

Considered: _____

WATER PERMIT NO. 5185-3

MAP No. same

Name of Applicant Brookings/Deuel Rural Water System

Post Office Address RR2, Box 84, Toronto SD 57268

Amount of Water Claimed 1.0 cfs Total Acres NA

Source of Water Supply 1 well ground water

Water to be used for rural water system use County Deuel

About 3 miles E of Clear Lake.

PROOF OF PUBLICATION: Received _____ Not Received _____

APPLICATION: Approved _____ Subject to _____

F.F. & C.L. Adopted _____ Not Approved _____ Deferred _____

PRIORITY _____ Date Received Mar 28, 1988 Fee _____ Remarks _____

3/28/88

Corrected Application Received _____ Period of Annual Use Jan 1 - Dec 31

WATER QUALITY APPROVAL RECEIVED NA APPROVED/CONDITIONAL (Circle one)

WI-1 Description same as Application YES _____ NO _____ REMARKS _____

Diversion Point well: NW1/4 NW1/4 section 16 -

T115N-R48W

Land to be Irrigated NA

well					

Well Log: Driller not constructed Licensed YES _____ NO _____

Depth of Well 240 feet REMARKS _____

Type of Map plat PREPARED BY Gary Patton Reviewed and the Number

assigned on March 28, 1988 By Ren Duvall

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

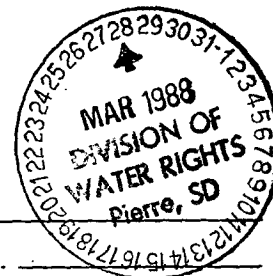
Mail to: Water Rights Div.
DWNR, Foss Bldg.
Pierre, SD 57501
(605) 773-3352

No. 5185-3 Hydrologic Unit 07020003
 Map No. same Basin Minnesota-Whetstone
 Newspaper Clear Lake Courier, Box 277 (Wed)
Brookings Daily Register, Box 177
Moody Co. Enterprise, Box 71, Flandreau (Wed)
Grant Co. Review, Box 390, Milbank (Wed)

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

Check use of water: Industrial ☐ Commercial ☐ Municipal ☐ Other Common Distribution System ☐
 Rural Water System ☒ Suburban Housing ☐ Geothermal Heat ☐ Institutional ☐ Recreational ☐
 Domestic ☐ (above 18gpm) Other ☐

Type of Application: Check one or more of the following

New ☒ Vested Right ☐ Future Use ☐ Change Use ☐☐ Amend Permit No. _____ with old priority date retainedChange diversion point(s) ☐ Add diversion point(s) ☐ Other ☐ _____☐ Application to: Change diversion point(s) ☐ Add diversion point(s) ☐ on Permit No. _____☐ Construction to use water reserved by Future Use Permit No. _____1. Name of Applicant Brookings/Deuel Rural Water System Phone No. (605) 794-4201Post Office Address R.R. #2, Box 84 Toronto State South Dakota
(Street, RR or Box) (City) Zip Code2. Amount of water claimed (c.f.s.) 1.0 cfs3. Source of water supply Well4. Location of point of diversion N.W. Corner of NW $\frac{1}{4}$ Section 16, T115N, R48WCounty Deuel5. Counties where water will be used Deuel, Brookings, Moody and Grant6. Annual period during which water is to be used all year Jan 1 - Dec 31

7. Give a brief description of proposed 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 Supply Well and Filtration Addition at Clear Lake

Well Field and Pumping Station

(See Preliminary Engineering Report)

Attachments: Attach Form 2A if diversion from a well or dugout, or if storage of water, is proposed. Attach map (see instruction)

STATE OF SOUTH DAKOTA)
County of _____ ssI, Basil J. Dahl, Brookings-Deuel RWS, Chairman

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.

Signed

Basil J. DahlSubscribed and sworn to before me this 25 day of March 19 88Comm 3-6-92

Notary Public

**SOUTH DAKOTA
WATER PERMIT**

Date of first receipt of application March 28, 1988

Date of return to applicant for correction, amendments or changes required _____

Date of receipt of corrected application _____

The Water Management Board approved Water Permit Application No. 5185-3

on May 11, 1988 for Brookings/Deuel Rural Water System

<u>RR 2, Box 84</u> (Street, RR or Box)	<u>Toronto</u> (City)	<u>SD</u> (State)	<u>57268</u> (Zip Code)
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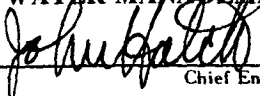
authorizing the construction of the water use system and the placing of water to beneficial use subject to the following limitations, conditions and qualifications:

1. Water Permit No. 5185-3 appropriates 1.0 cubic feet of water per second from 1 well, 240 feet deep to be located in the NW $\frac{1}{4}$ NW $\frac{1}{4}$ Section 16, T115N, R48W
2. The water appropriated shall be used for the purpose of supplying the Brookings/Deuel Rural Water System and may not exceed the amount of water needed for beneficial use for rural water system use
3. The water is to be used during the following described annual period: Jan 1 - Dec 31
4. The date from which applicant may claim the right is March 28, 1988
5. One-fifth of the construction is to be completed on or before November 11, 1990
6. All construction is to be completed on or before May 11, 1993
7. Water is to be put to beneficial use on or before May 11, 1997
8. Water rights obtained in compliance with the laws of the State of South Dakota may not be unlawfully impaired by this appropriation.

QUALIFICATIONS

1. The 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.
2. The well authorized pursuant to this permit shall be constructed by a licensed well driller and construction shall comply with Water Management Board Well Construction Rules, Chapter 74:02:04.

WATER MANAGEMENT BOARD

By: 
Chief Engineer

Division of Water Rights
Dept. of Water and Natural Resources

NOV 30 1988

Supplemental Information

(type or print in ink)

1. Well Information - Proposed construction

- a) Drill Hole Diameter 20" Depth 240'
- b) Casing Type Steel Diameter 12" Thickness 3/8"
- c) Screen Type Stainless steel Diameter 12" Thickness 3/16"
- d) Gravel Pack Thickness 4" Length of Gravel Pack 45'
- e) Depth to Top of Water Bearing Material 130'
- f) Depth to Water (ground surface to water level) 127'
- g) Distance to nearest existing domestic well:
- On applicants property None On property owned by others 6000'

2. Dugout Information Estimates

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

3. Water Storage Dams

If the proposed water use system contains one or more storage dams, please furnish the information requested below. The locations of each dam should 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 _____

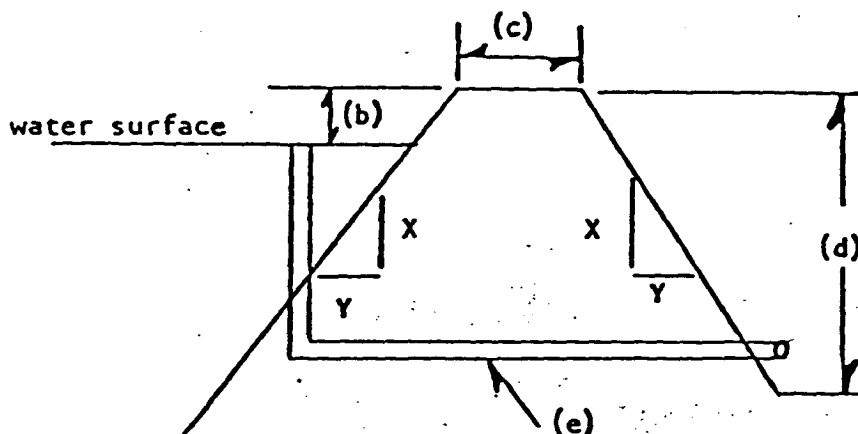
g) X & Y Slope
Upstream _____

Downstream _____

Surface Area of Impoundment _____

Storage _____ acre feet

Drainage area above dam _____

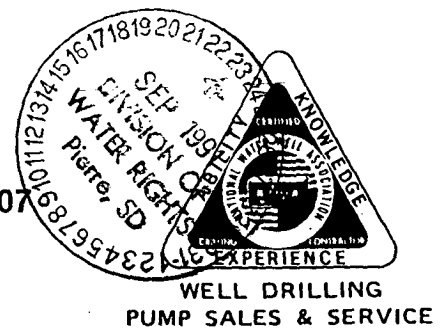


Signature of Applicant _____



Box 2131
FARGO, N. DAK. 58107

Phone (701) 232-8928



Work done by Fargo office Job No. 502669CA Commitment date ASAP Call taken by Bid

Owner Brookings - Deuel Rural Water Telephone _____ Date _____

City Clear Lake County _____ State SD

Well No. 4 Location NW 1/4 Sec 16 T115 R48

Well diameter 12" Well depth 242' Year Constructed 1988 Did we drill Yes

Screen Diameter 12" P.S. Screen Length 30' Screen Material S.S. Screen Slot 70 Leader NONE

Static Level 126' Pumping Level 135.92 G. P. M. Tested 600 With what? Test Pump

Specific yield, 60.48 G. P. M. per foot of D.D. after 24 hours of pumping

Type of well: Filter wall X Naturally developed _____ Filter Sand Size Red Flint #20

Additional information pertaining to well _____

Driller Don Hejmanek Date completed 9-12-88

PUMP AND SYSTEM DATA

Type of Pump: Turbine _____ Submersible X Make Grundfos Model 3755200-3 Pump Serial No. _____

Size Motor 20 Voltage 230 Phase 3 Motor Serial No. G89135E

Type of Column? Turbine _____ Submersible X Length of Column 180' Size of Column 5" Material Galv. steel

Size of Line: Shaft _____ Material of Shaft _____ Replacement No. of line shaft bearings _____

What type of System? Pressure _____ Elevated Tank _____ House _____ Pitless Unit X

Size Pitless Unit 8" x 10" Bury depth of Pitless Unit 8' Total pump setting from intake 193'

Air line length 190' Size 1/4" Material plastic

Amperage under operating conditions - Line 1 57 Line 2 58 Line 3 59

Additional information pertaining to pump and system _____

Date installed 11-17-88 By Company L.T.P. Enterprises, Inc Operator Bruce Pullkaabek



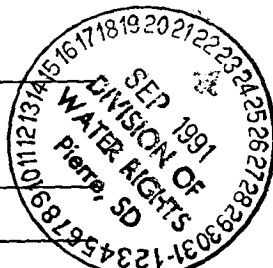
Phone (701) 232-8928

X	
NW	NE
SW	SE

DRILLERS LOG

Size of test hole 6 3/4 Date started 8-30-88 Date completed 8-30-88 Total Hours 10 1/2

[illegible]**FORM #30**

Owner Brookings Deuel Rural WaterWell No. 1-88 12" WellLocation Sec. 16Date started 9-12-88Static 126'

PUMPING TEST

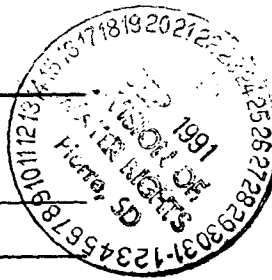


Box 2131 • FARGO, ND 58107 • Phone (701) 232-89

Time	Time in Minutes	Pumping Level	Drawdown	GPM		Time	Time in Minutes	Pumping Level	Drawdown	GPM	
3:30pm	0			600		5:30	840	136.03	10.03	600	
3:31	1	134.5	8.5	"		6:30	900	136.02	10.02	"	
3:32	2	134.7	8.7	"		7:30	960	136.02	10.02	"	
3:33	3	134.9	8.9	"		8:30	1020	136.01	10.01	"	
3:34	4	135.0	9.0	"		9:30	1080	136.01	10.01	"	
3:35	5	135.05	9.05	"		10:30	1140	136.00	10.00	"	
3:40	10	135.22	9.22	"		11:30	1200	135.98	9.98	"	
3:45	15	135.35	9.35	"		12:30	1260	135.96	9.96	"	
3:50	20	13.42	9.42	"		1:30	1320	135.96	9.96	"	
3:55	25	135.46	9.46	"		2:30	1380	135.96	9.96	"	
4:00	30	135.53	9.53	"		3:30	1440	135.92	9.92	"	
4:05	35	135.57	9.57	"				RECOVERY			
4:10	40	135.60	9.60	"		3:31	1	127.05	1.05		
4:15	45	135.62	9.62	"		3:32	2	126.90	.90		
4:20	50	135.64	9.64	"		3:33	3	126.88	.88		
4:25	55	135.65	9.65	"		3:34	4	126.80	.80		
4:30	60	135.65	9.65	"		3:35	5	126.0	.72		
4:50	80	135.68	9.68	"		3:40	10	126.51	.51		
5:10	100	135.71	9.71	"		3:45	15	126.43	.43		
5:30	120	135.72	9.72	"		3:50	20	126.35	.35		
6:00	150	135.76	9.76	"		3:55	25	126.32	.32		
6:30	180	135.78	9.78	"		4:00	30	126.30	.30		
7:00	210	135.80	9.80	"		4:05	35	136.27	.27		
7:30	240	135.82	9.82	"		4:10	40	126.25	.25		
8:30	300	135.87	9.87	"		4:15	45	126.23			
9:30	360	135.89	9.89	"		4:20	50	126.21	.23		
10:30	420	135.92	9.92	"		4:25	55	126.20	.21		
11:30	480	135.93	9.93	"		4:30	60	126.19	.20		
12:30am	540	135.99	9.99	"		4:50	80		.19		
1:30	600	136.01	10.01	"		5:10	100				
2:30	660	136.03	10.03	"		5:30	120	126.11	.11		
3:30	720	136.05	10.05	"							
4:30	780	136.05	10.05	"							

Owner Brooking Deuel Rural WaterWell No. 2" Plastic N.W. of 12" Well

Location _____

Date started 9-12-88Static 127'

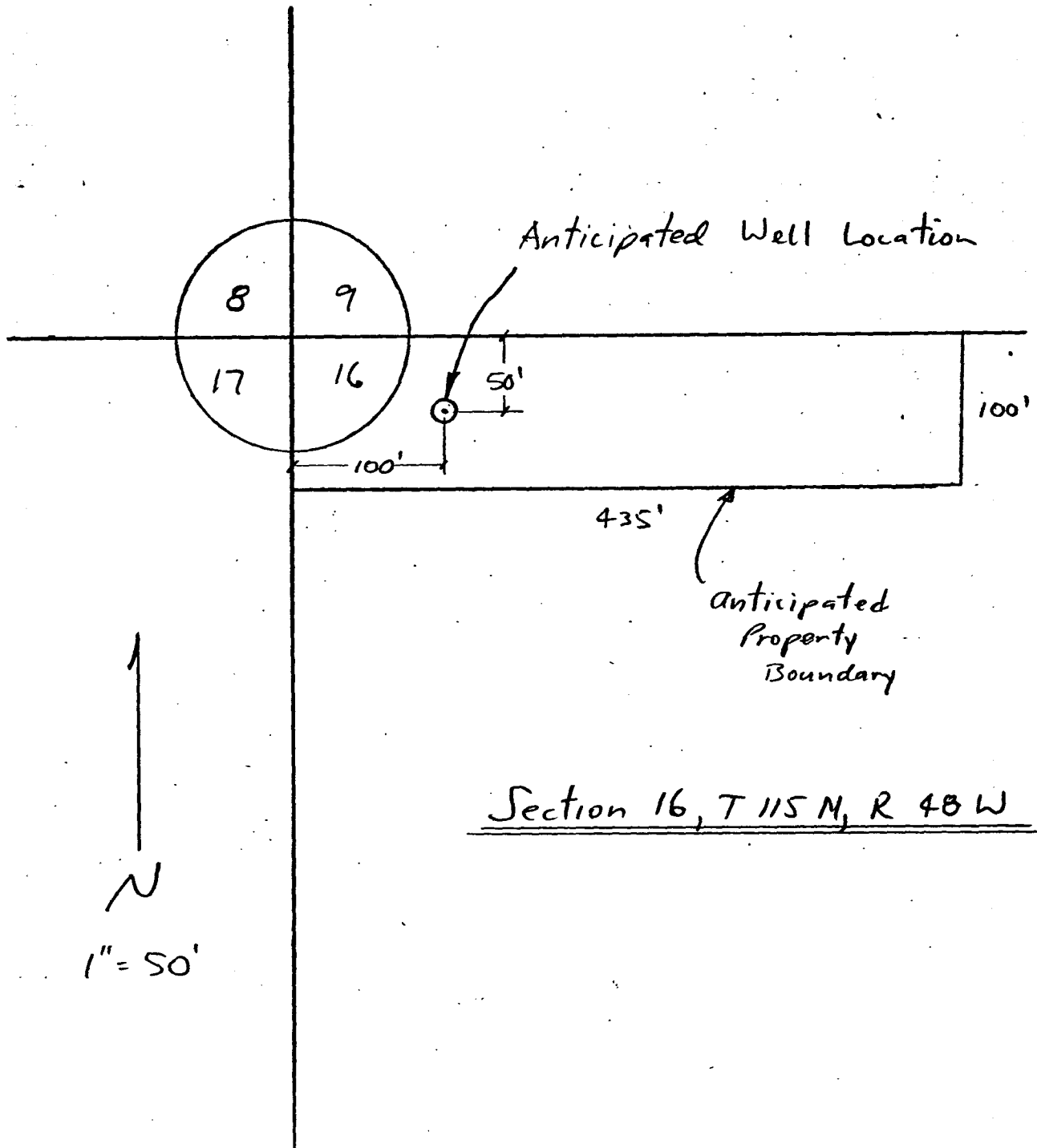
PUMPING TEST



Box 2131 • FARGO, ND 58107 • Phone (701) 232-892

Time	Time in Minutes	Pumping Level	Drawdown	GPM		Time	Time in Minutes	Pumping Level	Drawdown	GPM	
3:30pm	0	0	0			9:30	1080				
3:35	5	129.25	2.25			10:30	1140				
3:40	10	129.42	2.42			11:30	1200				
3:45	15	129.5	2.50			12:30	1260				
3:50	20	129.55	2.55			1:30	1320				
3:55	25	129.58	2.58			2:30	1380				
4:00	30	129.62	2.62			3:30	1440				
4:05	35	129.64	2.64					RECOVERY			
4:10	40	129.67	2.67			3:35	5	127.67	.67		
4:15	45	129.70	2.70			3:40	10	127.51	.51		
4:20	50	129.71	2.71			3:45	15	127.40	.40		
4:25	55	129.72	2.72			3:50	20	127.35	.35		
4:30	60	129.72	2.72			3:55	25	127.31	.31		
4:50	80	129.74	2.74			4:00	30	128.28	.28		
5:10	100	129.76	2.76			4:05	35	127.26	.26		
5:30	120	129.79	2.79			4:10	40	127.24	.24		
6:00	150	129.80	2.80			4:15	45	127.22	.22		
6:30	180	129.82	2.82			4:20	50	127.2	.2		
7:00	210	129.84	2.84			4:25	55	127.18	.18		
7:30	240	129.85	2.85			4:30	60	127.17	.17		
8:30	300	129.88	2.88			4:50	80				
9:30	360	129.90	2.90			5:10	100				
10:30	420	129.91	2.91			5:30	120	127.11	.11		
11:30	480	129.92	2.92								
12:30	540	129.95	2.95								
1:30	600	129.97	2.97								
2:30	660	129.98	2.98								
3:30	720	130.0	3.0								
4:30	780	130.0	3.0								
5:30	840	129.99	2.99								
6:30	900	129.88	2.98								
7:30	960	129.98	2.98								
8:30	1020	129.99	2.99								

BROOKINGS - DEUEL RWS

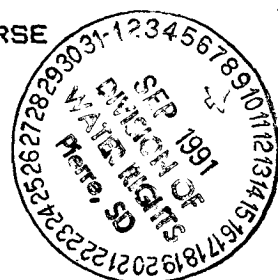


I hereby certify that this plan, specification or report was prepared by me or under my direct personal supervision and that I am a duly Registered Professional Engineer under the laws of the State of South Dakota and that I am competent to prepare this document.
Registration No. 3612 Date 3/24/88
By Bary Patton

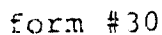
Appl. No. 5185-3

COUNTY: DEUEL LOCATION: 115N-48W-09CCCC 1
 LEGAL LOCATION: SW SW SW SW SEC. 09, T. 115 N., R. 48 W.
 LATITUDE: 44.4634 LONGITUDE: 96.3606
 LAND OWNER:
 PROJECT: BROOKINGS-DEUEL RWS
 DRILLING COMPANY: SDGS
 DRILLER: G. JENSEN DRILLER'S LOG:
 GEOLOGIST: P. DAWSON GEOLOGIST'S LOG: X
 DATE DRILLED: 09-25-1987 DRILLING METHOD: ROTARY
 GROUND SURFACE ELEVATION: 1865.00 T
 TOTAL DRILL HOLE DEPTH: 245.0 TEST HOLE NUMBER: R1-87-73
 WATER RIGHTS WELL: SDGS WELL NAME: R1-87-73
 OTHER WELL NAME:
 BASIN: MINNESOTA/WHETSTONE AQUIFER: PRAIRIE COTEAU
 MANAGEMENT UNIT:
 SCREEN TYPE: PVC, MFG. SCREEN LENGTH: 10.0
 CASING TYPE: PVC CASING DIAMETER: 2.0
 CASING TOP ELEVATION:
 CASING STICK-UP: 2.00 TOTAL CASING AND SCREEN: 232.0
 WELL MAINTENANCE DATE:
 USGS HYDROLOGICAL UNIT CODE: 07020003
 ELECTRIC LOG INFORMATION:
 SPONTANEOUS POTENTIAL: SINGLE POINT RESISTIVITY: X
 NATURAL GAMMA: X EXTRA:
 SAMPLES:

0	-	2.0	TOPSOIL, BLACK
2.0	-	18.0	SAND, BROWN, FINE TO COARSE; SOME VERY FINE PEBBLE GRAVEL
18.0	-	22.0	CLAY, SANDY, SILTY, PEBBLY (TILL)
22.0	-	30.0	SAND, BROWN, FINE TO COARSE; SOME VERY FINE PEBBLE GRAVEL
30.0	-	65.0	CLAY, GRAY, SANDY, SILTY, VERY PEBBLY; INTERBEDDED WITH GRAVEL, INCREASING CLAY CONTENT DOWNWARD (TILL)
65.0	-	70.0	SAND AND GRAVEL, COARSE SAND TO COARSE PEBBLE GRAVEL
70.0	-	82.0	CLAY, GRAY, SANDY, SILTY, VERY PEBBLY; INTERBEDDED WITH GRAVEL (TILL)
82.0	-	90.0	SAND AND GRAVEL, COARSE SAND TO COARSE PEBBLE GRAVEL
90.0	-	97.0	CLAY, GRAY, SANDY, SILTY, VERY PEBBLY (TILL)
97.0	-	117.0	CLAY, GRAY, SANDY, SILTY, VERY PEBBLY; INTERBEDDED WITH GRAVEL, INCREASING CLAY CONTENT DOWNWARD (TILL)
117.0	-	128.0	SAND AND GRAVEL, COARSE SAND TO COARSE PEBBLE GRAVEL
128.0	-	130.0	CLAY
130.0	-	188.0	SAND AND GRAVEL, COARSE SAND TO COARSE PEBBLE GRAVEL
188.0	-	190.0	CLAY



190.0 - 238.0 GRAVEL, VERY FINE TO COARSE PEBBLE
238.0 - 245.0 CLAY, GRAY, SANDY, PEBBLY (TILL)



RECEIPT

Division of Water Rights

South Dakota Department of Water and Natural Resources

Pierre, March 29, 1988, 19

RECEIVED OF Brookings-Deuel Rural Water System, Box 84, Toronto, SD 57268
the following amount in fees for services rendered as provided for by law:

Fee for Application for Permit No. <u>5185-3</u> to Appropriate Water, to construct works and to put water to beneficial use _____	325	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. _____		
Fee for Filing Transfer Form _____		
Fee for Filing Extension Request _____		
Fee for Certified Copy of _____		
Fee for Print Copy of Map _____		
Fee for Certifying _____		
Fee for _____		
(Any Other Work Provided by Law)	Total	325 00

By

John Hatch
Chief Engineer JOHN HATCH

ms



BROOKINGS-DEUEL

Rural Water System, Inc.

R.R. 2 Box 84

Toronto, South Dakota 57268

(605)794-4201



March 28, 1988

John Hatch
Water Rights Division
Dept of Water & Natural Resources
Joe Foss Building
Pierre, SD 57501

Dear John,

Enclosed is the appropriate fee for Brookings-Deuel Rural Water System application.

Also enclosed is preliminary engineering report for the proposal project.

I would appreciate your efforts to include hearings on the next Water Right agenda. We have a CDBG application being considered currently and this water rights is an integral part of the project.

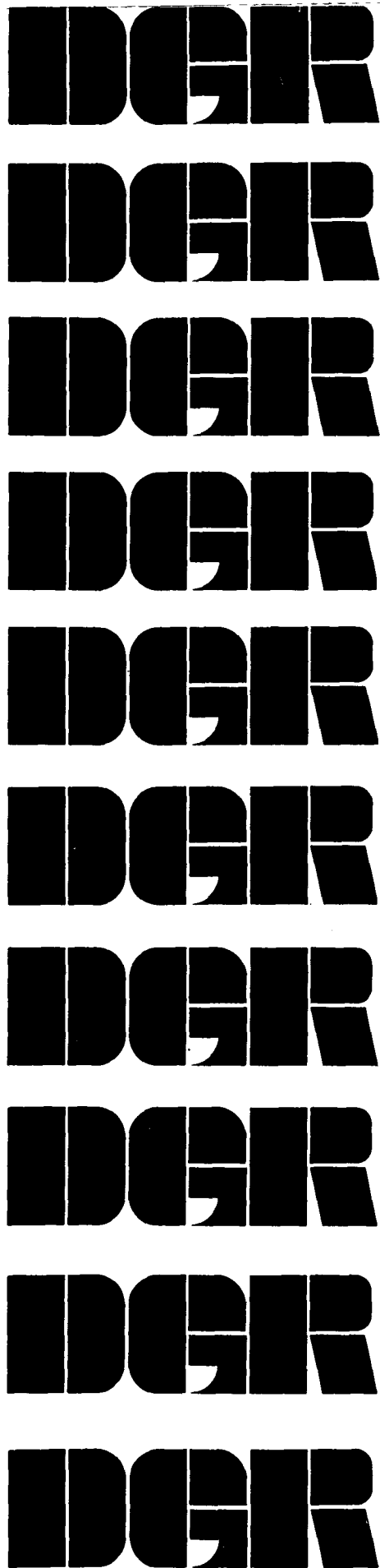
For the Brookings-Deuel Rural Water System,

Pat Gilligan, Manager

PG:lt

Enclosure

We have changed over the years, the method of handling water from an open well with a rope and a bucket to electric pumps, but rural water systems have provided the only real improvement in the quality of the water in rural areas, a factor that makes the effort worthwhile.



PRELIMINARY ENGINEERING REPORT

**WATER SUPPLY WELL
AND FILTRATION ADDITION
AT
CLEAR LAKE WELL FIELD
AND PUMPING STATION**

**BROOKINGS-DEUEL
RURAL WATER SYSTEM**

DeWild Grant Reckert & Assoc. Co.

DGR PROJECT NO. 3815



PRELIMINARY ENGINEERING REPORT

WATER SUPPLY WELL AND FILTRATION ADDITION
AT CLEAR LAKE WELL FIELD AND PUMPING STATION

BROOKINGS-DEUEL RURAL WATER SYSTEM
TORONTO, SOUTH DAKOTA

I hereby certify that this plan, specification
or report was prepared by me or under my direct
supervision and that I am a duly Registered
Professional Engineer under the laws of the
State of South Dakota.

By *Gary J. Patton*
Gary J. Patton, P.E.

South Dakota Registration No. 3612

Date February 29, 1988

DGR Project No. 3815

DEWILD GRANT RECKERT AND ASSOCIATES COMPANY
CONSULTING ENGINEERS
ROCK RAPIDS, IOWA
SIOUX FALLS, SOUTH DAKOTA

WATER SUPPLY WELL AND FILTRATION ADDITION
AT CLEAR LAKE WELL FIELD AND PUMPING STATION

BROOKINGS-DEUEL RURAL WATER SYSTEM
TORONTO, SOUTH DAKOTA

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PRELIMINARY ENGINEERING REPORT

WATER SUPPLY WELL AND FILTRATION ADDITION AT CLEAR LAKE WELL FIELD AND PUMPING STATION

BROOKINGS-DEUEL RURAL WATER SYSTEM

INTRODUCTION:

This report has been prepared to develop preliminary designs and cost estimates for a new well and filtration addition at the Brookings-Deuel RWS Clear Lake facility.

The wells originally installed at the Clear Lake Well Field produced water with iron and manganese levels low enough that treatment was not required. Increasing nitrate levels in these wells has forced Brookings-Deuel to explore for additional well sites where aquifer nitrate levels are lower.

Working with private drillers, the South Dakota Geological Survey (SDGS) and the East Dakota Water Development District (EDWDD), Brookings-Deuel has located an aquifer with good supply potential about one mile northeast of the Clear Lake Pumping Station. Water samples taken and tested by the State show low nitrate levels. The report of the investigation conducted by the State has not been completed, but selected preliminary data sheets, maps and cross-sections provided by the SDGS are reproduced in the appendix to this report.

The water quality analyses conducted by the State indicate that iron and/or manganese is present in this aquifer at levels which will require removal. In the vicinity of observation wells at map locations 23 and 25 (see Appendix), the iron level is less than 0.1 ppm, but manganese is approximately 0.5 ppm. Subsequent to the preparation of these data sheets, the SDGS completed additional test drilling and water sampling in an area about 1/4 mile farther east than map location 25. The depth to the bottom of the sand and gravel was reportedly about 240 feet and water quality was similar to that at map locations 23 and 25.

PRELIMINARY DESIGN:

Well and Raw Water Line:

A production well in the vicinity of map locations 23 and 25 would need to be constructed to a depth of approximately 200 feet to reach the bottom of the aquifer. The saturated thickness of sands and gravels is 80 to 90 feet. It is recommended that a well with 12-inch diameter screen and casing be installed, with the lower 30 to 40 feet screened. Installation of a pitless adapter and submersible pump and motor would be the most economical way to complete the well.

Production from the three existing permanent wells ranges from 225 to 250 gpm. As shown in the Appendix (Table 3), nitrate-nitrogen levels in Wells 1, 2 and 3 are between 12 and 13 ppm. It is anticipated that the new production well will be completed with a pumping capacity of 300 gpm. The new well and one of the existing wells will normally be pumped together, resulting in a nitrate-nitrogen concentration of 5-6 ppm in the blended water.

A 6-inch diameter raw water pipeline is recommended for the new well if the pumping rate is not to exceed 300 gpm. If Brookings-Deuel wishes to install reserve pipeline capacity for a higher pumping rate or future wells in the same area, an 8-inch line is recommended.

Filtration Addition:

The SDGS has drawn water samples from their observation wells located in the area of the proposed Brookings-Deuel production well. Analyses by the State show iron levels typically less than 0.1 ppm and manganese levels typically around 0.5 ppm. The iron levels are relatively low but manganese is consistently present at concentrations which will cause severe problems with household usage and resultant customer complaints if it is not removed.

Treatment with manganese greensand pressure filters utilizing continuous potassium permanganate feed is recommended. A filtration rate of approximately 3 gpm per sq. ft. through a 30-inch deep greensand bed should be appropriate with the observed iron and manganese levels. The existing chlorinator and fluoride feeder will be adequate for the filter plant addition. New feed points will be provided.

To minimize the cost of the filtration addition to the existing Clear Lake Pumping Station, Brookings-Deuel intends to filter only the water from the proposed production well. Wells 1, 2 and 3 have very low iron and manganese concentrations and the System has not experienced nuisance conditions due to these minerals when production was drawn from these wells alone.

With the proposed well pumping in combination with Well 1, 2 or 3, the supply capacity at the Clear Lake Pumping Station will be 525 to 550 gpm. Peak-day production at the Clear Lake facility is approximately 520,000 gpd. The proposed supply capacity is therefore adequate to meet existing peak-day demands in about 16 hours. Brookings-Deuel is not anticipating a significant increase in maximum demands at this facility in the foreseeable future.

For a 300 gpm capacity and filter rate of 3 gpm per sq. ft., three 78-inch diameter or two 96-inch diameter pressure filters would be suitable. A submersible pump sized to deliver up to 15 gpm per sq. ft. of media in each filter cell can be hung in the existing clearwell for backwash supply. It is proposed that a small percolation lagoon for backwash waste be constructed in sandy soils on a one to two-acre site adjacent to the existing pumping station.

An addition to the existing pumping station is proposed to house the pressure filters. The addition will consist of an insulated metal building with a slab-on-grade concrete floor.

It is recommended that construction, testing pumping and water sampling of the production well be accomplished before the design of the filtration addition is finalized. Analyses of water samples taken after approximately 3 days of test pumping should be done to confirm the preliminary water quality data obtained to date.

COST ESTIMATES:

A breakdown of estimated construction and other project costs is provided on the following page.

COST ESTIMATE

WATER SUPPLY WELL AND FILTRATION ADDITION
CLEAR LAKE WELL FIELD AND PUMPING STATION

<u>Description</u>	<u>Estimated Cost</u>
Well construction (approximately 200 ft. deep), including observation wells and test pumping	\$ 18,000
Well completion, including pitless unit, pump, motor, and telemetry cable	\$ 20,000
Raw water pipeline, 5,300 L.F. 6" CL 160 PVC @ \$3.77/L.F.	<u>\$ 20,000</u>
Subtotal, Well	\$ 58,000
Building addition to Clear Lake Pumping Station, approx. 560 sq. ft.	\$ 20,000
Building electrical	\$ 10,000
Building mechanical, including heating system	\$ 7,500
Process equipment, including filters, backwash pump, piping and chemical feeders	\$120,500
Backwash waste pond, fencing and landscaping	<u>\$ 8,000</u>
Subtotal, Treatment Addition	<u>\$166,000</u>
Total Construction Cost	\$224,000
Land Acquisition	\$ 3,000
Engineering, inspection, administration and legal services	\$ 39,500
Contingencies	<u>\$ 25,000</u>
Total, Other Project Costs	<u>\$ 67,500</u>
TOTAL PROJECT COST	<u><u>\$291,500</u></u>

APPENDIX

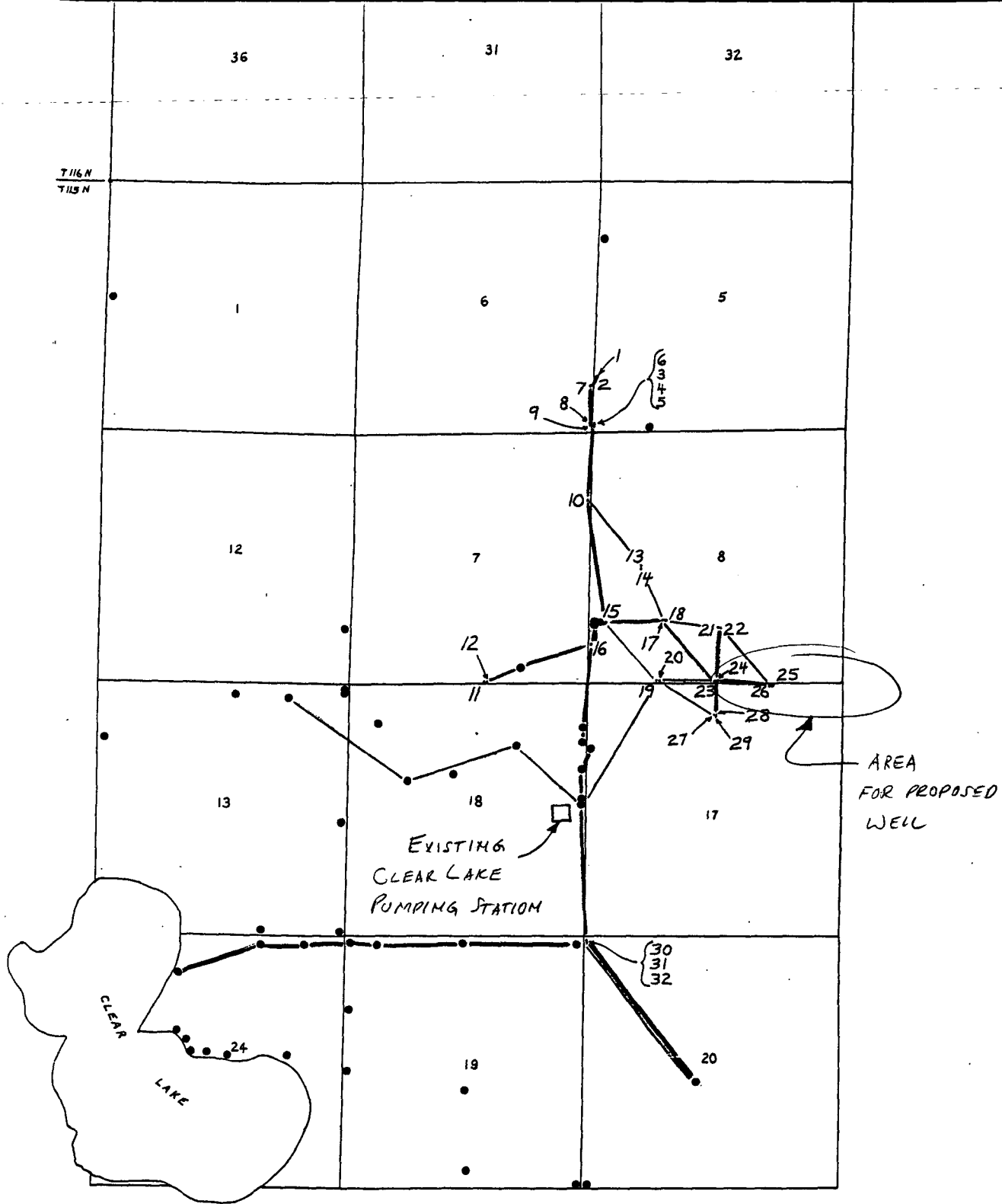
Preliminary Information Prepared by
South Dakota Geological Survey on
Clear Lake Water Source Investigation,
Brookings-Deuel Rural Water System

List of test holes/wells drilled for the present investigation

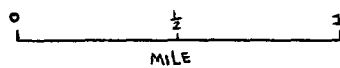
Map Loca- tion H2O No.	No.	Location	ID No.	Land Elev	Relative Casing Elev	Hole Depth	Well Depth*
1	--	115N-48W-05 CCB	1 CO-87-01	1695	----	25	----
2	--	115N-48W-05 CCB	2 CO-87-02	1695	----	67	----
3	--	115N-48W-05 CCCC	1 CO-87-03	1765	----	90	----
4	--	115N-48W-05 CCCC	2 CO-87-04	1765	----	137	----
5	1	115N-48W-05 CCCC	3 R1-87-39	1765	967.04	170	170
6	2	115N-48W-05 CCCC	4 R1-87-40	1765	966.67	93	90
7	4	115N-48W-06 DDAD	R2-87-45	1700	918.49**	92	80
8	--	115N-48W-06 DDDD	1 R2-87-18	1765	----	175	----
9	5	115N-48W-06 DDDD	2 CO-87-15	1765	966.04	62	51
10	--	115N-48W-07 ADAA	R2-87-51	1790	----	195	----
11	--	115N-48W-07 DCCD	1 CO-87-05	1780	----	176	----
12	--	115N-48W-07 DCCD	2 CO-87-08	1780	983.71	63	60
13	7	115N-48W-08 CBAA	1 R2-87-52	1815	1012.14	178	170
14	8	115N-48W-08 CBAA	2 R2-87-53	1815	1014.63	112	110
15	9	115N-48W-08 CCBA	CO-87-12	1810	1003.24	90	84
16	--	115N-48W-08 CCBC	R2-87-46	1795	----	190	----
17	13	115N-48W-08 CDBB	1 CO-87-13	1818	1021.59	150	119
18	14	115N-48W-08 CDBB	2 CO-87-14	1818	1021.42	57	57
19	--	115N-48W-08 CDCC	1 R2-87-47	1830	----	215	----
20	15	115N-48W-08 CDCC	2 R2-87-48	1831	1032.02	110	107
21	16	115N-48W-08 DCBB	1 R2-87-54	1855	1058.14	205	180
22	17	115N-48W-08 DCBB	2 R2-87-55	1856	1059.21	137	136
23	18	115N-48W-08 DCCC	1 CO-87-06	1832	1040.73	188	182
24	19	115N-48W-08 DCCC	2 CO-87-07	1832	1041.53	97	77
25	20	115N-48W-17 ABAA	1 R2-87-49	1855	1064.54	215	200
26	21	115N-48W-17 ABAA	2 R2-87-50	1855	1064.10	135	125
27	--	115N-48W-17 ABCB	1 R2-87-56	1845	----	265	----
28	--	115N-48W-17 ABCB	2 R2-87-57	1845	1044.89	155	147
29	22	115N-48W-17 ABCB	3 R2-87-58	1845	1046.11	165	148
30	30	115N-48W-20 BBBB	1 CO-87-09	1786	NA	98	54
31	--	115N-48W-20 BBBB	2 CO-87-10	1786	----	90	----
32	31	115N-48W-20 BBBB	3 CO-87-11	1786	NA	167	166

* presented in feet below land surface

** elevation of brass plug at level of pressure gauge



LOCATIONS OF TEST HOLES AND WELLS

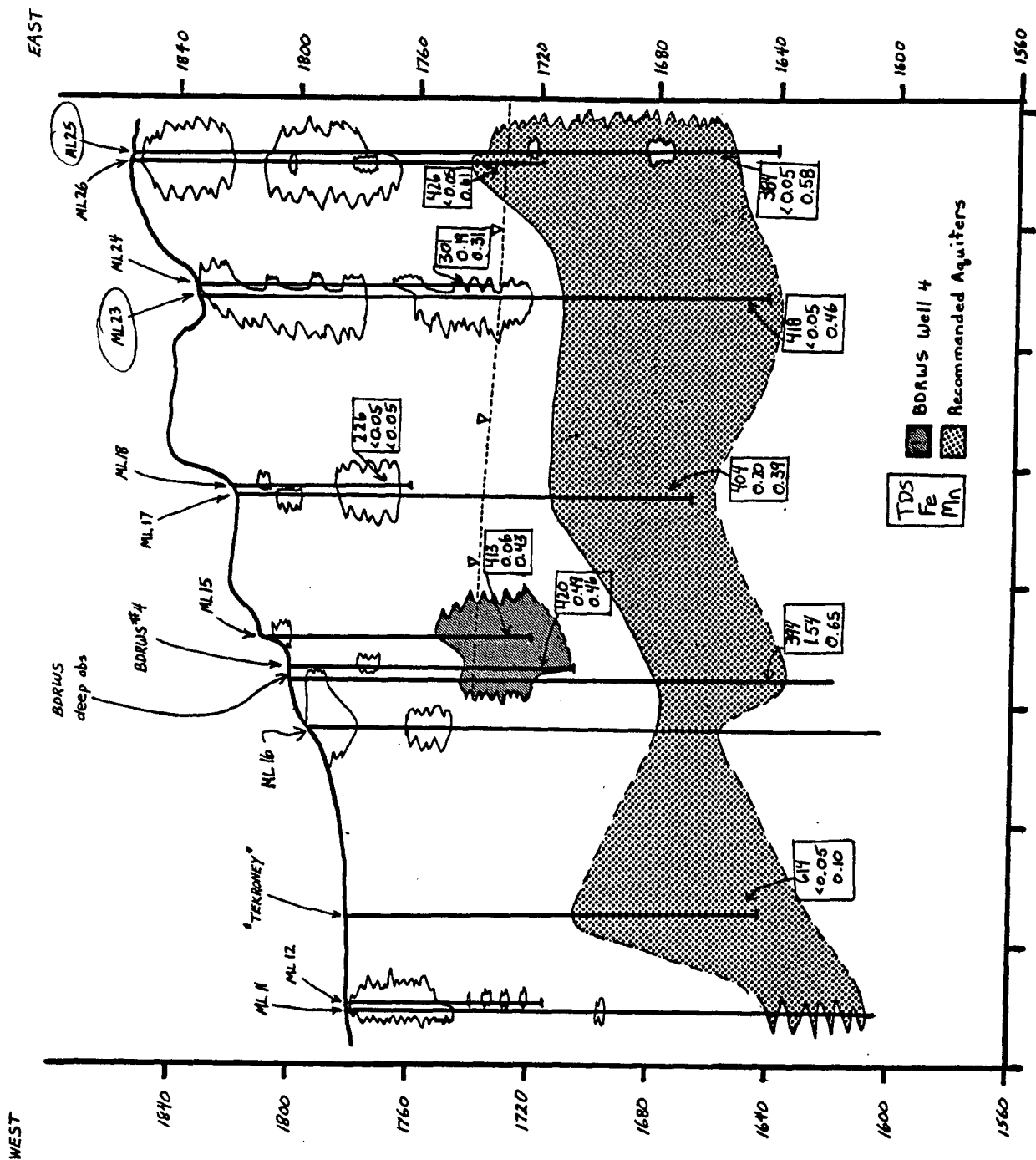


13. Test hole or monitoring well drilled for the present investigation. Number is Map Location number.

• Test hole or well drilled for some purpose other than the present investigation. Well type may be (1) stock, (2) domestic, (3) irrigation, or (4) monitoring.

— Line of cross section.

Only those test holes or wells for which a driller's log is available are shown on this map.



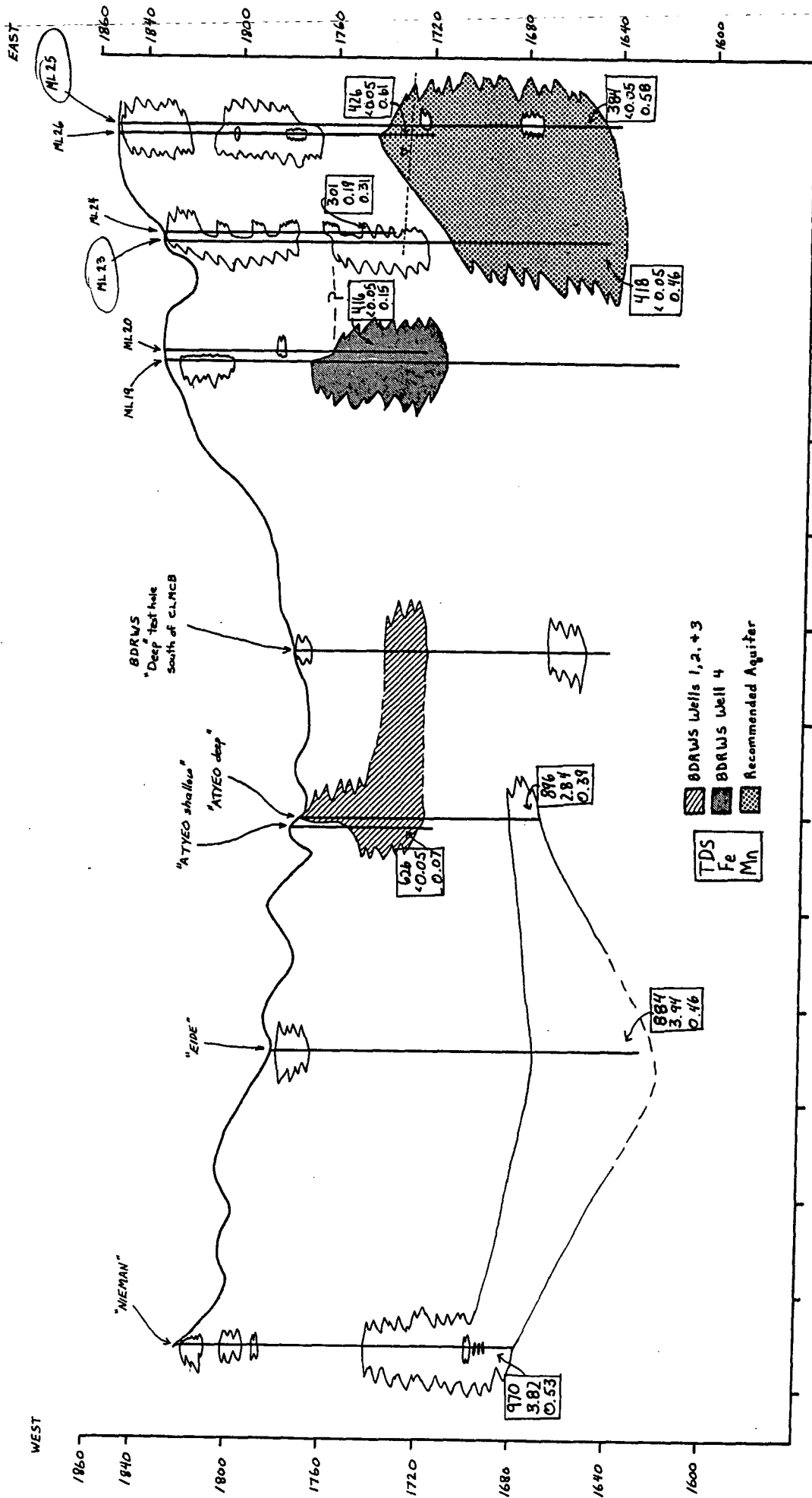


Table 1. RESULTS OF WATER QUALITY ANALYSES PERFORMED FOR THE PRESENT INVESTIGATION.

Water sample no.	ML no.	Location	Sample ID	Date Sampled	Well Depth (ft)	pH	Conduc- tivity (umhos)	Hard- ness as CaCO3	Fe	Mn	SO4	NO3-N	Na	Ca	Mg	K	Cl	F	HCO3	CO3	Alk MD	Alk P	Parts per Million:	
																							TDS	CaCO3
1	5	115N-48M-05 DCCC 3	R1-87-39	06/24/87	136	7.37	602	382	0.31(1)	0.05(1)	250(1)	10(2)	—	—	—	—	—	250(1)	2.4(2)	—	—	—	—	—
2	6	115N-48M-05 DCCC 4	R1-87-40	06/24/87	84	7.24	889	538	319	0.71	0.37	61	0.05	13	85	26	3.5	12	0.30	356	0	292	0	
3	—	115N-48M-06 ABOD	Spring 3	06/16/87	?	7	1314	1006	484	2.78	0.24	59	0.04	8.4	128	40	4.9	12	0.20	553	0	454	0	
4	7	115N-48M-06 DCCC 2	R2-87-45	08/19/87	80	7.39	637	392	333	2.30	0.45	43	0.04	7.3	89	27	4.3	12	0.22	446	0	368	0	
5	9	115N-48M-06 DCCC 2	CD-87-15	06/11/87	51	7.19	783	470	417	1.46	0.57	63	0.04	8.8	106	37	3.0	2	0.35	368	0	302	0	
6	—	115N-48M-07 DCCC	Tekrony Irr	06/22/87	130	7.5	882	614	471	0.05	0.10	186	1.37	17	136	32	5.8	3	0.12	477	0	391	0	
7	13	115N-48M-08 DCCC 1	R2-87-52	08/18/87	168	7.32	634	382	333	0.05	0.55	72	0.04	5.3	87	28	3.0	3	0.37	358	0	294	0	
8	14	115N-48M-08 DCCC 2	CD-87-53	08/18/87	106	7.39	609	330	314	0.05	0.50	60	0.04	6.2	78	29	3.2	3	0.24	332	0	272	0	
9	15	115N-48M-08 DCCC 3	CD-87-12	06/17/87	84	7.39	644	413	342	0.06	0.43	85	0.04	7.3	84	32	4.8	12	0.27	328	0	269	0	
10	—	115N-48M-08 DCCC	Russow PS	06/18/87	?	7.49	608	386	323	0.82	0.23	81	0.04	3.0	83	28	2.9	10	0.28	333	0	273	0	
11	—	115N-48M-08 DCCC	80-RMS deep obs	06/17/87	163	7.44	617	394	328	1.54	0.65	64	0.04	4.3	85	28	3.0	12	0.29	294	0	241	0	
12	—	115N-48M-08 DCCC	80-RMS #4	06/17/87	85?	7.41	649	420	352	0.49	0.46	84	0.04	5.3	90	31	3.4	12	0.19	346	0	204	0	
13	17	115N-48M-08 DCCC 1	CD-87-13	06/16/87	119	7.42	593	404	307	0.20	0.39	73	0.04	14	80	26	2.9	4	0.27	361	0	296	0	
14	18	115N-48M-08 DCCC 2	CD-87-14	06/16/87	51	7.75	346	226	177	0.05	0.05	17	2.11	1.7	46	15	2.6	4	0.19	327	0	268	0	
15	20	115N-48M-08 DCCC 2	R2-87-48	08/17/87	108	7.61	677	416	343	0.05	0.15	104	0.04	10	83	33	3.6	4	0.12	190	0	156	0	
16	21	115N-48M-08 DCCC 1	R2-87-54	08/18/87	180	7.47	652	378	320	0.05	0.42	82	0.06	11	82	28	3.2	3	0.23	334	0	274	0	
17	22	115N-48M-08 DCCC 2	R2-87-55	08/19/87	136	7.30	950	614	492	0.05	0.21	173	0.04	22	121	46	6.0	6	0.12	325	0	267	0	
18	23	115N-48M-08 DCCC 1	CD-87-06	06/18/87	180	7.58	630	418	341	0.05	0.46	83	0.04	6.3	87	30	3.5	3	0.19	438	0	359	0	
19	24	115N-48M-08 DCCC 2	CD-87-07	06/11/87	76	7.51	482	301	249	0.19	0.31	56	0.04	5.3	70	18	2.1	2	0.21	329	0	270	0	
20	25	115N-48M-17 ABOD 1	R2-87-49	08/19/87	199	7.40	625	384	333	0.05	0.58	72	0.04	5.0	87	28	2.9	4	0.01	250	0	205	0	
21	26	115N-48M-17 ABOD 2	R2-87-50	08/19/87	125	7.43	666	426	360	0.05	0.61	83	0.04	3.9	98	28	2.1	3	0.19	319	0	262	0	
22	29	115N-48M-17 ABOD 3	R2-87-58	08/17/87	148	7.79	518	300	255	0.05	0.20	65	0.04	6.7	66	22	2.9	3	0.17	255	0	209	0	
23	—	115N-48M-18 ABOD	Rhyeo Irr 1	06/16/87	54	7	918	626	458	0.05	0.07	151	15.80	5.3	119	39	5.0	20	0.10	293	0	240	0	
24	—	115N-48M-18 ABOD	Rhyeo Irr 2	06/16/87	104	7	1203	896	622	0.05	0.20	65	0.04	22	180	42	4.4	12	0.29	396	0	325	0	
25	—	115N-48M-18 ABOD	Eide Irr	06/23/87	157	7	1188	884	637	3.94	0.46	365	0.04	22	181	45	4.2	12	0.31	399	0	327	0	
26	—	115N-48M-18 DCCC	Rhyeo P1	06/16/87	40	7	830	552	382	0.05	0.23	48	0.04	23	97	34	6.3	19	0.25	324	0	266	0	
27	—	115N-48M-18 DCCC	Rhyeo P1	06/16/87	70	7.5	710	458	353	0.06	0.05	89	0.16	22	164	30	2.7	12	0.14	278	0	228	0	
28	—	115N-48M-18 DCCC	Kjeldsen PS	06/17/87	70	6.5	1024	742	533	1.72	0.20	285	0.16	22	164	30	5.1	12	0.42	377	0	309	0	
29	—	115N-48M-19 DCCC	Eide PS	06/18/87	17	7	1990	1256	919	0.05	0.05	142	12.80	64	218	91	9.0	270	0.15	639	0	524	0	
30	30	115N-48M-20 B888 1	CD-87-09	06/16/87	54	7.03	1002	696	538	0.05	0.61	186	0.04	13	148	41	3.9	12	0.35	491	0	403	0	
31	32	115N-48M-20 B888 3	CD-87-11	06/16/87	166	7.22	1232	938	613	0.05	0.34	404	0.04	32	186	36	8.9	12	0.36	350	0	287	0	
32	—	115N-48M-20 DCCC	Boeke Irr	06/17/87	70	7	641	412	321	0.05	0.05	43	9.72	3.1	84	27	2.3	6	0.14	300	0	246	0	
33	—	115N-48M-12 DCCC	Nieman P1	06/17/87	22	7	744	514	389	0.05	0.05	126	9.42	3.3	108	29	0.6	13	0.20	275	0	226	0	
34	—	115N-48M-13 DCCC	Nieman Irr	06/17/87	145	7.5	1220	970	661	3.82	0.53	383	0.04	25	189	46	4.5	12	0.35	400	0	328	0	
35	—	115N-48M-24 DCCC	Clear Lake	06/17/87	—	7	847	638	455	0.05	0.05	253	0.04	12	98	51	7.6	11	0.29	243	0	199	0	
36	—	115N-48M-31 DCCC	Spring 2	06/16/87	?	7.5	1575	1244	905	0.76	0.79	614	0.04	20	229	81	5.7	12	0.23	428	0	351	0	
37	—	115N-48M-31 DCCC	Spring 1	06/16/87	?	7.5	1303	978	715	0.99	1.47	397	0.04	12	189	59	5.2	6	0.24	428	0	351	0	

1: EPA recommended maximum limit

2: EPA enforceable maximum limit

Explanation of abbreviations: ML No. - map location number; Sample ID - sample source identification; umhos - micro mhos; TDS - total dissolved solids; Fe - iron; Mn - manganese; SO₄ - sulfate; NO₃-N - nitrate nitrogen; Na - sodium; Ca - calcium; Mg - magnesium; K - potassium; Cl - chloride; F - fluoride; HCO₃ - bicarbonate; CO₃ - carbonate; Alk MD - alkalinity methyl orange; Alk P - alkalinity phenolphthalein.

Table 2. WATER QUALITY OF RECOMMENDED FOUNTAIN

Parts per Million																							
Water sample no.	ML	Location	Sample ID	Date Sampled	Well Depth (ft)	pH	Conduc- tivity (umhos)	Hard- ness as CaCO3	Fe	Mn	SO4	NO3-N	Na	Ca	Mg	K	Cl	F	HCO3	CO3	Alk MG	Alk P	
6	--	115N-48W-07 DCHQ	Tekronrey Irr	06/22/87	130	7.5	882	614	471	0.05	0.10	186	1.37	17	136	32	5.8	3	0.37	358	0	294	0
7	13	115N-48W-08 C88A 1	R2-87-52	08/18/87	168	7.32	634	382	333	0.05	0.55	72	0.04	5.3	87	28	3.0	3	0.24	332	0	272	0
8	14	115N-48W-08 C88A 2	R2-87-53	08/18/87	106	7.39	609	330	314	0.05	0.50	60	0.04	6.2	78	29	3.2	12	0.27	328	0	269	0
11	--	115N-48W-08 C88B	BD-RMS deep obs	06/17/87	163	7.44	617	394	328	1.54	0.65	64	0.04	4.3	85	28	3.0	12	0.19	346	0	284	0
13	17	115N-48W-08 C88B 1	CD-87-13	06/16/87	119	7.42	593	404	307	0.20	0.39	73	0.04	14	80	26	2.9	4	0.19	327	0	268	0
16	21	115N-48W-08 C88B 1	R2-87-54	08/18/87	180	7.47	652	378	320	0.05	0.42	82	0.06	11	82	28	3.2	3	0.12	325	0	267	0
17	22	115N-48W-08 C88B 2	R2-87-55	08/19/87	136	7.30	950	614	492	0.05	0.21	173	0.04	22	121	46	6.0	6	0.19	438	0	359	0
18	23	115N-48W-08 DCCC 1	CD-87-06	06/18/87	180	7.58	630	418	341	0.05	0.46	83	0.04	6.3	87	30	3.5	3	0.21	329	0	270	0
20	25	115N-48W-17 A88A 1	R2-87-49	08/19/87	199	7.40	625	384	333	0.05	0.58	72	0.04	5.0	87	28	2.9	4	0.19	319	0	262	0
21	26	115N-48W-17 A88A 2	R2-87-50	08/19/87	125	7.43	666	426	360	0.05	0.61	83	0.04	3.9	98	28	2.1	12	0.19	346	0	284	0
22	29	115N-48W-17 A88B 3	R2-87-58	08/17/87	148	7.79	518	300	255	0.05	0.20	65	0.04	6.7	66	22	2.9	3	0.17	255	0	209	0
AVERAGES						670	422	350	--	0.42	92	--	9.3	92	30	3.5	--	0.21	337	0	276	0	

Table 3. WATER QUALITY OF BROOKINGS-DEUEL RURAL WATER SYSTEM

Production well number	Location	Date Sampled	Well Depth (ft)	pH	Conductivity (umhos)	Hardness as CaCO ₃	Fe	Mn	SO ₄	NO ₃ -N	Na	Ca	Mg	K	Cl	F	HCO ₃	CO ₃	Alk MD	Alk P
1	---	03/24/87	?	7.66	580	---	342	0.00	68	12.75	3	94	26	2	14	---	239	0	196	0
2	---	03/24/87	?	7.60	700	---	395	0.06	87	12.38	4	107	31	2	14	---	307	0	252	0
3	---	03/28/87	?	7.56	650	---	367	0.01	77	12.88	4	101	28	2	14	---	288	0	236	0
AVERAGES						543	---	0.02	77	12.67	4	101	28	2	14	---	278	0	228	0
4	115N-48W-08 C88B	06/17/87	857	7.41	649	420	352	0.49	84	0.04	5.3	90	31	3.4	14	0.27	361	0	296	0
Blend	115N-48W-18 C88D	06/16/87	---	7.5	710	458	353	0.06	89	9.53	3.9	92	30	2.7	12	0.14	278	0	228	0

Parts per Million

	Conduc- tivity (umhos)	Hard- ness as CaCO ₃	TDS	Fe	Mn	SO ₄	NO ₃ -N	Na	Ca	Mg	K	Cl	F	HCO ₃	CO ₃	Alk MD	Alk p
RECOMMENDED ROQUIER AVERAGES	670	422	350	—	0.42	92	—	9.3	92	30	3.5	—	0.21	337	0	276	0
PRODUCTION WELLS 1, 2, & 3 AVERAGES	643	—	368	0.02	0.00	77	12.67	4	101	28	2	14	—	278	0	228	0
BLEND	710	458	353	0.06	0.05	89	9.53	3.9	92	-30	2.7	12	0.14	278	0	228	0

REPORT ON APPLICATION No. 5185-3
BROOKINGS/DEUEL RURAL WATER SYSTEM
APRIL 8, 1988

Permit Application No. 5185-3 proposes to appropriate 1.0 cubic feet of water per second from 1 well, 240 feet deep, located in the NW⁴NW⁴ Sec.16, T115N-R48W. Water is to be used to supply the Brookings/Deuel Rural Water System.

Aquifer: Pleistocene-Unknown, or Prairie Coteau

Geology and Aquifer Characteristics:

There are numerous lenticular bodies of outwash within the glacial drift in this area. Many of these deposits are included in what Kume(1985) calls the Prairie Coteau Aquifer. The Prairie Coteau is defined as those outwash deposits generally buried beneath 30 or more feet of till and not otherwise part of a surface or near surface aquifer, and not part of the Altamont Aquifer which is at the base of the glacial drift. At any given site the Prairie Coteau Aquifer Complex is composed of several layers of sand and gravel separated and isolated from each other by glacial till. The outwash lenses may or may not be hydraulically connected.

The South Dakota Geological Survey (SDGS) drilled a test hole into an outwash deposit identified as the Prairie Coteau Aquifer, located in the SW⁴SW⁴ Sec.9, T115N-R48W. The aggregate thickness of the aquifer at this site is 121 feet, this is a sum of the thickness of the three outwash deposits and the two 2-foot thick layers of till between the outwash layers.

The Division of Water Rights monitors two observation wells in this area completed into an outwash identified as an Unknown Pleistocene aquifer. Insufficient data (water level measurements from the test well) is available to conclusively determine if the outwash identified as the Prairie Coteau Aquifer by the SDGS is the same outwash identified as Pleistocene-Unknown by the Division of Water Rights. However, the elevation of the outwash deposit the observation wells are completed into is equivalent to the elevation of the outwash the SDGS test well is completed into, and it can be assumed the three wells are all completed into the same aquifer. For the purpose of this report the aquifer will be identified as Pleistocene -Unknown. Although by definition the aquifer may be a member of the Prairie Coteau Aquifer Complex. The areal extent of this aquifer has not been delineated and estimates of the recoverable water in storage, and average annual recharge are not available. The aquifer is under artesian conditions, and water level measurements from the Division of Water Rights observation wells indicate the gradient of the potentiometric surface is from northwest to southeast, suggesting recharge from the northwest. Water level measurements indicate the potentiometric surface of the aquifer fluctuates seasonally in response to recharge events but no annual trend is evident, (hydrographs included).

Review of Existing Water Rights:

Existing water rights in this area include:

Permit #	Owner	Rate (cfs)	Use	Well TD
2245-3	Atyeo Brother	2.20	I(156)	57'
2245-3A	Atyeo Brothers	No add'l	No add'	105'*
2416-3	Brooking/Deuel RWS	1.00	RWS	55'(2)
2564-3	Gary Eide	1.57	I(110)	158*
2803-3	Carl P. Boeke	4.40	I(320)	72'(2)
2991-3	Atyeo Brothers	3.90	I(270)	135'* 138'*
2954-3	KS Ranch	1.00	I(224)	104 *
3983-3	East Dakota Conservancy Sub-District	1.00	F/U	F/U
4504-3	Carl P. Boeke	No add'l	No add'l	72'(2) 142'*
4830-3	Brookings/Deuel RWS	1.00	RWS	60
5108-3	Brookings/Deuel RWS	1.00	RWS	85

Note 1: Uses; I(xxx) = irrigation, the number in the parentheses is the number of acres permitted

RWS = Rural Water System

F/U = future use

Note 2: Well TD; well depths marked with * are completed into Pleistocene-Unnamed aquifers which may or may not be the same aquifer this requested appropriation is from, unmarked wells are completed into the Brookings Management unit of the Big Sioux Aquifer.

Note 3: Permit No. 4830-3 totally appropriates the 1.00 cfs reserved by future use appropriated by permit No. 3983-3

Note 4: See enclosed sketch map for permit locations

The information included with this application indicates "increasing nitrate levels in the original wells has forced the RWS to explore for additional well sites." Iron and/or manganese will require removal from this new source. The applicant proposes to mix water from the two sources to dilute the nitrate levels of the water delivered by the system.

Conclusions:

1. Permit application No. 5185-3 proposes to appropriate 1.0 cfs from one well 240 feet deep completed into an unnamed Pleistocene aged aquifer that may be a member of the Prairie Coteau Aquifer Complex.
2. The Division of Water Rights monitors two observation wells in this area. The observation wells are completed into an unnamed Pleistocene aged aquifer which may be the same aquifer this application proposes to appropriate water from. Recharge to the aquifer is apparent from the water level measurements taken at the observation wells. Hydrographs from the observation wells also suggest withdrawal from the aquifer does not exceed recharge to the aquifer.

3. There are six existing Water Rights appropriating water from Unnamed Pleistocene aquifers in this area. It is impossible to determine if any or all of these appropriations are from the same aquifer this application proposes to appropriate water from. The applicant has indicated that upon securing a water permit a well will be test pumped and evaluated.
4. This permit should be qualified with the "well interference qualification.



KENT BUHLER
Natural Resources Engineer

References:

Division of Water Rights, 1988, "Domestic Well Log Files, Observation Well Files, and Water Right Files", DWNR-Division of Water Rights, Joe Foss Building, Pierre SD

Kume, J., 1985, Water Resources of Deuel and Hamlin Counties, South Dakota, Water Resources Investigations Report 84-4069, Huron SD

SKETCH MAP

LOCATION OF BROOKINGS/DEUEL RWS WELL AND IRRIGATION PERMITS

R48W

T.115N

5109-2
+ 5059-3
+ 5185-3
294-3
2245-3
2-45-2A
+1
12
+2
+3
+1
1830-3
2416-3
+1
+1
+1
2991-3
#1 2803-3
#2 4504-3
+ DU-78F
+ DU-72A

A)
D

OBS_WELL	LOCATION	DATE	READING
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DU-72A	115N-48W-210000	06/28/78	-151.1
DU-72A	115N-48W-210000	08/11/78	-150.9
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DU-72A	115N-48W-210000	08/04/80	-150.5
DU-72A	115N-48W-210000	08/22/80	-151.0
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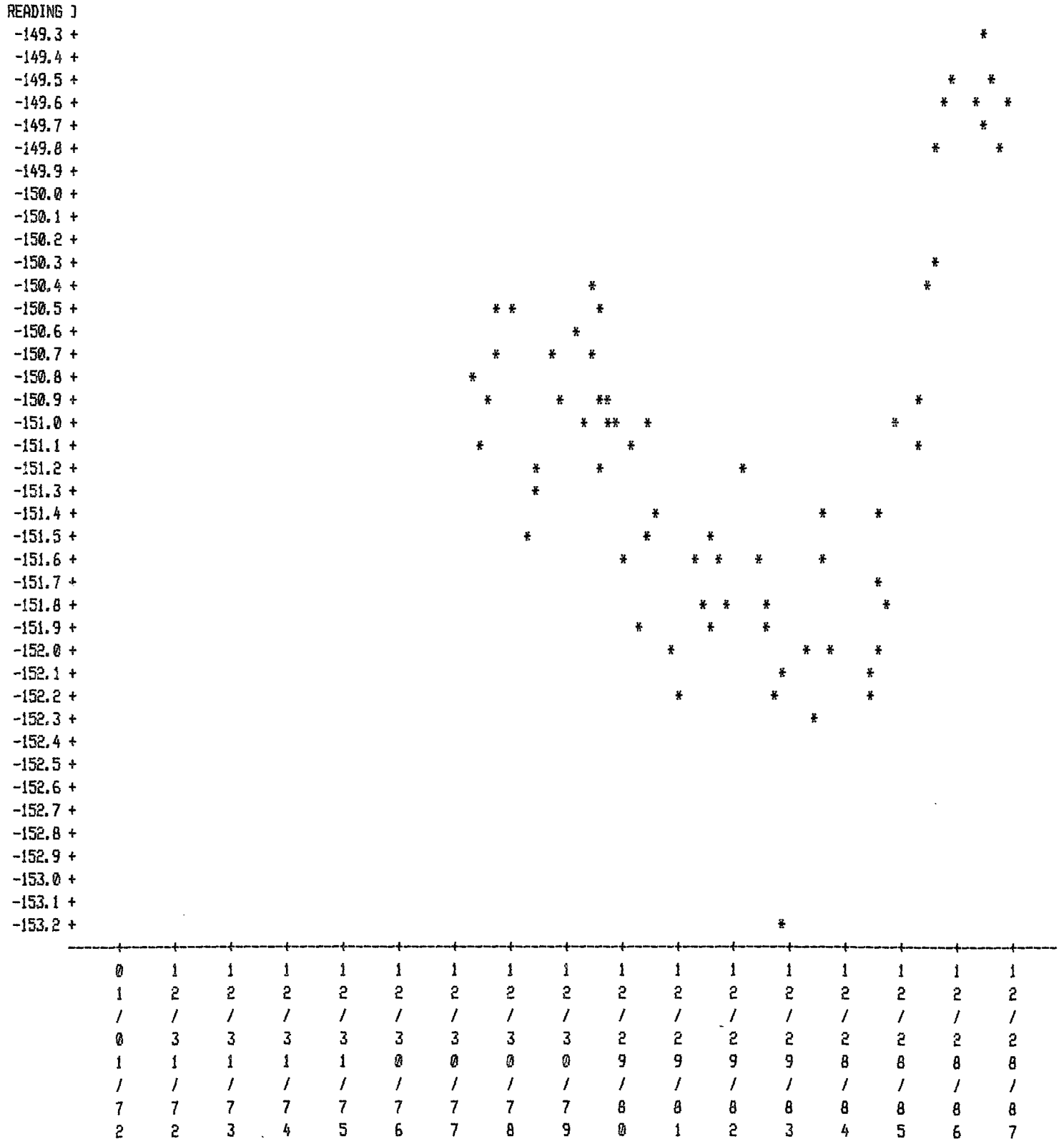
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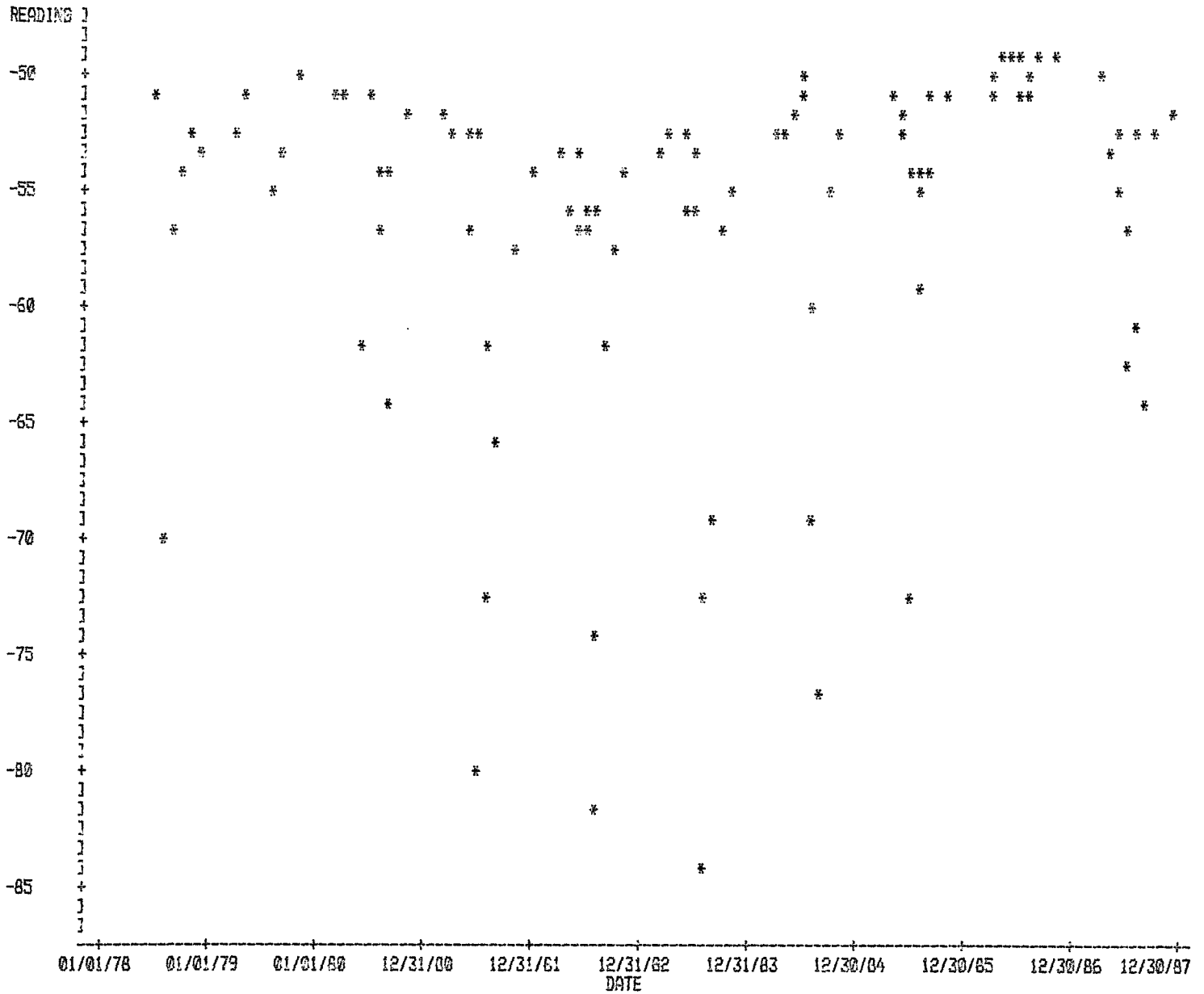
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DJ-78F	115N-48W-20CCCC	08/17/85	-54.4
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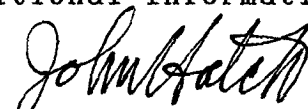
RECOMMENDATION OF CHIEF ENGINEER FOR WATER PERMIT
APPLICATION NO. 5185-3, Brookings Rural Water System

Pursuant to SDCL 46-2A-2, the following is the recommendation of the Chief Engineer, Water Rights Division, Department of Water and Natural Resources concerning Water Permit Application No. 5185-3, Brookings Rural Water System, RR 2, Box 84, Toronto SD.

The Chief Engineer is recommending APPROVAL of Application No. 5185-3 because 1) there is reasonable probability that there is unappropriated water available for the applicant's proposed use, 2) the proposed diversion can be developed without unlawful impairment of existing rights, 3) the proposed use is a beneficial use and 4) in the public interest with the following qualifications:

1. 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.
2. The well authorized pursuant to this permit shall be constructed by a licensed well driller and construction shall comply with Water Management Board Well Construction Rules, Chapter 74:02:04.

See the attached report for additional information.


JOHN HATCH, Chief Engineer
April 8, 1988



Department of Water & Natural Resources

Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501-3181

April 8, 1988

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

Pat Gilligan, Manager
Brookings/Deuel Rural Water System
RR 2, Box 84
Toronto SD 57268

Dear Mr. Gilligan:

Your Application No. 5185-3 for a permit to appropriate water for rural water system use, has been examined and found to comply with the South Dakota Water Laws and applicable rules. Notice of your intent to appropriate water have been sent to the Publisher of the CLEAR LAKE COURIER, Clear Lake SD, BROOKINGS DAILY REGISTER, Brookings SD, MOODY COUNTY ENTERPRISE, Flandreau and the GRANT COUNTY REVIEW, Milbank SD. Enclosed is a copy of this notice. The recommendation of the Chief Engineer and a report on the application will be following. Please review this notice prior to publication and notify this office, if you have any corrections or questions.

BE SURE TO CONTACT THE ABOVE NEWSPAPERS IMMEDIATELY TO AUTHORIZE PUBLICATION OF THE NOTICE OF HEARING AND TO ARRANGE FOR PAYMENT. Early contact with the papers can eliminate delays. The publisher has been instructed to publish the notice once each week for two consecutive weeks with the last publication to occur at least twenty days before the board meeting. We must receive Proof of Publication before the application can be considered by the Water Management Board.

Sincerely,

RON DUVALL
Natural Resources Engineer
605 773-3352

enclosures

Instruction to Newspaper - Publish first publication of the following Notice on or before April 13, 1988 with 2nd publication 7 days later. The applicant is responsible for payment.

NOTICE OF HEARING on Application No. 5185-3 to Appropriate Water

Notice is hereby given that the Brookings/Deuel Rural Water System whose mailing address is RR 2, Box 84, Toronto, South Dakota has filed an application for a permit to appropriate 1.0 cubic feet of water per second from 1 well, 240 feet deep to be located in the NW 1/4 NW 1/4 Section 16, T115N, R48W. Water is to be used to supply the Brookings/Deuel Rural Water System.

Pursuant to SDCL 46-2A-2 the Chief Engineer of the Water Rights Division recommends APPROVAL of Application No. 5185-3 because 1) unappropriated water is available, 2) will be no unlawful impairment of existing rights, 3) it is a beneficial use of water and 4) it is in the public interest.

The application will be considered by the Water Management Board in Room 216, Joe Foss Bldg, 523 E Capitol, Pierre SD on May 11, 1988 at 10:00 am.

The recommendation of the Chief Engineer is not final or binding upon the Board and the Board is authorized to 1) approve, 2) approve with qualifications, 3) defer, or 4) deny the application after it reaches a conclusion based upon facts presented at the public hearing. Any interested person who may be affected by a Board decision and who intends to participate in the hearing before the Board and present evidence or cross-examine witnesses according to SDCL 1-26, must file a written petition with BOTH the applicant and the Chief Engineer by April 29, 1988. The petition may be informal, but it must include a statement describing the petitioner's interest in the application, the reasons for the petitioner's opposition to or support of the application, and the signature and mailing address of the petitioner or his legal counsel if legal counsel is obtained. The applicant need not file a petition.

This application is made pursuant to the provisions of SDCL 46-1-1 thru 46-1-9, 46-1-12 thru 46-1-15; 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, 46-5-1 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 and Board Rules ARSD 74:02:01:01 thru 74:02:01:15.

This hearing is an adversary proceeding. The applicant or any person, after filing a petition, has the right to be present or 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.

Any person wishing a copy of the Chief Engineer's recommendation, further information on this application or to assure access to the hearing by the handicapped can contact the Water Rights Division, Joe Foss Bldg, Pierre SD (605 773-3352) for assistance prior to the hearing date. The time of the hearing will be automatically extended for at least twenty days upon written request of the applicant or person who has filed a petition to oppose or support the application. The request for extension must be filed with the Chief Engineer by April 29, 1988.

Form 8 - Proof of Publication - Notice of
Intent to Appropriate Water

Legal 190, 2x, April 13, 20
NOTICE OF HEARING
on Application No. 5185-3 to
Appropriate Water

No. _____

PROOF OF PUBLICATION

STATE OF SOUTH DAKOTA)
County Brookings) ss.

I, Rob James hereby

certify that the annexed printed copy of Notice of Intent to Appropriate

Water was taken from the Brookings Daily Register

A newspaper which during the whole time of publication of said notice
herein after stated, has been and is printed and published in the _____

City of Brookings

County of Brookings and State of South Dakota;
that the said notice was published in said newspaper on the following
two dates:

April 13, 1988

April 20, 1988

(Signature)

(Title)

(Date Signed)

Notice is hereby given that the Brookings/Deuel Rural Water System whose mailing address is RR 2, Box 84, Toronto, South Dakota has filed an application for a permit to appropriate 1.0 cubic feet of water per second from 1 well, 240 feet deep to be located in the NW 1/4 NW 1/4 Section 16, T115N, R48W. Water is to be used to supply the Brookings/Deuel Rural Water System.

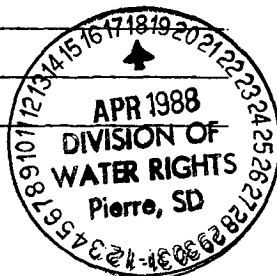
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The recommendation of the Chief Engineer is not final or binding upon the Board and the Board is authorized to 1) approve, 2) approve with qualifications, 3) defer, or 4) deny the application after it reaches a conclusion based upon facts presented at the public hearing. Any interested person who may be affected by a Board decision and who intends to participate in the hearing before the Board and present evidence or cross-examine witnesses according to SDCL 1-26, must file a written petition with BOTH the applicant and the Chief Engineer by April 29, 1988. The petition may be informal, but it must include a statement describing the petitioner's interest in the application, the reasons for the petitioner's opposition to or support of the application, and the signature and mailing address of the petitioner or his legal counsel if legal counsel is obtained. The applicant need not file a petition.

Cost of Printing: \$40.80

Forty dollars and eighty cents



This application is made pursuant to the provisions of SDCL 46-1-1 thru 46-1-9, 46-1-12 thru 46-1-15; 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, 46-5-1 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 and Board Rules ARSD 74:02:01:01 thru 74:02:01:15.

This hearing is an adversary proceeding. The applicant or any person, after filing a petition, has the right to be present or 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.

Any person wishing a copy of the Chief Engineer's recommendation, further information on this application or to assure access to the hearing by the handicapped can contact the Water Rights Division, Joe Foss Bldg, Pierre SD (605 773-3352) for assistance prior to the hearing date. The time of the hearing will be automatically extended for at least twenty days upon written request of the applicant or person who has filed a petition to oppose or support the application. The request for extension must be filed with the Chief Engineer by April 29, 1988.

PROOF OF PUBLICATION

STATE OF SOUTH DAKOTA)
County Moody) ss.

I, Angela Nibbelink hereby

certify that the annexed printed copy of Notice of Intent to Appropriate
Water was taken from the Moody County Enterprise

A newspaper which during the whole time of publication of said notice
herein after stated, has been and is printed and published in the _____
City Flandreau of _____

County of Moody and State of South Dakota;
that the said notice was published in said newspaper on the following
two dates:

April 13, 1988

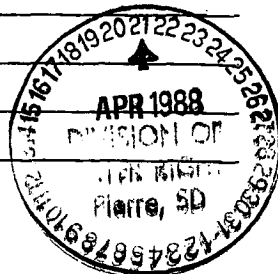
April 20, 1988

Angela Nibbelink
(Signature)

Book Keeper
(Title)

April 20, 1988
(Date Signed)

Cost of Printing: 33.01



NOTICE OF HEARING
On Application No. 5185-3 to
Appropriate Water

Notice is hereby given that the Brookings/Deuel Rural Water System whose mailing address is RR 2, Box 84, Toronto, South Dakota has filed an application for a permit to appropriate 1.0 cubic feet of water per second from 1 well, 240 feet deep to be located in the NW¼ NW¼ Section 16, T115N, R48W. Water is to be used to supply the Brookings/Deuel Rural Water System.

Pursuant to SDCL 46-2A-2 the Chief Engineer of the Water Rights Division recommends APPROVAL of Application No. 5185-3 because 1) unappropriated water is available, 2) will be no unlawful impairment of existing rights, 3) it is a beneficial use of water and 4) it is in the public interest.

The application will be considered by the Water Management Board in Room 216, Joe Foss Bldg, 523 E. Capitol, Pierre, SD on May 11, 1988 at 10:00 a.m.

The recommendation of the Chief Engineer is not final or binding upon the Board and the Board is authorized to 1) approve, 2) approve with qualifications, 3) defer, or 4) deny the application after it reaches a conclusion based upon facts presented at the public hearing. Any interested person who may be affected by a Board decision and who intends to participate in the hearing before the Board and present evidence or cross-examine witnesses according to SDCL 1-26, must file a written petition with BOTH the applicant and the Chief Engineer by April 29, 1988. The petition may be informal, but it must include a statement describing the petitioner's interest in the application, the reasons for the petitioner's opposition to or support of the application, and the signature and mailing address of the petitioner or his legal counsel if legal counsel is obtained. The applicant need not file a petition.

This application is made pursuant to the provisions of SDCL 46-1-1 thru 46-1-9, 46-1-12 thru 46-1-15; 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, 46-5-1 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 and Board Rules ARSD 74:02:01:01 thru 74:02:01:15.

This hearing is an adversary proceeding. The applicant or any person, after filing a petition, has the right to be present or 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.

Any person wishing a copy of the Chief Engineer's recommendation, further information on this application or to assure access to the hearing by the handicapped can contact the Water Rights Division, Joe Foss Bldg., Pierre SD (605 773-3352) for assistance prior to the hearing date. The time of the hearing will be automatically extended for at least twenty days upon written request of the applicant or person who has filed a petition to oppose or support the application. The request for extension must be filed with the Chief Engineer by April 29, 1988.

(April 13 & 20, 1988)

No. 185-3

PROOF OF PUBLICATION

STATE OF SOUTH DAKOTA)
County Grant) ss.

I, Clarence Justice hereby

certify that the annexed printed copy of Notice of Intent to Appropriate

Water was taken from the Grant County Review

A newspaper which during the whole time of publication of said notice
herein after stated, has been and is printed and published in the _____

City of Milbank

County of Grant and State of South Dakota;
that the said notice was published in said newspaper on the following
two dates:

April 13, 1988

April 20, 1988

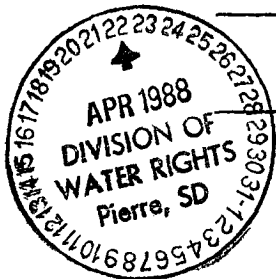
Clarence Justice
(Signature)

foreman

(Title)

4-21-88

(Date Signed)



Cost of Printing: \$3

Any person wishing a copy of the
Chief Engineer's recommendation, fur-
ther information on this application or
to assure access to the hearing by the
handicapped can contact the Water
Rights Division, Joe Foss Bldg., Pierre,
SD, (605 773-3352) for assistance prior to
the hearing date. The time of the
hearing will be automatically extended
for at least twenty days upon written
request of the applicant or person who
has filed a petition to oppose or support
the application. The request for exten-
sion must be filed with the Chief
Engineer by April 29, 1988.

Apr. 18

NOTICE OF HEARING ON
APPLICATION NO. 5185-3 TO
APPROPRIATE WATER

Notice is hereby given that the
Brookings-Deuel Rural Water System
whose mailing address is RR 2, Box 84,
Toronto, South Dakota, has filed an
application for a permit to appropriate
1.0 cubic feet of water per second from 1
well, 240 feet deep to be located in the
NW $\frac{1}{4}$ NW $\frac{1}{4}$ Section 16, T15N, R48W.
Water is to be used to supply the
Brookings-Deuel Rural Water System.

Pursuant to SDCL 46-2A-2 the Chief
Engineer of the Water Rights Division
recommends APPROVAL of Applica-
tion No. 5185-3 because 1) unappro-
priated water is available, 2) will be no
unlawful impairment of existing rights,
3) it is a beneficial use of water and 4) it
is in the public interest.

The application will be considered by
the Water Management Board in Room
216, Joe Foss Bldg., 523 E. Capitol,
Pierre, SD, on May 11, 1988, at 10 a.m.

The recommendation of the Chief
Engineer is not final or binding upon
the Board and the Board is authorized
to 1) approve, 2) approve with quali-
fications, 3) defer, or 4) deny the
application after it reaches a conclu-
sion based upon facts presented at the
public hearing. Any interested person
who may be affected by a Board
decision and who intends to participate
in the hearing before the Board and
present evidence or cross-examine
witnesses according to SDCL 1-26, must
file a written petition with BOTH the
applicant and the Chief Engineer by
April 29, 1988. The petition may be
informal, but it must include a state-
ment describing the petitioner's inter-
est in the application, the reasons for
the petitioner's opposition to or support
of the application, and the signature
and mailing address of the petitioner or
his legal counsel if legal counsel is
obtained. The applicant need not file a
petition.

This application is made pursuant to
the provisions of SDCL 46-1-1 through
46-1-9, 46-1-12 through 46-1-15; 46-2-3.1,
46-2-9, 46-2-11, 46-2-13, 46-2-17; 46-2A-1
through 46-2A-10, 46-2A-12, 46-2A-14,
46-2A-15, 46-5-1 through 46-5-13
through 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,
and Board Rules ARSD 74:02:01:01
through 74:02:01:15.

This hearing is an adversary pro-
ceeding. The applicant or any person,
after filing a petition, has the right to be
present or 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.

Apr. 20

Notice is hereby given that the Brookings/Deuel Rural Water System whose mailing address is RR 2, Box 84, Toronto, South Dakota has filed an application for a permit to appropriate 1.0 cubic feet of water per second from 1 well, 240 feet deep to be located in the NW ¼ NW ¼ Section 16, T115N, R48W. Water is to be used to supply the Brookings/Deuel Rural Water System.

Pursuant to SDCL 46-2A-2 the Chief Engineer of the Water Rights Division recommends APPROVAL of Application No. 5185-3 because 1) unappropriated water is available, 2) will be no unlawful impairment of existing rights, 3) it is a beneficial use of water and 4) it is in the public interest.

The application will be considered by the Water Management Board in Room 216, Joe Foss Bldg, 523 E. Capitol, Pierre SD on May 11, 1988 at 10:00 a.m.

The recommendation of the Chief Engineer is not final or binding upon the Board and the Board is authorized to 1) approve, 2) approve with qualifications, 3) defer, or 4) reject the application after it reaches a conclusion based upon facts presented at the public hearing. Any interested person who may be affected by a Board decision and who intends to participate in the hearing before the Board and present evidence or cross-examine witnesses according to SDCL 1-26, must file a written petition with BOTH the applicant and the Chief Engineer by April 29, 1988. The petition may be informal, but it must include a statement describing the petitioner's interest in the application, the reasons for the petitioner's opposition to or support of the application, and the signature and mailing address of the petitioner or his legal counsel if legal counsel is obtained. The applicant need not file a petition.

This application is made pursuant to the provision of SDCL 46-1-1 thru 46-1-9, 46-1-12 thru 46-1-15; 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, 46-5-1 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 and Board Rules ARSD 74:02:01:01 thru 74:02:01:15.

This hearing is an adversary proceeding. The applicant or any person, after filing a petition, has the right to be present or 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.

Any person wishing a copy of the Chief Engineer's recommendation, further information on this application or to assure access to the hearing by the handicapped can contact the Water Rights Division, Joe Foss Bldg, Pierre SD (605 773-3352) for assistance prior to the hearing date. The time of the hearing will be automatically extended for at least twenty days upon written request of the applicant or person who has filed a petition to oppose or support the application. The request for extension must be filed with the Chief Engineer by April 29, 1988.

STATE OF SOUTH DAKOTA)
County Deuel) ss.

I, Gary DeJong hereby

Water was taken from the _____ Clear Lake Courier

A newspaper which during the whole time of publication of said notice herein after stated, has been and is printed and published in the_____

city _____ of Clear Lake, SD

County of Deuel and State of South Dakota;
that the said notice was published in said newspaper on the following
two dates:

April 13, 1988

April 20, 1988


(Signature)

Editor/Publisher

(Title)

April 20, 1988

(Date Signed)

Cost of Printing: 41.28





Department of Water & Natural Resources

Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501

Water Rights Division
605 773-3352

NOV 30 1988

Basil J Dahl, Chairman
Brookings/Deuel Rural Water System
RR 2, Box 84
Toronto SD 57268

Dear Mr. Dahl:

Enclosed herewith is your Water Permit No. 5185-3 as approved by the Water Management Board authorizing you to construct your water diversion system and put the water to beneficial use, not exceeding the limits as specified in said Water Permit No. 5185-3.

Also enclosed is Form 10, Notice of Completion of Works and Application of Water to Beneficial Use, which you are to complete and submit to the Chief Engineer when you have completed the system and/or have put the water to beneficial use. An inspection can then be scheduled so that your Water License may be issued to you, thus completing your acquisition of a Water Right.

Very truly yours,

JOHN HATCH, Chief Engineer
Water Rights Division

JH:ks

enclosure

PLEASE NOTE: Certain changes can be made in your permit within the five year construction period, usually without affecting the priority date provided an application to amend your permit is made within the five year period-i.e. changes in location or number of diversion points (wells) or location of land to be irrigated. Well locations for wells into the same aquifer can be moved up to 660 feet without application.

Applications to amend a permit after the five year construction period will be assigned a new priority date. Applications to change water sources, to add lands or increase original diversion rates, if approved will usually receive the date of the new application as a priority date regardless of the five year construction period.



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

Date August 21, 1990

TO: Water Rights Division, DWNH
Joe Foss Building
Pierre SD 57501-3181

FROM: Brookings-Deuel Rural Water System RR 2 Box 84 Toronto, SD 57268
name address city

I have completed the construction of the water diversion system and I have put the water to beneficial use to the maximum extent it is going to be used. I have not exceeded the amounts specified in Water Permit No. 5185-3.

Water Permit No. 5185-3 states that the diversion system is to be constructed by _____, and that the water it put to beneficial use by _____.

The diversion system was completed on August 1990.
Applying the water to beneficial use was completed on August 1990

You may schedule an inspection so that the Water License may be issued.


signature

Permit No. 5185-3

Minnesota Whetstone Water District

Report Of Examination Of Works And/Or Application of Water To Beneficial Use

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

I have this day made a thorough examination of the water use system constructed by Brookings/Deuel Rural Water System of Toronto, SD holder of Permit No. 5185-3, bearing the priority of March 28, 1988 authorizing the diversion of 1.0 cu. ft. per second and/or the storage of 0 acre-feet of the waters of ground water for supplying Brookings/Deuel RWS purposes, in Deuel, Brookings, Moody and Grant Counties.

I have to report on the conditions of the same as follows:

A. Works used to divert the water:

A Grundfos 8" pump with a 250 gpm capacity

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

Rural water system network.

The system is in the following condition good. The point of diversion is located from the NW corner of Section 16 T115N-R48W, 100'E 50'S. The works are capable of diverting and conveying to the place of use 0.56 cu. ft. per second of water and/or storing 0 acre-feet of water which is to be used for rural water system. Water has been put to beneficial use to the maximum extent as follows:

comprising a total of 0 acres of land and the license should be issued for 0.56 cfs and/or 0 acre-feet of storage.

Applicable permit qualifications have been complied with ☒ Yes ☐ No

Exceptions to compliance are: none

Date 8/7/1991



Mark D. Rath
Natural Resources Engineer II
DENR, Water Rights Division

LICENSE FOR PERMIT NUMBER 5185-3

1. Legal location of wells: from the NW corner of Section 16-T115N-R48W, 100'E 50'S

2. Well Information: Well Drilling Firm LTP

Completion Report? Yes x No No. of Wells 1 Depth(s) 242 feet

Casing a) diameter 12 inches Screen a) type stainless steel

b) length 212 feet b) length 30 feet

c) type steel Static Water Level 126 feet

Pump a) make Grundfos Motor a) make Grundfos

b) model 3755200-3 b) model no.

c) size 8" c) horsepower rating 20

d) capacity 250 GPM d) serial no. G89135E

NOTE: For Permits with additional wells or changes in well locations,
record the following for each well: pumping capacity, date
constructed, well driller and if a well log is available.

Indicate any other permit(s) which are associated with project

Yes No Check Items

NA 1. Soil and water permit lands agree with lands being irrigated
and lands listed on permit?

Y 2. Special qualifications to permit being abided by?

Y 3. All structures, wells and lands on map?

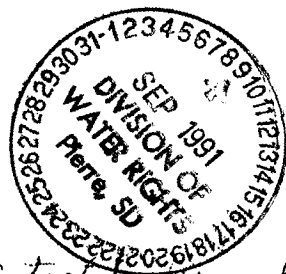
NA 4. Irrigation Questionnaires checked to determine if permit
owner started irrigation by end of construction period?

NA 5. Is chemigation used?

NA 6. If yes, does equipment comply with chemigation rules?

REMARKS:

Brookings Deuel Area Water
Test Drilling and Test Well Results



LTP Enterprises Inc. Fargo, N.D. drilled 5 test holes and tested all three with 4" Pipe, Screen, and Test Pump. The results were as follows.

Test hole # 1 Sec. 18 115-48 50' south of Plant.
Drilled hole to 132 ft., Constructed 4" test well 121 ft total depth with 15 ft of 25 slot screen. Well was pumped at various rates. (see test) At the lowest GPM we had a specific yield of 15.38 GPM per ft. at the highest rate we had a specific yield of 9.05 GPM per ft. The available water using a 15 ft screen would be 66 ft. Theoretically the production well should produce in a range of 600 GPM to 1200 GPM, unless there would be barriers encountered in the formation that did not show up on the short test. The test well was pulled and abandoned, Screen and 34" of Pipe were left in the hole due mostly to the General Screen 34" to 100 ft.

Test hole # 2 Sec 8, 115-48 NE corner of S.W. 1/4, 75' East of Road ditch. Drilled to 94 ft., Constructed 4" test 87 ft. total depth with 14 ft. of 15 slot Screen, Used P.H.C. casing and S.S. screen. We felt we would lose the material grain, this says there is a well usable as an observation hole. Well was pumped at various rates. (see test) At the lowest GPM we had a specific yield of 20 GPM per ft. and at the highest rate 19.1 GPM per ft. The available water using a 14 ft. Screen would be 11 1/2 ft. Theoretically the production well should produce in a range of 220 to 230 GPM, unless of course a barrier shows up under continuing pumping at higher rates. This is a water table formation and is quite coarse, many times we find that a formation such as this will exceed the small well test projections. We would advise using a maximum screen length of 10 ft. to gain 4 ft of available water and using a screen with 100 slot or better openings, this would enable better development and very possibly a higher production well. It might be feasible to look at more than one well to

acquire the desired yield if the water is of the desired quality. The next well I would put in would be a minimum of 10" or 12" this would allow the use of a higher gallonage pump if the well produced it. If it did not exceed our expectations the next well could be an 8".

Test hole #3 Sec 8, 115-48 20 ft S.W. of Test hole No 2.

Drilled to 182 ft., Constructed 4" Test well 165 ft. total depth. with 15 ft of 30 Slot Screen. Used PVC casing and Galvanized Screen to leave material in place. Well was Test Pumped at various rates, (see test) it shows a specific yield of 16 gpm per ft. The total available water to the top of the formation is 66 ft. Theoretical production of a well would be about 1000 G.P.M. or higher if the water was pumped to the top of the screen. Pat mentioned that the water had a high Nitrogen content, I mentioned to him that being there is 40 ft. of formation that possibly the upper part of the formation might have a better quality of water. Whether this would be true in this formation I do not know, we do find this in some of the formations here in N.D., of course there is no guarantee that even if the water was better that under land usage it would not change.

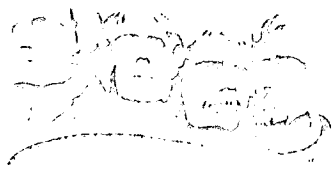
Pat if you have any questions please call,

Thanks.

Samuel T. Bullock
1117 S. Enterprise Ave
Box 2131

Fargo, N.D. 58107

South Dakota



GREAT FACES. GREAT PLACES.

**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE SOUTH DAKOTA 57501-3181

September 17, 1991

LTP Enterprises Inc.
Leonard T Pulkrabek
Box 9035
Fargo, ND 58106

Dear Mr. Pulkrabek:

Our records indicate that you may have drilled two wells for Brookings-Deuel Rural Water System of Toronto, SD. The wells are located in SW1/4 of Section 8 and NW1/4 of Section 16 both in T115N-R48W in Deuel County, I have not been able to find the as complete well log for either production well. I would appreciate it if you would check your files for the well logs and then send any information you have concerning this to me.

If you need any additional information, feel free to contact me.

Sincerely,

Mark D. Rath
Natural Resources Engineer II
Water Rights Division
(605) 773-3352



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE SOUTH DAKOTA 57501-3181

January 8, 1992

5185-3

Brookings-Deuel Rural Water System
RR 2, Box 84
Toronto SD 57268

Dear Sir:

The inspection of your water use system and the inspection of the extent of application of water to beneficial use, as developed under Water Permit No. 5185-3, has been completed. Your final water right document, the Water License, can now be issued.

Statutes require that we charge a \$50.00 fee for the inspection and issuance of the Water License. Upon receipt of the \$50.00 fee from you, we will begin processing your Water License.

South Dakota Water Law 46-5-30.1 requires that a permit holder may not divert water until the \$50.00 license fee has been paid. Please contact us if you have any questions.

Sincerely,

Genny McMath
Natural Resources Analyst
(605) 773-3352

NOTE: On check or money order, please specify your permit number. This will insure proper handling of the fee.



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE SOUTH DAKOTA 57501-3181

June 15, 1992

SECOND NOTICE

Permit No. 5185-3

NOTICE OF WATER LICENSE INSPECTION FEE REQUIREMENT

Brookings-Deuel Rural Water System
RR 2, Box 84
Toronto, SD 57268

Dear Sir:

On January 8, 1992, you were notified the final inspection fee of \$50.00 is due before Water License No. 5185-3 can be issued. As of this date, the fee has not been received.

The fee is a final step in the legal process of obtaining and perfecting a water right and is required by SDCL 46-2-13(3). Upon receipt of the \$50.00 fee, your Water License will be sent to you. This is the final document for the perfection of your Water Right. A perfected water right is similar to a property right and once a water right is perfected, it cannot be lost as long as the water is used.

South Dakota Water Law 46-5-30.1 requires that a permit holder may not divert water until the License fee has been paid. Please submit the required fee immediately to avoid jeopardizing your water permit.

Very truly yours,

John Hatch, Chief Engineer
Water Rights Division
Phone: (605) 773-3352

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt Fee will provide you the signature of the person delivered to and the date of delivery.

I also wish to receive the following services (for an extra fee):

1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

Brookings-Deuel Rural Water Syst.
RR 2, Box 84
Toronto, SD 57268

4a. Article Number

P 757 566 257

4b. Service Type

- | | |
|---|---|
| ☐ Registered | ☐ Insured |
| ☒ Certified | ☐ COD |
| ☐ Express Mail | ☐ Return Receipt for Merchandise |

7. Date of Delivery

6-16-92

5. Signature (Addressee)

8. Addressee's Address (Only if requested and fee is paid)

6. Signature (Agent)

Hersi Anderson

RECEIPT

Division of Water Rights

South Dakota Department of Water and Natural Resources

Pierre, _____ June 18, 19⁹²

RECEIVED OF Brookings-Deuel-Kingbrook JWF, RR 2 Box 84, Toronto, SD 57263

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

Fee for Application for Permit No. _____ to Appropriate Water, to construct works and to put water to beneficial use _____		
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>5185-3</u>	50	00
Fee for Filing Transfer Form _____		
Fee for Filing Extension Request _____		
Fee for Certified Copy of _____		
Fee for Print Copy of Map _____		
Fee for Certifying _____		
Fee for _____		
(Any Other Work Provided by Law)	Total	50 00

By John H. Haddad
Chief Engineer

STATE OF SOUTH DAKOTA

WATER LICENSE NO. 5185-3

(1) Brookings/Deuel Rural Water System of RR 2, Box 84, Toronto, SD 57268 made Application No. 5185-3, March 28, 1988 for a water permit to appropriate 1.00 cubic feet of water per second from groundwater, Deuel County, South Dakota for rural water system purposes. Permit No. 5185-3 with a priority date of March 28, 1988 was approved May 11, 1988 and issued to applicant(s) for diversion of water with construction of the described water supply system to be completed on or before May 11, 1993 and for the application to beneficial use of said water on or before May 11, 1997. The permit holder submitted a "Notice of Completion of Works" dated August 23, 1990, which stated the water use system was completed in August, 1990.

(2) It is certified that the applicant has complied with the provisions of South Dakota State Law relating to completion of the construction of the water supply system and is entitled to divert 0.56 cubic feet of water per second for beneficial use. The location of the diversion point is: 100'E and 50'S of the NW corner of Section 16, T115N, R48W (NW 1/4 NW 1/4).

(3) The applicant has complied with the provisions of South Dakota State Law relating to the application of water to beneficial use thru the rural water system network serving hookups in Deuel, Brookings, Moody and Grant Counties in South Dakota.

(4) Pursuant to Section 46-5-30.1 Brookings/Deuel Rural Water system of RR 2, Box 84, Toronto, SD 57268 the holder(s) and/or owner(s) of Water Permit No. 5185-3 is issued a license to appropriate water, the right to use 0.56 cubic feet of water per second from groundwater (one well) with a priority date of March 28, 1988 from the location specified in (2) of this license. The water is utilized for the purpose of rural water system use. This license is subject to any limitations or qualifications listed in Water Permit No. 5185-3 and subject to South Dakota State Law.

 AUG 5 1992
JOHN HATCH, Chief Engineer
Water Rights Division
Department of Environment and
Natural Resources



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE SOUTH DAKOTA 57501-3181

AUG 5 1992

5185-3

Brookings/Deuel Rural Water System
RR 2, Box 84
Toronto, SD 57268

Dear Sirs:

Enclosed is Water License No. 5185-3. This is the final water right document completing your process of obtaining a Water Right. Enclosed is Receipt No. 413250 in the amount of \$50.00 which you paid for the inspection and issuance of the Water License.

For your information SDCL 46-6-27 requires that if the owner of an existing well, such as the well authorized by Water Right No. 5185-3, constructs a replacement well and does not plan to use the old well, the old well is considered abandoned and must be plugged. Also, any well that is being used or is not considered abandoned must be valved and controlled, if flowing, or sealed and capped so that no leaking occurs either underground or at the surface.

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

Very truly yours,

JOHN HATCH, Chief Engineer
Water Rights Division
(605) 773-3352

enclosures