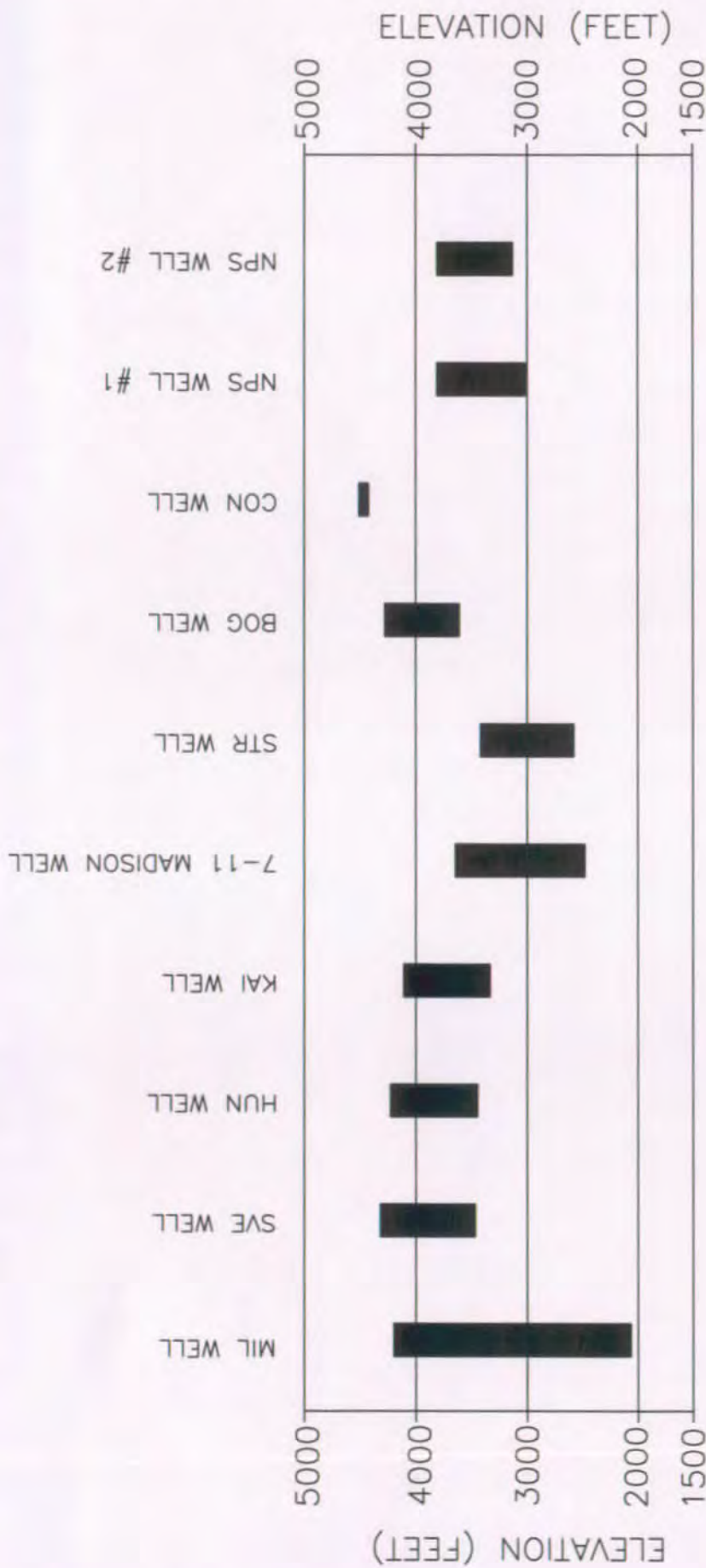
Beaver Creek Mean Annual Flow





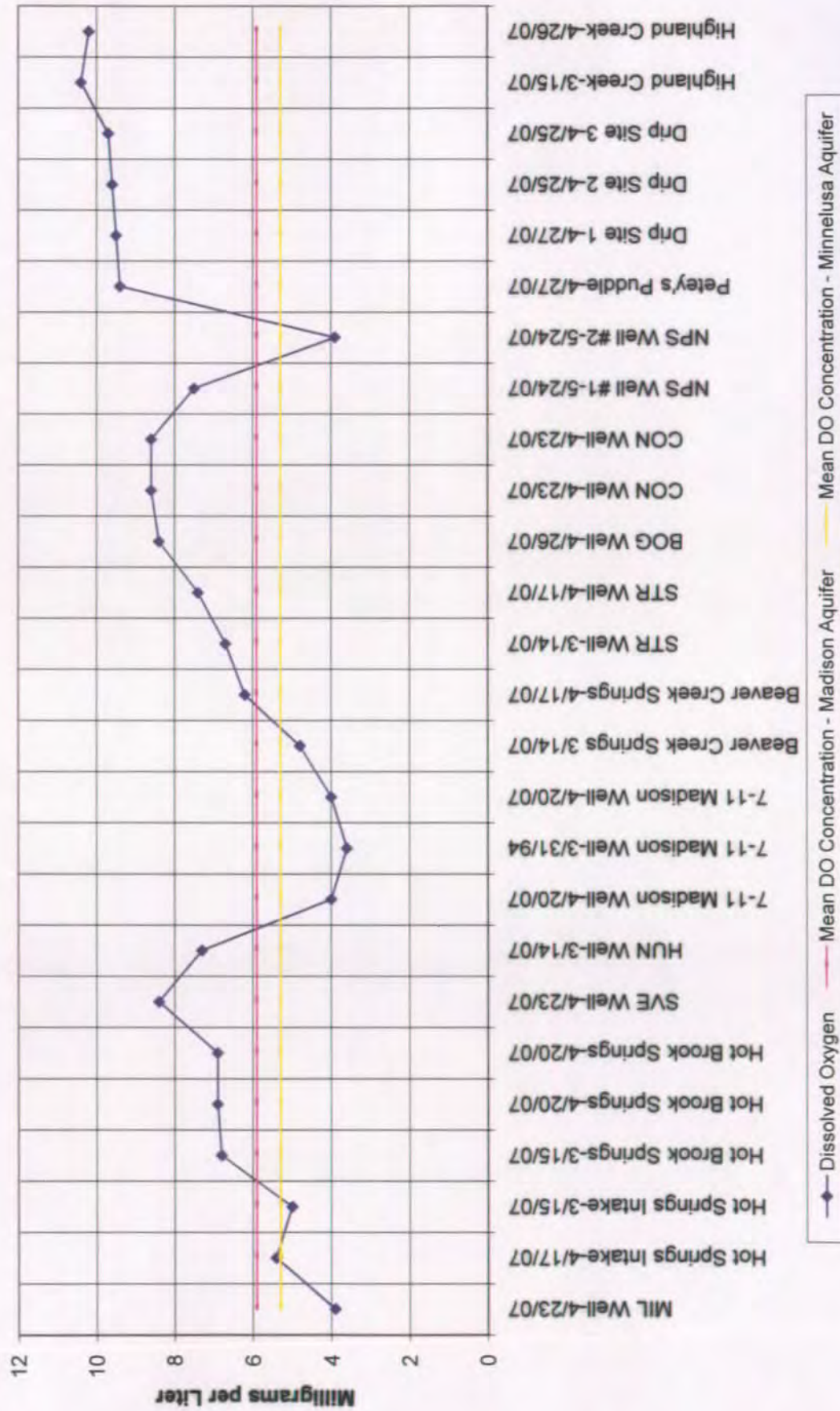
g:\...\\wp\hydro\Figure 3 – Hydro Schematic

Figure 3. Schematic showing simplified hydrogeologic setting of the Black Hills (modified from Driscoll, et. al, 2002)

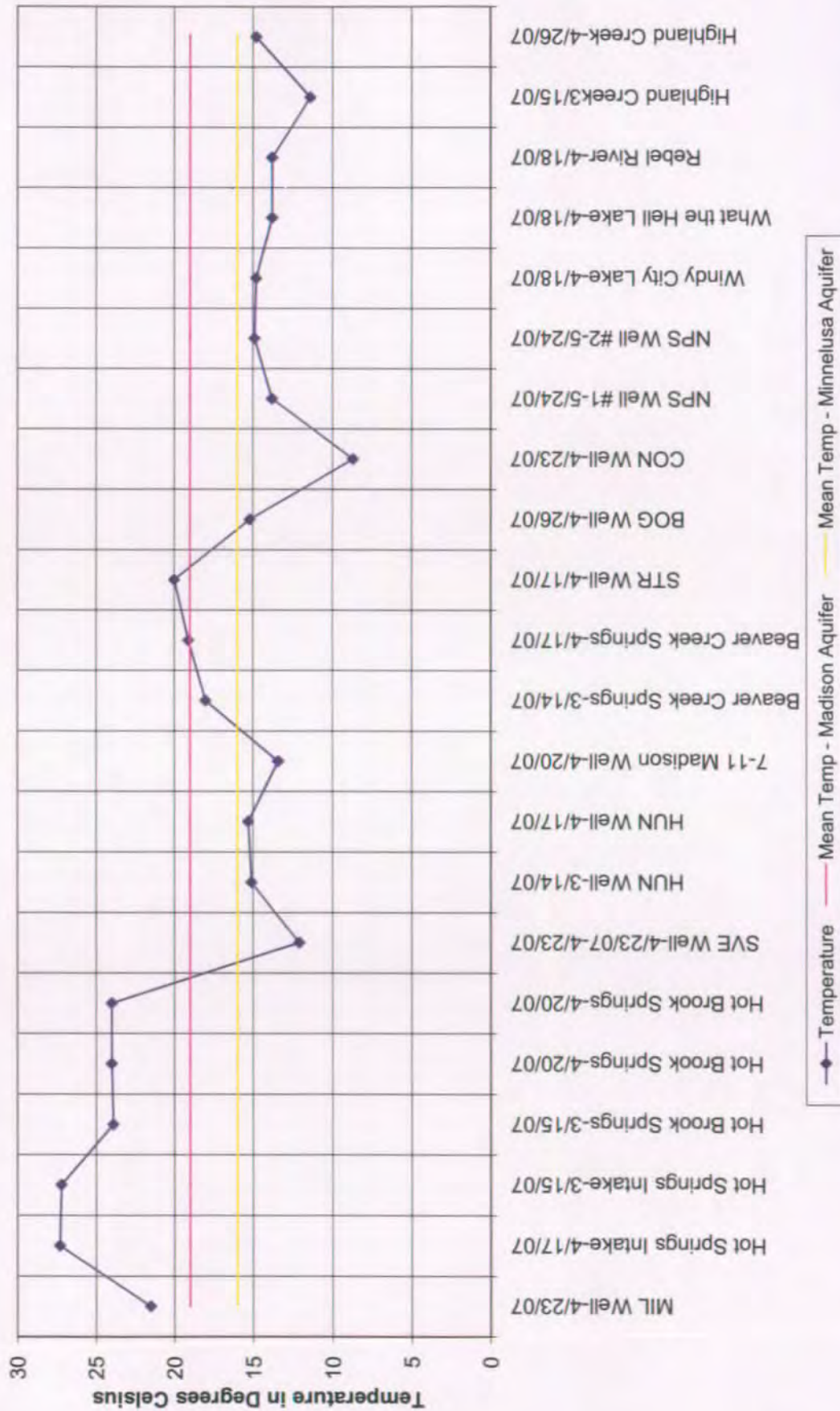


LEGGETTE, BRASHEARS & GRAHAM, INC.		SOUTHERN BLACK HILLS WATER SYSTEM, INC.	
Professional Ground-Water and Environmental Services		ORAL, SOUTH DAKOTA	
140 E. Hinks Lane, Suite 126		WELL ELEVATION AND DEPTH SCHEMATIC	
Sioux Falls, South Dakota 57104		FILE: SBH Well Elev.DWG	
(805) 334-6000		DATE: April 22, 2008	
		FIGURE: 4	
DATE	REVISED		

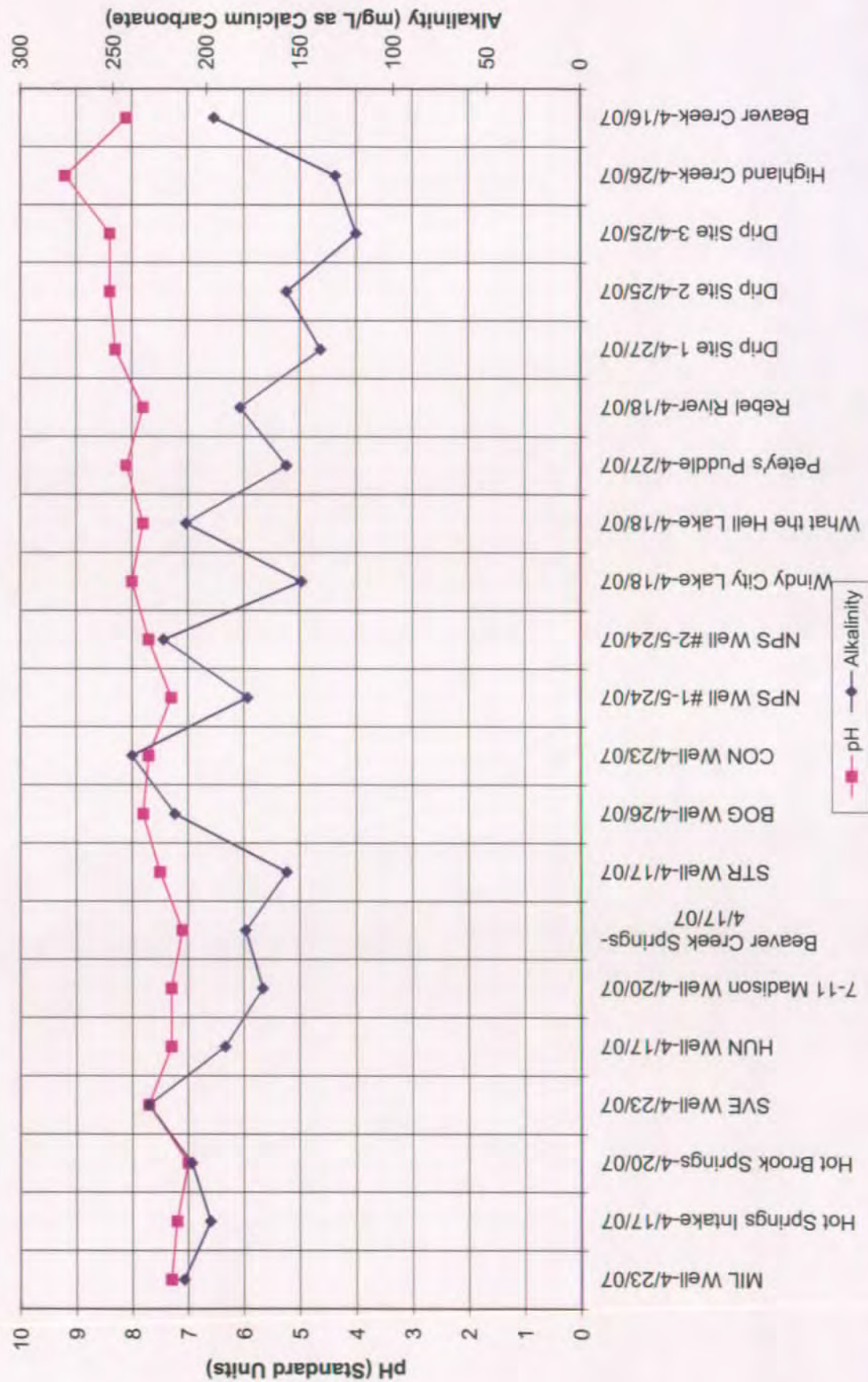
Dissolved Oxygen (DO) Concentration - Madison & Minnelusa Aquifers Mean Concentrations from Williamson & Carter (2001)



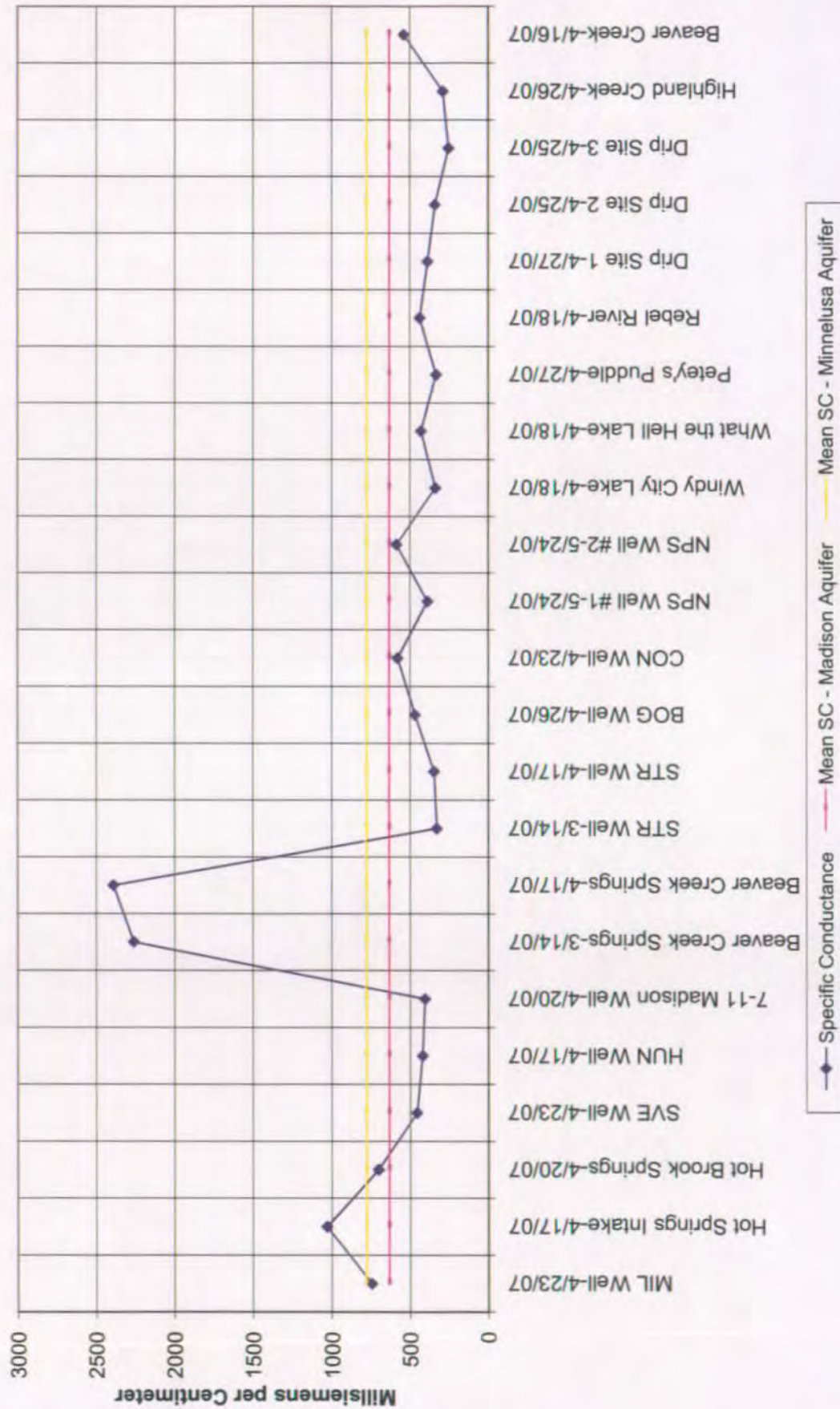
Temperature (Temp) - Madison & Minnelusa Aquifers Mean Temperature from Williamson & Carter (2001)



pH and Alkalinity



Specific Conductance (SC) - Madison & Minnelusa Aquifers Mean SC from Williamson & Carter (2001)



Dissolved Calcium (Ca) - Madison & Minnelusa Aquifer Mean Calcium Concentration from Williamson & Carter (2001)

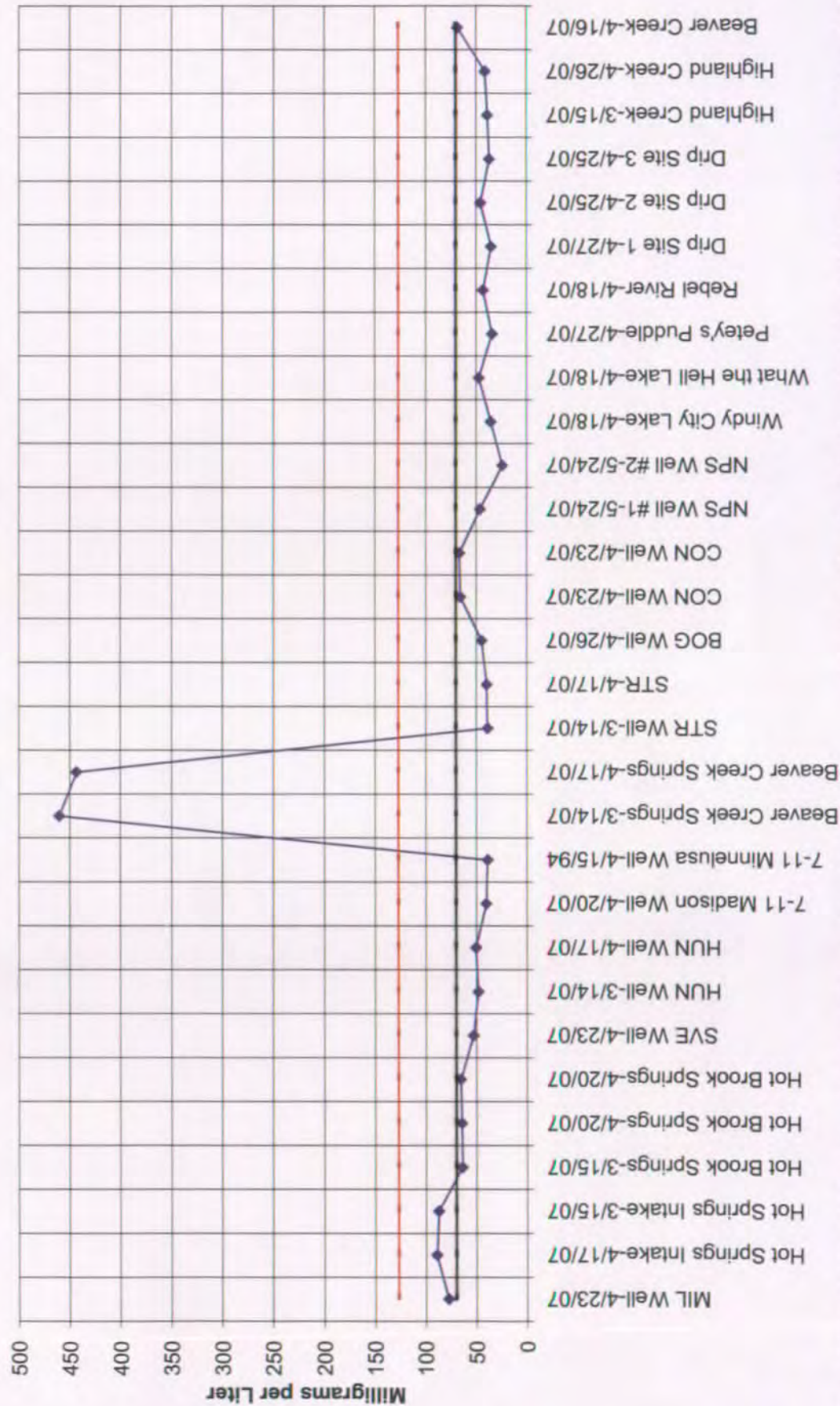
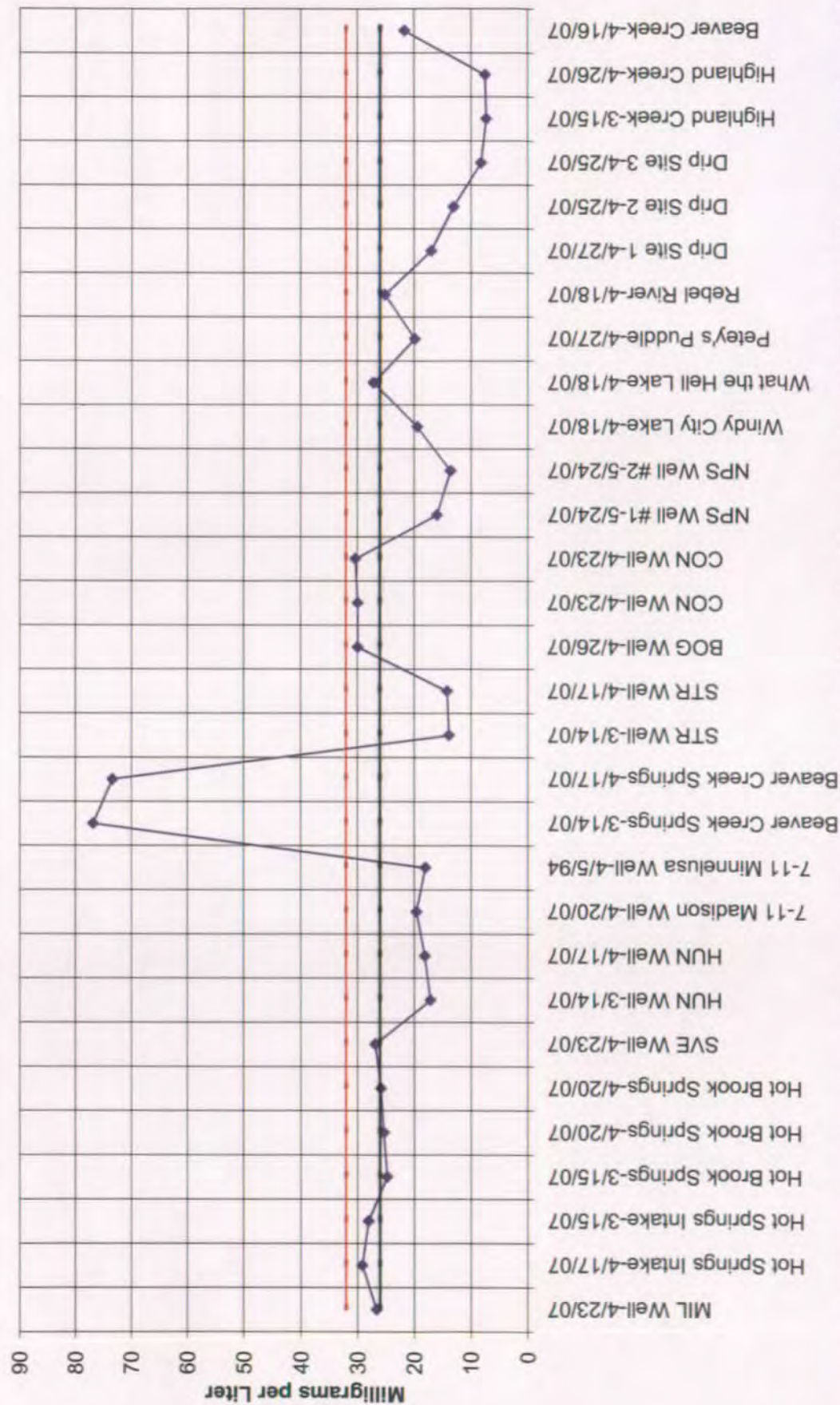


Figure 9. Dissolved Calcium (data for 7-11 Minnelusa well from 1994)

H:\Data\SS\HYDRO\SBH\Geochemical Report\Figure 9d calcium

—◆— Dissolved Calcium — Mean Ca Concentration - Madison Aquifer — Mean Ca Concentration - Minnelusa Aquifer

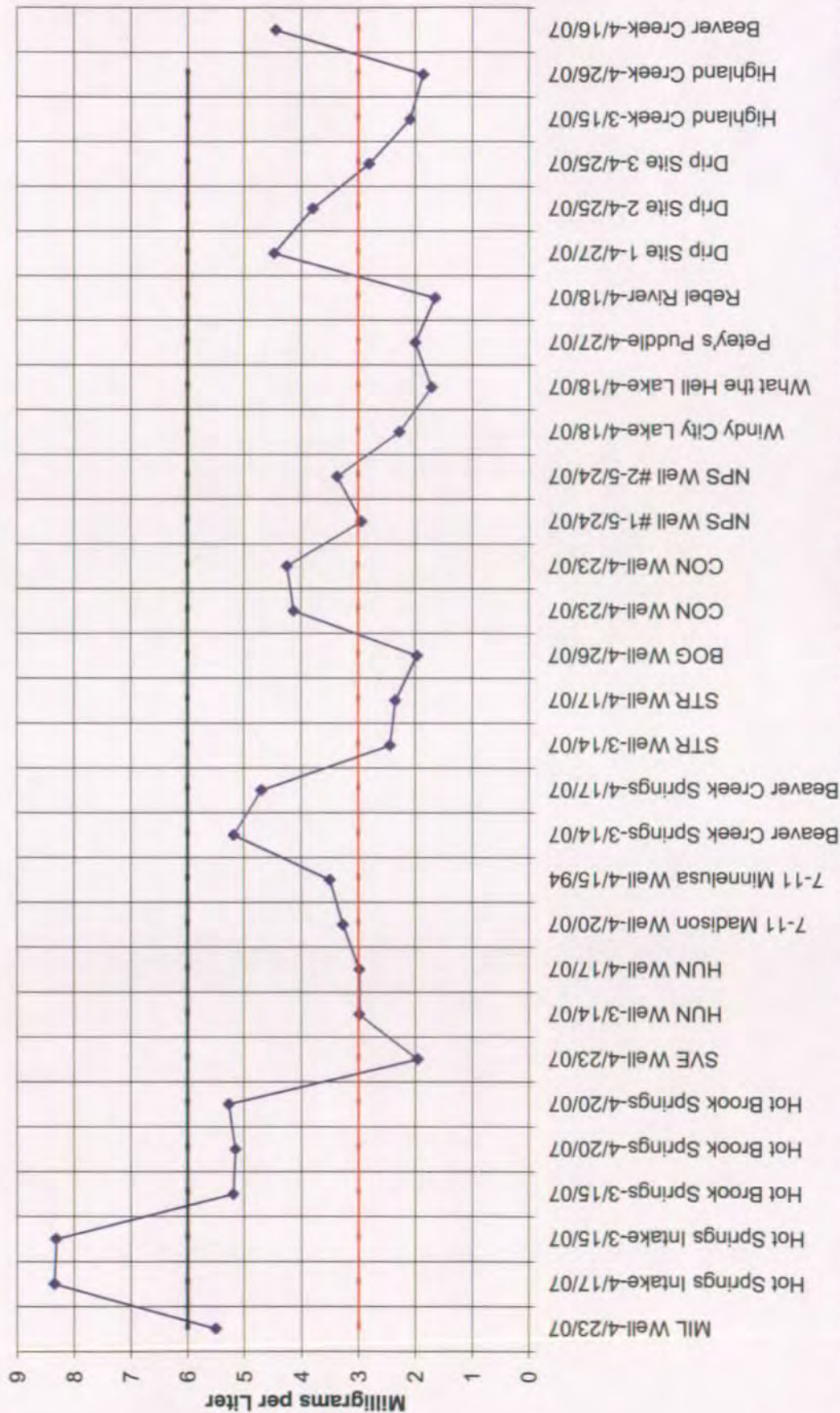
Dissolved Magnesium (Mg) - Madison & Minnelusa Aquifer Mean Magnesium Concentrations from Williamson & Carter (2001)



H:\Data\SS\HYDRO\SBH\Geochemical Report\Figure 10d magnesium **Figure 10. Dissolved Magnesium Concentrations (data for 7-11 Minnelusa well from 1994)**

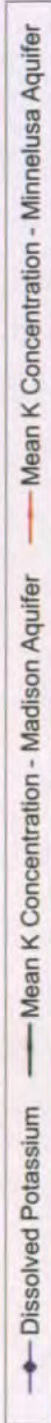
—◆— Dissolved Magnesium — Mean Mg Concentration - Madison Aquifer — Mean Mg Concentration - Minnelusa Aquifer

Dissolved Potassium (K) - Madison & Minnelusa Aquifer Mean Potassium Concentrations from Williamson & Carter (2001)

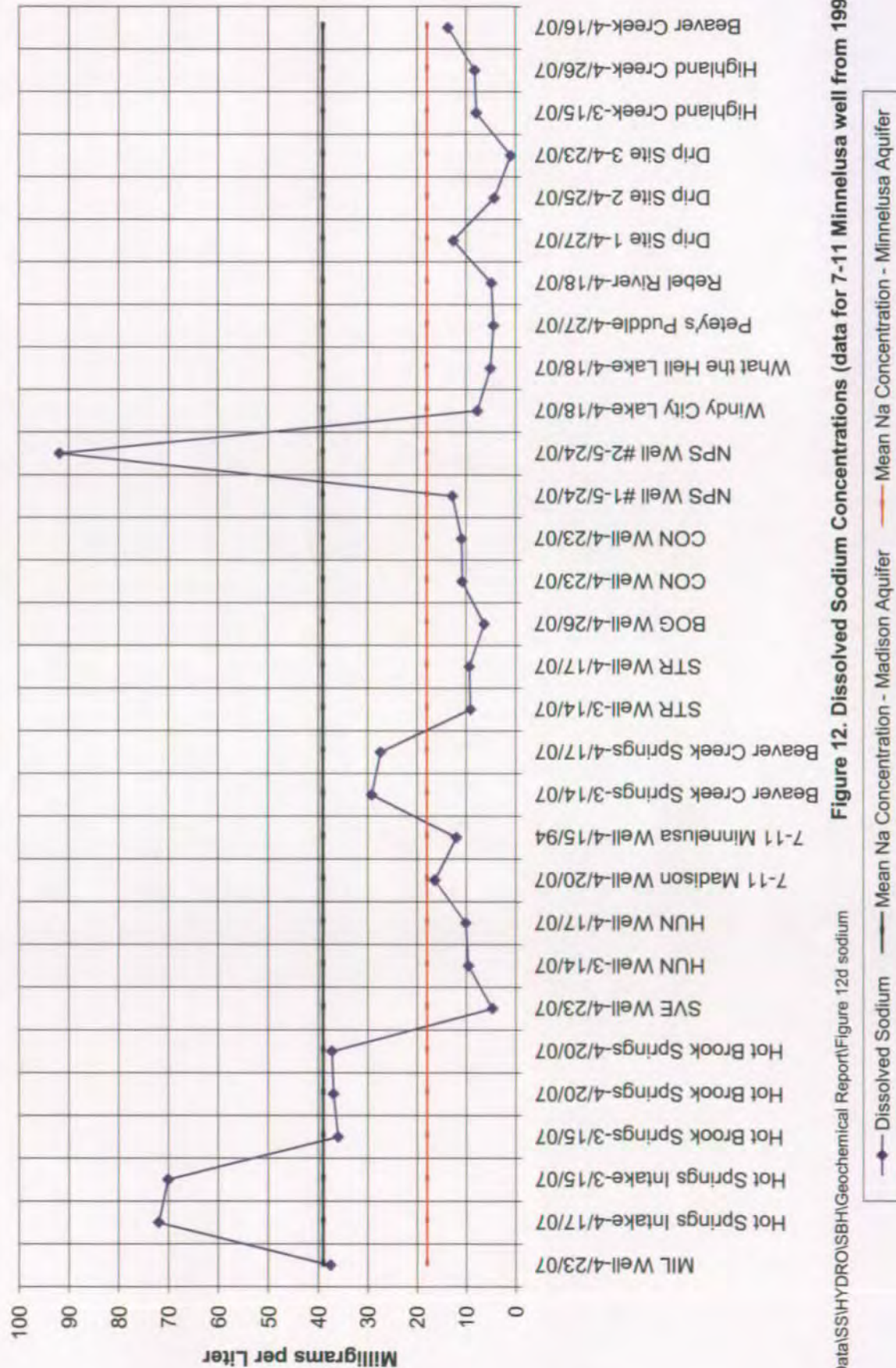


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Figure 11. Dissolved Potassium Concentrations (data for 7-11 Minnelusa well from 1994)



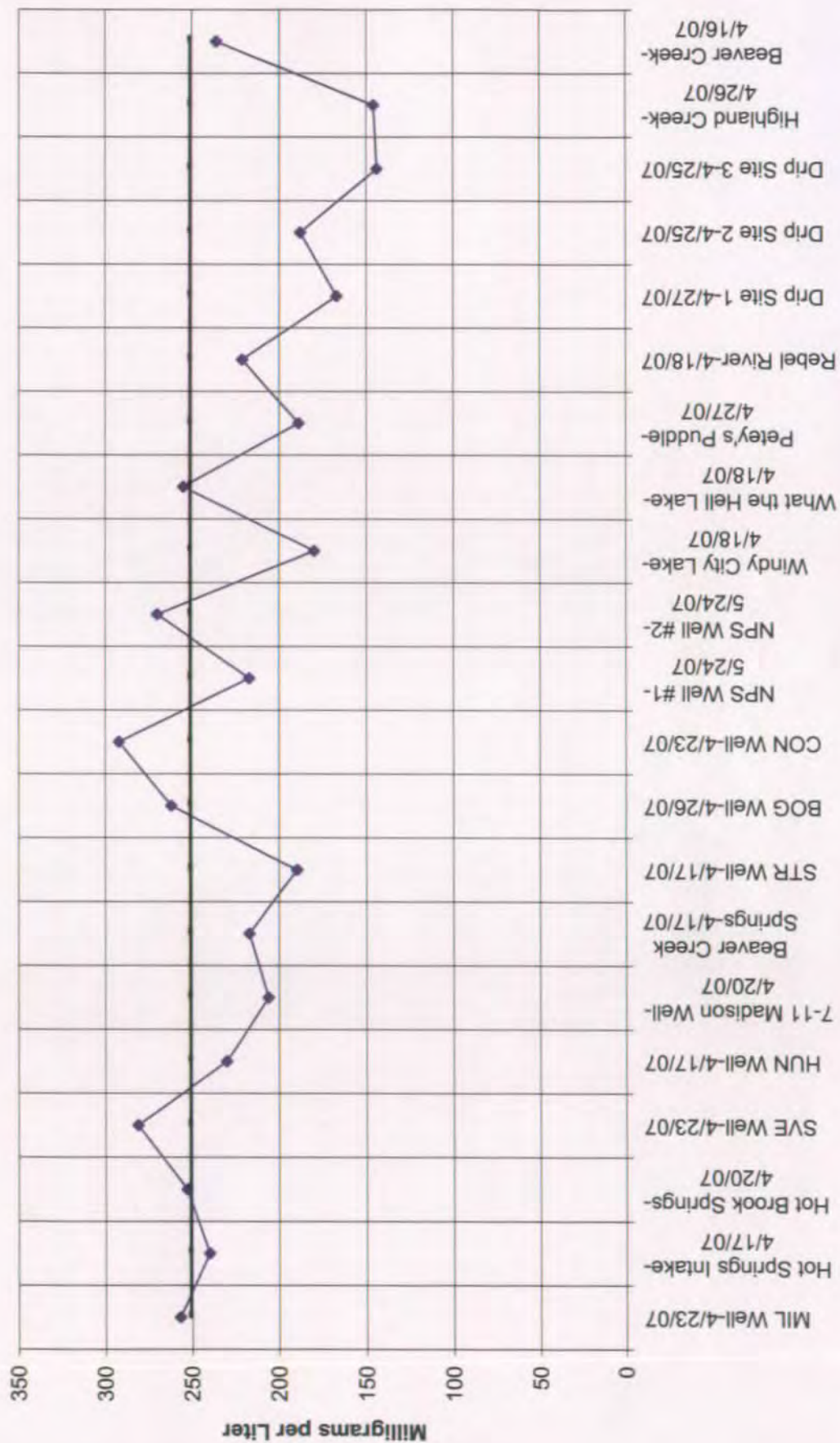
Dissolved Sodium (Na) - Madison & Minnelusa Aquifer Mean Sodium Concentrations from Williamson & Carter (2001)



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Figure 12. Dissolved Sodium Concentrations (data for 7-11 Minnelusa well from 1994)

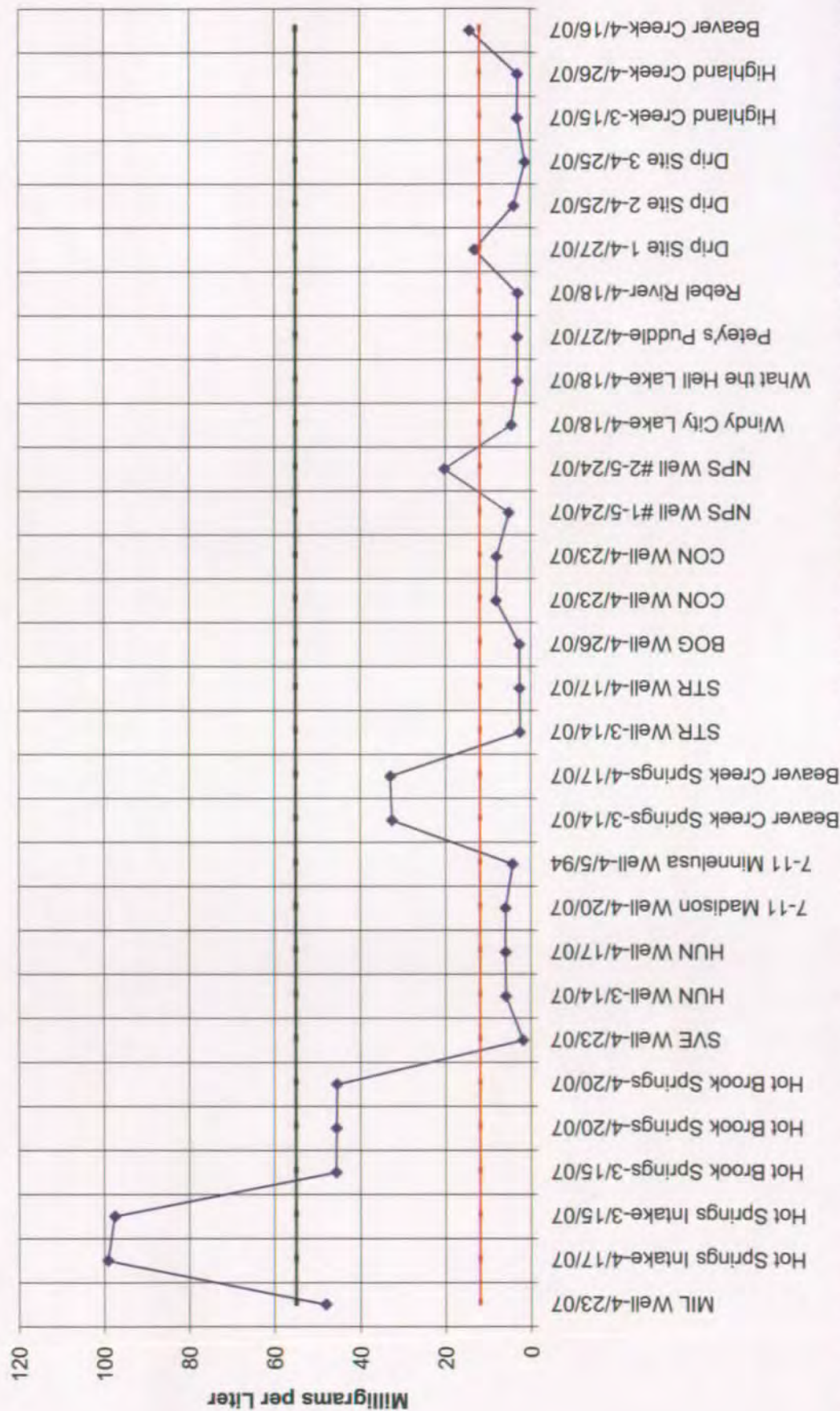
Dissolved Bicarbonate



S:\HYDRO\SBH\Geochemical Report\Figure 13d bicarbonate

Figure 13. Bicarbonate Concentrations

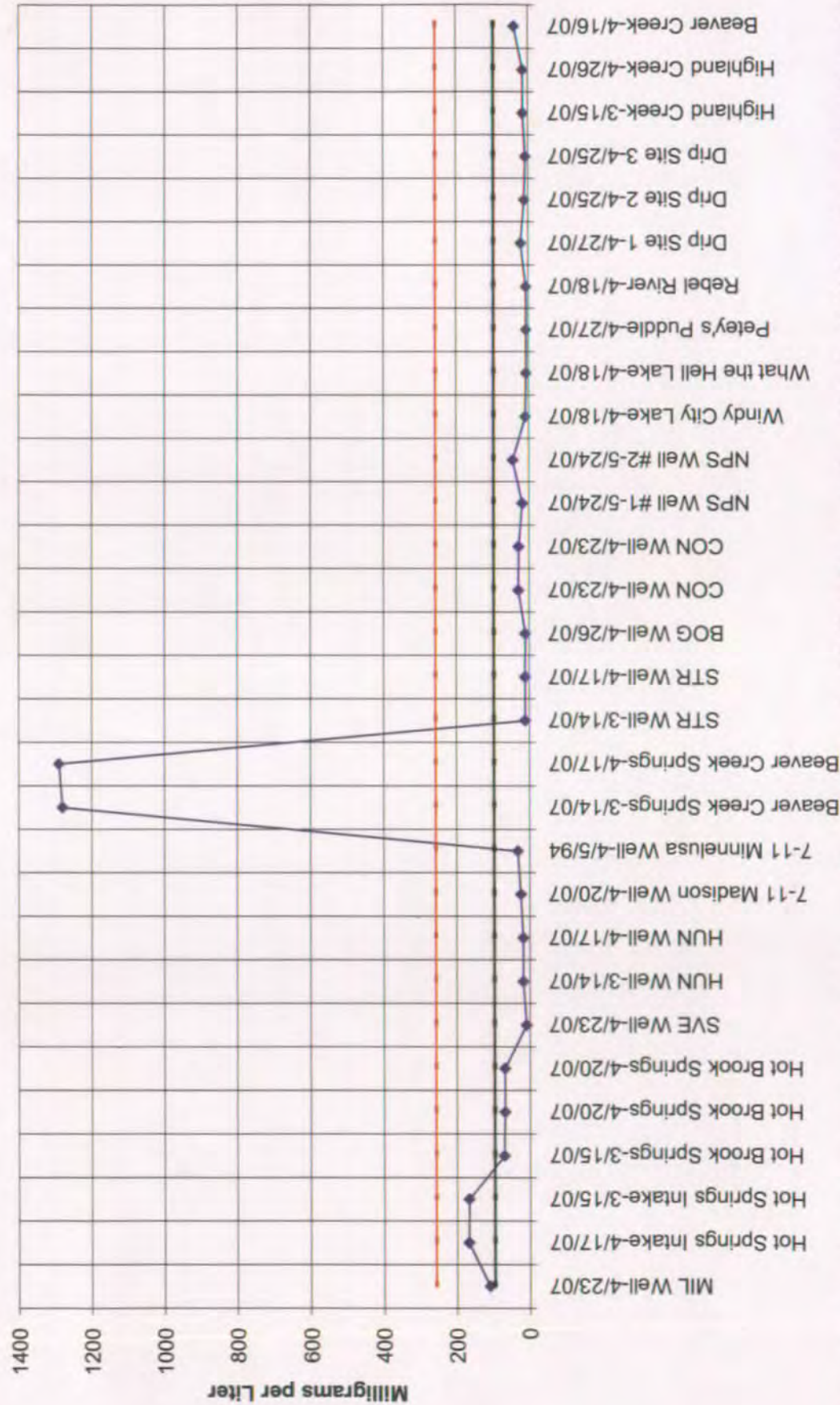
Dissolved Chloride (Cl) - Madison & Minnelusa Aquifer Mean Chloride Concentrations from Williamson & Carter (2001)



H:\Data\SS\HYDRO\SBH\Geochemical Report\Figure 14d chloride **Figure 14. Dissolved Chloride Concentrations (data for 7-11 Minnelusa well are from 1994)**

—●— Dissolved Chloride — Mean Cl Concentration - Madison Aquifer — Mean Cl Concentration - Minnelusa Aquifer

Dissolved Sulfate - Madison & Minnelusa Aquifer Mean Sulfate Concentrations from Williamson & Carter (2001)

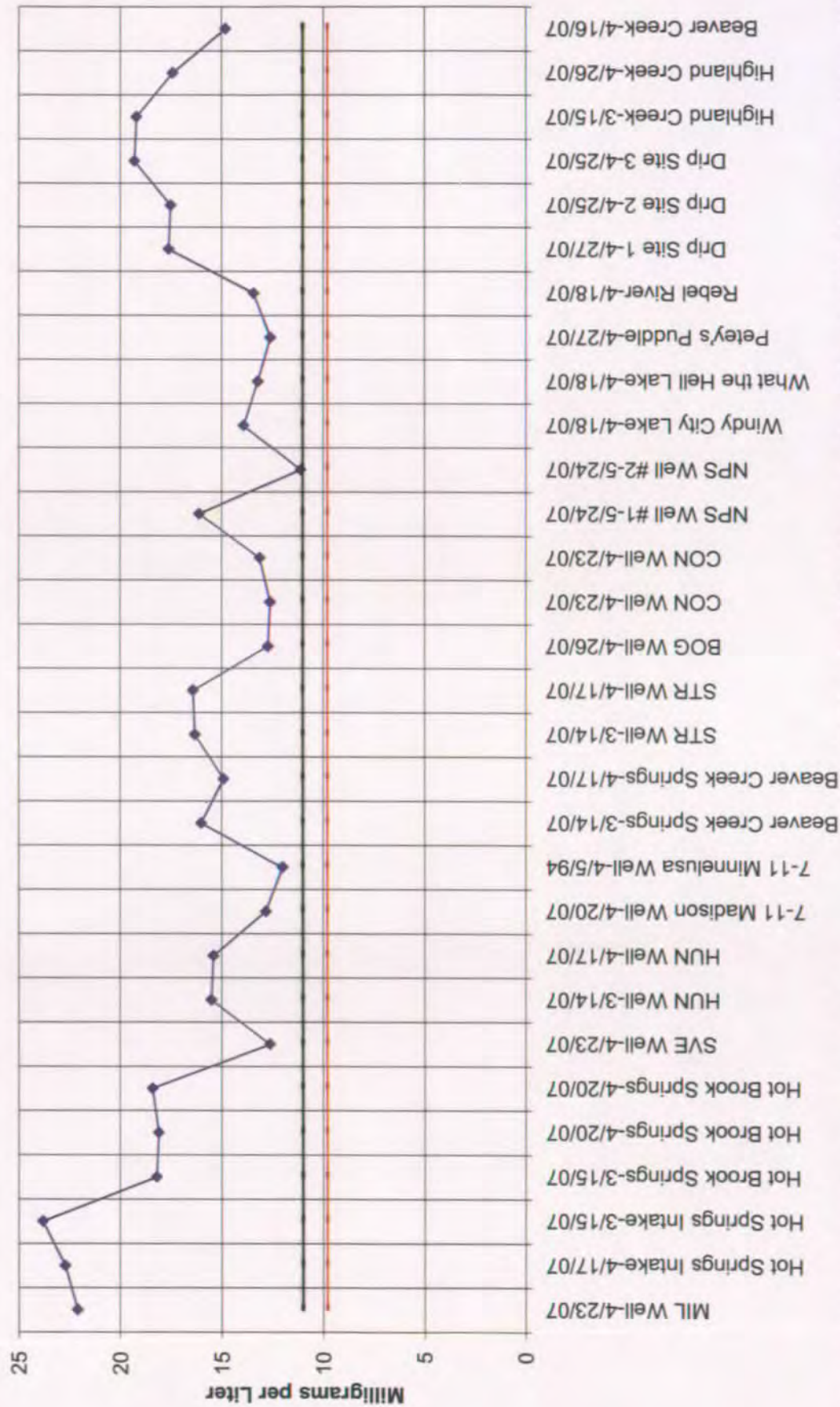


H:\Data\SS\HYDRO\SBH\Geochemical Report\Figure 15d sulfate

Figure 15. Dissolved Sulfate Concentrations (data for 7-11 Minnelusa well are from 1994)

—●— Dissolved Sulfate — Mean Sulfate Concentration - Madison Aquifer — Mean Sulfate Concentration - Minnelusa Aquifer

Dissolved Silica - Madison & Minnelusa Aquifer Mean Silica Concentrations from Williamson & Carter (2001)

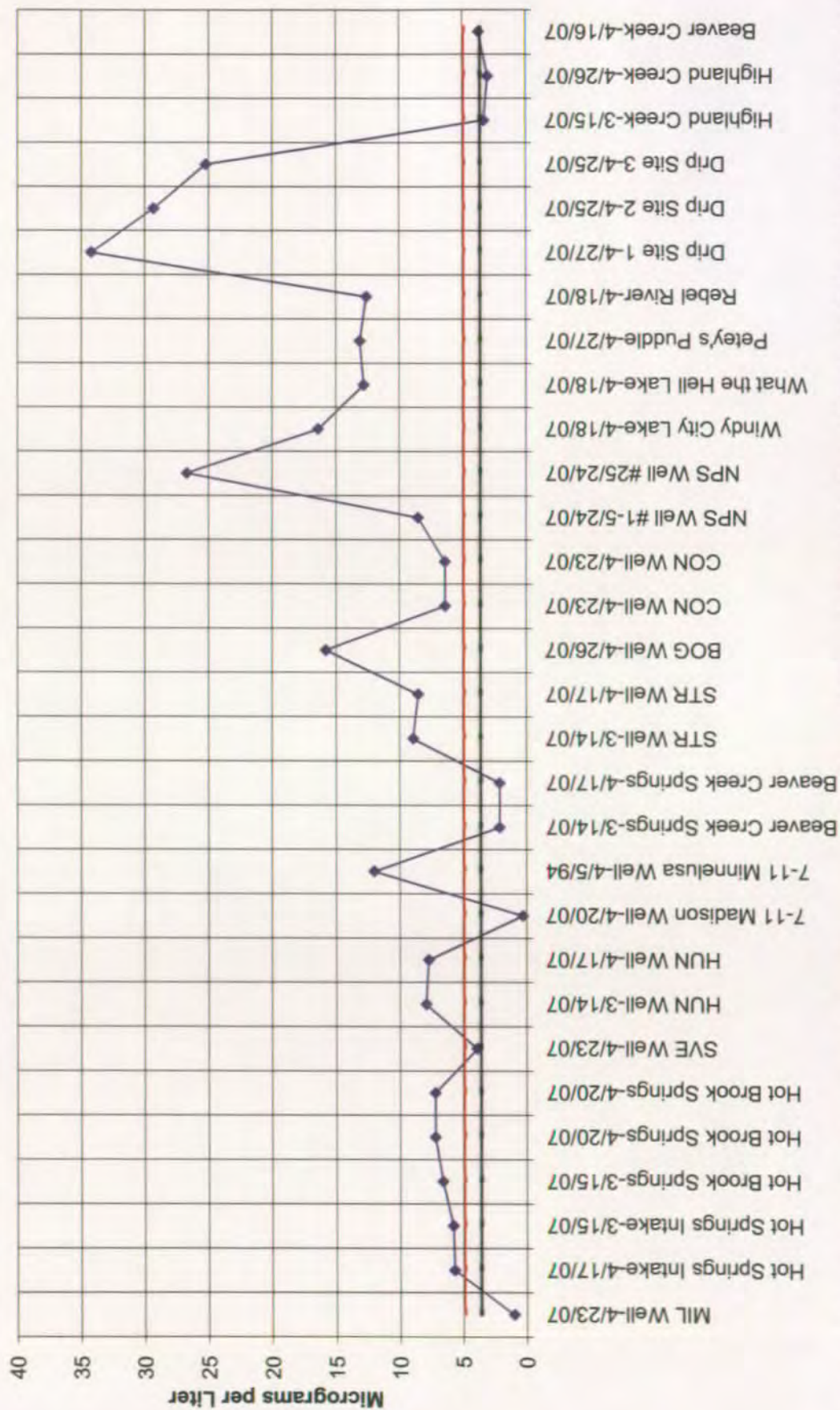


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Figure 16. Dissolved Silica Concentrations (data for 7-11 Minnelusa well from 1994)

— Dissolved Silica — Mean Silica Concentration - Madison Aquifer — Mean Silica Concentration - Minnelusa Aquifer

Dissolved Arsenic (As) - Madison & Minnelusa Aquifer Mean Arsenic Concentrations from Williamson & Carter (2001)

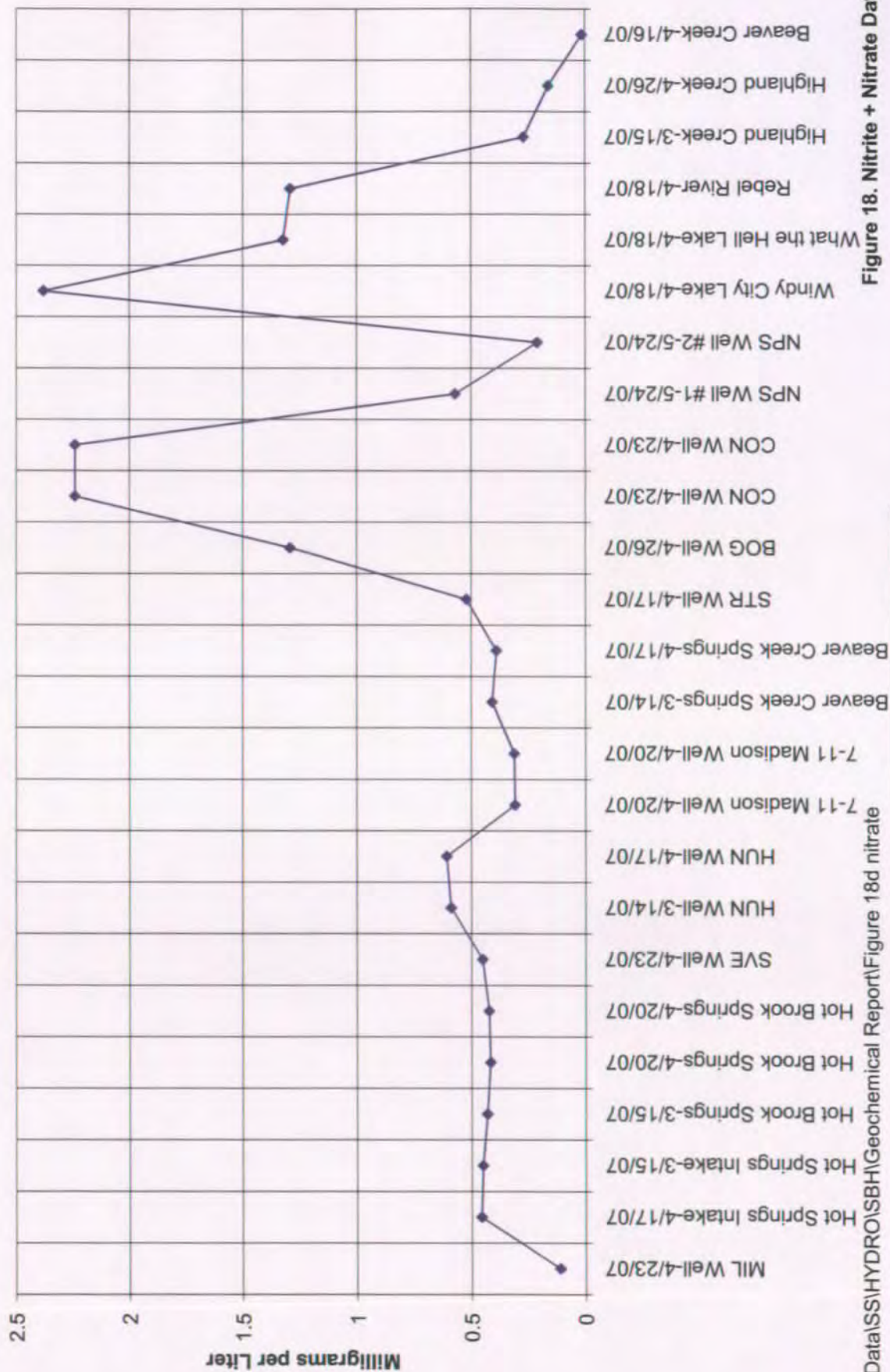


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Figure 17. Arsenic Concentrations (data for 7-11 Minnelusa well are from 1994)

—◆— Dissolved Arsenic — Mean As Concentration - Madison Aquifer — Mean As Concentration - Minnelusa Aquifer

Nitrite + Nitrate Concentrations



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Figure 18. Nitrite + Nitrate Data

Delta Oxygen X 1000 (Lighter Values are More Negative)

Location	Delta Oxygen X 1000 (Approximate Value)
MIL Well	-16.5
Hot Springs Intake	-16.0
Hot Springs Intake	-15.8
Hot Springs Intake	-15.5
Hot Springs Intake	-15.2
Hot Springs Intake	-15.0
Hot Springs Intake	-14.8
Hot Springs Intake	-14.5
Hot Springs Intake	-14.2
Hot Springs Intake	-14.0
Hot Springs Intake	-13.8
Hot Springs Intake	-13.5
Hot Springs Intake	-13.2
Hot Springs Intake	-13.0
Hot Springs Intake	-12.8
Hot Springs Intake	-12.5
Hot Springs Intake	-12.2
Hot Springs Intake	-12.0
Hot Springs Intake	-11.8
Hot Springs Intake	-11.5
Hot Springs Intake	-11.2
Hot Springs Intake	-11.0
Hot Springs Intake	-10.8
Hot Springs Intake	-10.5
Hot Springs Intake	-10.2
Hot Springs Intake	-10.0
Hot Springs Intake	-9.8
Hot Springs Intake	-9.5
Hot Springs Intake	-9.2
Hot Springs Intake	-9.0
Hot Springs Intake	-8.8
Hot Springs Intake	-8.5
Hot Springs Intake	-8.2
Hot Springs Intake	-8.0
Hot Springs Intake	-7.8
Hot Springs Intake	-7.5
Hot Springs Intake	-7.2
Hot Springs Intake	-7.0
Hot Springs Intake	-6.8
Hot Springs Intake	-6.5
Hot Springs Intake	-6.2
Hot Springs Intake	-6.0
Hot Springs Intake	-5.8
Hot Springs Intake	-5.5
Hot Springs Intake	-5.2
Hot Springs Intake	-5.0
Hot Springs Intake	-4.8
Hot Springs Intake	-4.5
Hot Springs Intake	-4.2
Hot Springs Intake	-4.0
Hot Springs Intake	-3.8
Hot Springs Intake	-3.5
Hot Springs Intake	-3.2
Hot Springs Intake	-3.0
Hot Springs Intake	-2.8
Hot Springs Intake	-2.5
Hot Springs Intake	-2.2
Hot Springs Intake	-2.0
Hot Springs Intake	-1.8
Hot Springs Intake	-1.5
Hot Springs Intake	-1.2
Hot Springs Intake	-1.0
Hot Springs Intake	-0.8
Hot Springs Intake	-0.5
Hot Springs Intake	-0.2
Hot Springs Intake	0.0

Stable Oxygen Isotope Concentration

Figure 19. Stable Oxygen Isotope Data

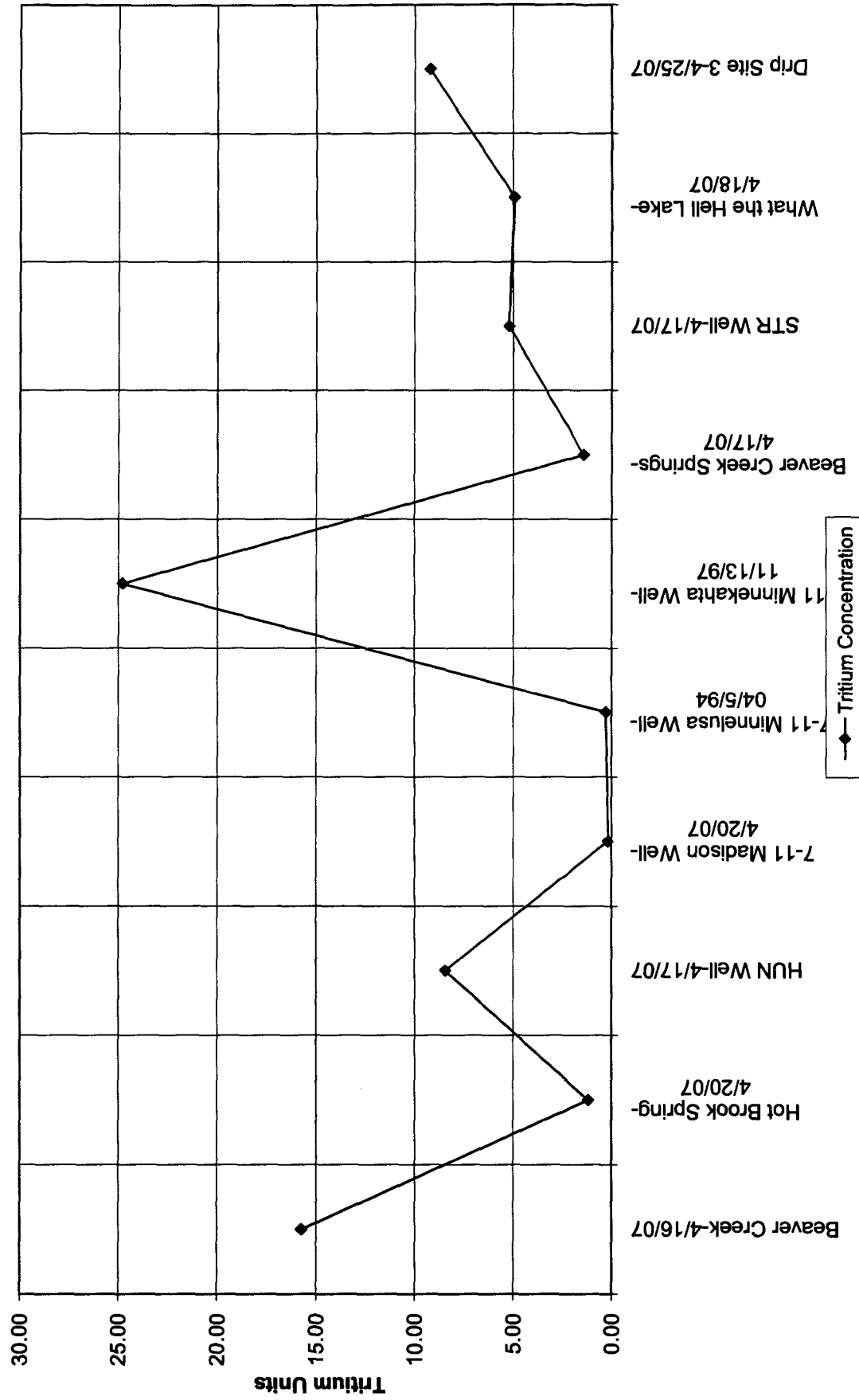
Delta Deuterium X 1000 (Lighter Values are More Negative)

Legend: ■ Stable Hydrogen (Deuterium) Isotope Concentration

Sample Name	Delta Deuterium X 1000 (Approximate)
MIL Well 4/23/07	-115
Hot Springs Intake Springs 3/15/07	-112
Hot Springs Intake Springs 4/17/07	-110
Hot Springs Intake Springs 7/9/07	-108
Hot Brook Springs 3/15/07	-105
Hot Brook Springs 4/20/07	-102
Hot Brook Springs 7/9/07	-100
SVE Well 4/23/07	-98
HUN Well 3/14/07	-95
NUN Well 4/17/07	-92
KA Well 7/9/07	-90
KA Well 7/9/07	-88
Madison Well 4/20/07	-85
7-11 Madison Well 4/20/07	-82
7-11 Minnehaha Well 4/5/94	-80
7-11 Minnehaha Well 4/5/94	-78
Beaver Creek Springs 3/14/07	-75
Beaver Creek Springs 4/17/07	-72
Beaver Creek Springs 7/10/07	-70
STR Well 3/14/07	-68
STR Well 4/17/07	-65
STR Well 7/10/07	-62
BOG Well 4/26/07	-60
CON Well 4/23/07	-58
CON Well 4/23/07	-55
Witch Spring 4/26/07	-52
Woodcock Spring 4/26/07	-50
Elk Mountain Spring 4/26/07	-48
RG Pegmatite Spring 1/4/26/07	-45
Sutherland Spring 4/27/07	-42
NPS Well #1 5/24/07	-40
NPS Well #2 5/24/07	-38
Windy City Lake 4/18/07	-35
What the Hell Lake 4/18/07	-32
Petey's Puddle 4/27/07	-30
Rebel River 4/18/07	-28
Drip site 1 4/27/07	-25
Drip site 2 4/25/07	-22
Drip site 3 4/25/07	-20
Highland Creek 3/15/07	-18
Highland Creek 4/26/07	-15
Highland Creek 7/19/07	-12
Beaver Creek 4/16/07	-10

Figure 20. Stable Hydrogen (Deuterium) Isotope Data

Tritium Concentration Data



APPENDIX A



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

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

April 21, 2008

Bob Peplinski, Chairman
Southern Black Hills Water System
27819 Hidden Valley Road
Oral, SD 57766

Dear Mr. Peplinski:

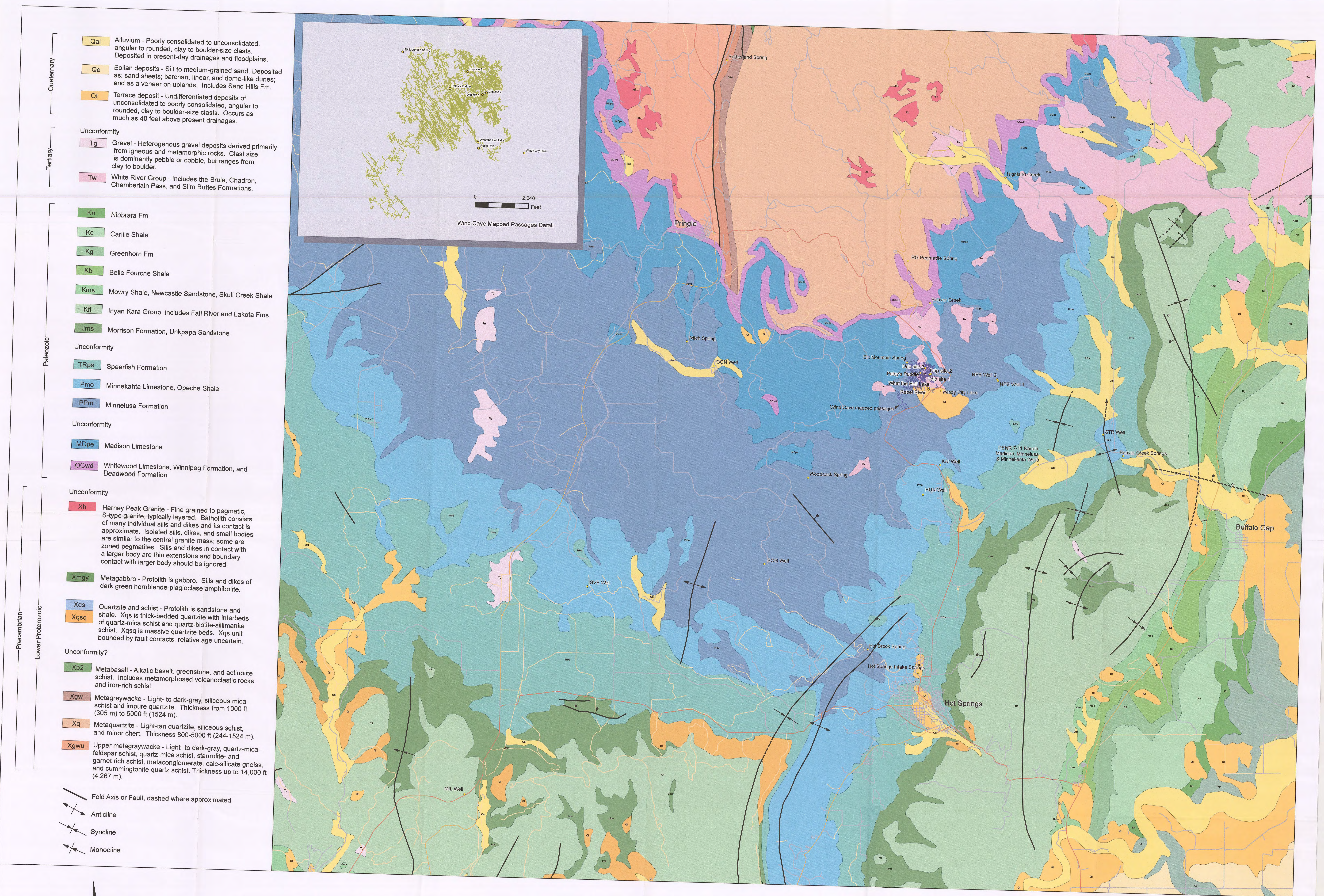
As requested, pursuant to South Dakota Well Construction Standard 74:02:04:21, Southern Black Hills Water System is authorized to construct a test well in Section 16, T6S-R6E prior to approval of a water permit. The well will be completed into the Madison aquifer. The test well must be constructed in accordance with the SD Well Construction Standards. Any test holes that are abandoned must be plugged pursuant to the SD Well Construction Standards.

Authorization must be obtained before water from the well can be used. Approval of this test well does not assure issuance of a water permit. The Water Management Board may reconsider Water Permit Application No. 2585-3 upon completion of the aquifer pump test analysis. The Water Management Board will assess the availability of water, the potential impacts to existing users, the beneficial use, and the public interest of a permit as part of their consideration.

Very truly yours,

JAMES A. GOODMAN, P.E.
Natural Resources Engineer
for GARLAND ERBELE, Chief Engineer
Water Rights Program
(605) 773-3352

c: parties of record



Source: Geologic Map of the Custer 7.5-Minute USGS Quadrangle (Redden, Nomast, Siren, 2001 [in Revision as of August 2006]).
Geologic Map of South Dakota, 2004, General Map 10. Berne, Custer, Custer Peak, Fourmile, Iron Mountain, and Mount Coolidge USGS 7.5-Minute Quadrangles.
Note: Lithology description are from the above referenced geologic maps. See referenced documents for additional lithology descriptions.



Prepared By:
LEGGETTE, BRASHEARS & GRAHAM, INC.
Professional Ground-Water and
Environmental Engineering Services
140 East Hinks Lane, Suite 126
Sioux Falls, SD 57104
(605) 334-6000

SOUTHERN BLACK HILLS WATER SYSTEM, INC.
ORAL, SOUTH DAKOTA

SBH/NPS/USGS Geochemical Sampling Site Locations

FILE: G6CUSTER03D.MXD

DATE: 21-Apr-08

FIGURE: 1