

WATER PERMIT NO. 1772-1

Name of Applicant: Fisher Sand and Gravel Company

Address: PO Box 1120, Spearfish SD 57783 Phone: 605 642-5760

Amount of Water Claimed: 0.078 cfs Total Acres: NA

Source of Water Supply: groundwater

Water to be used for: commercial County: Lawrence

Type of Waste Disposal System:

Location: 6 miles northwest of Spearfish near I-90

PRIORITY

Date Received: ⁶7-18-2002

Application/License Fee: \$100

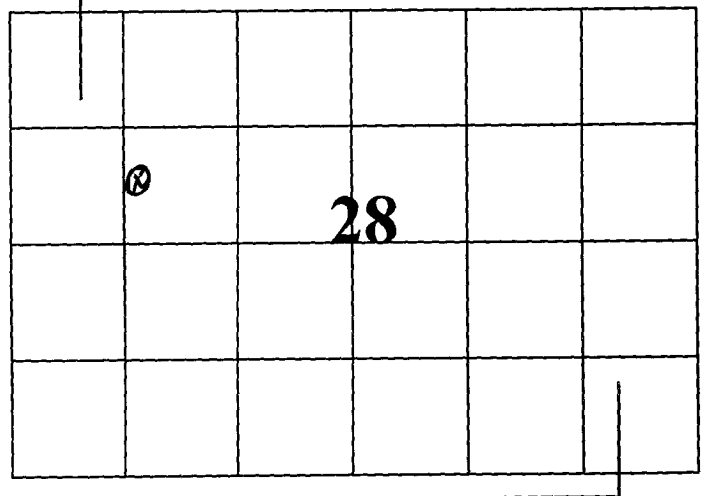
Corrected Application Received:

Period of Annual Use: January 1- December 31

Remarks:

Diversion Point: SW ¼ NW ¼ Sec 28-T7N-R1E

Land to be Irrigated: NA



Depth of Well: 740 feet deep

Well Driller: : Taylor Drilling Co.

Remarks:

Type of Map: plat

Prepared by: Randy L. Deibert, RLS

Reviewed and the Number Assigned on: 6-18-2002

By: Karen Schlaak

Notice of Hearing - date to intervene: _____

SOUTH DAKOTA
WATER PERMIT NO. 1772-1

Date of first receipt of application June 18, 2002.

The Water Management Board approved Water Permit No. 1772-1 on September 25, 2002 for Fisher Sand and Gravel Company, PO Box 1120, Spearfish SD 57783 authorizing the construction of the water use system and the placing of water to beneficial use subject to the following limitations, conditions and qualifications:

1. Water Permit No. 1772-1 appropriates 0.078 cubic feet of water per second (35 gallons per minute) from one well (Minnelusa Formation) 740 feet deep located in the SW ¼ NW ¼ Section 28-T7N-R1E.
2. The water appropriated shall be used for the purpose of commercial use and may not exceed the amount of water needed for beneficial use.
3. The water is to be used during the following described annual period: January 1 – December 31.
4. The date from which applicant may claim right is June 18, 2002.
5. One-fifth of the construction is to be completed on or before March 25, 2005.
6. All construction is to be completed on or before September 25, 2007.
7. Water is to be put to beneficial use on or before September 25, 2011.
8. Water rights obtained in compliance with the laws of the State of South Dakota may not be unlawfully impaired by this appropriation.

QUALIFICATION

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

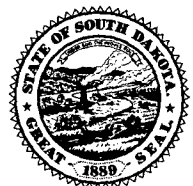
WATER MANAGEMENT BOARD

By: Garland Erbele

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

OCT 25 2002

date



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

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

(office use only)
No. 1772-1 Hydrologic Unit 10120203
Basin Belle Fourche River
Newspaper Black Hills Pioneer, Spearfish SD
57703-007

RECEIVED
JUN 18 2002
WATER RIGHTS
PROGRAM

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

Check use(s) of water:

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

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

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

1. Name of Applicant FISHER SAND AND GRAVEL COMPANY Phone 605-642-5760
(check one) ☒ Owner ☐ Tenant/lessee
Mailing Address P.O. BOX 1120, SPEARFISH State S.D. 57783
(Street, RR, or Box and City) (Zip Code)
2. Amount of water claimed 0.078 *CFS or 35 **GPM ***AF
(*Cubic Feet per Second) (**Gallons per Minute) (***)Acre Feet - storage capacity of dam/dugout or annual use if applicable)
3. Source of water supply WELL
4. Location of point of diversion (example - 3 wells in SW1/4 NE1/4 section 12-T104N-R53W) 1 WELL - SW1/4NW1/4 section 28
TOWNSHIP 7 NORTH - RANGE 1 EAST
County LAWRENCE
5. County or counties where water will be used LAWRENCE
6. Annual period during which water is to be used YEAR ROUND Jan 1 - Dec 31
7. Give a description of the project. When available include any preliminary engineering report or other reports or information that will help explain the project. (Attach sheet if more space is needed)

WATER IS USED FOR SINKS, TOILETS AND OCCASIONALLY FOR
USE BY A POWER WASHER. TOTAL DAILY USAGE SHOULD NOT EXCEED
200 GALLONS A DAY.

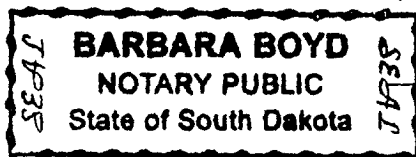
STATE OF SOUTH DAKOTA)
County of Lawrence SS

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

I, _____, 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 Ray Tesky

Subscribed and sworn to before me this 11th day of June 2002



Barbara Boyd 10/6/04
Notary Public signature

Supplemental Information

(type or print in ink)

1. Well Information - Proposed Construction

- a) Drill Hole Diameter _____ Depth _____
- b) Casing Type _____ Diameter _____ Thickness _____
- c) Screen Type _____ Diameter _____ Thickness _____
- d) Gravel Pack _____ Length of Gravel Pack _____
- e) Depth to Top of Water Bearing Material _____
- f) Depth to Water (ground surface to water level) _____
- g) Distance to nearest existing domestic well:
- On applicants property _____ On property owned by others _____

2. Wastewater Disposal System Information

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

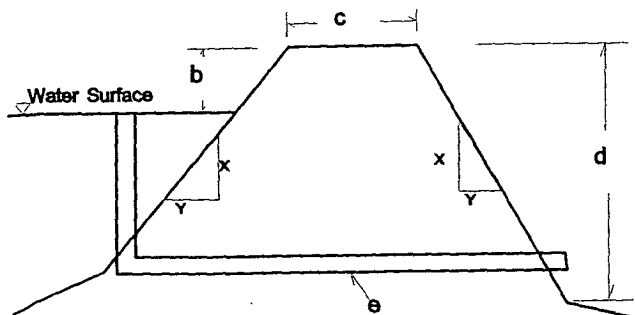
3. Dugout Information

- 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



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

March 6, 2002

Fisher Sand & Gravel
PO Box 1120
Spearfish SD 57783

Dear Sir:

I am writing in regard to a well driller's report filed by Taylor Drilling Co. The report shows a new well has been completed for Fisher Sand & Gravel for industrial use located in Section 28-T7N-R1E. Based on the information in the report, you may need a water permit for this water use.

1. According to state law, a water permit is needed for any water use except for reasonable, private domestic use.
2. Also, as a new well owner, you need to be aware of some of your responsibilities. Enclosed is a copy of "Well Owner Responsibilities". Please review these responsibilities to ensure you are complying with all of the requirements.

Enclosed are application forms and instruction sheet to apply for a water permit. The completed forms with the application fee and map can be returned to: Water Rights Program, 523 E. Capitol, Pierre, SD 57501. Please respond by April 15, 2002.

If you believe your water use does not require a water permit or that you have an existing permit, or if help is needed completing the application forms, please contact Ron Duvall or me at (605) 773-3352. We will be happy to assist you in any way possible.

Sincerely,

Karen Schlaak
Water Rights Program

enclosures

SOUTH DAKOTA WATER WELL COMPLETION REPORT

07-92

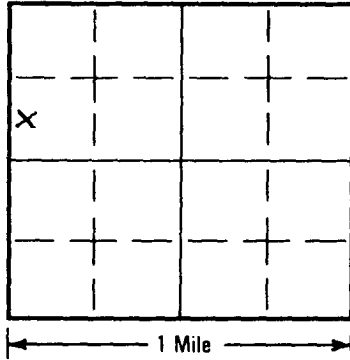
Location SW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec 28 Twp 7N Rg 1E
 County Lawrence

Please mark well location with an "X"

W

E

Well Completion Date

May 1, 2001

LOCATION:

Distance from nearest potential pollution source (septic tank, abandoned well, feed lot, etc.)? >100 ft. from septic system (identify source).

PROPOSED USE:

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

METHOD OF DRILLING:

Air rotaryCASING DATA: ☒ Steel ☐ Plastic ☐ Other

If other describe _____

PIPEWEIGHT	DIAMETER	FROM	TO	HOLE DIAMETER
_____ LB/FT	<u>5 1/2</u> IN	_____ FT	_____ FT	_____ IN
_____ LB/FT	_____ IN	_____ FT	_____ FT	_____ IN
_____ LB/FT	_____ IN	_____ FT	_____ FT	_____ IN

GROUTING DATA

Grout Type	No. of Sacks	Grout Weight	From	To
_____	_____	_____ lb./gal	_____ ft.	_____ ft.
_____	_____	_____ lb./gal	_____ ft.	_____ ft.

Describe grouting procedure _____

SCREEN: ☐ Perforated pipe ☐ Manufactured

Diameter _____ IN Length _____ FEET

Material _____

Slot Size _____ Set From _____ Feet to _____ Feet

Other information _____

WAS A PACKER OR SEAL USED? ☐ YES ☐ NO

If so, what material? _____

Describe packer(s) and location? _____

DISINFECTION: Was well disinfected upon completion?

☒ YES, How: chlorine
☐ NO, Why Not? solution

Laboratory sent to for water quality analysis _____

Well Owner: Fisher Sand & Gravel
 Business Name: Fisher Sand & Gravel
 Address: PO Box 1120
Spearfish, SD 57783

WELL LOG:

DEPTH

FORMATION

FROM

TO

<u>orange ss</u>	<u>720</u>	<u>733</u>
<u>purple LS</u>	<u>733</u>	<u>740</u>

STATIC WATER LEVEL _____ Feet

If flowing: closed in pressure 62 PSIGPM flow 15 through _____ inch pipeControlled by ☐ Valve ☐ Reducers ☐ Other flowing wellReduced Flowrate pitless unit GPMCan well be completely shut in? yes

WELL TEST DATA:

☐ Pumped Describe: _____☐ Bailed air developed☐ Other _____

Pumping Level Below Land Surface

740 ft. After 1 Hrs. pumped >100 GPM

_____ ft. After _____ Hrs. pumped _____ GPM

If pump installed, pump rate _____ GPM

REMARKS

This well was drilled & cased by another contractor. Taylor Drilling drilled the cement out & drilled 20' of open hole

This well was drilled under license # 331

And this report is true and accurate.

Drilling firm Taylor Drilling Co.

Signature of License Representative:

Rock Taylor

Signature of Well Owner or Equitable Property Holder:

RECEIVED

FEB 19 2002

Date: _____

WATER RIGHTS PROGRAM

SOUTH DAKOTA WELL AND TEST HOLE PLUGGING REPORT

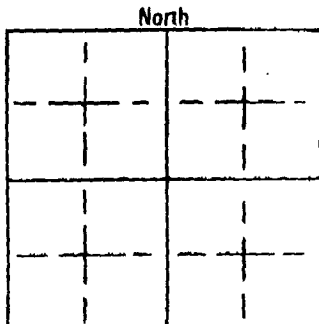
10-85

Location 1/4 1/4 Sec 28 Twp 7N Rg 1E

County

LawrencePlease mark well
location with
an "X"

W



1 mile

Well Owner:

Name Fisher Sand & GravelAddress Spearfish, SD 577833020 Energy DriveP.O. Box 1034Dickinson, ND 58602-1034Plugging completion Date 8-2-2000

CHECK APPROPRIATE BOX

EXISTING WELL



Well depth

730

Casing material

Steel

Casing size(s)

5 1/2" OD

Casing condition

New - 40' 8 5/8"Surface - iron

TEST HOLE



Hole depth

730

Hole size

7 7/8Describe plugging procedure: 720' 5 1/2" OD 15.50# logged - shot by Goodwell
at 348-350 approx. 485Describe grout or plugging material: 6000 gals - Flo Cheek - 1000 sacks cement8000 gals calcium chloride - mixed with fresh water -
see attached Halliburton job records

Type of non-slip plug: _____

This well or test hole was plugged under license # 327 And this report is true and accurate.

Drilling firm

Graf Drilling

Signature of Licensed Representative _____

Signature of Well Owner _____

Date _____

SOUTH DAKOTA WATER WELL COMPLETION REPORT

07-92

Location 1/4 1/4 Sec 28 Twp 7N Rg 1E

County

LAWRENCE

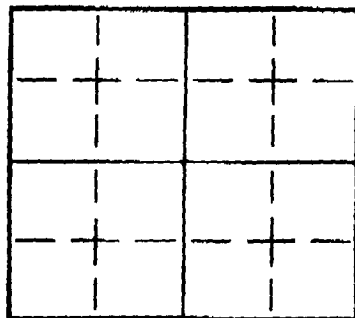
North

Please mark well location with an "X"

W

E

Well Completion Date



1 Mile

LOCATION:

Distance from nearest potential pollution source (septic tank, abandoned well,

lead lot, etc.)? _____ ft. from _____ (identify source).

PROPOSED USE:

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

METHOD OF DRILLING:

ROTARY MUDCASING DATA: ☒ Steel ☐ Plastic ☐ Other

If other describe _____

PIPEWEIGHT	DIAMETER	FROM	TO	HOLE DIAMETER
<u>25</u> LB/FT	<u>8 1/2</u> IN	<u>0</u> FT	<u>40</u> FT	<u>12 1/4</u> IN
<u>15.50</u> LB/FT	<u>5</u> IN	<u>0</u> FT	<u>720</u> FT	<u>7 3/8</u> IN
_____ LB/FT	_____ IN	_____ FT	_____ FT	_____ IN

GROUTING DATA

Grout Type	No. of Sacks	Grout Weight	From	To
<u>CEMENT</u>	<u>125</u>	_____ lb./gal	_____ ft	_____ ft
<u>HALLIBURTON 2000</u>		_____ lb./gal	_____ ft	_____ ft

Describe grouting procedure PRESSURE GROUTEDSCREEN: ☐ Perforated pipe ☐ Manufactured

Diameter _____ IN Length _____ FEET

Material _____

Slot Size _____ Set From _____ Feet to _____ Feet

Other information _____

WAS A PACKER OR SEAL USED? ☐ YES ☐ NO

If so, what material? _____

Describe packer(s) and location? _____

DISINFECTION: Was well disinfected upon completion?

YES. How: _____

NO, Why Not? _____

Laboratory sent to for water
quality analysis _____Well Owner: FISHER INDUSTRIES

Business Name: _____

Address: 3020 ENERGY DRIVE - BOX 1034DICKINSON N.D. 58602-1034

WELL LOG:

DEPTH

FORMATION	DEPTH	
	FROM	TO
<u>RED BEDS</u>	<u>0</u>	<u>215</u>
<u>MIRIKOTA LIMESTONE</u>	<u>215</u>	<u>345</u>
<u>OPACHE</u>	<u>345</u>	<u>430</u>
<u>MINNIELOOBA</u>	<u>430</u>	<u>720</u>

STATIC WATER LEVEL FLOWED _____ Feet

If flowing: closed in pressure _____ PSI

GPM flow 1000 through _____ inch pipeControlled by ☐ Valve ☐ Reducers ☐ Other _____

Reduced Flowrate _____ GPM

Can well be completely shut in? _____

WELL TEST DATA:

☐ Pumped Describe: _____☐ Bailed _____☐ Other _____

Pumping Level Below Land Surface

_____ ft. After _____ Hrs. pumped _____ GPM

_____ ft. After _____ Hrs. pumped _____ GPM

If pump installed, pump rate _____ GPM

REMARKS CEMENT JOB DIDNT HOLD
FLOWING AROUND CASING-
FINALLY KILLED AND PLUGGED BY
HALLIBURTON CEMENTERS

This well was drilled under license # 327

And this report is true and accurate.

Drilling firm GRAF DRILLING

Signature of License Representative:

Signature of Well Owner or Equitable Property Holder:

Date: _____



BLACK HILLS SURVEYING, INC.

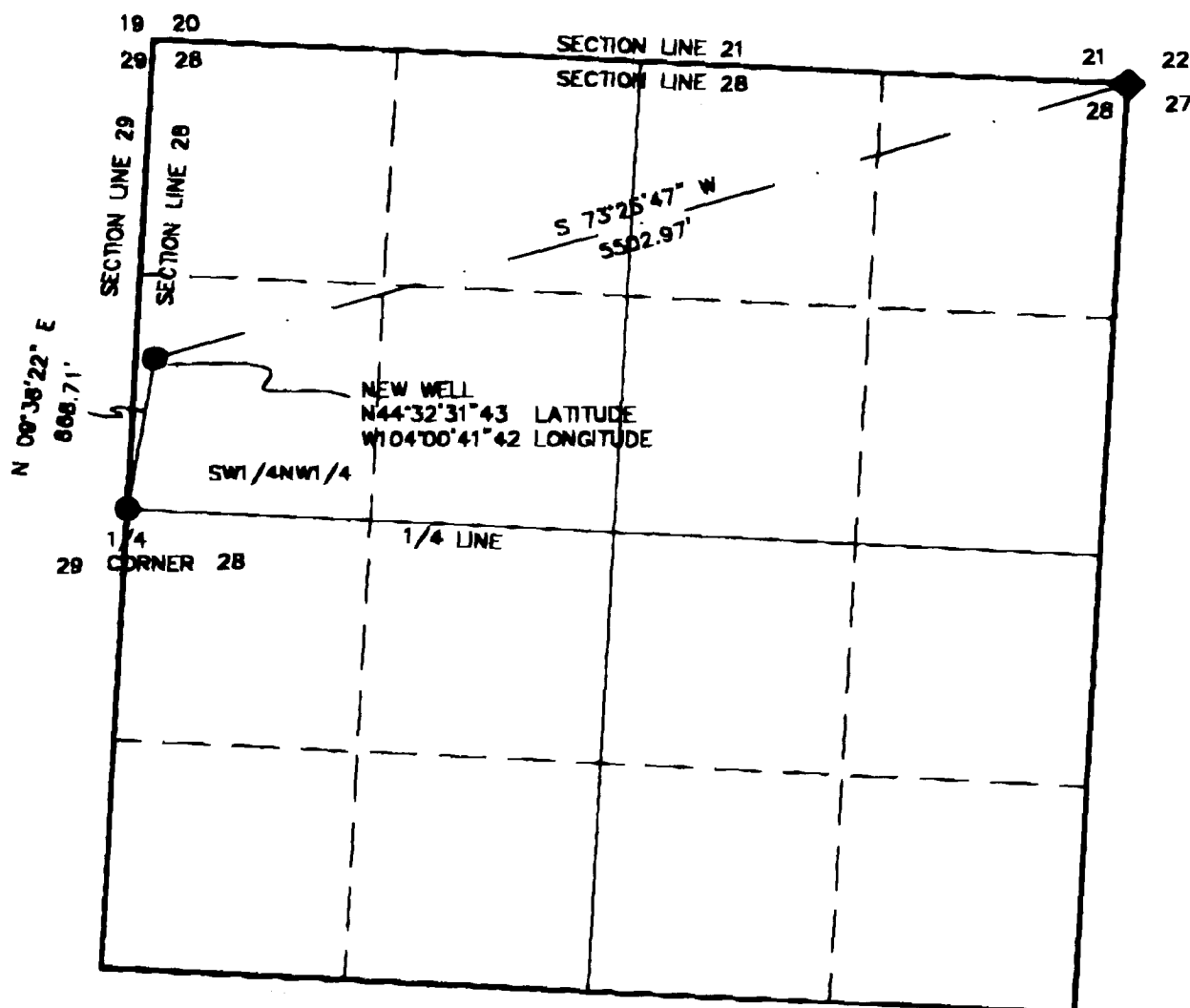
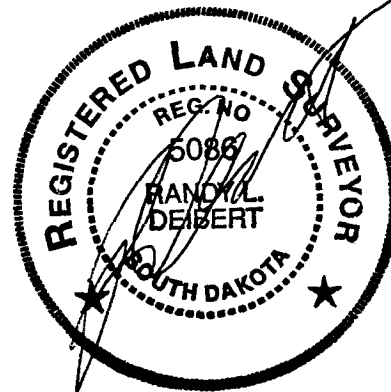
P.O. BOX 408
SPEARFISH, SD 57783
PHONE (605)842-8133

WELL LOCATION EXHIBIT

PREPARED FOR: FISHER SAND AND GRAVEL

DATE: 01-15-01
SCALE: 1"=1000 FEET
DRAWN BY: RJD
JOB NO: 00-1000
DWG: 00-1000.DWG

LEGAL:

SW1/4NW1/4 OF SECTION 28,
TOWNSHIP 7 NORTH, RANGE 1 EAST,
B.H.M., LAWRENCE COUNTY, SOUTH DAKOTA.

RECEIPT

Water Rights Program

South Dakota Department of Environment and Natural Resources

№ 417187

Pierre, June 18

20 02

RECEIVED OF Fisher Sand & Gravel, HCR 30 Box 1-A, Spearfish, SD 57783

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

Fee for Application for Permit No. 1772-1 to Appropriate Water, to construct
and to put water to beneficial use _____

50 00

Fee for Application for Permit No. _____ to Appropriate Water, for Future
Use _____

Fee to retain Future Use Permit No. _____ after period of seven years.

Fee for Inspecting Constructed Works, confirming beneficial use and issuing Water
License No. 1772-1 _____

50 00

Fee for Filing Transfer Form _____

Fee for Filing Extension Request _____

Fee for _____

(Any Other Work Provided by Law)

Total

100 00

By

Darland Erbe
Chief Engineer

Buhler, Ken

From: Buhler, Ken
Sent: Thursday, July 27, 2000 9:28 AM
To: Erbele, Garland
Cc: Buhler, Ken; Goodman, Jim
Subject: Well Construction problem near Spearfish

Graf Drilling is attempting to drill a well for Fisher Industries near Spearfish and is having problems completing it. This well is located about 1/4 mile south of I-90 at Exit 2 (NW Sec. 28, T7N-R1E). At this time, the well is not properly completed, and has resulted in an uncontrolled flow of 500-1000 gpm for approximately the last two weeks. Water Rights learned of the well July 24, 2000 when a neighbor (Dianne Miller) contacted us. Two other neighbors have contacted us since Ms. Miller's call.

Geologically, a log for the well is:

- 0-30 alluvium
- 20-310 Spearfish Formation (red beds with gypsum)
- 310-345 Minnekahta Limestone
- 345-434 Opeche Shale
- 434-730 Minnelusa formation (sandstone, limestone, shale)

In this area, the alluvium, Spearfish, Minnekahta, and Minnelusa are all prolific aquifers. Except for the alluvium, any of these aquifers may produce flowing wells.

This well has 40 feet of 8" surface casing cemented in place and 725 feet of 5.5" steel casing set. The driller attempted to install and grout the 5.5" casing while the hole was flowing and the grout job was unsuccessful. A cement bond log indicates the casing only grouted from 725' to about 508' below grade. The casing was perforated at 490' below grade and several attempts were made to cement the casing above 490'.

On July 25, 2000, Jim Goodman and I visited the site. At that time there was no leakage at the well head. However, water was surfacing in the county road ditch 30-50 feet from the well head. This water is apparently flow from the open annulus of the well.

I have informed Graf Drilling and Fisher Industries that the well in its present condition is not acceptable and the well must be controlled. I have also informed them that this is Graf Drilling's responsibility and liability and at this point the State is not prepared to be a consultant to the driller and relieve him of his liability.

If the driller walks away from this well before it is controlled, I suspect Fisher Industries will try to hire another contractor (doubtful they can get one), or may be willing to work with the state to get the well controlled (i.e. allow Water Rights to oversee the site). If both Graf Drilling and Fisher Industries conclude that they have done everything possible to plug/control the well and propose to leave the site in its present condition DENR may need to work through SDCL 46-6-29 or SDCL 46-6-30 which allows that the chief engineer may enter the property where the well is located and plug or otherwise control the well. "The cost of plugging or controlling the well shall be borne by the owner of the property and shall be recorded with the county register of deeds as a lien against the property until paid."



joe's.ppt

I have attached a PowerPoint presentation with some July 25, 2000 pictures.

Fisher Sand & Gravel Co.**FAX Transmission**

From: Kyle Frisinger
To: Ken Buhler
Company: State of South Dakota

Date: 8/2/00
Time: 1:28PM
FAX #: 605-773-4068

This Fax contains 7 page(s) including this cover sheet.

Attached is the Plan of Operation from Haliburton Services. Other vendor's will be contacted this afternoon to see if and when they will respond to our request.

Please feel free to contact John Scherlin direct with any comments or suggestions from your department.

Joe Graff will receive a copy of this document also.

Thank you.

PHONE: 605-642-5760 FAX: 605-642-8167

½ mile south of Exit 2 on 190 P.O. Box 1120 Spearfish, SD 57783



HALLIBURTON

HALLIBURTON ENERGY SERVICES

Post Office Box 1510 / 6900 Nugget Road / Evansville, Wyoming 82636 / Tel: 307-473-8200 / Fax: 307-473-8211

DATE 8/2/00

CASPER, WY

FAX NUMBER (307) 473-8249

TO: AL FRENZELFR: JOHN SCHERUN6 PAGES (INCLUDING COVER PAGE)PLEASE CALL (307) 473-8200 IF THERE ARE ANY
TRANSMISSION PROBLEMS OR THE COPIES ARE
NOT LEGIBLERE: WATER WELL

Fisher Sand & Gravel

Belle Fourche, SD

Water Supply Well #1

API Well No.:

FloChek Squeeze Recommendation

Prepared for: Alvin Frenzel

08/01/2000

Version

1

Prepared by:

John Scherlin

Halliburton Energy Services

6900 Nugget Rd.

P.O. Box 1510

Evansville, WY 82636

(307) 473-8221



The Future Is Working Together.

WSW1



***Halliburton appreciates the opportunity to present
this proposal and looks forward to being of service to you.***

Foreword _____

Service Contact: John Pfeifer
307-473-8255

Sales Representative: Karl Madden
307-473-8200

Technical Representative: John Scherlin
307-473-8221

Service Location: Casper, WY

Well Information _____

Surface Casing	8 5/8"
Production Casing	5 1/2"
Hole Size	7 7/8"
Casing Shoe Depth	730 ft.
Lower Perforations	494 ft 4 holes
Upper Perforations	350 ft. 10 holes
Minnelusa Top	440 ft.
Minnekahta Top	310 ft.
BHT (estimated)	70 F
Pore Pressure (Minnelusa)	235 psi (est.)
Pore Pressure (gradient)	10.3 ppg

**FLO-CHEK Service Squeeze****Job Recommendation**

FLUID 1: CHLORIDE SPACER
20% CaCl₂

Fluid Volume: 200 bbls

88 lb/bbl Calcium Chloride - Powder (Accelerator)

FLUID 2: FLOCHECK
FloChek

Fluid Volume: 100 bbls

FLUID 3: LEAD SLURRY
SD Class 'G'
6% MicroBond (Bonding Agent)
Mixed With Fresh Water

Fluid Weight: 16.08 lb/gal
Fluid Yield: 1.16 ft³/sk
Fluid Water Ratio: 4.80 gal/sk
Total Mixing Fluid: 68.6 bbls
Fluid Volume: 123.96 bbls
Calculated Volume: 600 sks
Proposed Volume: 600 sks

FLUID 4: TAIL SLURRY
SD Class 'G' w/ CaCl₂
2% Calcium Chloride - Anhy (Accelerator)
Mixed With Fresh Water

Fluid Weight: 15.96 lb/gal
Fluid Yield: 1.14 ft³/sk
Fluid Water Ratio: 4.80 gal/sk
Total Mixing Fluid: 68.6 bbls
Fluid Volume: 121.82 bbls
Calculated Volume: 600 sks
Proposed Volume: 600 sks

Job Procedure

1. MIRU (2) 400 bbl vertical tanks.
2. Fill one tank with 400 bbl of fresh water.
3. Fill one tank with 200 bbl of water containing 88 lb/bbl of Calcium Chloride Salt.
4. MI and load cement storage bin with designed slurries.
5. MIRU Halliburton cement pumping equipment and FloChek transport.
6. Rig up to production casing valve.
7. Pressure test surface equipment to 3000 psi.
8. Mix and pump 600 sacks of Lead slurry down casing to kill water flow.
9. Pump 5 bbl freshwater spacer.
10. Pump 20 bbl CaCl₂ water.
11. Pump 5 bbl freshwater spacer.
12. Pump 20 bbl FloChek. *500 sacks*
13. Pump 5 bbl freshwater spacer
14. Pump 25 bbl of Tail cement slurry. (120 sacks)
15. Repeat steps 9 thru 14 until pressure squeeze is obtained.
16. Monitor surface water flows.



FLO-CHEK Service Squeeze

Cost Estimate

<u>Price Ref</u>	<u>Description</u>	<u>Qty</u>	<u>U/M</u>	<u>Unit Price</u>	<u>Total</u>
000-117	MILEAGE CEMENTING ROUND TRIP	200	MI	\$ 4.05	\$ 1,296.00
		2	UNT		
000-119	MILEAGE FOR CREW	200	MI	2.38	380.80
		1	UNT		
307-603	HEAVY TRUCK FUEL SURCHARGE	200	MI	0.24	96.00
		2	TRK		
307-603	LIGHT TRUCK FUEL SURCHARGE	200	MI	0.08	16.00
		1	EA		
000-151	IRON SAFETY INSPECTION SURCHG	1	JOB	36.00	28.80
000-150	ENVIRONMENTAL SURCHARGE	1	JOB	60.00	48.00
009-134	CEMENT SQUEEZE	490	FT	2,956.00	2,364.80
		1	UNT		
046-065	RCM II SYSTEM	1	JOB	970.00	776.00
500-038	FIELD STORAGE BIN	2	DAY	320.00	512.00
		1	EA		
509-424	CACL POWDER	17600	LB	0.63	8,870.40
018-307	SUPER FLUSH 100	4200	GAL	4.47	15,019.20
504-043	CEMENT - PREMIUM	1200	SK	14.91	14,313.60
508-112	MICROBOND	3384	LB	1.41	3,817.15
509-406	ANHYDROUS CALCIUM CHLORIDE	15	SK	55.90	670.80
500-207	BULK SERVICE CHARGE	1581	CFT	1.94	2,453.71
000-140	FREIGHT THIRD-PARTY CARRIER	500	MI	4.05	1,620.00
500-306	MILEAGE CMTG MAT DEL OR RETUR	6751	TMI	1.39	7,507.11

TOTAL AMOUNT	\$ 74,709.97
DISCOUNT AMOUNT	14,919.60
DISCOUNTED TOTAL	\$ 59,790.37

NOTE: Service Location - Casper



Conditions

NOTE

The cost in this analysis is good for the materials and/or services outlined within. These prices are based on Halliburton being awarded the work on a first call basis. Prices will be reviewed for adjustments if awarded on 2nd or 3rd call basis and/or after 30 days of this written analysis. This is in an effort to schedule our work and maintain a high quality of performance for our customers.

The unit prices stated in the proposal are based on our current published prices. The projected equipment, personnel, and material needs are only estimates based on information about the work presently available to us. At the time the work is actually performed, conditions then existing may require an increase or decrease in the equipment, personnel, and/or material needs. Charges will be based upon unit prices in effect at the time the work is performed and the amount of equipment, personnel, and/or material actually utilized in the work. Taxes, if any, are not included. Applicable taxes, if any, will be added to the actual invoice.

It is understood and agreed between the parties that with the exception of the subject discounts, all services performed and equipment and materials sold are provided subject to Halliburton's General Terms and Conditions contained in our current price list, (which include LIMITATION OF LIABILITY and WARRANTY provisions), and pursuant to the applicable Halliburton Work Order Contract (whether or not executed by you), unless a Master Service and/or Sales Contract applicable to the services, equipment, or materials supplied exists between your company and Halliburton, in which case the negotiated Master Contract shall govern the relationship between the parties. We enclose a copy of the General Terms and Conditions, for your convenient review, and we would appreciate receiving any questions you may have about them. Should your company be interested in negotiating a Master Contract with Halliburton, our Law Department would be pleased to work with you to finalize a mutually agreeable contract. In this connection, it is also understood and agreed that Customer will continue to execute Halliburton usual field work orders and/or tickets customarily required by Halliburton in connection with the furnishing of said services, equipment, and materials.

Any terms and conditions contained in purchase orders or other documents issued by the customer shall be of no effect except to confirm the type and quantity of services, equipment, and materials to be supplied to the customer.

If customer does not have an approved open account with Halliburton or a mutually executed written contract with Halliburton, which dictates payment terms different than those set forth in this clause, all sums due are payable in cash at the time of performance of services or delivery of equipment, products, or materials. If customer has an approved open account, invoices are payable on the twentieth day after date of invoice. Customer agrees to pay interest on any unpaid balance from the date payable until paid at the highest lawful contract rate applicable, but never to exceed 18% per annum. In the event Halliburton employs an attorney for collection of any account, customer agrees to pay attorney fees of 20% of the unpaid account, plus all collection and court costs.



TICKET

797555

TICKET DATE

08/08/00

REGION

NORTH AMERICA LAND

[illegible]

WESTERN

BDA / STATE

DENVER, CO

COUNTY

Lawrence

MBU 10 / EMPL #

122589

H.E.S. EMPLOYEE NAME

CHAD HAGUE

PSL DEPARTMENT

ZONAL ISOLATION

LOCATION

CASPERS, WY - 055320

COMPANY

Fisher Sand and Gravel

CUSTOMER REP / PHONE

Alvin Frenzel

TICKET AMOUNT

WELL TYPE	WELL ID	WELL DEPTH	WELL STATUS	WELL LOCATION	WELL OWNER	WELL DATE	WELL TYPE	WELL ID	WELL DEPTH	WELL STATUS	WELL LOCATION	WELL OWNER	WELL DATE
WELL TYPE	WELL ID	WELL DEPTH	WELL STATUS	WELL LOCATION	WELL OWNER	WELL DATE	WELL TYPE	WELL ID	WELL DEPTH	WELL STATUS	WELL LOCATION	WELL OWNER	WELL DATE

Water

API/UW#

WELL LOCATION

DEPARTMENT

CEMENTING SERVICES 10003

JOB PURPOSE CODE	
------------------	--

LEASE / WELL #

Well No.

SEC / TWP / RNG

Water Supply

1

[illegible]

		JOB SUMMARY		SAP #/TICKET # 797555	TICKET DATE 08/08/00
REGION NORTH AMERICA LAND		NWA / COUNTRY WESTERN		BDA / STATE DENVER, CO	COUNTY Lawrence
MBU ID / EMPL # 122589		H.E.S. EMPLOYEE NAME CHAD HAGUE		PSL DEPARTMENT ZONAL ISOLATION	
LOCATION CASPER, WY - 055320		COMPANY Fisher Sand and Gravel		CUSTOMER REP / PHONE Alvin Frenzel	
TICKET AMOUNT \$56,017.92		WELL TYPE Water		APIA/WI # 	
WELL LOCATION 		DEPARTMENT CEMENTING SERVICES 10003		SAP BOMB NUMBER 	Description Flo Check Squeeze
LEASE NAME Water Supply		Well No. 1	SEC / TWP / RNG 		

H.E.S. EMP NAME / EMP # (EXPOSURE HOURS)	HRS	H.E.S. EMP NAME / EMP # (EXPOSURE HOURS)	HRS	H.E.S. EMP NAME / EMP # (EXPOSURE HOURS)	HRS	H.E.S. EMP NAME / EMP # (EXPOSURE HOURS)	HRS
C. Hague/122589	13.0	J. Priefer/121474	13.0	S. McNally/188462	13.0	D. Skarin/121816	13.0
R. Marcus/209679	13.0						

H.E.S. UNIT #S / (R / T MILES)	R / T MILES	H.E.S. UNIT #S / (R / T MILES)	R / T MILES	H.E.S. UNIT #S / (R / T MILES)	R / T MILES	H.E.S. UNIT #S / (R / T MILES)	R / T MILES
420797	200	52988/10022315	200	51799/6520	200	10190467/6517	200

Form. Name	Type:	Form. Thickness		From	To	Date	Called Out	On Location	Job Started	Job Completed
Packer Type		Set At				8/8/00	8/8/00	8/8/00	8/8/00	8/8/00
Bottom Hole Temp.		Pressure								
Retainer Depth		Total Depth								

Type and Size	Qty	Make	New/Used	Weight	Size	Grade	From	To	Max. Allow
Float Collar				5.5	15		0	500	
Float Shoe									
Centralizers									
Top Plug									
Packer									
DV Tool									
Other									
Other									
Other									

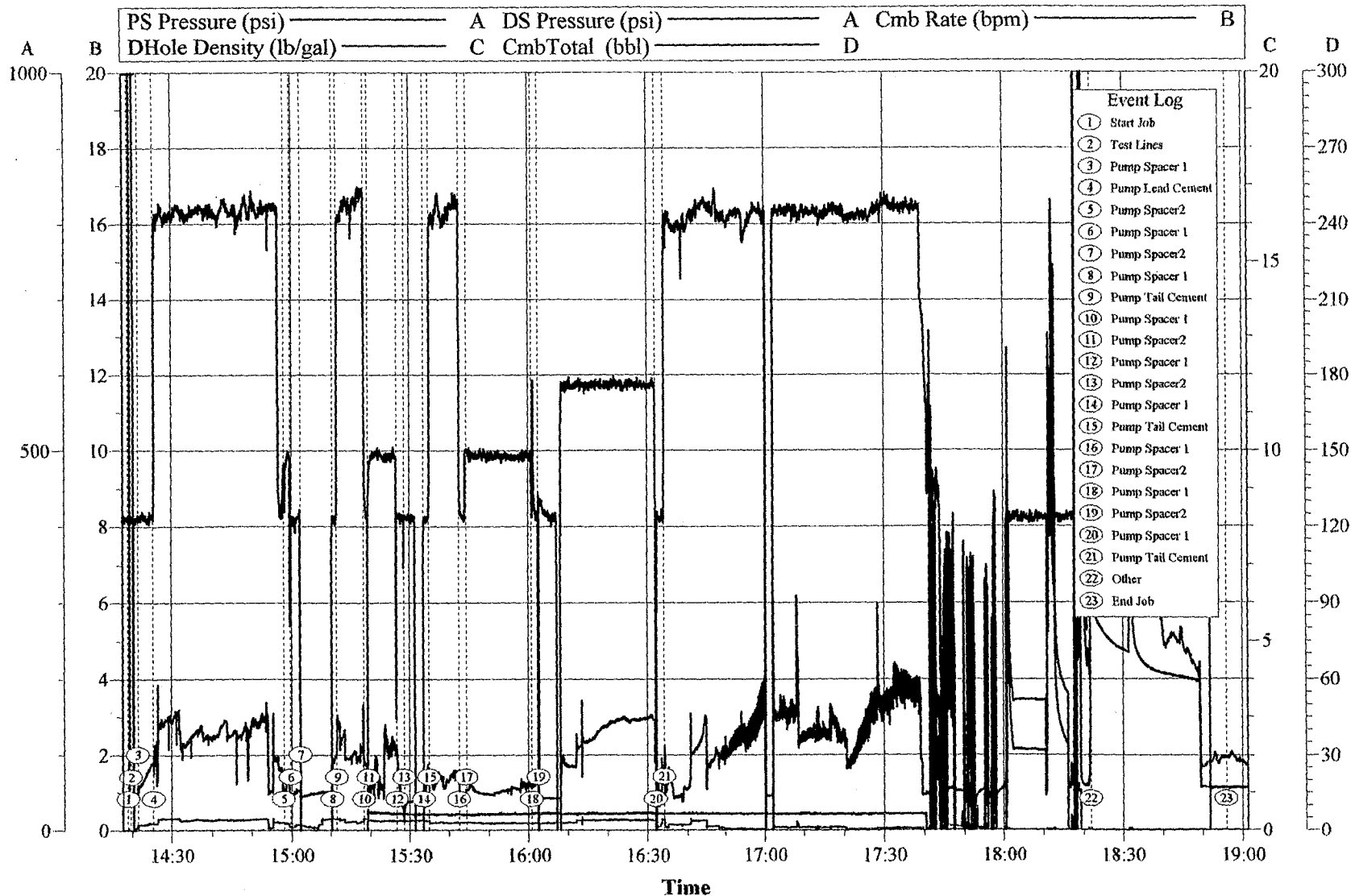
Mud Type	Density	Lb/Gal	Date	Hours	Date	Hours
Disp. Fluid			8/8/00	13.0	08/08/00	5.0
Prop. Type	Size	Lb				
Prop. Type	Size	Lb				
Acid Type	Gal.	%				
Acid Type	Gal.	%				
Surfactant	Gal.	In				
NE Agent	Gal.	In				
Fluid Loss	Gal/Lb	In				
Gelling Agent	Gal/Lb	In				
Fric. Red.	Gal/Lb	In				
Breaker	Gal/Lb	In				
Blocking Agent	Gal/Lb					
Perfpac Balls	Qty.					
Other						
Other						
Other						
Other						

Ordered	PT	Avail.	PT	Used	PT
Treating	4	Disp.	4	Overall	4
Feet	300.00	Reason	Squeeze		

Stage	Sacks	Cement	Bulk/Sks	Additives	W/Rq.	Yield	Lbs/Gal
	600	AG-300	Bulk	6% Microbond	4.80	1.16	16.1
	600	AG-300	Bulk	2% Calcium Chloride	4.80	1.14	16.0

Circulating	Displacement	Preflush:	Gal - BBI	Type:
Breakdown	Maximum	Load & Bkdn:	Gal - BBI	Pad:Bbl -Gal
Lost Returns-YES	Lost Returns-NO	Excess /Return	Gal BBI	Calc. Disp Bbl
Cmt Rtm#Bbl	Actual TOC	Calc. TOC:		Actual Disp.
Average	Frac. Gradient	Treatment:	Gal - BBI	Disp:Bbl-Gal
Shut In: Instant	5 Min.	Cement Slurry	Gal - BBI	
	15 Min.	Total Volume	Gal - BBI	0

THE INFORMATION STATED HEREIN IS CORRECT
 CUSTOMER REPRESENTATIVE _____



Customer: Fisher Sand and Gravel
 Well Description: Water Supply #1

Job Date: August 8, 2000
 UWI: Flo Check Squeeze

Ticket #: 797555
 Chad Hague

HALLIBURTON
 CemWin v1.3.0b
 08-Aug-00 19:24

June 11, 2002

RECEIVED

JUN 18 2002

WATER RIGHTS
PROGRAM

Water Rights Program, DENR
Joe Foss Building
523 East Capitol
Pierre, So. Dak. 57501-3181

RE: Application For Permit To Appropriate Water

Dear Karen,

I apologize for not responding sooner. I had assumed that since our water usage was less than 45 gallons per minute and the usage was for domestic type consumption, we did not require a permit. As per our telephone conversation on June 11th, I understand that we do require a permit since this is for a business.

Please find enclosed Form 2, Form 2A and a location map.

If you have any questions or require any additional information, please contact me.

Thank you.

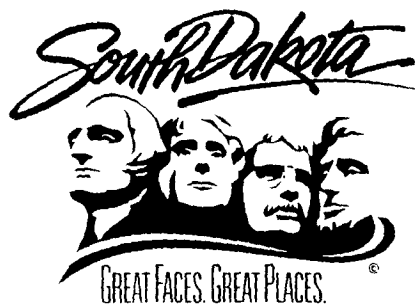
Sincerely,



Ray Leahy
Material & Environmental Mgr.



GENERAL STEEL AND SUPPLY CO.



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

August 13, 2002

Darrell Nicholas
10152 Red Hill Place
Spearfish SD 57783

Dear Mr. Nicholas:

Enclosed is a copy of the report, recommendation and public notice on Water Permit Application No. 1772-1 filed by Fisher Sand and Gravel Company. The notice will be published in the Black Hills Pioneer on August 21 and 28, 2002. The notice schedules a September 25, 2002, hearing before the Water Management Board in Pierre. If you want to participate in the hearing you must submit a written petition by September 13, 2002 as set forth in the notice.

Please contact me if you have any questions regarding the water right permitting process.

Sincerely,

Eric Gronlund
Water Rights Program
(605) 773-3352

enclosures



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

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

August 13, 2002

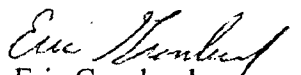
Paul Miller
19727 Red Hill Road
Spearfish SD 57783

Dear Mr. Miller:

Enclosed is a copy of the report, recommendation and public notice on Water Permit Application No. 1772-1 filed by Fisher Sand and Gravel Company. The notice will be published in the Black Hills Pioneer on August 21 and 28, 2002. The notice schedules a September 25, 2002, hearing before the Water Management Board in Pierre. If you want to participate in the hearing you must submit a written petition by September 13, 2002 as set forth in the notice.

Please contact me if you have any questions regarding the water right permitting process.

Sincerely,


Eric Gronlund
Water Rights Program
(605) 773-3352

enclosures



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

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

August 13, 2002

Dianne Miller
HC 66 Box 28
Spearfish SD 57783

Dear Mrs. Miller:

Enclosed is a copy of the report, recommendation and public notice on Water Permit Application No. 1772-1 filed by Fisher Sand and Gravel Company. The notice will be published in the Black Hills Pioneer on August 21 and 28, 2002. The notice schedules a September 25, 2002, hearing before the Water Management Board in Pierre. If you want to participate in the hearing you must submit a written petition by September 13, 2002 as set forth in the notice.

Please contact me if you have any questions regarding the water right permitting process.

Sincerely,

Eric Gronlund
Water Rights Program
(605) 773-3352

enclosures

WATER PERMIT APPLICATION NO. 1772-1
FISHER SAND AND GRAVEL COMPANY
July 11, 2002

Water Permit Application No. 1772-1 proposes to appropriate 0.078 cubic feet of water per second (35 gallons per minute) from one well 740 feet deep (Minnelusa aquifer) located in the SW¼ NW¼ Sec.28, T7N-R1E. The water is for commercial use.

AQUIFER: Minnelusa Aquifer (MNLS)

GENERAL:

The Minnelusa Formation consists of alternating beds of sandstone and dolomitic limestone with lesser amounts of shale and chert, approximately 500 feet thick in this area (Carter, 1999a, Carter 1999b). The porous portions of this formation make up the Minnelusa aquifer. The Minnelusa Formation underlies virtually all of western South Dakota and the Minnelusa aquifer contains over 755 million acre-feet of recoverable water in storage (Allen and others, 1984). The Minnelusa aquifer underlies approximately 199,680 acres of Lawrence County and contains an estimated 5,591,040 acre-feet of recoverable water in storage in the county (Allen and others, 1984). Ground water movement in the aquifer in this area is probably toward the north and east (Strobel and others, 2000) and (Greene and others, 1999). The water quality of the aquifer is generally good near the outcrop but deteriorates considerably with distance from the recharge area. There is no aquifer-test data available for the Minnelusa aquifer at this site; therefore, the aquifer transmissivity and storage coefficient values are unknown. Estimates from regional studies of the aquifer indicate the aquifer transmissivity may range from 30 to 1000 ft²/d, and the storage coefficient ranges from 6.6×10^{-5} to 2×10^{-4} (Kyllonen and Peters, 1987). Greene and others (1999) also reported the hydraulic properties of the Minnelusa aquifer for the Spearfish area. The transmissivity reportedly ranged from 125 to 9,600 ft²/d, and the storativity ranged from 7×10^{-5} to 4×10^{-9} . The Minnelusa outcrops approximately three miles from this well site where the top of the formation is reported to be 430 feet below grade. The total depth, 740 feet, indicates this well was completed into the lower portion of the Minnelusa. The aquifer is under artesian conditions at this site and this well reportedly is capable of flowing in excess of 100 gpm in spite of the fact that there is only 20 feet of open hole (inlet). The aquifer may be prolific in this area because of increased permeability associated with the LaFlamme Anticline and a nearby syncline.

WATER AVAILABILITY:

The availability of unappropriated water from an aquifer can be evaluated by considering SDCL 46-6-3.1. This statute requires that an application to appropriate groundwater can not 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 average estimated annual recharge.

Recharge to the Minnelusa aquifer is primarily from infiltration of precipitation on the outcrop and stream flow losses. Average annual recharge from 1931-1998 is estimated to be approximately 112,000 acre-feet per year (Carter and others, 2001a).

There are a total of 175 appropriations from the Minnelusa aquifer in South Dakota, including two Future Use Reservations (Water Rights, 2002c). The aquifer is used primarily for domestic, commercial, municipal, suburban housing and irrigation uses. There are 50 permits/rights appropriating water from the Minnelusa aquifer in Lawrence County (Water Rights, 2002c). In addition to appropriative rights, there are a number of domestic wells completed into the Minnelusa aquifer on file with the Water Rights Program (Water Rights, 2002a). The Future Use Permits (No. 902-1 and 969-1) reserve 1460 acre-feet annually. Water Permits and Rights represent appropriations up to 10,649.7 acre-feet annually for irrigation use and a combined diversion rate of 30.326 cfs for non-irrigation uses. Maximum well withdrawals from the Minnelusa aquifer, assuming (1) that 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); would be approximately 25,000 acre-feet per year. The actual amount of water used from the aquifer is considerably less than this estimate. Withdrawals from wells (domestic and appropriative) completed into the Minnelusa aquifer were estimated to be 8,108 acre-feet annually from 1987-1996 (Carter and others, 2001b).

The maximum potential withdrawal from the Minnelusa aquifer at the current level of appropriation is less than 23% of than average annual recharge estimated for the aquifer. Therefore, based on a simple water budget, it is clear that unappropriated water is available for this appropriation.

The Water Rights Program monitors 23 observation wells completed into the Minnelusa aquifer in the Black Hills area. Water Rights Observation Well MD-87B is located approximately one and one half miles south of this well. The hydrograph for the well (see figure 1), is fairly typical for the Minnelusa aquifer. That is, the water levels reach their peak in the early summer each year and gradually decline until spring. The majority of the recharge to the system occurs between March and July.

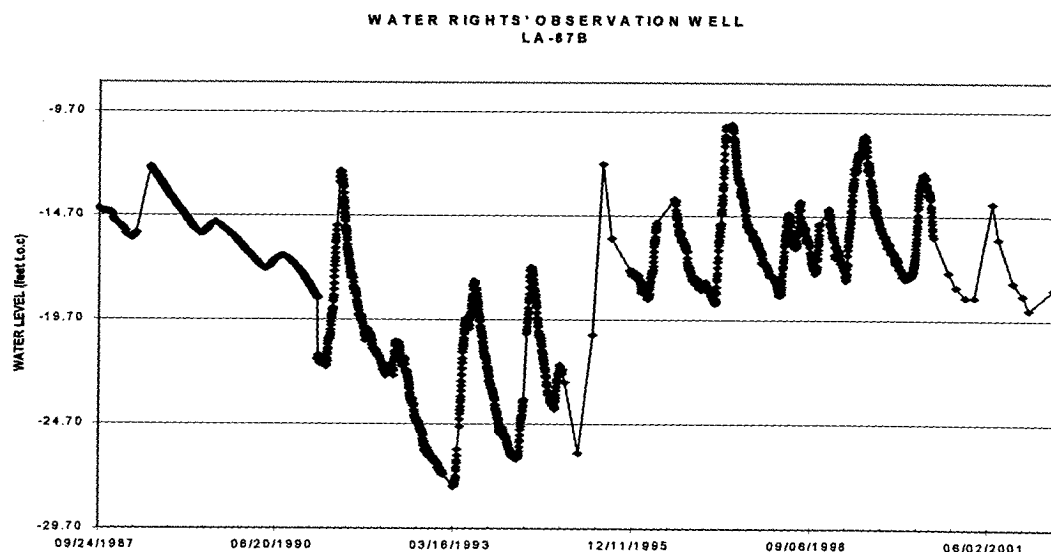


Figure 1. Hydrograph of a Minnelusa aquifer observation well located one and one half miles south of the well to be used to supply this permit.

The hydrograph also shows the magnitude of fluctuation in the water levels in the area ($\approx 17'$) with the lowest water level on record occurring in 1993 and the highest occurring in 1997.

It is obvious from the hydrographs of Minnelusa observation wells, that withdrawals have not exceeded recharge for the period of record. The observation well data suggests that the aquifer is capable of sustaining additional withdrawals.

Well Construction

There was some difficulty in the completion of this well. Using a mud rotary drill rig, the driller used drilling mud to keep the flow from two shallower artesian aquifers (the Spearfish Formation and the Minnekahta Limestone) contained as the wellbore was advanced to the Minnelusa Formation. After the Minnelusa Formation was first encountered, the driller left the wellbore filled with drilling mud, intending to case and grout the well the next morning. The drilling mud did not, however, control the flow in the wellbore overnight. The driller installed 725 feet of 5½-inch OD steel casing while water was flowing from the wellbore and attempted to grout the casing by pumping grout through the inside of the casing and forcing it up the annulus. The grouting effort was unsuccessful and only the bottom portion of the casing was grouted into the wellbore. Water continued to flow from the wellbore via the annulus. A cement bond log identified the casing was cemented from 725' to 508' below grade. The casing was shot perforated 494' below grade. BJ-Services, an oilfield service company, pumped 750 sacks of cement through the casing perforations but was unsuccessful in grouting the casing or stopping the annular flow. Haliburton Services, another oilfield service company, later pumped 1,000 sacks of cement through the casing perforations. During the Haliburton grouting attempt, cement grout was circulated to the surface. As the level of the grout subsided in the surface casing /production casing annulus, it was "topped off" from the surface by pouring cement grout into the annulus. The cement grout set up at or near the surface and a cement plug resulted near the surface between the two casing strings.

The well casing was completely shut in and there was no flow at the well from either the casing or annulus. However, with the casing shut, between 500-1000 gpm began to discharge approximately 30-50 feet from the well in the county road ditch. Apparently the annulus was void of cement grout with the exception of the very top and very bottom of the casing, so water was able to flow up the annulus to the base of the top cement and surface nearby.

The driller aborted an attempt to control the flow from the wellbore with weighted drilling fluid through the still open casing perforations. When the effort was aborted, a discharge of bentonite resulted to a nearby tributary to Crow Creek.

The driller had the well casing perforated at 350' below grade (just below the Minnekahta aquifer) and contracted with Haliburton Services to attempt to grout the casing by pumping grout between the two perforated zones. This grouting effort was also unsuccessful.

Fisher Sand and Gravel contracted with Halliburton Services to pump a FloChek™ Squeeze (Sodium Silicate and Calcium Chloride mixture, followed by cement grout) to control the flow. The well casing was left partially filled with cement and all flow ceased.

In 2001 a second well driller drilled out the cement and completed the well into the lower Minnelusa aquifer. The well was successfully rehabilitated to meet the SD Well construction standards and at this point there is no leakage apparent.

AFFECTS ON EXISTING RIGHTS:

There are 8 Water Rights/Permits appropriating groundwater within two miles of this existing well. They include:

Permit No	Owner	Aquifer	CFS	Distance to 1772-1
1181-1A	Keith/Leland Johnson	MDSN	0.16	3,400 ft
1197-1	Darrell Nicholas	MNLS	0.56	7,200 ft
1244-1	Haier Enterprises, Inc.	MNKT	1.56	9,300 ft
749-1	SD Game, Fish & Parks	SPRF	2.23	5,800 ft
752A-1	SD Game, Fish & Parks	SPRF	3.23	5,800 ft
341A-1	Cris D/Dianne K Miller	MNLS	3.40	9,200 ft
341B-1	Paul M Miller	MNLS	1.19	1,100 ft
1634-1	Cris D & Dianne Miller	MNLS	0.10	Same as 341A-1

The Water Rights Program monitors two other observation wells at the site of LA-87B. A well completed into the deeper Madison aquifer (LA-87A), and a well completed into the shallower Minnekahta aquifer (LA-94A). The Opeche Shale overlies the Minnelusa Formation and is considered a confining unit, therefore hydraulically separating the Minnelusa aquifer from the Minnekahta and shallower aquifers. The lower Minnelusa Formation is generally considered a confining unit separating the Minnelusa aquifer from the Madison aquifer. The hydrograph of the three wells (figure 2) shows that the potentiometric surface of the Madison and Minnekahta aquifers are similar and approximately 100 feet higher than the potentiometric surface of the Minnelusa aquifer at this site. Although this identifies that there is a potential for leakage to the Minnelusa from either of the other two aquifers, a significant hydraulic separation from the Minnelusa is apparent.

During the construction of the well that is to be used to supply this permit a several hundred gallon per minute flow from the well went undetected in any observation well even after several days of continuous flow. The distance to the observation wells and hydraulic separation between the aquifers minimized the effect of the flow.

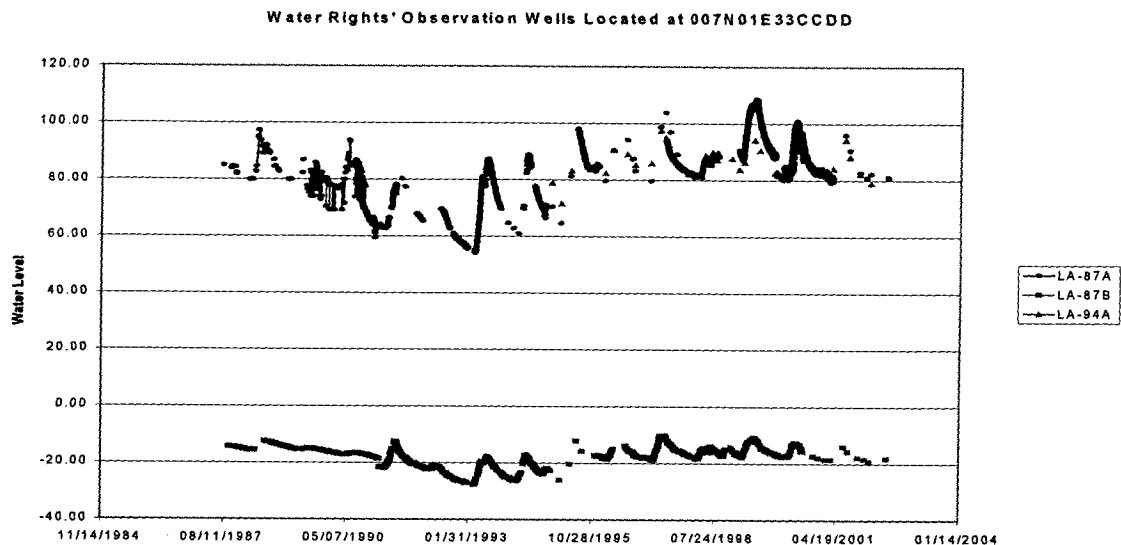


Figure 2. Hydrograph of a three observation wells (Madison, Minnelusa, and Minnekahta aquifers) located one and one half miles south of the well to be used to supply this permit.

Interference between this proposed appropriation and existing users is not expected to be adverse due to 1). the hydraulic isolation of the Minnelusa aquifer from other aquifers, 2). the distance between wells, and 3). the relatively low diversion rate requested by this application.

CONCLUSIONS:

1. The Minnelusa Aquifer is a viable aquifer in this area, and water is available for this appropriation.
2. The Minnelusa is under artesian conditions and drawdown due to this diversion can be expected. This drawdown is not expected to adversely affect adequate wells in the area.
3. This application proposes to use water from an existing well. The Well Completion Report submitted with this application indicates the well was constructed in accordance with the SD Well Construction Standards.

Ken Buhler
Natural Resources Engineer

Approved by

James A. Goodman, PE
Natural Resources Engineer

REFERENCES:

- Allen, J.C., Iles, D.L., and Petres, A.K., 1984, Analysis of Groundwater and Streamflow Data Western Dakotas Region of South Dakota, Task 3 and 4: Groundwater Resource Inventory, Department of Water and Natural Resources,
- Carter, J.M., and Redden, J.A., 1999a, Altitude to the top of the Minnelusa Formation, Black Hills area, South Dakota: U.S. Geological Survey Hydrologic Investigation Atlas HA-744-C
- Carter, J.M., and Redden, J.A., 1999b, Altitude to the top of the Minnelusa Formation, Black Hills area, South Dakota: U.S. Geological Survey Hydrologic Investigation Atlas HA-744-D
- Carter, J.M., and Driscoll, D.G., 2001a, Estimated Recharge to the Madison and Minnelusa Aquifers in the Black Hills Area, South Dakota and Wyoming, Water Years 1931-98: U.S. Geological Survey Water-Resources Investigations Report 00-4278
- Carter, J.M., Driscoll, D.G., Hamade, G.R., and Jarrell, G.J., 2001b, 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,
- Kyllonen, D.P., Peter, K.D, 1987, GeoHydrology and Water Quality of the Inyan Kara, Minnelusa, and Madison Aquifers of the Northern Black Hills, South Dakota and Wyoming, and Bear Lodge Mountains, Wyoming, U.S. Geological Survey, Water Resources Investigations Report 86-4158,
- Greene, E.A., Shapiro, A.M., Carter, J.M., 1999, Hydrogeologic Characterization of the Minnelusa and Madison Aquifers near Spearfish, South Dakota, U.S. Geological Survey Water-Resources Investigations Report 98-4156
- Kyllonen, D.P., Peter, K.D, 1987, GeoHydrology and Water Quality of the Inyan Kara, Minnelusa, and Madison Aquifers of the Northern Black Hills, South Dakota and Wyoming, and Bear Lodge Mountains, Wyoming, U.S. Geological Survey, Water Resources Investigations Report 86-4158,
- Strobel, M.L., Galloway, J.M., Hamade, G.R., and Jarrell, G.J, 2000, Potentiometric Surface of the Minnelusa Aquifer in the Black Hills Area, South Dakota, U.S. Geological Survey, Hydrologic investigations Atlas HA-745-C,
- Water Rights Program, 2002a, "Domestic Well Log Files" DENR-Water Rights Program, Joe Foss Building, Pierre, SD

Water Rights Program, 2002b, "Observation Well Files" DENR-Water Rights Program, Joe Foss Building, Pierre, SD

Water Rights Program, 2002c, "Water Permit Files" DENR-Water Rights Program, Joe Foss Building, Pierre, SD



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

**RECOMMENDATION OF CHIEF ENGINEER FOR WATER PERMIT
APPLICATION NO. 1772-1, Fisher Sand and Gravel Company**

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. 1772-1, Fisher Sand and Gravel Company, c/o Ray Leahy, PO Box 1120, Spearfish SD 57783.

The Chief Engineer is recommending APPROVAL of Application No. 1772-1 because 1) there is reasonable probability that there is unappropriated water available for the applicant's proposed use, 2) the proposed diversion can be developed without unlawful impairment of existing rights, 3) the proposed use is a beneficial use and 4) it is in the public interest with the following qualification:

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

See report on application for additional information.

Garland Erbele, Chief Engineer
August 9, 2002



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

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

August 13, 2002

Fisher Sand and Gravel Company
PO Box 1120
Spearfish SD 57783

Dear Sir:

Water Permit Application No. 1772-1 for commercial use has been examined and found to comply with the South Dakota Water Laws and applicable rules. A notice of hearing has been sent to the Publisher of the Black Hills Pioneer printed at Spearfish, SD (Ph # 605-642-2761). You will need to contact the newspaper and authorize publication of this notice. For your information, a copy of the notice, the recommendation of the Chief Engineer and a report on the application are enclosed. Please review the notice prior to publication and notify this office, if you have any corrections or questions.

Be sure to contact the above newspaper to authorize publication of your Notice of Hearing and to arrange for payment. Early contact with the paper can eliminate delays. Upon receiving authorization, the publisher has been instructed to publish your notice once each week for two consecutive weeks with the last publication to occur twenty days before the board meeting. 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

enclosures

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



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

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

August 13, 2002

Black Hills Pioneer
PO Box 7
Spearfish SD 57783-0007

ATTENTION: Legal Public Notice

Enclosed is a Notice of Hearing on Application No. 1772-1 to Appropriate Water to be published twice. Please publish the first notice on August 21, 2002 with the second publication 7 days later.

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 Fisher Sand and Gravel Company, PO Box 1120, Spearfish SD 57783 (Ph # 605-642-5760).

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

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

Sincerely,


Eric Gronlund
Natural Resources Engineer
605 773-3352

enclosures

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

No. 1772-1

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

Date _____

We are in receipt of your letter of August 13, 2002 enclosing Notice of Hearing to Appropriate Water by Application No. 1772-1 which was first published in our issue of _____. **ENCLOSED IS A COPY OF THIS FIRST PUBLICATION.**

Name

Newspaper

Instruction to Newspaper - Publish first Notice on August 21, 2002 with the second publication 7 days later. The applicant is responsible for payment.

NOTICE OF APPLICATION NO. 1772-1 to Appropriate Water

Notice is given that Fisher Sand and Gravel Company, PO Box 1120, Spearfish SD 57783 has filed an application for a water permit to appropriate 0.078 cubic feet of water per second (35 gallons per minute) from one well (Minnelusa Formation) 740 feet deep located in the SW ¼ NW ¼ Section 28-T7N-R1E. The water is for commercial use.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 1772-1 because 1) unappropriated water is available, 2) existing rights will not be unlawfully impaired, 3) it is a beneficial use of water, and 4) it is in the public interest.

Any person interested in opposing or supporting this application 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 recommendation. The Chief Engineer's address is "Water Rights Program, Foss Building, 523 E Capitol, Pierre SD 57501 (605 773-3352)" and the applicant's mailing address is given above. A petition filed by either an interested person or the applicant must be filed by September 13, 2002. The petition may be informal, but must include a statement describing the petitioner's interest in the application, the petitioner's reasons for opposing or supporting the application, and the signature and mailing address of the petitioner or the petitioner's legal counsel, if legal counsel is obtained.

The Water Management Board will consider this application at The Mathews Training center, Foss Building, 523 E. Capitol, at 10:00 A.M. September 25, 2002. 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 this application based on the facts presented at the public hearing. The September 25, 2002 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 September 13, 2002.

Any hearing may be an adversarial 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 September 13, 2002, 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.

This application is 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.

Affidavit of Publication

STATE OF SOUTH DAKOTA)

COUNTY OF LAWRENCE)

Stewart Huntington of said County and State being first duly sworn, on his oath says: That the BLACK HILLS PIONEER is a legal daily newspaper of general circulation, printed and published in the City of Spearfish, in said County and State by Stewart Huntington, and has been such a newspaper during the times hereinafter mentioned; and that said newspaper has a bonafide circulation of at least 200 copies weekly, and has been published within said County in the English language for at least one year prior to the first publication of the notice herein mentioned, and is printed in whole or in part in an office maintained at the place of publication; and That I, Stewart Huntington, the undersigned, am the Publisher of said newspaper and have personal knowledge of all the facts stated in this affidavit; and that the advertisement headed:

Notice of Application No. 1772-1

a printed copy of which is hereto attached, was printed and published in said newspaper for 2 successive and consecutive weeks, the first publication being made on the 21st day of Aug, 2002, and the last publication on the 28th day of Aug, 2002, that the full amount of fees charged for publishing same, to-wit: The sum of \$51.41, insures solely to the benefit of the publisher of the BLACK HILLS PIONEER, that no agreement or understanding for a division thereof has been made with any person and that no part thereof has been agreed to be paid to any other person whomsoever.

Stewart Huntington

Subscribed and sworn to before me this 28th day of Aug, 2002.

Arith Johnson

Notary Public, Lawrence County, South Dakota

My commission expires: 10-24-2004

NOTICE OF APPLICATION NO. 1772-1

to Appropriate Water
Notice is given that Fisher Sand and Gravel Company, PO Box 1120, Spearfish SD 57783 has filed an application for a water permit to appropriate 0.078 cubic feet of water per second (35 gallons per minute) from one well (Minnelusa Formation) 740 feet deep located in the SW 1/4 NW 1/4 Section 28-T7N-R1E. The water is for commercial use.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 1772-1 because 1) unappropriated water is available, 2) existing rights will not be unlawfully impaired, 3) it is a beneficial use of water, and 4) it is in the public interest.

Any person interested in opposing or supporting this application 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 recommendation. The Chief Engineer's address is "Water Rights Program, Foss Building, 523 E Capitol, Pierre SD 57501 (605-773-3352)" and the applicant's mailing address is given above.

A petition may be informal, but must include a statement describing the petitioner's interest in the application, the petitioner's reasons for opposing or supporting the application, and the signature and mailing address of the petitioner or the petitioner's legal counsel, if legal counsel is obtained.

The Water Management Board will consider this application at The Mathews Training Center, Foss Building, 523 E Capitol, at 10:00 A.M. September 25, 2002. 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 this application based on the facts presented at the public hearing. The September 25, 2002 hearing ate 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 September 13, 2002.

Any hearing may be an adversarial proceeding. Any person filing a petition and 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 September 13, 2002, 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.

This application is 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. Pimer,
Secretary,
Department of Environment
and Natural Resources

#581

August 21, 28

RECEIVED
AUG 30 2002
WATER RIGHTS
PROGRAM





**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

OCT 25 2002

Fisher Sand and Gravel Company
PO Box 1120
Spearfish SD 57783

Dear Sir

Enclosed is Water Permit No. 1772-1 authorizing construction of your water diversion system and beneficial use of the water, not exceeding the limits as specified in the Water Permit.

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

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

Sincerely,

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

enclosures

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

Date 12/03/2002

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

RECEIVED

DEC 04 2002

WATER RIGHTS
PROGRAM

FROM: FISHER SAND & GRAVEL COMPANY
(name)

P.O. BOX 1120
(address)

SPEARFISH, SOUTH DAKOTA 57783
(city, state, zip)

605-642-5760
(phone)

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

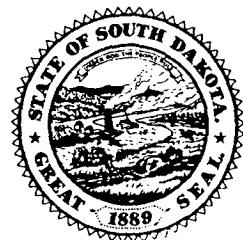
Water Permit No. 1772-1 states that the water use system is to be constructed by
7/9/2001, and water is to be put to beneficial use by 7/9/2001
(date) (date)

The water use system was completed on 7/9/2001
(date)

Applying the water to beneficial use was completed on 7/9/2001
(date)

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

Ray Leach
(signature)



Permit No. 1772-1
Belle Fourche River - Water District

Report of Examination of Works and/or Application of Water to Beneficial Use

TO: Chief Engineer, Water Rights Program, DENR, Foss Bldg., Pierre, SD 57501

I have this day, **October 22, 2003**, made a thorough examination of the water use system constructed by **Fisher Sand and Gravel company** of **PO Box 1120, Spearfish, SD 57783** holder of Permit No. **1772-1**, bearing the priority of **June 18, 2002** authorizing the diversion of **0.078** cu. ft. per second of the waters of **groundwater (Minnelusa aquifer)** for **commercial** purposes, in **Lawrence** County.

Inspection contact & relationship to permit holder, if applicable: **Alvin Frenzel, Parts Manager**

A. Works used to divert the water:

Well Information:

- 1) Well Drilling Firm: **Graf Drilling and Taylor Drilling**
- 2) No. of Wells: **one**
- 3) Depth(s) **740** feet
- 4) Well log is available **Yes**
- 5) Comment: **Well history is included in permit application**

Casing:

- 1) Diameter **5** inches
- 2) Length **720** feet
- 3) Type: **steel**

Screen:

- 1) Type: **none, open hole completion**
- 2) Length **20** feet (open hole interval)
- 3) Static water level **+143** feet (62 psi shut-in pressure)

Pump:

- 1) Make: **Sta-Rite Pump**
- 2) Model: **15P4D02J-04**
- 3) Size: **5-inch**
- 4) Capacity **35** GPM

Motor:

- 1) Make: **Sta-Rite**
- 2) Model No.: **2145079004**
- 3) Horsepower rating **3/4** hp

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

- 1) Type **polyethylene**
- 2) Size **1.5** inches

Report of Examination of Works

Permit No1772-1

C. Works used to apply water to beneficial use:

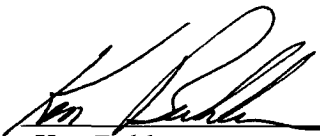
Water is used in the office for restrooms and in the shop for a high pressure washer

D. Compliance with Permit Requirements:

- 1) Permit qualifications being abided by Yes
- 2) Irrigation Questionnaires checked to determine if permit owner started irrigation by the end of construction period N/A
- 3) Exceptions to compliance are: N/A

The system is in good condition with the point of diversion located as follows: 1700 feet south and 100 feet east of the northwest corner of Sec. 28, T7N-R1E (SW¼ NW¼ SW¼ NW¼ Sec. 28, T7N-R1E) with a latitude of 44.54214 and a longitude of -104.01158. The works are capable of diverting and conveying to the place of use 0.078 cu. ft. per second of water which is to be used for commercial use. Water has been put to beneficial use to the maximum extent and the license should be issued for 0.078 cfs.

All structures, wells and lands on map Yes | Comments or other permit(s) associated with the project: N/A



Ken Buhler
Natural Resources Engineering Specialist
DENR, Water Rights Program

Date report completed: December 31, 2003

Map for Water Right No. 1772-1



0 250 500 1,000 Feet

STATE OF SOUTH DAKOTA

WATER LICENSE NO. 1772-1

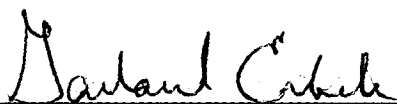
(1) Fisher Sand and Gravel Company, PO Box 1120, Spearfish SD 57783 made Application No. 1772-1, June 18, 2002 for a water permit to divert 0.078 cubic feet of water per second from groundwater (one well), Lawrence County, South Dakota for commercial purposes. Permit No. 1772-1, with a priority date of June 18, 2002 was approved September 25, 2002 and issued to the applicant for diversion of water with construction of the described water supply system to be completed on or before September 25, 2007 and for the application to beneficial use of water on or before September 25, 2011.

(2) The water supply system has been completed and water applied to beneficial use in accordance with South Dakota State Law. Pursuant to South Dakota Codified Law 46-5-30.1, the holder and/or owner of Water Right No. 1772-1 is issued a license, bearing a priority date of June 18, 2002 to appropriate 0.078 cubic feet of water per second from groundwater (one well) for commercial purposes.

The diversion point is located: 1,700 feet south and 100 feet east of the northwest corner of Section 28-T7N-R1E (SW ¼ NW ¼).

(3) This license is subject to South Dakota Water Law, any limitations or conditions listed in Water Permit No. 1772-1 including the following now applicable qualification:

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



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

JAN 16 2004

date





**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

JAN 16 2004

1772-1
1646-1

Fisher Sand and Gravel Company
PO Box 1120
Spearfish SD 57783

Dear Sir:

Enclosed are Water License Nos. 1772-1 and 1646-1. This is the final water right document completing your process of obtaining a Water Right. Enclosed is Receipt No. 1014 in the amount of \$50.00 which you paid for the investigation and issuance of the Water License.

As long as you use the water beneficially, as stated in the Water License, State Water Laws provide that you have a continuing right to use the water.

Sincerely,

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

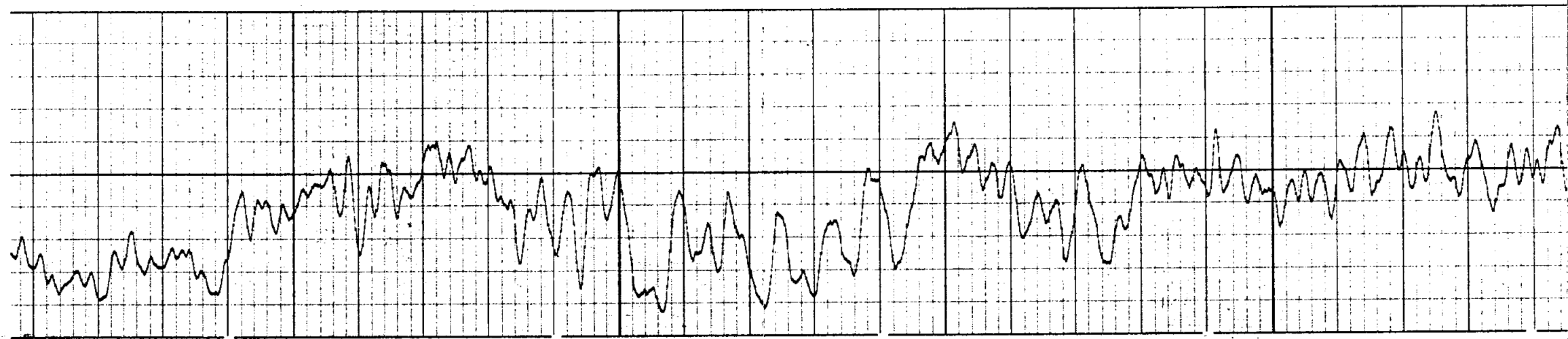
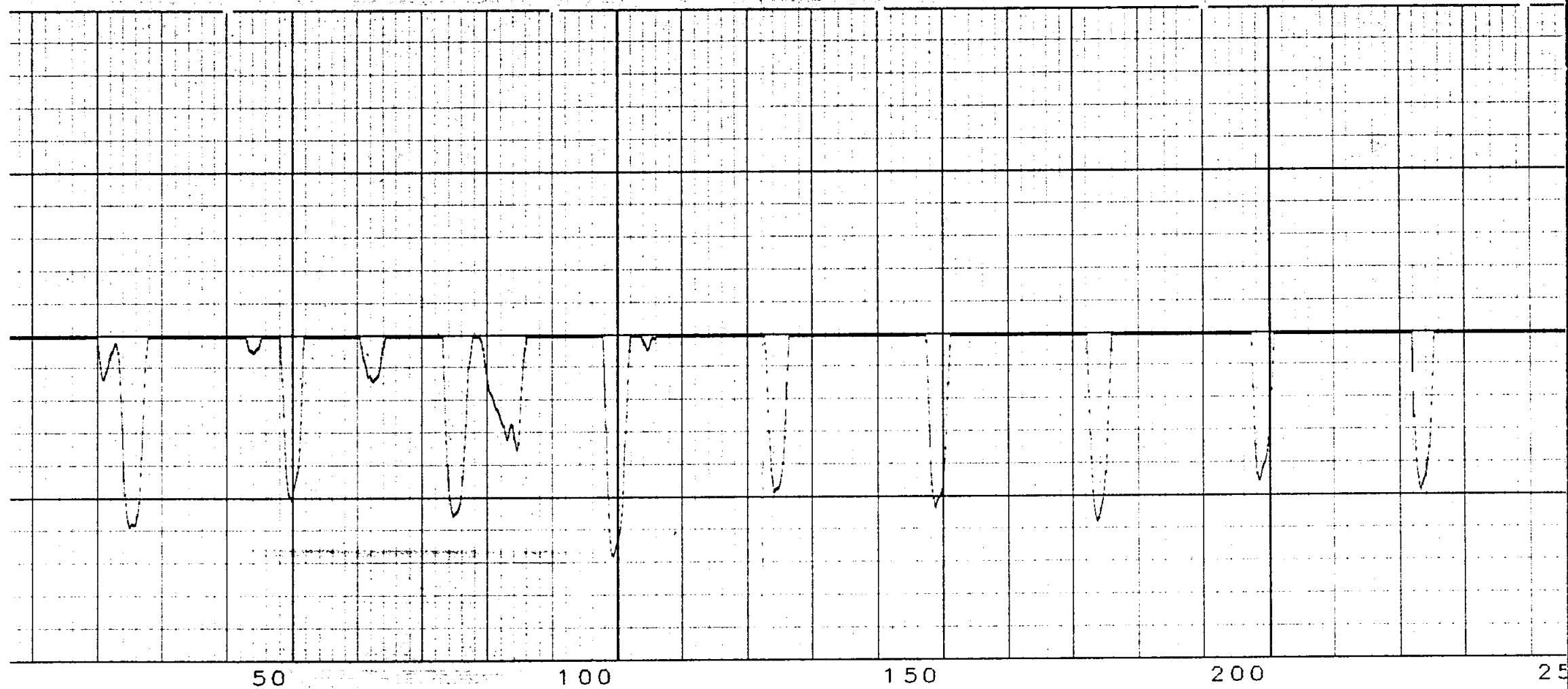
enclosures

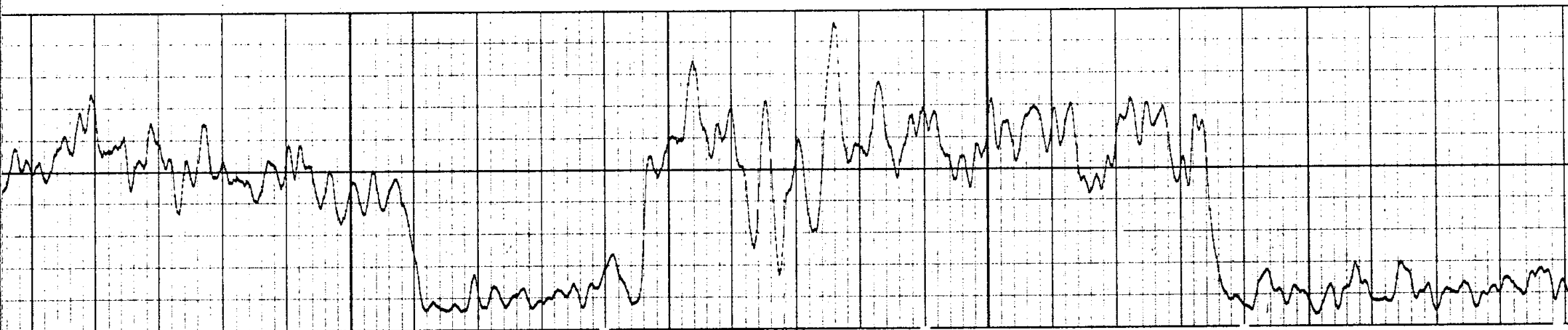
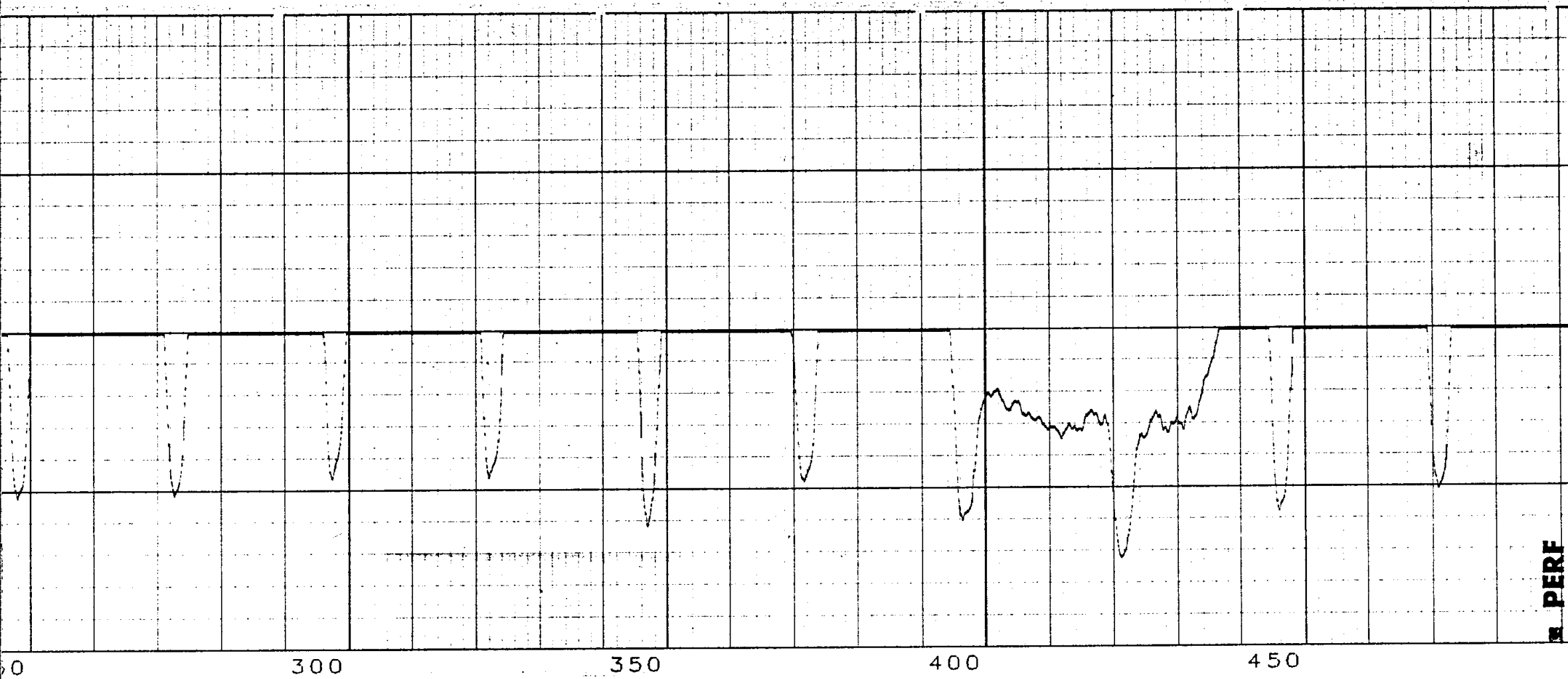
**Goodwell
Incorporated**

CEMENT BOND LOG

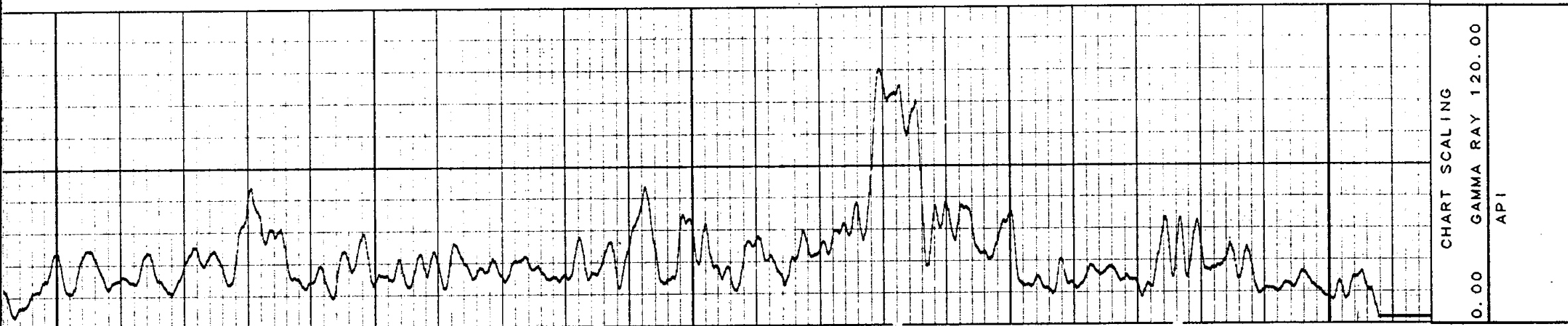
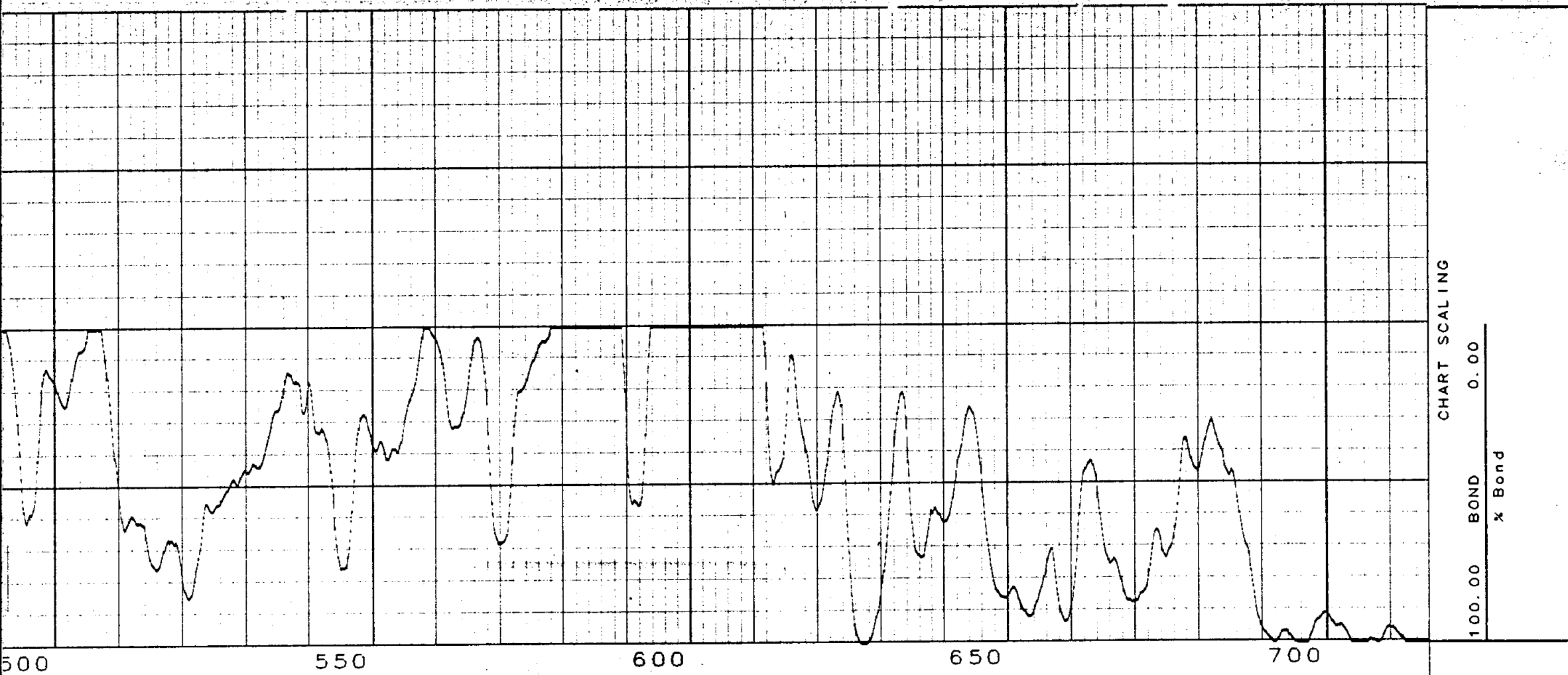
CO FISHER SAND & GRAVL WELL JOHNSON WSW FLD JOHNSON CTY LAWRENCE STATE SO. DAK. FILING NO	COMPANY FISHER SAND&GRAVL WELL JOHNSON WSW FIELD JOHNSON COUNTY LAWRENCE STATE SO. DAK.						
LOCATION:						OTHER SERVICES	
SEC 28 TWP 7N RGE 1E							
PERMANENT DATUM G.L.						K.B.	
LOG MEAS. FROM G.L.						FT.ABOVE PERM DATUM	
DRILLING MEASURED FROM G.L.						G.L.	
DATE			7-16-2000-				
RUN NO. DIV			ONE				
TYPE LOG			CBL				
DEPTH-DRILLER			720'				
DEPTH-LOGGER			720'				
BTM LOGGED INTERVAL			716'				
TOP LOGGED INTERVAL			20'				
TYPE FLUID IN HOLE			WATER				
SALINTY							
FLUID LEVEL			FLOWING				
EST. CEMENT TOP			507'				
MAX.REC.TEMP. DEG F.							
OPERATING RIG TIME			45 MIN				
RECORDED BY			T.BICKETT				
WITNESSED BY			J.GRAFF				
RUN NO.	BOREHOLE RECORD			CASING RECORD			
	BIT	FROM	TO	SIZE	WGT.	FROM	TO
1	12.25	0'	40'	8 5/8		0'	40'
2	7 7/8	40'	730'	5 1/2	15.5	0'	720'

[illegible]





PERF



START DEPTH: 716.01		DEPTHS	Sun Jul 16 09:15:29 2000	LOG	UP