Considered: Feb. 15, 1984

WATER PERMIT NO. 4988-3

MAP No. 4988-3

Name of Applicant T M Rural Water District

Post Office Address Box 445, Parker, SD 57053

Amount of Water Claimed 3.34 Total Acres

Source of Water Supply 4 wells, 159+' deep

Water to be used for RWS County TU, MC and HT

About miles of

PROOF OF PUBLICATION: Received Freeman Courier 1-16-84 Parker New Era 2-13-84 Bridgewater 2-13-84 Not Received

APPLICATION: Approved Subject to

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

PRIORITY Date Received 12/19/83 Fee 700.00 Remarks

~~12/19/83~~ 9-28-83

Corrected Application Received Period of Annual Use 1/1 to 12/31

WATER QUALITY APPROVAL RECEIVED APPROVED/CONDITIONAL (Circle one)

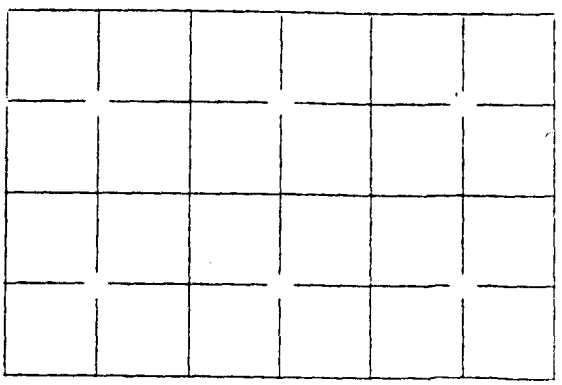
WI-I Description same as Application YES NO REMARKS

not required

Diversion Point (1) SW¼ Sec 32-101N-54W (2) Sec. 31, T101N-R54W, except W½ SE¼, (3) Sec. 8-100N-55W and (4) Lot 2,except 0.51 acres and Lot 3, less ~~Lot A of 2 and 4 and Lot 4 Sec. 12-100N-56W~~

Land to be Irrigated

none



Well Log: Driller Layne Western Licensed YES X NO x but have applied

Depth of Well 159'+ REMARKS

Type of Map 4988-3 PREPARED BY David Holman Dewild Grant Ricker Reviewed and the Number assigned on 12/21/83 By Betty Westlund BW

water reserved by FU Permit No. 4979-3

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. 4988-3 Hydrologic Unit 10160011 10170102
Map No. 4988-3 Basin ~~MR~~ VR VR
Newspaper New Era Courier Tribune
Parker Freeman Bridgewater

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 ☐

3:45 pm DEC 1983 DIVISION OF WATER RIGHTS Pierre, SD

Type of Application: Check one or more of the following

New ☒ Vested Right ☐ Future Use ☐ Change Use ☐
☐ Amend Permit No. _____ with old priority date retained
Change 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. 4979-3

1. Name of Applicant TM Rural Water District Phone No. (605) 297-3334
   Post Office Address P. O. Box 445 (Street. RR or Box) State South Dakota Zip Code 57053
2. Amount of water claimed (c.f.s) 3.34 cfs
3. Source of water supply shallow confined aquifer, unnamed to date
4. Location of point of diversion (1) SW¼ of Sec. 32 T101N R54W; (2) All of Sec.31 except W½ of SE¼ T101N R54W; (3) Sec.8 T100N R55W; (4) Lot 2 except 0.51 acres and Lot 3 less Lot A of 2 and 3 and Lot 4 of Sec.12, T100N R56W, a total of 125.88 acres. County Turner, McCook, Hutchinson
5. Counties where water will be used Turner, McCook, Minnehaha, Hutchinson
6. Annual period during which water is to be used 12 months/year
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)
   TM Rural Water District. A complete water system including wells, treatment facility, pumping stations, storage structures, distribution system and miscellaneous appurtenant items for distribution of potable water to meet domestic and livestock needs of the members. Membership will include 800-850 rural users and the communities of Canistota, Davis and Viborg.

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 Turner)ss

I, Robert Milbauer, Chairman of the applicant, certify that I have read the foregoing application, have examined the attached map and that the matters therein stated are true and that I intend, and am able to complete the necessary construction.

Signed Robert Milbauer

Subscribed and sworn to before me this 16 day of December 19 83

MARY L. MEADORS NOTARY PUBLIC SEAL SOUTH DAKOTA

Mary L. Meadors
Notary Public (or other qualified officer)

WATER PERMIT

The Water Management Board hereby approves Water Permit Application No. 4988-3

T M Rural Water District (Applicant) Box 445 Parker (Post Office Address)

South Dakota (State) 57053 (Zip Code) With the following qualifications.

The wells approved under this Permit are 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 wells having prior water rights.

Priority date for this permit established by Future Use permit # 4979-3

Date of first receipt of application December 19, 1983.

Date of return to applicant for correction, amendments or changes required —, 19—.

Date of receipt of corrected application —, 19—. Approved February 15, 1984.

The Water Management Board hereby approves this Water Permit No. 4988-3 authorizing the construction of the water use system and the placing of water to beneficial use as stated in the Application and as qualified in the Water Permit approval, subject, however, to the following limitations and conditions:

1. The date from which applicant may claim right is September 28, 1983.
2. The equivalent of at least one-fifth of the specified work is to be completed on or before August 15, 1986.
3. The whole of said work is to be completed on or before February 15, 1989.
4. The limit of time from proof of beneficial use of water appropriated in accordance herewith is February 15, 1993.
5. The water appropriated shall be used for the purpose of rural water system
6. The prior right of all persons who, by compliance with the laws of the State of South Dakota, have acquired a right to the use of water must not be unlawfully impaired by this appropriation.
7. The amount of the appropriation herein granted shall not exceed 3.34 cubic feet per second; neither shall it exceed the capacity of the above described water supply system nor shall it exceed the amount of water needed for beneficial uses served and to which water is actually and beneficially applied for rural water system on or before February 15, 1993; said water to be used during the following described annual period: CONTINUOUS

WATER MANAGEMENT BOARD

By: John Hoth
Chief Engineer

Division of Water Rights
Dept. of Water and Natural Resources

March 15, 1984

Form 2A

Supplemental Information

(type or print in ink)

1. Well Information - ~~Proposed~~ Actual construction of test well (see attached information)

   a) Drill Hole Diameter 20 inches Depth 159 feet

   b) Casing Type steel Diameter 12 inches Thickness 0.375 inches

   c) Screen Type stainless steel Diameter 12 inches Thickness 7 gauge (3/16 inch)

   d) Gravel Pack Thickness 4 inches Length of Gravel Pack 40 feet

   e) Depth to Top of Water Bearing Material 120 feet

   f) Depth of Water (ground surface to water level) 50 feet

   g) Distance to nearest existing domestic well:

   On applicants property N/A On property owned by others approx. ½ mile Ray Branson, a TM member

2. Dugout Information Estimates N/A

   a) Surface Dimensions _____ Depth _____

   b) Depth to water (ground surface to water level) _____

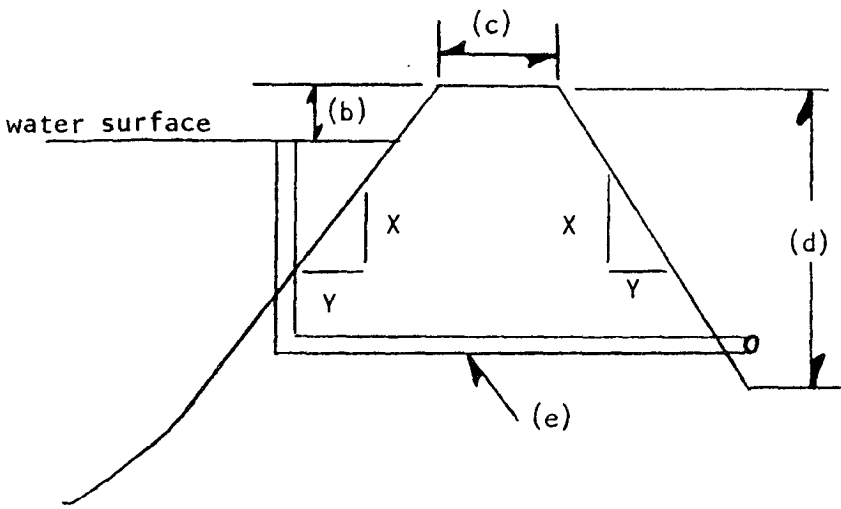
3. Water Storage Dams N/A

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) Outlet Dimensions:
Pipe diameter _____

Spillway width _____

f) X & Y Slope
Upstream _____

Downstream _____

Surface Area of Impoundment _____

Storage _____ acre feet

Drainage area above dam _____

Robert Millhouse

Signature of Applicant

Supplemental Information

(type or print in ink)

1. Well Information - ~~Proposed~~ Actual construction of test well (see attached information)

   a) Drill Hole Diameter 20 inches Depth 159 feet

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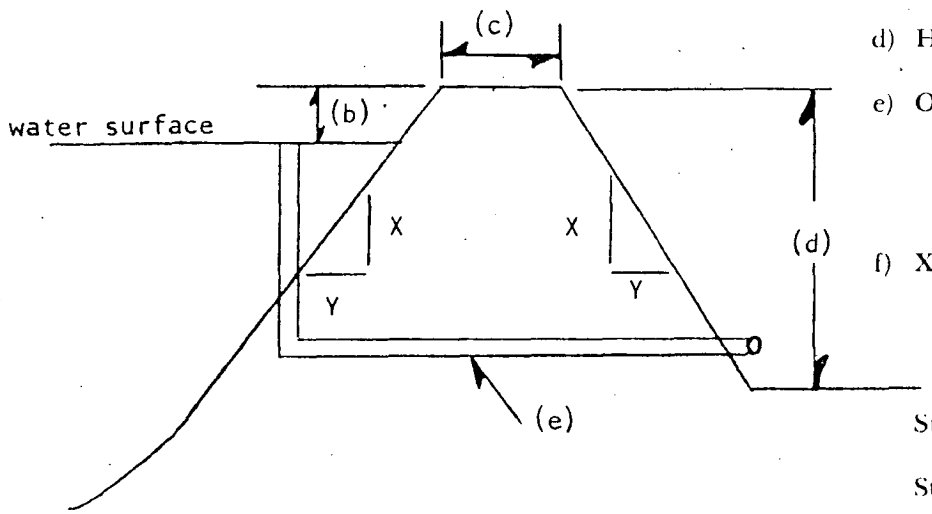
_____

_____



b) Freeboard _____

c) Crest Width _____

Crest Length _____

d) Height _____

e) Outlet Dimensions:
Pipe diameter _____

Spillway width _____

f) X & Y Slope
Upstream _____

Downstream _____

Surface Area of Impoundment _____

Storage _____ acre feet

Drainage area above dam _____

_____
Signature of Applicant

SOUTH DAKOTA DEPARTMENT OF WATER AND NATURAL RESOURCES

Office of Drinking Water

CHEMICAL ANALYTICAL DATA

Water Supply: Dalton Aquifer

City, County: Turner

Source Sampled: Well# TU 83A Depth 245.9

Date drilled _____ Other _____

Type of Sample: Raw X Treated _____ Composite _____

Treatment Process(s): _____

Received By Lab: 9/20/89 ns

Report Sent By Lab: OCT 20 1989 MB

Date Collected: 9-24-89

Collected By: MSCue

Report Mailed To: Water Rights (OWNR) Fuss Bldg.

Lat: 1ϕ1N Long: 55W

Comments: S ϕ7 DDDD

Parameter	Maximum Limit	Results
Arsenic (As)	50 ug/l	
Barium (Ba)	1000 ug/l	
Cadmium (Cd)	10 ug/l	
Chromium (Cr)	50 ug/l	
Lead (Pb)	50 ug/l	
Mercury (Hg)	2 ug/l	
Nitrate (NO_3) (as N)	10 mg/l	
Selenium (Se)	10 ug/l	
Silver (Ag)	50 ug/l	
Fluoride (F)	2.4 mg/l	
Gross alpha	15 pCi/l	11.3±9.5
Gross radium	pCi/l	
Radium 226	5 pCi/l	0.3±0.2
OTHER PARAMETERS		
Radio Nuclides		
Radium-228	pCi/l	0±0.4

Parameter	Suggested Limit	Results
Chloride (Cl)	250 mg/l	
Iron (Fe)	0.3 mg/l	
Manganese (Mn)	0.05 mg/l	
Sulfate (SO_4)	250 mg/l	
Tot.Diss.Solids (TDS)	500 mg/l	
pH	6.5-8.5	
Alkalinity-M ($CaCO_3$)	mg/l	
Alkalinity-P ($CaCO_3$)	mg/l	
Bicarbonate (HCO_3)	mg/l	
Carbonate (CO_3)	mg/l	
Spec. Cond. @ °C	umhos/cm	
Calcium (Ca)	mg/l	
Magnesium (Mg)	mg/l	
Hardness ($CaCO_3$) gpg:	mg/l	
Langelier Index		
Sodium (Na)	mg/l	
Potassium (K)	mg/l	
Field temperature	°F	°C
Nitrite (NO_2) (as N)	mg/l	

LAB COMMENTS: All Water Rights

STATE HEALTH LABORATORY
500 E. Capital
PIERRE, SD 57501-5093

Percentage of Error:

WNR - 606R - 6/82

mg/l = milligrams/liter = parts/million (ppm)

ug/l = micrograms/liter = parts/billion (ppb)

gpg = grains per gallon

pCi/l = picocuries per liter

LAB NUMBER:

Layne-Western Company

4430 Commercial Avenue - Omaha, Nebraska

TEST WELL REPORT

City and State	Parker, So. Dakota	Date	October 19, 1983
Contract	T.M. - R.W.D.	Driller	Jim Rentschler
Test No.	83-2	Helpers	Tom Payton
Static Water Level	50'+		

Test Log

0'	2'	Top soil
2'	17'	Brown clay
17'	95'	Blue clay w/trace travel and small rocks
95'	117'	Blue clay w/trace of gravel and rocks and boulders
117'	120'	Sandy clay
120'	156'	Fine and coarse sand and small gravel w/lignite
156'	180'	Blue clay

Size Mud Pit—Length 12' , Width 5' , Depth 2'

WATER BEARING FORMATION DATA

Depth	Mud Viscosity	Inches Mud Taken from Pit	Drilling Time
120' to 156'	35 sec.	3"	
to			
to			
to			
to			
to			
to			

LOCATION: Southeast corner of 1/2 mile.

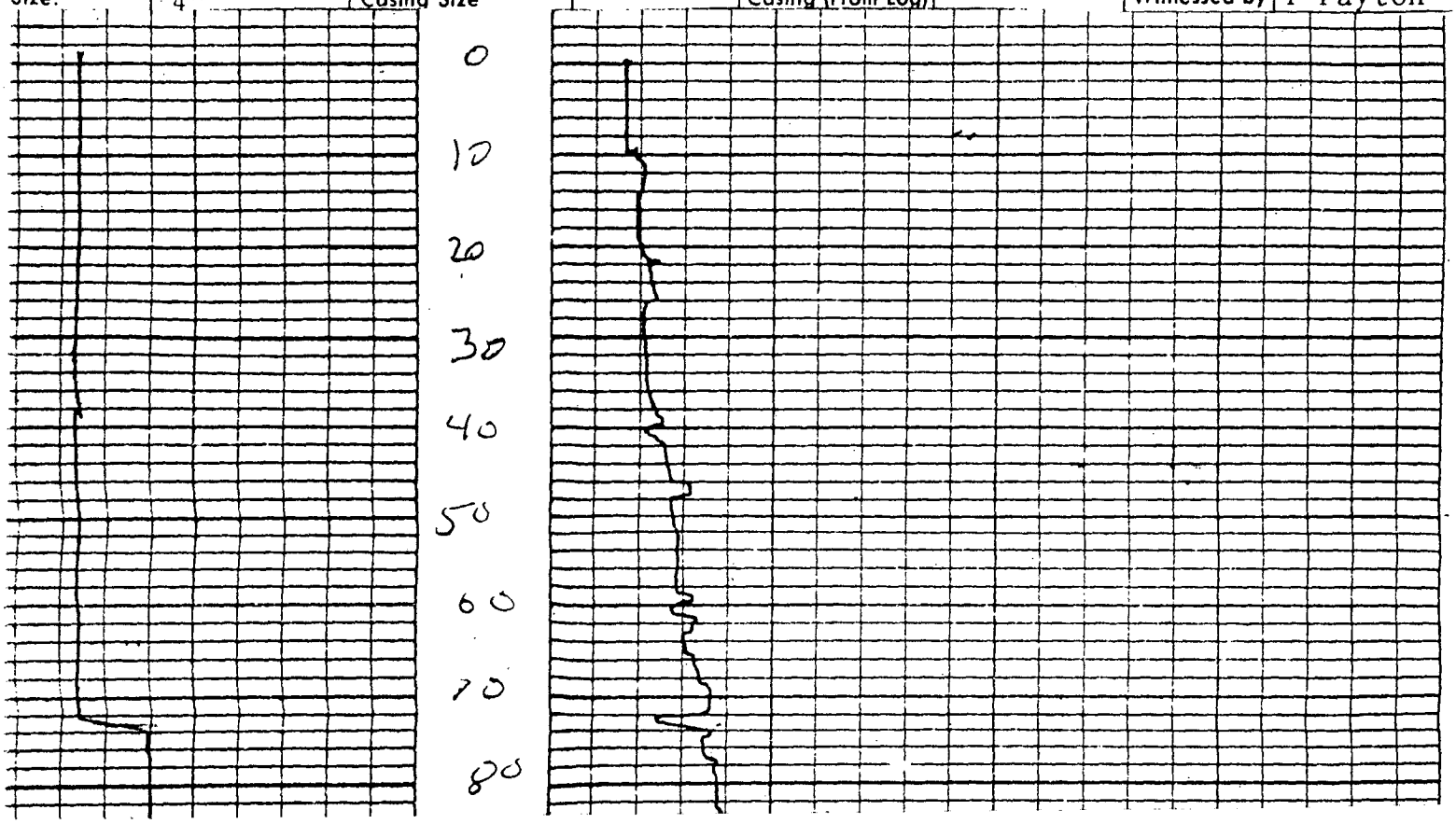
REMARKS: Much better than 83-1.

Wayne-Western Company

ELECTRICAL LOG

130 Commercial Ave. Omaha, Nebraska

STOMER	T.M. - R.W.D.			ADDRESS	Parker, So. Dakota		
LL NO.	83-2	ZERO ELEVATION	G.L.	COUNTY		STATE	So. Dakota
CATION	Southeast Corner of 1/2 mile.						
e	10/19/83	Resistivity Scale: 1"	R-20	Nature of Mud	Bentonite	pH	
t Reading	10'	Potential Scale: 1"	P-200	Density		Circ. Temp.	
t Reading		Lineal Scale: 1"	20'	Viscosity	36 Sec.	Weather	
tage Logged	180'	Casing (Driller)	None	Bottom (Driller)		Logged by	J. Rentschler
Size:	4"	Casing Size		Casing (From Log)		Witnessed by	T Payton



Layne-Western Company

430 Commercial Avenue - Omaha, Nebraska

TEST WELL REPORT

City and State: Parker, So. Dakota

Date: October 20, 1983

Contract: T.M. - R.W.D.

Driller: Jim Rentschler

Test No.: 83-3 Obs. Well #1

Helpers: Tom Payton

Static Water Level: 50' +

Test Log

0'	1'	Top soil
1'	17'	Brown clay
17'	80'	Blue clay w/some gravel and small rocks
80'	120'	Blue clay w/trace gravel and boulders
120'	157'	Coarse and fine sand, small gravel and boulders
157'	160'	Blue clay

Size Mud Pit—Length 12', Width 5', Depth 2'

WATER BEARING FORMATION DATA

Depth	Mud Viscosity	Inches Mud Taken from Pit	Drilling Time
to			
to			
to			
to			
to			
to			
to			

LOCATION:

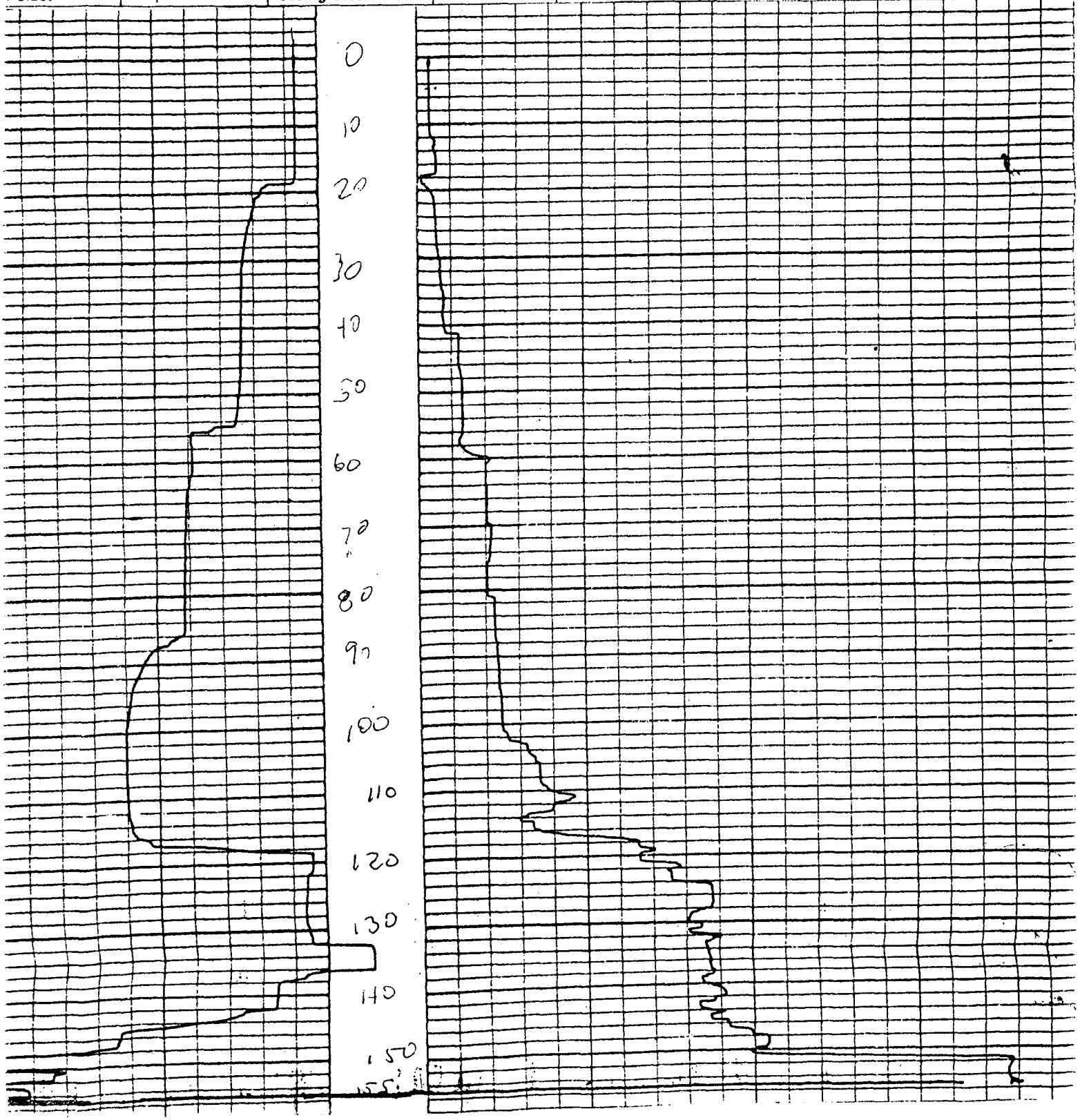
REMARKS: Observation Well #1, 100' Northeast of 83-2, 10' West of East fence.

Wayne-Western Company

ELECTRICAL LOG

430 Commercial Ave. Omaha, Nebraska

CUSTOMER	T.M. -R.W.D.			ADDRESS	Parker So. Dakota		
WELL NO.	83-3 Obs 1	ZERO ELEVATION	G.L.	COUNTY		STATE	So. Dakota
LOCATION	100' Northeast of 83-2, 10' W. of E. fence.						
Date	10/19/83	Resistivity Scale: 1"	R-200	Nature of Mud	Bentonite	pH	
First Reading	10'	Potential Scale: 1"	P-20	Density		Circ. Temp.	
Last Reading		Lineal Scale: 1"	20'	Viscosity	36 Sec.	Weather	
Footage Logged	155'	Casing (Driller)	None	Bottom (Driller)		Logged by	J Rentschle
Bit Size:	4"	Casing Size		Casing (From Log)		Witnessed by	T Payton



Layne-Western Company

4430 Commercial Avenue - Omaha, Nebraska

TEST WELL REPORT

City and State Parker, So. Dakota

Date October 21, 1983

Contract T.M. - R.W.D.

Driller Jim Rentschler

Test No. 83-4, Obs. Well #2

Helpers Tom Payton

Static Water Level 50'+

Test Log

0	2'	Top soil
2'	20'	Brown clay
20'	120'	Blue clay, some gravel, and small rocks and some boulders
120'	159'	Coarse and fine salt and pepper sand, small gravel
159'	160'	Blue clay

Size Mud Pit—Length 12' , Width 5' , Depth 2'

WATER BEARING FORMATION DATA

Depth	Mud Viscosity	Inches Mud Taken from Pit	Drilling Time
120' to 159'	34 sec.	2½"	
to			
to			
to			
to			
to			
to			

LOCATION: 200' S.W. of 83-2, 10' North of South fence line.

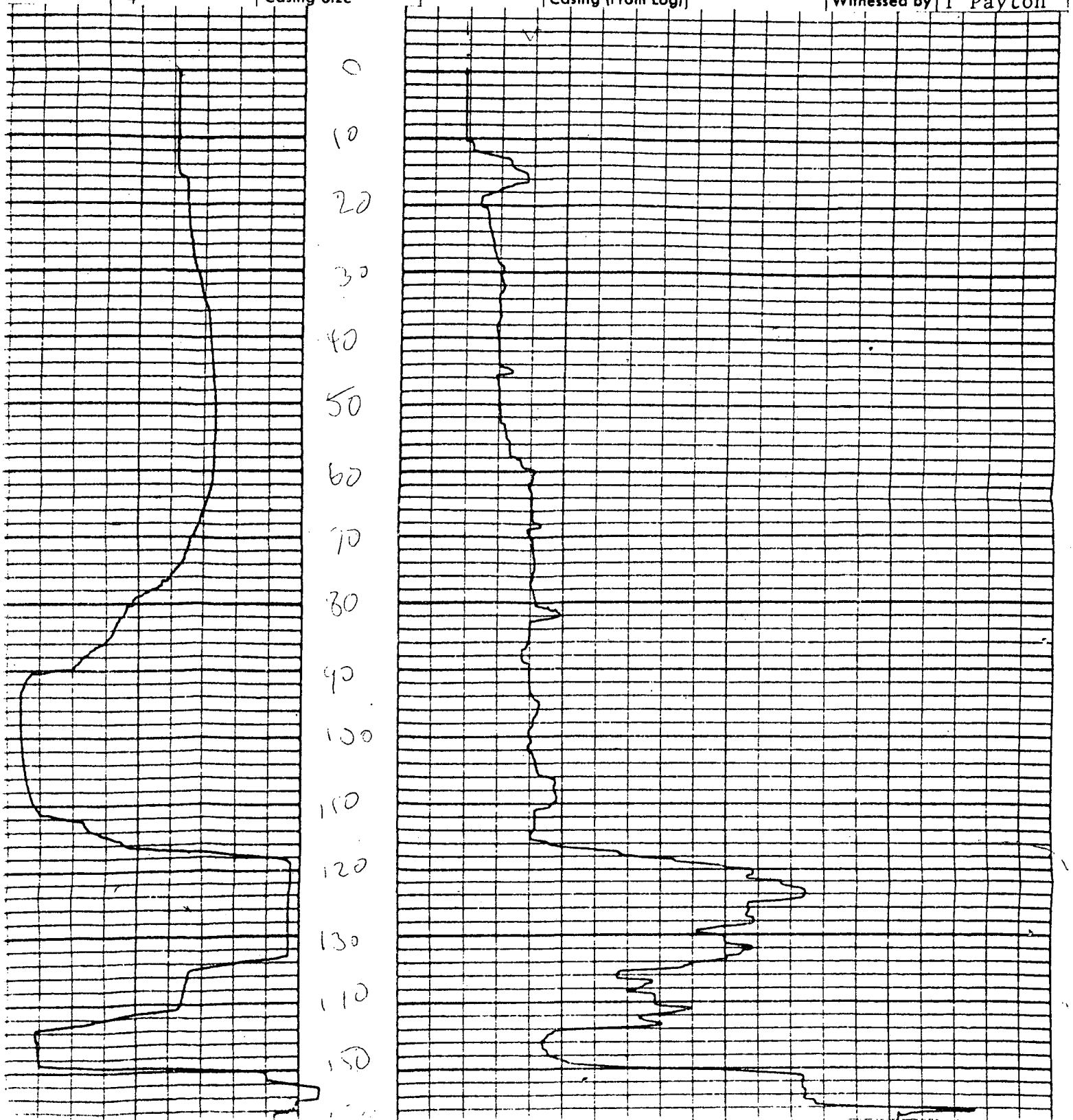
REMARKS:

Wayne-Western Company

130 Commercial Ave. Omaha, Nebraska

ELECTRICAL LOG

STOMER	T.M. R.W.D.			ADDRESS	Parker So. Dakota		
LL NO.	83-4 Obs2	ZERO ELEVATION	G.L.	COUNTY		STATE	S. Dakota
CATION	200' S.W. of 83-2, 10' North of South fence line.						
e	10/21/83	Resistivity Scale: 1"	R-20	Nature of Mud	Bentonite	pH	
t Reading	10'	Potential Scale: 1"	P-200	Density		Circ. Temp.	
t Reading		Lineal Scale: 1"	20'	Viscosity	36 Sec.	Weather	
tage Logged	158'	Casing (Driller)	None	Bottom (Driller)		Logged by	JRentschler
Size:	4"	Casing Size		Casing (From Log)		Witnessed by	T Payton



Layne-Western Company

4430 Commercial Avenue - Omaha, Nebraska

TEST WELL REPORT

City and State: Parker, So. Dakota

Date: October 25, 1983

Contract: T.M. R.W.D.. Obs. Well #3

Driller: Jim Rentschler

Test No.: 83-5

Helpers: Tom Payton

Static Water Level: 50'

Test Log

0'	2'	Top soil
2'	18'	Brown clay
18'	25'	Blue clay
25'	55'	Coarse and fine sand, coarse gravel, some clay, boulders
55'	119'	Blue clay w/some gravel and boulders
119'	158'	Coarse and fine sand, small gravel
158'	160'	Blue clay

Size Mud Pit—Length 12', Width 5', Depth 2'

WATER BEARING FORMATION DATA

Depth	Mud Viscosity	Inches Mud Taken from Pit	Drilling Time
119' to 140'	38 sec.	3"	
140' to 158'	38 sec.	3"	
to			
to			
to			
to			

LOCATION:

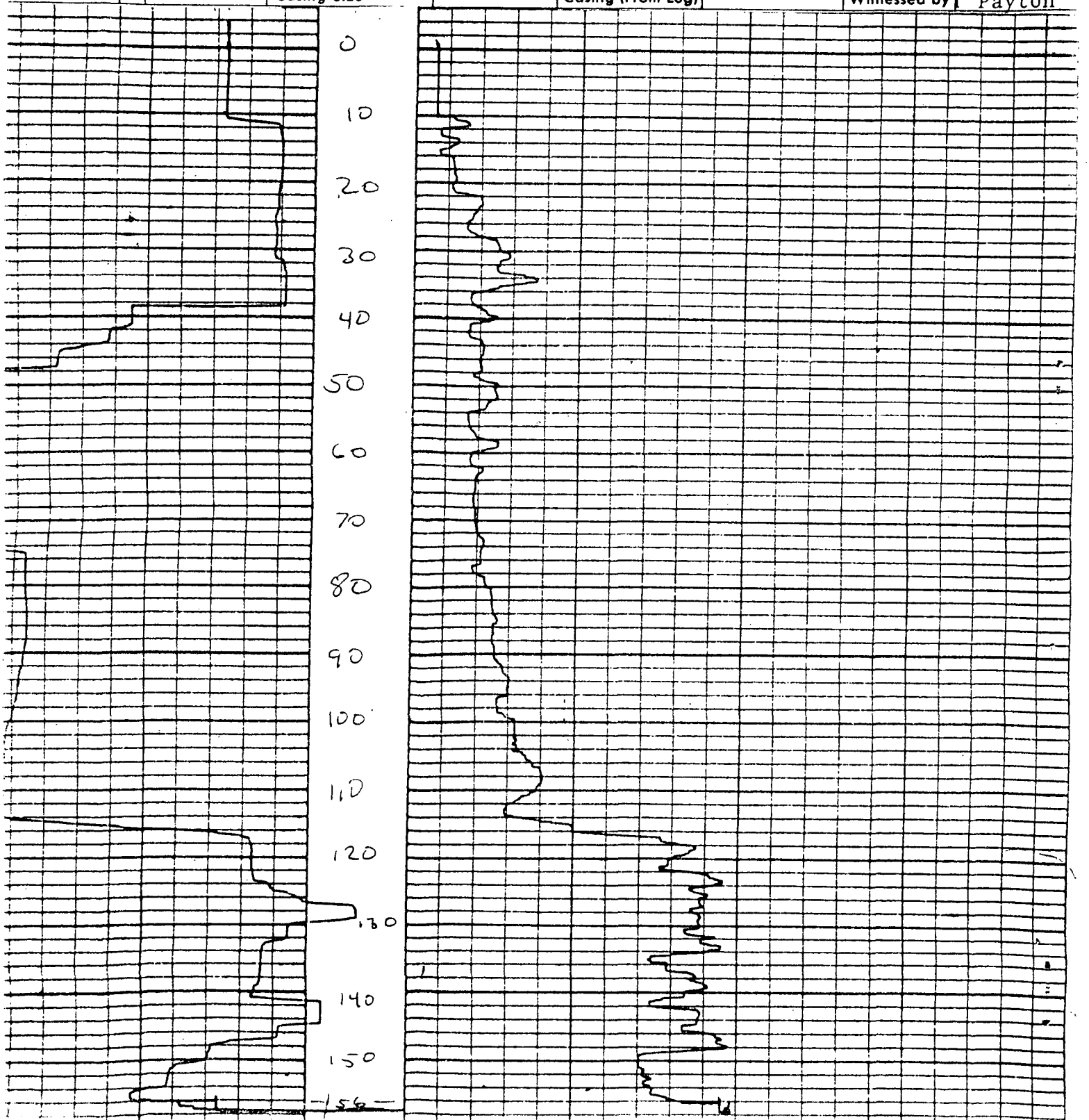
REMARKS:

Wayne-Western Company

430 Commercial Ave. Omaha, Nebraska

ELECTRICAL LOG

USTOMER	T.M. R.W.D.			ADDRESS	Parker, So. Dakota		
ELL NO.	83-5	ZERO ELEVATION	G.L.	COUNTY		STATE	So. Dakota
OCATION							
ate	10/25/83	Resistivity Scale: 1"	R-20	Nature of Mud	Bentonite	pH	
st Reading	10'	Potential Scale: 1"	P-200	Density		Circ. Temp.	
st Reading		Lineal Scale: 1"	20'	Viscosity	36 Sec.	Weather	
otage Logged	156'	Casing (Driller)	None	Bottom (Driller)		Logged by	J. Rentschle
Size:	4"	Casing Size		Casing (From Log)		Witnessed by	T Payton



an matest subsidiary

2917 Douglas Street
Omaha, Nebraska 68131
402/341-5181

Report Number
E 1310

eport made for Lyman-Richey Sand and Gravel Corp.
Attn: Frank Cranston
4315 Cuming Street
Omaha, Nebraska 68131

Report Date
26 February 1980

eport on Two Samples of Aggregate submitted 19 February 1980.

Test Results:

Sample Identification	#A Pea Gravel Loop Valley Deposit at Columbus, NE	#B Road Gravel Platte River Valley Deposit at Valley
Acid Soluble Material, % by Weight	0.8	1.0.

Submitted for:
OMAHA TESTING LABORATORIES, INC.

L. G. Erickson, P.E., Vice-President
Omaha Engineering and Testing Consultants, Inc.

LGE/erc

0: File
2xc: Lyman-Richey Sand and Gravel Corp.
Attn: Frank Cranston

GENERAL SPECIFICATIONS

WATER WELL SCREENS

GENERAL: The screen design shall be wire-wound continuous V-slot fabricated of cold drawn triangular wire wound around an internal array of longitudinal support bars. The outer winding of wire shall circumscribe the bars in a helical fashion thus forming the screen surface and shall be permanently fused to the bars at each bar/wire intersection by the electrical resistance welding process under water.

SLOT: The screen slot opening shall provide a conduit to pass water into the screen while retaining the surrounding sands and gravels. Such slot is ideally V-shaped, with sharp outer edges, widening inwardly to maximize sand passage during well development.

CAPACITY: The screen diameter, length, slot, and percentage of open area shall all be balanced to provide the maximum quantity of water at 0.1 feet per second or less entrance velocity while not sacrificing necessary collapse strength.

FITTINGS: The selection of proper end fittings shall be on the basis of the installation method consistent with overall well design considerations.

MATERIALS: All components of finished screen with fittings shall be a corrosion resistant alloy selected from the following:

- ☐ AISI 18–8 Type 304
- ☐ AISI 18–8 Type 304-L
- ☐ AISI 18–8 Type 304 ELC
- ☐ Monel 400
- ☐ AISI 18–8 Type 316
- ☐ AISI 18–8 Type 316-L
- ☐ AISI 18–8 Type 316 ELC
- ☐ Other Weldable Alloy

(Specify): _____

NON-CORROSION RESISTANT ALLOY

- ☐ S.A.E. Type 1008 Low Carbon Steel
- ☐ S.A.E. Type 1008 Galvanized Steel

World's leading name in well strainers. Founded 1879.

COOK WELL STRAINER CORP.

4848 Franklin Avenue, Cincinnati, Ohio 45212 • Telephone (513) 531-6555

TWX 810-461-2002 A/B Cookwell Nrwd

FORM 704
EFFECTIVE:
MARCH 1, 1980

PIPE SIZES – STAINLESS STEEL – WELDED

INTAKE AREAS (SQUARE INCHES PER LINEAL FOOT OF SCREEN)

PIPE SIZE	10 SLOT	20 SLOT	30 SLOT	40 SLOT	60 SLOT	80 SLOT	100 SLOT	125 SLOT
2 PS	15	26	35	41	52	59	65	70
2½ PS	18	31	41	49	61	70	77	83
3 PS	20	35	47	57	71	81	88	96
4 PS	26	45	60	72	90	102	112	121
5 PS	30	53	71	85	106	121	132	143
6 PS	25	45	62	77	100	118	131	145
8 PS	33	59	65	81	108	130	126	144
10 PS	41	74	81	101	135	162	157	179
12 PS	37	69	77	97	132	162	186	212
14 PS	41	75	84	107	145	177	205	233
16 PS	46	86	96	122	166	203	234	266
18 PS	52	97	108	137	187	228	263	300

☐ Open areas may differ somewhat from these figures; extra strong construction for example, reduces open area in some cases because heavier material is used to increase strength.

☐ The maximum transmitting capacity of screens can be derived from these figures. To determine GPM per ft. of screen, multiply the intake area in square inches by 0.31. It must be remembered that this is the maximum capacity of the screen under ideal conditions with an entrance velocity of 0.1 ft. per sec.

ORDERING INFORMATION

To insure prompt delivery of your order, be sure to include all the following information with your screen order:

1 SCREEN SIZE: Specify nominal diameter as shown in chart, adding the letters "PS". For example, 4" PS, 12" PS, etc.

2 LENGTH OF SCREEN: Length ordered will be the actual length of effective screening service. Overall length will be fitting plus screen length.

3 SLOT OPENING: Screens can be fabricated with any width slot opening from 6 slot (.006 inches) through 375 slot (.375 inches). A given length of screen may have more than one slot size. Be sure to correlate required slot sizes with reference to either the top or bottom of screen. EXAMPLE: 20 foot of screen with 5 foot of 20 slot on top, 10 foot of 25 slot in middle and 5 foot of 50 slot on bottom.

4 NUMBER OF SECTIONS: Screens 20 foot and shorter are normally made in one section. For lengths exceeding 20 foot, specify the type of intermediate fitting required if other than welding rings.

5 KIND OF METAL: Spell out the material required. If stainless steel, note type such as 304 or optional 316.

6 END FITTINGS: Specify top and bottom fitting desired. See price lists for types and sizes available.

World's leading name in well strainers. Founded 1879.

COOK WELL STRAINER CORP.

4848 Franklin Avenue, Cincinnati, Ohio 45212 • Telephone (513) 531-6555

TWX 810-461-2002 A/B Cookwell Nrwd

FORM 116

EFFECTIVE:

FEBRUARY 15, 1978

COOK WELL SCREENS

304 STAINLESS STEEL

PIPE SIZE

Cook pipe sized screens are manufactured for direct attachment to API pipe. These screens are so constructed that their dimension is equal to or larger than an API pipe of the same diameter.

Most drillers prefer to use welding rings to attach the screen to the pipe as their costs are considerably less than threaded fittings. Seldom are threaded fittings used on 8" pipe size screen and larger although they are available.

Cook pipe size screen are constructed of type 304 stainless steel as a standard, however, other materials are available. Availability and prices will be furnished by calling Cook Well Strainer Corporation or your local Cook Distributor.

RESISTANCE WELDED CONSTRUCTION

DIMENSIONS AND WEIGHTS

SCREEN SIZE	SCREEN O.D.		SCREEN I.D.		APPROXIMATE SHIPPING WEIGHT	
	INCHES	MM.	INCHES	MM.	lb/ft.	KG/M
2 PS	2¾	70	2¼	57	4	6
2½ PS	3	76	2½	64	5	8
3 PS	3¾	95	3¼	83	6	9
4 PS	4¾	121	4¼	108	7	10
5 PS	5⅝	143	5	127	11	16
6 PS	6⅝	168	6	152	14	21
8 PS	8⅝	219	8	203	19	28
10 PS	10¾	273	10	254	26	39
12 PS	12¾	324	12	305	35	52
14 PS	14	356	13⅛	333	38	57
16 PS	16	406	15	381	43	64
18 PS	18	457	17	432	54	80

☐ Shipping weights may vary somewhat with different wire shapes and slot sizes.

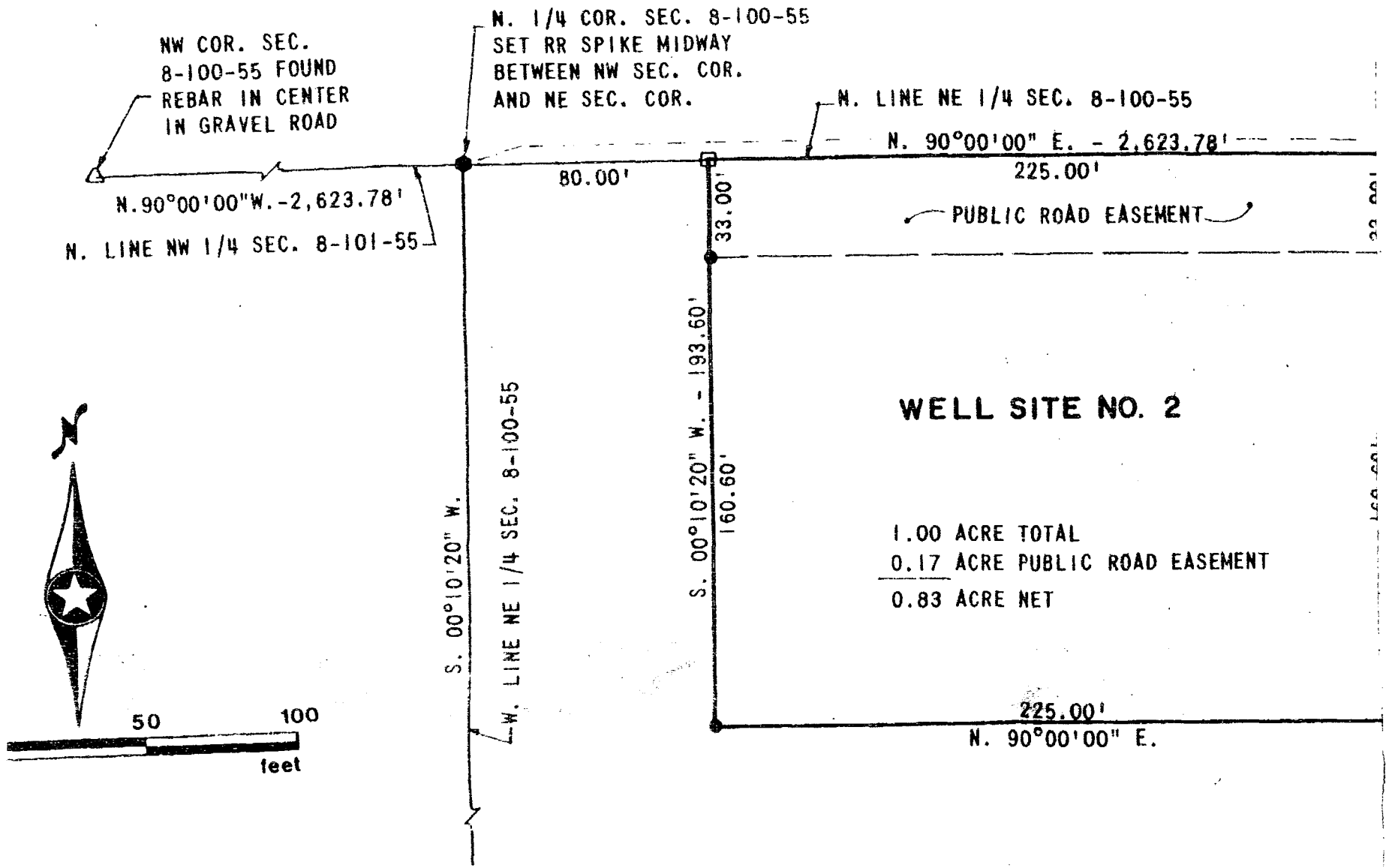
World's leading name in well strainers. Founded 1879.

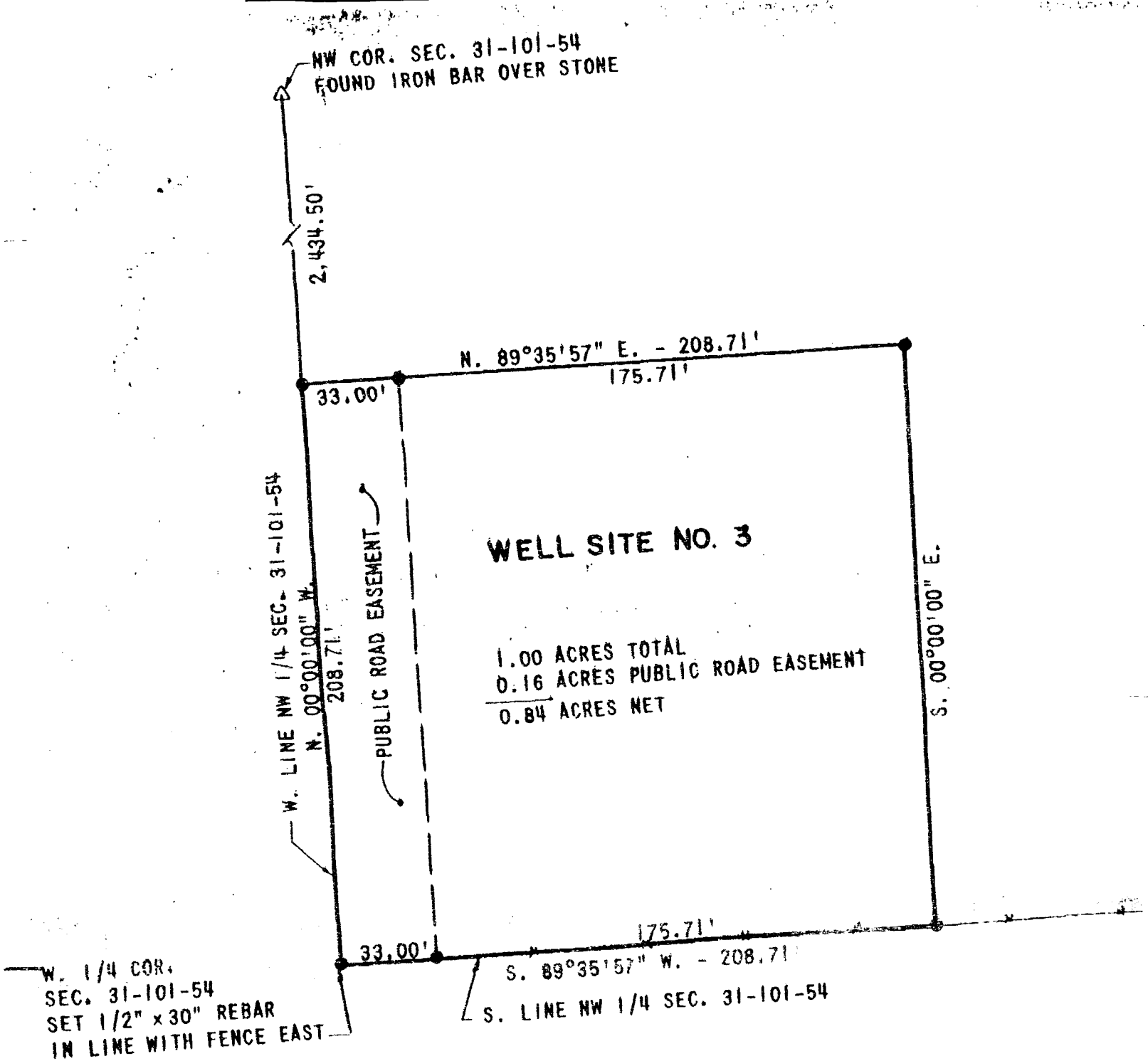
COOK WELL STRAINER CORP.

4848 Franklin Avenue, Cincinnati, Ohio 45212 • Telephone (513) 531-6555

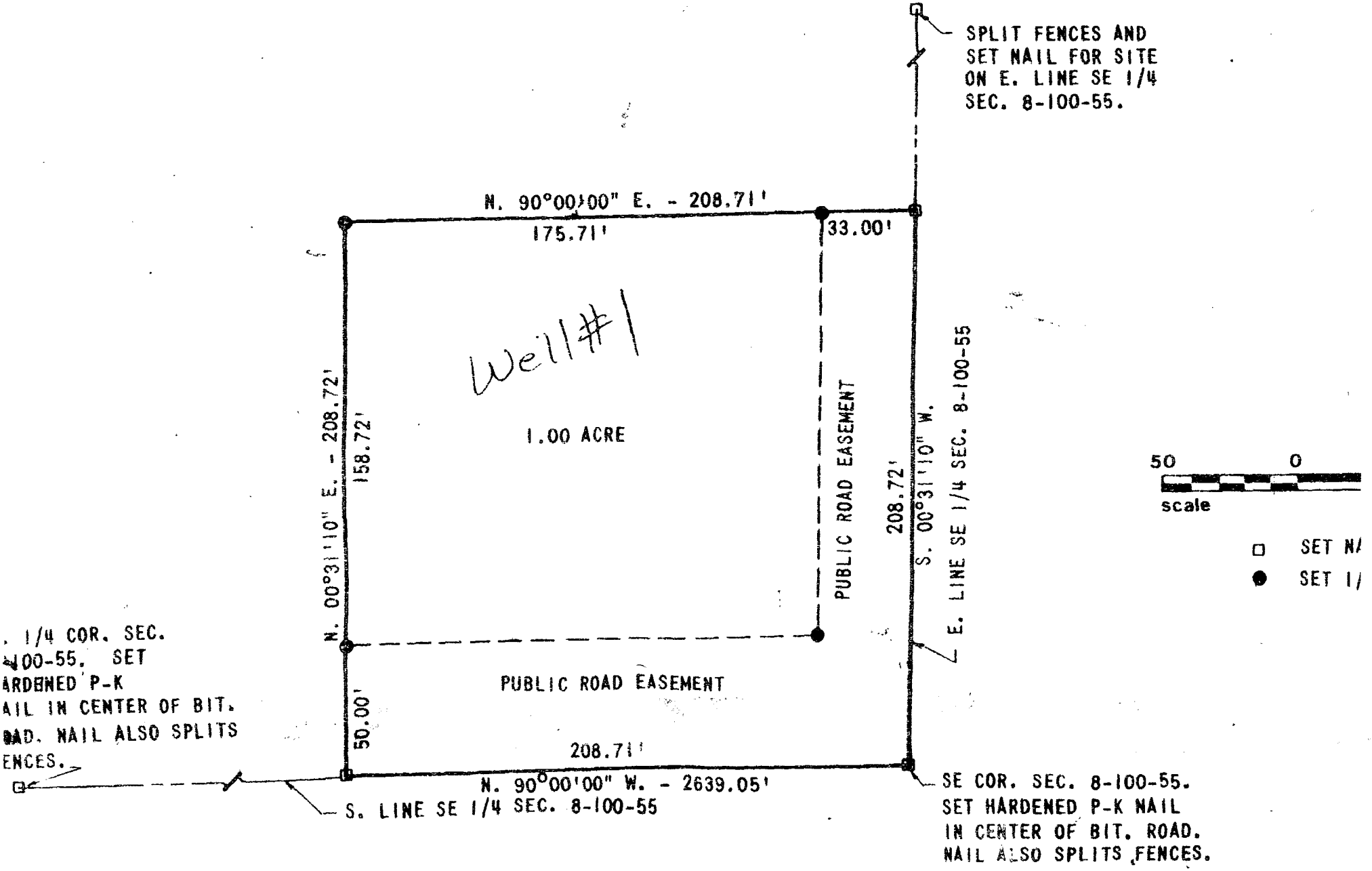
TWX 810-461-2002 A/B Cookwell Nrwd

FORM 114
EFFECTIVE:
FEBRUARY 15, 1978


NW COR. SEC.
8-100-55 FOUND
REBAR IN CENTER
IN GRAVEL ROAD
N. 1/4 COR. SEC. 8-100-55
SET RR SPIKE MIDWAY
BETWEEN NW SEC. COR.
AND NE SEC. COR.
N. LINE NE 1/4 SEC. 8-100-55
N. 90°00'00" E. - 2,623.78'
225.00'
80.00'
N.90°00'00"W.-2,623.78'
N. LINE NW 1/4 SEC. 8-101-55
33.00'
PUBLIC ROAD EASEMENT
S. 00°10'20" W. - 193.60'
160.60'
WELL SITE NO. 2
1.00 ACRE TOTAL
0.17 ACRE PUBLIC ROAD EASEMENT
0.83 ACRE NET
S. 00°10'20" W.
W. LINE NE 1/4 SEC. 8-100-55
225.00'
N. 90°00'00" E.
50
100
feet


NW COR. SEC. 31-101-54
FOUND IRON BAR OVER STONE
2,434.50'
N. 89°35'57" E. - 208.71'
175.71'
33.00'
WELL SITE NO. 3
1.00 ACRES TOTAL
0.16 ACRES PUBLIC ROAD EASEMENT
0.84 ACRES NET
PUBLIC ROAD EASEMENT
W. LINE NW 1/4 SEC. 31-101-54
N. 00°00'00" W.
208.71'
S. 00°00'00" E.
175.71'
33.00'
S. 89°35'57" W. - 208.71'
S. LINE NW 1/4 SEC. 31-101-54
W. 1/4 COR.
SEC. 31-101-54
SET 1/2" x 30" REBAR
IN LINE WITH FENCE EAST

LAND SURVEY IN SE1/4 SEC. 8-T100N-R55W
TURNER COUNTY, SOUTH DAKOTA



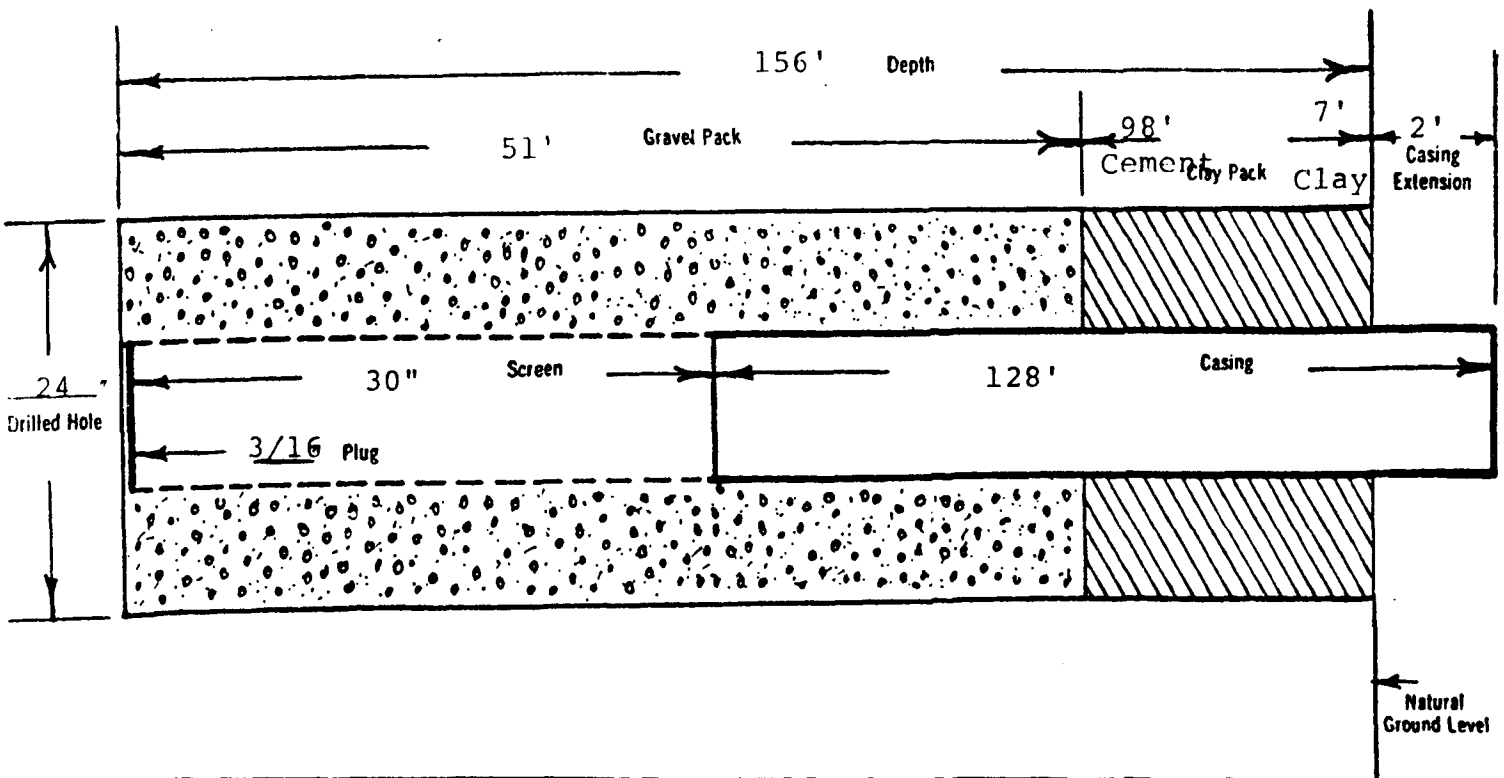
Western Company, Inc. Well Information

Omaha, Nebraska

CONTRACT T.M. R.W.D. #1 Well No. 83-1

Log of well from ground level:

Feet		Feet	Formation
0'	to	1'	Top soil
1'	to	2'	Clay, rocks
2'	to	17'	Blue clay, gravels
17'	to	120'	Blue gray clay, pebbles
120'	to	157'	Coarse, fine sand
157'	to	159'	Blue shale
	to		
	to		
	to		
	to		
	to		
	to		
	to		
	to		
	to		
	to		



Layne-Western Company, Inc. #1 — Well Information

Omaha, Nebraska

1. Contract T.M. R.W.D. Date December 12, 1983

2. City and State Dalton, So. Dakota Driller Harold Statz

3. Well No. 83-1 at test hole No. 83-2 Well location (attach map) One mile east of Dalton, So. Dakota.

4. Work completed ____ No of man hours as charged to job on time sheet ____

5. MATERIAL:	LENGTH	DIA.	GAUGE OR WALL THICKNESS	MATERIAL	TYPE	NO. OF OPENINGS
6. Screen	30'	12'		s.s.	Cook	
7. Inner Casing	128'	12"	.375	steel	welded	
8. Outer Casing						

9. 15 tons of gravel used in the well. Size road gravel. Lyman Ritchey

10. Test of well. Did you use test or permanent pump? Test 12" (Size of Bowl) 7 (Stages)

11. Size of orifice 6 inch by 5 inch. Orifice tube reading 62+ inches.

12. Pumping test — measurements from ground level:

TIME	G.P.M.	STATIC	DRAWDOWN	PUMPING LEVEL

13. Recovery in 5 minutes Attached, in 30 minutes ____

14. Did you seal bottom of well? Yes. Thickness 3/16 inches, material stainless steel

15. Well underreamed? No From ____ feet to ____ feet, ____ feet to ____ feet.

16. If all screen was not placed at bottom, state how it was spaced.

From 126 feet to 156 feet; from ____ feet to ____ feet; from ____ feet to ____ feet.

17. Depth of well from ground level to top of plug 156 Size of drilled hole 24"

18. Was cement placed around or between any of the casings? Yes

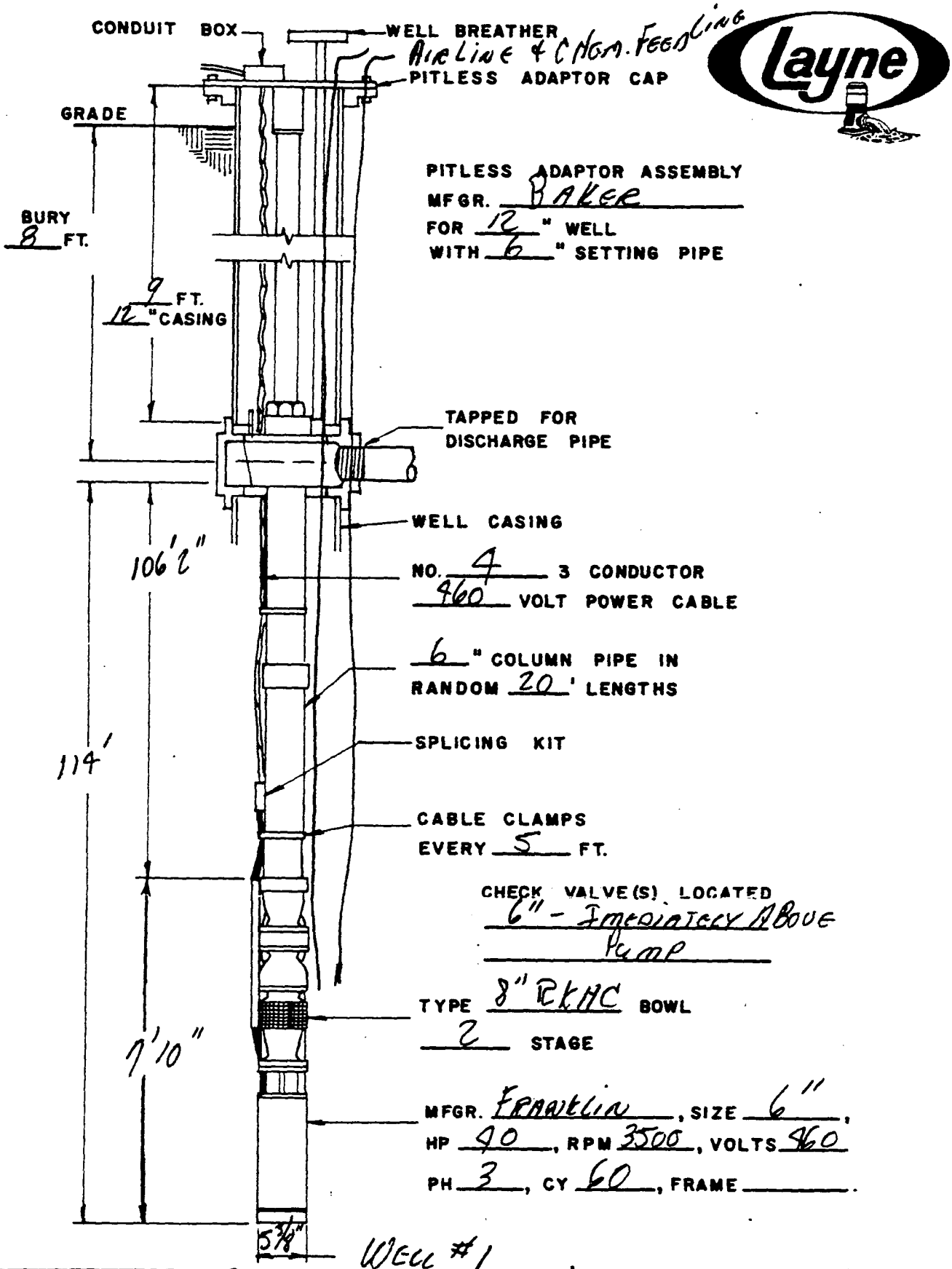
19. If so, state where, how much and method used. 7' to 105'

9 yards.

#1

INSTALLATION PLAN

SUBMERSIBLE PUMP & PITLESS ADAPTOR



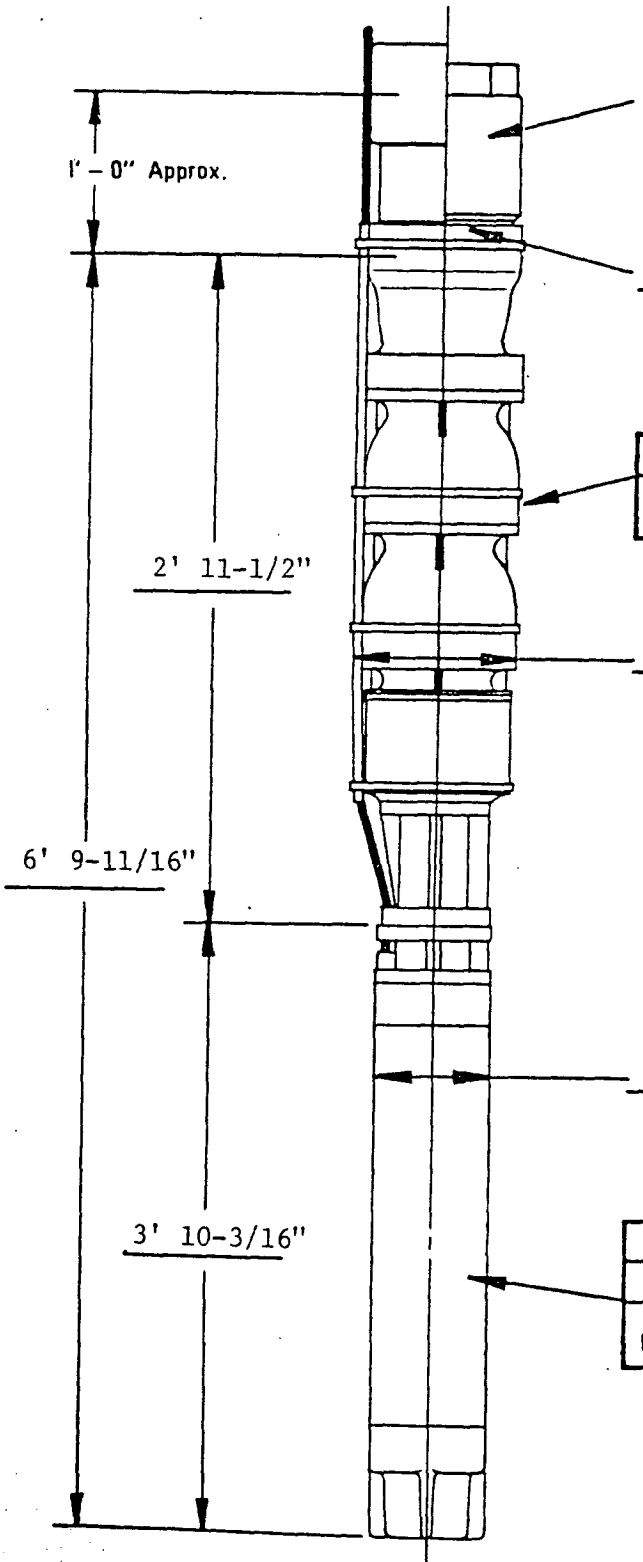
CUSTOMER: T. M. Rural Water	YOUR NO.	GPM 600
LOCATION Dolton, So. Dak	OUR NO.	TDH 200
FOR APPROVAL	PUMP NO.	RPM
CERTIFIED	DATE 19	BHP

Layne
A Morley Company

LAYNE & BOWLER, INC.
MEMPHIS, TENN. 38108

SUBMERSIBLE BOWL & MOTOR INSTALLATION DRAWING

SECTION: 3400
PAGE: 26
DATE: 6/15/84
SUPERSEDES: 1/1/84



OPTIONAL CHECK VALVE

SIZE 6"

(Add 1' – 0" to assembled length if check valve furnished)

6" SIZE NPT DISCHARGE CONN.

BOWL	STG.	GPM	TDH	ASS'Y NO.
8"RKHC	2	600	200	

8-3/4"

5-3/8"

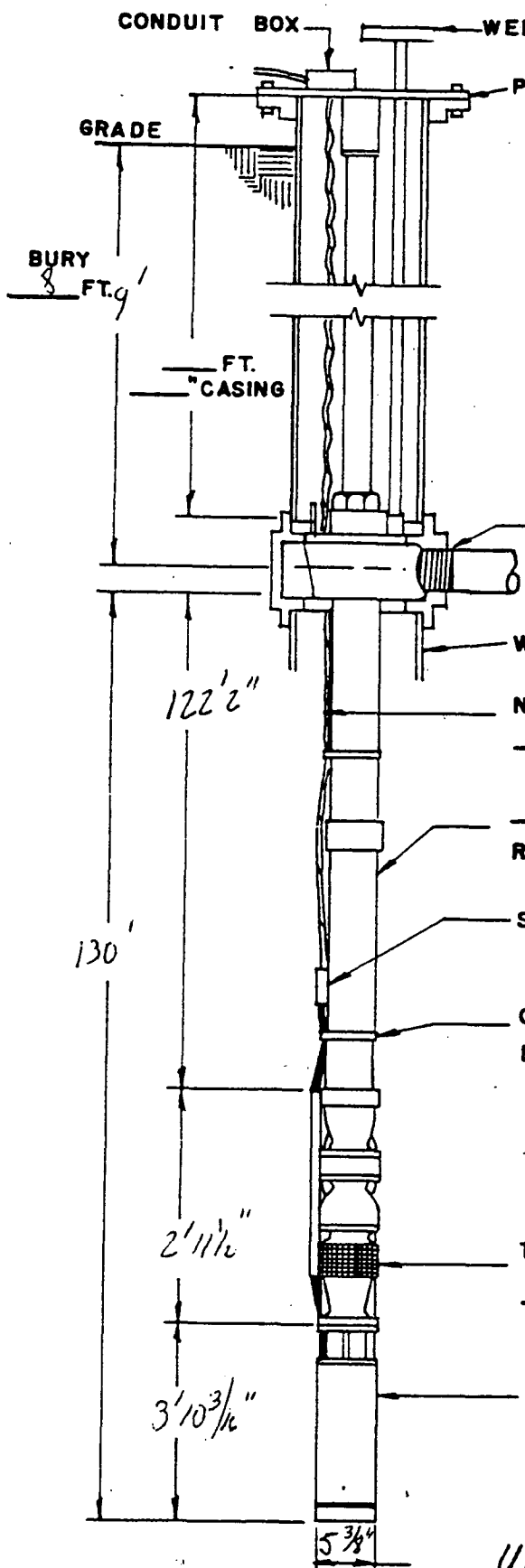
SUBMERSIBLE MOTOR						
MFGR.	SIZE	HP	RPM	PH.	CY.	VOLTS
FRANKLIN	6"	40	3500	3	60	460

Resubmitted
10-17-84

SOLD THRU: Layne Minnesota, Sioux Falls, SD
CUSTOMER: T.M. Rural Water - Well No. 1
LOCATION: Dolton, SD 57023
FOR APPROVAL: DATE:
CERTIFIED: DATE:

P.O.: 23394
ORDER NO.: L84-317
PUMP NO.: 99815L
JOB DWG. NO.:

INSTALLATION PLAN
SUBMERSIBLE PUMP & PITLESS ADAPTOR



PITLESS ADAPTOR ASSEMBLY
MFGR. Baker
FOR 12 " WELL
WITH 6 " SETTING PIPE

TAPPED FOR DISCHARGE PIPE

WELL CASING

REVISE

NO. ~~[illegible]~~ #6 3 CONDUCTOR
460 VOLT POWER CABLE

6 " COLUMN PIPE IN
RANDOM 20 ' LENGTHS

SPLICING KIT

CABLE CLAMPS
EVERY 5 FT.

CHECK VALVE(S) LOCATED
6" Imediately Above Pump

TYPE 8" PRHC BOWL
2 STAGE

MFGR. Franklin 30, SIZE 6",
HP ~~40~~, RPM 3500, VOLTS 460
PH 3, CY 60, FRAME _____.

WELLS #2 & 3

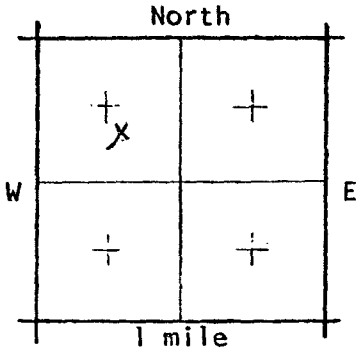
CUSTOMER: T.M. Rural Water	YOUR NO.	GPM ~~[illegible]~~ 192 400
LOCATION Doctor, So. Dak.	OUR NO.	TDH ~~[illegible]~~
FOR APPROVAL	PUMP NO.	RPM
CERTIFIED	DATE 19	BHP

STATE OF SOUTH DAKOTA WELL DRILLERS REPORT

Location SE ¼ NW ¼ Sec 8 Twp 100 Rg 55

County TURNER

Please mark well location with an "X"



Well Completion Date July 17-84

PROPOSED USE:
/ /Domestic /X/Municipal / /Test Holes
/ /Irrigation / /Industrial / /Stock

Method of Drilling: Reverse

WELL CONSTRUCTION:

Diameter of hole 20 inches Depth 172 feet

Casing: /X/Steel / /Plastic / /Other

Specify

Pipe Weight	Diameter	From	To
.375 lb/ft	12 inches	0 feet	142 feet
lb/ft	inches	feet	feet

Was a well screen used? /X/Yes / /No

If Not Specify

Screen Type Johnson SS Slot Size 80

Length 30 ft Diameter 12"

Was Casing left open end? / /Yes /X/No

Was a Packer or seal used? /X/Yes / /No

If so what material? Bentonite

Was well gravel packed? /X/Yes / /No

Was well grouted? /X/Yes / /No

Describe grouting procedure cemented on outside of pipe with tremie line

To what depth? 0-142 Feet

What was grouting material? cement 6-X

If cement, how many sacks? 180

Location of packer(s) and screen or perforated pipe 122-142 142-172

WAS WELL PLUGGED OR ABANDONED / /Yes /X/No

If so how and with what material?

Well Owner:

Name [illegible]

Address [illegible]

Well Log:

Formation	Depth From	Depth To
See the attached		

STATIC WATER LEVEL 64' 6½" Feet

If flowing: closed in pressure PSI

GPM flow through inch pipe

Controlled by / /Valve / /Reducers / /Other

If other; specify

Can well be completely shut off?

WELL TEST DATA:

/X/Pumped 735 GPM

/ /Bailed Describe:

/ /Other

Pumping Level Below Land Surface

ft. After Hrs. pumped GPM

ft. After Hrs. pumped GPM

ft. After Hrs. pumped GPM

Remarks:

This well was drilled under license # 94 and this report is true and accurate.

Huron Drilling Inc. Doug Ashen Jr.

Drilling Firm Signed by

Date

HURON DRILLING INC. DRILLERS LOG

PAGE NO.

TM Rural Water	NW4-8-101-54-McCook Co.	7-17-84	23	Raymond Kuehl
JOB NAME	LOCATION	DATE	RIG NO.	FOREMAN

Jt No.	DEPTH	TIME	HOLE # 2-2		REMARKS 22" Hole - PRODUCTION WELL
1	20		0-2	Topsoil	
			2-23	Yellow clay	
2	40		23-47	Blue Clay	
3	60		47-52	Medium Sand	
			52-60	Blue Clay	
4	80		60-80	Blue Clay	
5	100		80-100	Blue Clay	
6	120		100-120	Blue Clay	
7	140		120-130	Blue Clay	
			130-135	Good Sand with hard shale	Good water loss between
8	160		135-172	Good Sand	130 and 170 ft.
9	172				

Cased Hole #2-2 to 172 feet with 12" Steel Casing .375 Wall, P.E.

142 feet 12" Steel Pipe, .375 Wall

30 feet 12" P.S. 304, Stainless Steel Well Screen, No. 80 Slot with Stainless Steel Plate Bottom.

Well Gravel Packed using - Luther Maddox Gravel, Double AA

Cement Grouted Casing in place, using 180 Bags Cement on 6 tp 1 Mix.

Casing Record Log

15 feet - 12" P.S., .304 Wall Stainless Steel Well Screen

15 feet - 12" P.S., .304 Wall Stainless Steel Well Screen

25 feet - 12" P.E., .375 Wall Steel Casing

25 feet - 12" P.E., .375 Wall Steel Casing

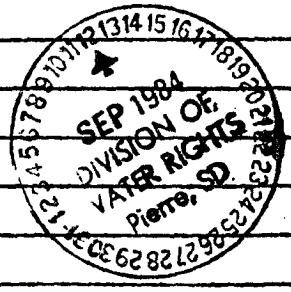
26 feet - 12" P.E., .375 Wall Steel Casing

21 feet - 12" P.E., .375 Wall Steel Casing

21 feet - 12" P.E., .375 Wall Steel Casing

21 feet - 12" P.E., .375 Wall Steel Casing

3 feet - 12" P.E., .375 Wall Steel Casing



Replacement Well #3

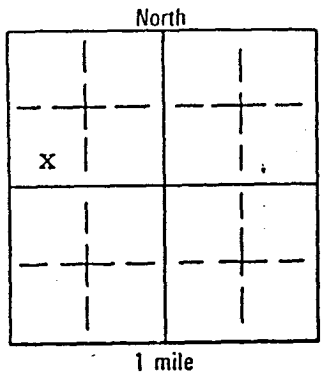
SOUTH DAKOTA WATER WELL COMPLETION REPORT

10-85

Location SW ¼ NW ¼ Sec 31 Twp 101 Rg 54

County Turner

Please mark well location with an "X"



Well Completion Date 1-28-89

PROPOSED USE:
☐ Domestic ☒ Municipal ☐ Test Holes
☐ Irrigation ☐ Industrial ☐ Stock

Method of Drilling:
Reverse rotary hydraulic

CASING DATA:
☒ Steel ☐ Plastic ☐ Other
If other describe

PIPEWEIGHT	DIAMETER	FROM	TO	HOLE DIAMETER
49.56 LB/FT	12 IN	0 FT	160 FT	24 IN
____ LB/FT	____ IN	____ FT	____ FT	____ IN
____ LB/FT	____ IN	____ FT	____ FT	____ IN
____ LB/FT	____ IN	____ FT	____ FT	____ IN

GROUT:
Was the well grouted? ☒ YES ☐ NO
To what depth? 12-106' FEET
What is grouting material? Neat cement
If cement, number of sacks? 370
Describe grouting procedure Pressure grouted with tremie pipe
What was grout weight? ____ LB/GAL

SCREEN: ☐ Perforated pipe ☒ Manufactured
Diameter 12 IN Length 28 FEET
Material
Slot Size .050 Set From 138 Feet To 155 Feet
Slot Size .050 Set From 160 Feet To 164 Feet
Slot Size .050 Set From 168 Feet To 175 Feet
Other information

Well Owner:
Name TM Rural Water District
Address PO Box 445 Parker, SD 57053

Well Log:

Formation	Depth From	Depth To
Top soil	0	1
Yellow clay	1	16
Clay and gravel	16	20
Blue clay	20	47
Coarse sand	47	57
Gray clay	57	136
Coarse and fine sand	136	156
Clay	156	158
Coarse, fine sand	158	166
Clay	166	168
Medium, fine sand	168	177
Gray clay	177	190

STATIC WATER LEVEL 96'5" Feet
If flowing: closed in pressure ____ PSI
GPM flow 564 through 6" x 5" inch pipe
Controlled by ☒ Valve ☐ Reducers ☐ Other
If other; specify
Can well be completely shut in? yes

WELL TEST DATA:
☒ Pumped 24 hour constant
☐ Bailed Describe: rate test
☐ Other

Pumping Level Below Land Surface

121.08	ft. After	1	Hrs. pumped	564	GPM
126.25	ft. After	12	Hrs. pumped	564	GPM
128.92	ft. After	24	Hrs. pumped	564	GPM

REMARKS:

MAR 1990
DIVISION OF WATER RIGHTS
Pierre, SD

1 mile

Date 1-28-89

☒ Municipal ☐ Test Holes
☐ Industrial ☐ Stock

Method of Drilling:
Reverse rotary hydraulic

CASING DATA:
☒ Steel ☐ Plastic ☐ Other
other describe

PIPEWEIGHT	DIAMETER	FROM	TO	HOLE DIAMETER
49.56 LB/FT	12 IN	0 FT	160 FT	24 IN
___ LB/FT	___ IN	___ FT	___ FT	___ IN
___ LB/FT	___ IN	___ FT	___ FT	___ IN
___ LB/FT	___ IN	___ FT	___ FT	___ IN

GROUT:
Was the well grouted? ☒ YES ☐ NO
To what depth? 12-106' FEET
What is grouting material? Neat cement
If cement, number of sacks? 370
Describe grouting procedure Pressure grouted with tremie pipe
What was grout weight? LB/GAL

SCREEN: ☐ Perforated pipe ☒ Manufactured
Diameter 12 IN Length 28 FEET
Material
Slot Size .050 Set From 138 Feet To 155 Feet
Slot Size .050 Set From 160 Feet To 164 Feet
Slot Size .050 Set From 168 Feet To 175 Feet
Other information

Was a packer or seal used? ☐ YES ☒ NO
If so, what natural?
Describe packer(s) and location?

Was well disinfected upon completion? ☒ YES ☐ NO
Explain 100 PPM solution of HTH
Bacteriological analysis ☒ YES ☐ NO
Laboratory sent to State Health Lab

Coarse sand	47	57
Gray clay	57	136
Coarse and fine sand	136	156
Clay	156	158
Coarse, fine sand	158	166
Clay	166	168
Medium, fine sand	168	177
Gray clay	177	190

STATIC WATER LEVEL 96'5" Feet
If flowing: closed in pressure ___ PSI
GPM flow 564 through 6" x 5" inch pipe
Controlled by ☒ Valve ☐ Reducers ☐ Other
If other; specify
Can well be completely shut in? yes

WELL TEST DATA:
☒ Pumped 24 hour constant
☐ Bailed Describe: rate test
☐ Other

Pumping Level Below Land Surface
121.08 ft. After 1 Hrs. pumped 564 GPM
126.25 ft. After 12 Hrs. pumped 564 GPM
128.92 ft. After 24 Hrs. pumped 564 GPM

REMARKS:

RECEIVED
MAR 1990
DIVISION OF
WATER RIGHTS
Pierre, SD

This well was drilled under license # 513
And this report is true and accurate.
Drilling firm Layne-Western Company, Inc.
Signature of License Representative: D. L. Meisel
Signature of Well Owner:
Date 3-2-90

LL & PUMP SERVICE REPORT
cord File – Pump Record Book)

H3 WCU

STOMER TM Rural Water District PUMP NO. 109036-L

TE 1-26-89 ADDRESS Dolton - Parker, S.D. WELL NO. 3

WELL: Location 1 1/2 mile North of filter plant Dolton, S.D.

Dia. 12" Depth 187' Static Level 95' 6" Casing Material steel

MOTOR OR GEAR DRIVE: Mfg. Franklin HP 30 Serial No. 336333918 MJ88 16-0008

Frame ____ Volts 480 Phase 3 RPM 3450 Clutch Bore ____ NRR ____

Bearing No.'s ____ Submersible Dia. 7" Length 78"

PUMP: Mfg. Layne Discharge Dia. 6" Depth of Setting 161'

Column Dia. 6" (OD) (ID) Shaft/Tubing Dia. ____ Shaft Material ____

Bowl Serial No. 109036 L Dia. 7 Type C.L. No. Stages 3 Length 78"

Suction Dia. ____ Length ____ Strainer ____ Lubrication ____

MISCELLANEOUS: Airline Length 180' Material plastic Does it Work yes

Water Meter Size 4" Mfg. ____ Material cast Does it Work yes

Blow Off Dia. Fire Hydran Dresser Sleeve Dia. ____ Static Pressure 20PSI

WORK DONE: Reason for doing work New well

Well Treatment ☐ Pump Repair ☐ New Pump ☒ Was Pump Pulled yes Describe Condition:

Column good Shaft ____ Tubing ____ Bowl ____ Suction ____

Before Treatment or Repair: Time ____ GPM ____ DD ____ PSI ____ Sand ____

After Treatment or Repair: Time ____ GPM ____ DD ____ PSI ____ Sand ____

Equipment Used 35-5290-72

Surging Equipment 12" surge block Material pulled in 1 Ft.

COMMENTS: Describe Repair or Treatment, List Repair Parts, New Piping, Switches, Controls:

New bowl and motor, 1-10" plastic shroud around pump 103" long

49' - 6" drop pipe

SST bands

180' plastic airline

100' airline gauge

1-schrader valve Pump Runs Good ☒ Rough ☐

p Installer Harold Statz Customer Rep. Larry Ernster

(Please use back if more space is needed)

32

ORIGINAL #3 REPLACED

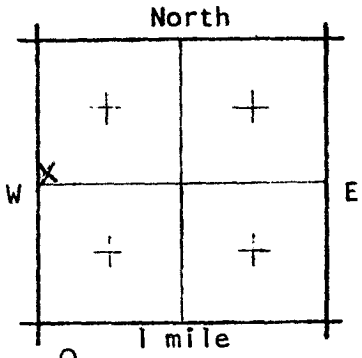
STATE OF SOUTH DAKOTA WELL DRILLERS REPORT

3-5

Location SW¼ NW¼ Sec 31 Twp 101 Rg 54

County McCook

Please mark well location with an "X"



Well Completion Date July 9-84

PROPOSED USE:
/ / Domestic /X/ Municipal / / Test Holes
/ / Irrigation / / Industrial / / Stock

Method of Drilling: Reverse

WELL CONSTRUCTION:

Diameter of hole 20 inches Depth 170 feet

Casing: /X/ Steel / / Plastic / / Other

Specify

Pipe Weight	Diameter	From	To
.375 lb/ft	12 inches	0 feet	142 feet
lb/ft	inches	feet	feet

Was a well screen used? /X/ Yes / / No

If Not Specify

Screen Type Johnson SS Slot Size 80

Length 28 ft Diameter 12

Was Casing left open end? / / Yes /X/ No

Was a Packer or seal used? /X/ Yes / / No

If so what material? Bentonite

Was well gravel packed? /X/ Yes / / No

Was well grouted? /X/ Yes / / No

Describe grouting procedure cemented on outside of pipe with tremie line

To what depth? 0-142 Feet

What was grouting material? cement

If cement, how many sacks? 175

Location of packer(s) and screen or perforated pipe 122-142 142-170

WAS WELL PLUGGED OR ABANDONED / / Yes /X/ No

If so how and with what material?

Well Owner:

Name TM Rural Water

Address [illegible]

Well Log:

Formation	Depth From	Depth To
See the attached log		

STATIC WATER LEVEL 68' 5" Feet

If flowing: closed in pressure PSI

GPM flow through inch pipe

Controlled by / / Valve / / Reducers / / Other

If other; specify

Can well be completely shut off?

WELL TEST DATA:

/X/ Pumped 680 GPM

/ / Bailed Describe:

/ / Other

Pumping Level Below Land Surface

ft. After Hrs. pumped GPM

ft. After Hrs. pumped GPM

ft. After Hrs. pumped GPM

Remarks

SEP 1984 DIVISION OF WATER RIGHTS Pierre, SD.

This well was drilled under license # 94

and this report is true and accurate.

Neeron Drilling Inc. Doug Debler Jr

Drilling Firm Signed by

3-1-84

Date

HURON DRILLING INC. DRILLERS LOG

PAGE NO.

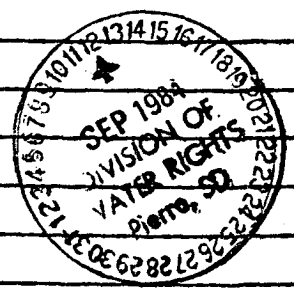
Turner-McCook Rural Water	N/L-31-101-54-McCook Co.	7-9-84	23	Raymond Kuehl
JOB NAME	LOCATION	DATE	RIG NO.	FOREMAN

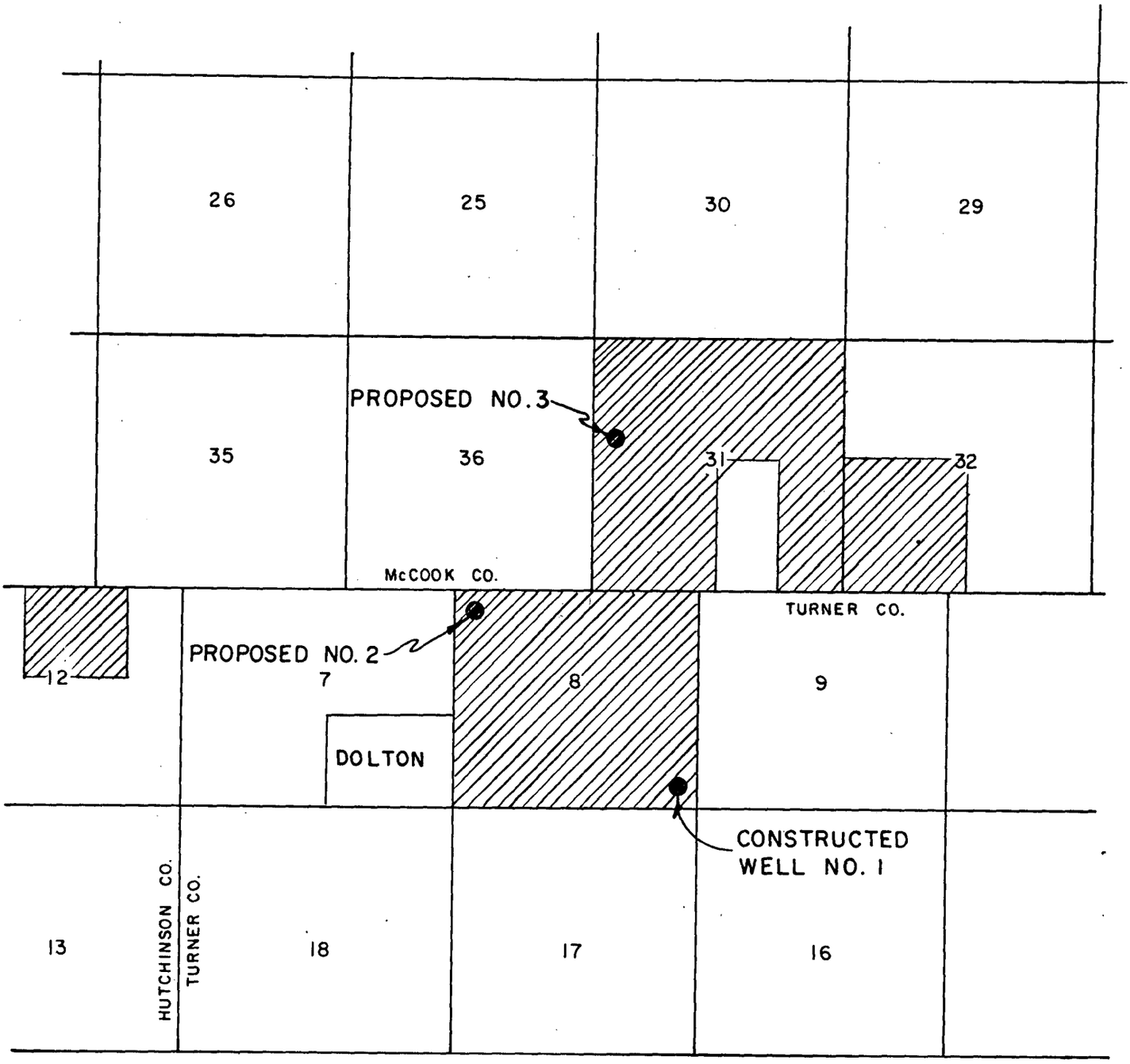
HOLE # 3-5 — REMARKS 22" HOLE - PRODUCTION WELL

Jt No.	DEPTH	TIME		
1	20		0-10	Yellow Clay
			10-20	Yellow Clay
2	40		20-40	Blue Clay
3	60		40-50	Clay
			50-60	Gravel, Tuff to stand up
4	80		60-80	Mostly Clay
5	100		80-100	Mostly Clay
6	120		100-120	Mostly Clay
7	140		120-130	Mostly Clay
			130-140	Sand, Clay Mixed
8	160		140-146	Sand
			146-149	Clay
			149-160	Sand Medium
9	170		160-170	Sand

Cased Hole #3-5 to 170 feet with 12" Steel Casing .375 Wall, P.E.
142 feet 12" Steel Pipe, .375 Wall
28 feet 12" P.S. 304, Stainless Steel Well Screen, No. 80 Slot
with Stainless Steel Plate Bottom.
Well Gravel Packed using - Luther Maddox Gravel, Double AA
Cement Grouted Casing in Place, using 175 Bags Cement on 6 to 1 Mix.

Casing Record Log
14 feet - 12" P.S., .304 Wall Stainless Steel Well Screen
14 feet - 12" P.S., .304 Wall Stainless Steel Well Screen
26 feet - 12" P.E., .375 Wall Steel Casing
26 feet - 12" P.E., .375 Wall Steel Casing
26 feet - 12" P.E., .375 Wall Steel Casing
26 feet - 12" P.E., .375 Wall Steel Casing
26 feet - 12" P.E., .375 Wall Steel Casing
12 feet - 12" P.E., .375 Wall Steel Casing





TM RURAL WATER DISTRICT

PROPOSED WELL FIELD

NOTE: ACTUAL LOCATION AND NUMBER OF WELLS TO BE FIELD VERIFIED WITH PILOT HOLES PRIOR TO WELL CONSTRUCTION.

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. 3473 Date 12/15/83

By David Holman

APPL & MAP # 4988-3

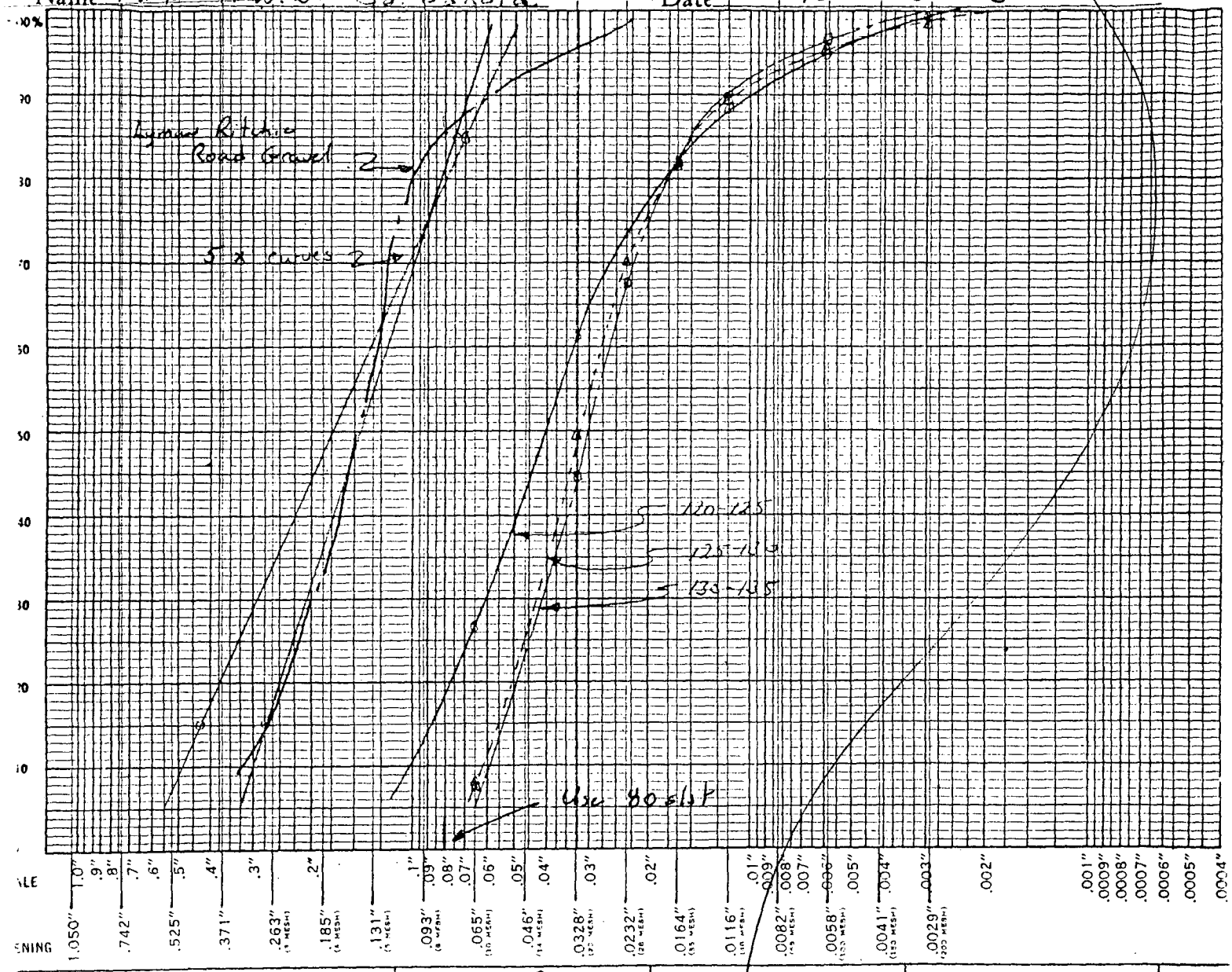
The Tyler Standard Screen Scale

Form No. L-5
Please mention above when ordering

L-5

Cumulative Logarithmic Diagram of Screen Analysis on Sample of Test Hole 83-32

Name T.M. R.W.D. So. Dakota. Date 10 - 26 - 83



SCREEN SCALE RATIO 1.414				120-125 250 Gm			125-130 250 Gm			130-135 250 Gm		
Openings Inches	Openings Millimeters	Tyler Mesh	U.S. No.	Sample Weights	Per Cent	Per Cent Cumulative Weights	Sample Weights	Per Cent	Per Cent Cumulative Weights	Sample Weights	Per Cent	Per Cent Cumulative Weights
1.050	26.67											
.742	18.85											
.525	13.33											
.371	9.423											
.263	6.680	3										
.185	4.699	4	4									
.131	3.327	6	6									
.093	2.362	8	8									
.065	1.651	10	12	67	26.8	26.8	20	8	8	19	7.6	7.6
.046	1.168	14	16									
.0328	.833	20	20	86	34.4	61.2	104	41.6	49.6	93	37.2	44.8
.0232	.589	28	30	31	12.4	73.6	51	20.4	70	57	22.8	67.6
.0164	.417	35	40	21	8.4	82	30	12	82	35	14	81.6
.0116	.295	48	50	16	6.4	88.4	18	7.2	89.2	20	8	89.6
.0082	.208	65	70									
.0058	.147	100	100	17	6.8	94.8	15	6	95.2	17	6.8	96.4
.0041	.104	150	140									
.0029	.074	200	200									
.0029	.074	200	200	11	4.4	99.2	8	3.2	98.4	5	2	98.4
			Totals	249								

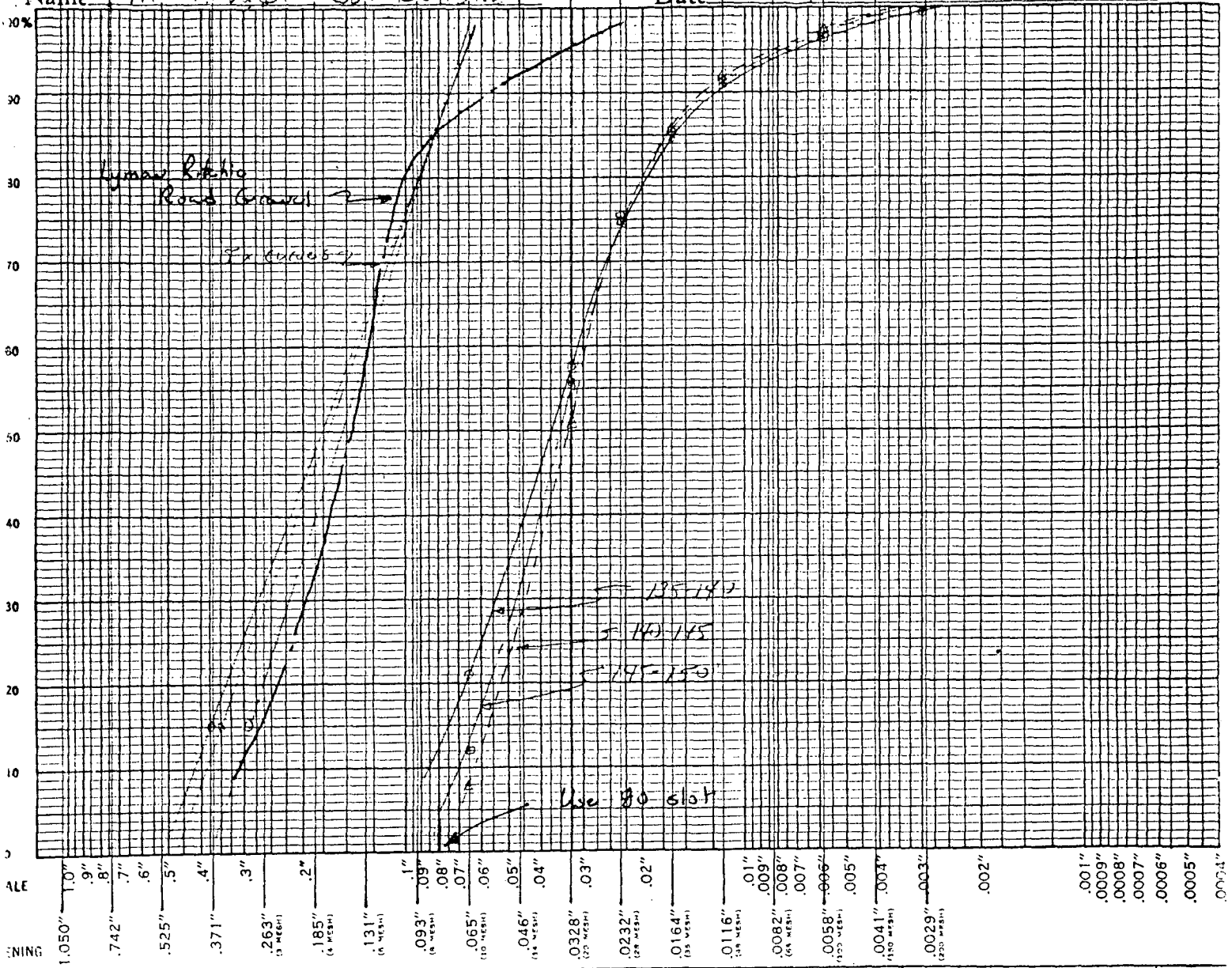
10/31/83 - Telephone Dave Johnson & confirmed that these are curves on material from 83-2. GJP

The Tyler Standard Screen Scale

Form No. L-4
Please mention above when ordering

Cumulative Logarithmic Diagram of Screen Analysis on Sample of Test Hole 83-32 L-5

Name TM RVD So. Dakota Date 10-26-83



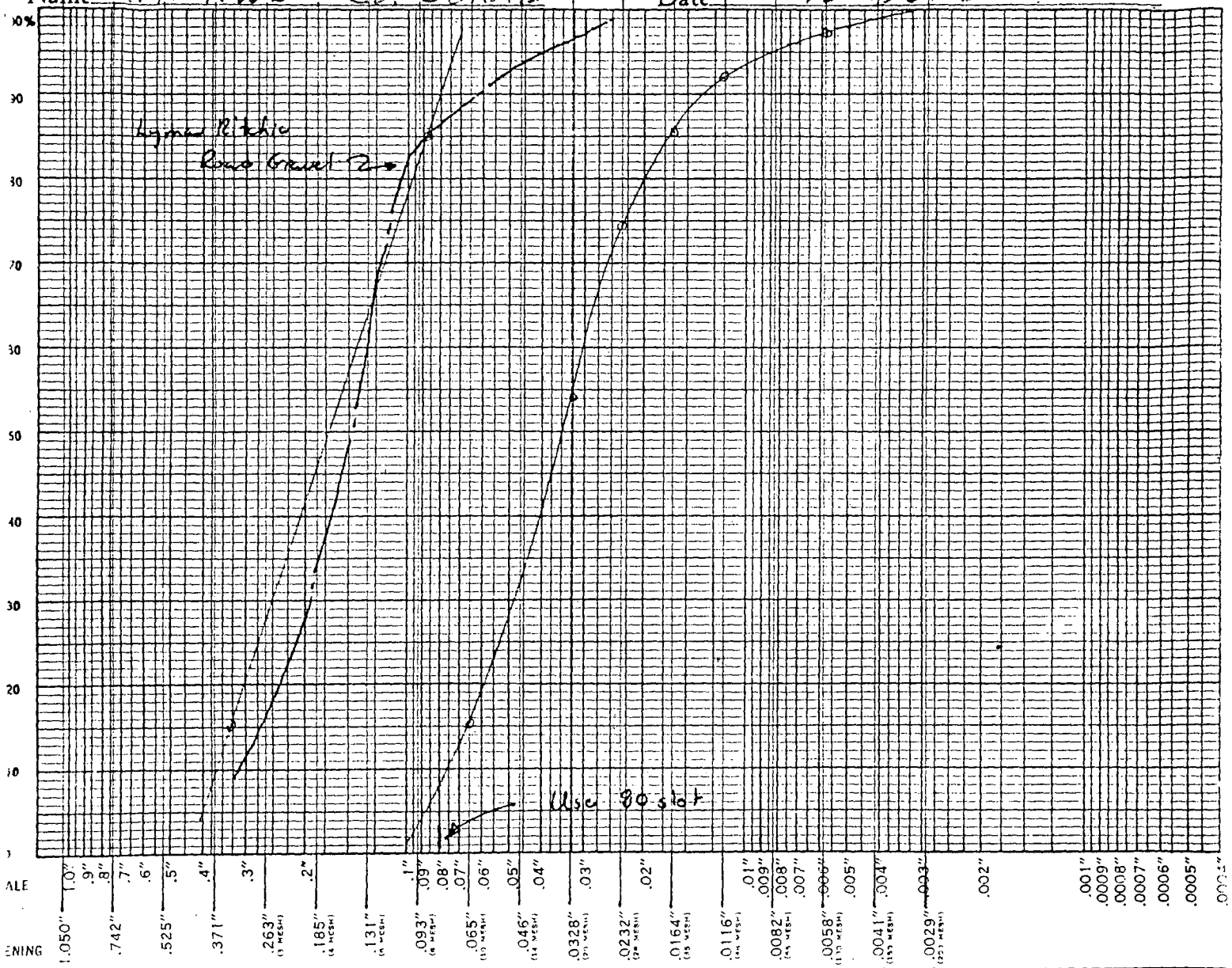
SCREEN SCALE RATIO 1.414				135-140 2506m.			140-145 2506m			145-150 2506m		
Openings Inches	Openings Millimeters	Tyler Mesh	U. S. No.	Sample Weights	Per Cent	Per Cent Cumulative Weights	Sample Weights	Per Cent	Per Cent Cumulative Weights	Sample Weights	Per Cent	Per Cent Cumulative Weights
1.050	26.67											
.742	18.85											
.525	13.33											
371	9.423											
.263	6.680	3										
.185	4.699	4	4									
.131	3.327	6	6									
.093	2.362	8	8									
.065	1.651	10	12	52	20.8	20.8	20	8	8	30	12	12
.046	1.168	14	16									
.0328	.833	20	20	92	36.8	57.6	107	42.8	50.8	109	43.6	55.6
.0232	.589	28	30	43	17.2	74.8	59	23.6	74.4	44	19.6	75.2
.0164	.417	35	40	24	9.6	84.4	28	11.2	85.6	25	10	85.2
.0116	.295	48	50	16	6.4	90.8	16	6.4	92	16	6.4	91.6
.0082	.208	65	70									
.0058	.147	100	100	14	5.6	96.4	13	5.2	97.2	13	5.2	96.8
.0041	.104	150	140									
.0029	.074	200	200									
.0029	.074	200	200	7	2.8	99.2	4	1.6	98.8	5	2	98.8
			Totals,									

The Tyler Standard Screen Scale

Form No. L-5
Please mention above when ordering

Cumulative Logarithmic Diagram of Screen Analysis on Sample of Test Hole 83-32 L-5

Name T.M. RWD So. Dakota Date 10-26-83



SCREEN SCALE RATIO 1.414

150-155 2506m

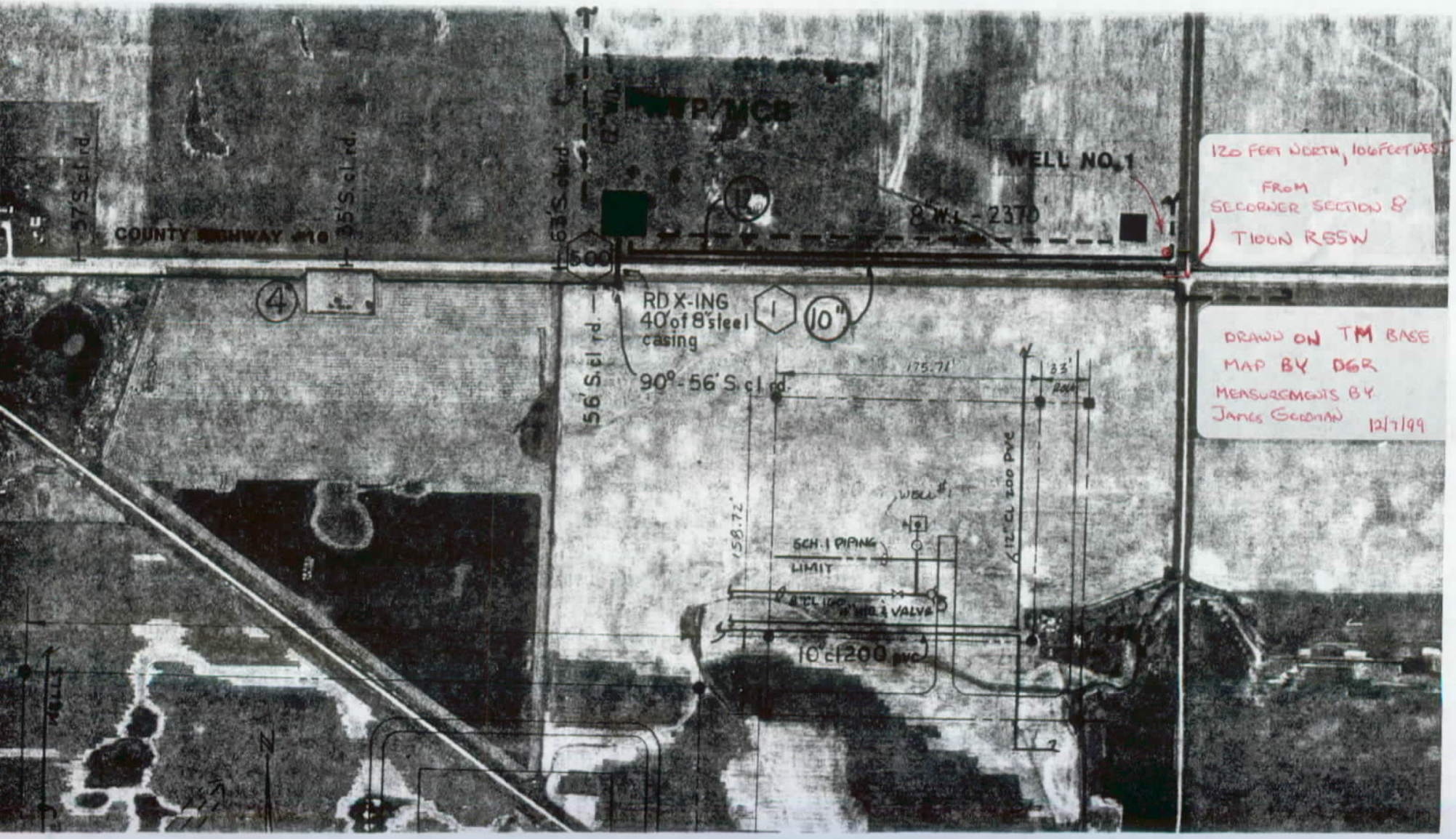
Openings Inches	Openings Millimeters	Tyler Mesh	U. S. No.	Sample Weights	Per Cent	Per Cent Cumulative Weights	Sample Weights	Per Cent	Per Cent Cumulative Weights	Sample Weights	Per Cent	Per Cent Cumulative Weights
1.050	26.67											
.742	18.85											
.525	13.33											
.371	9.423											
.263	6.680	3										
.185	4.699	4	4									
.131	3.327	6	6									
.093	2.362	8	8									
.065	1.651	10	12	38	15.2	15.2						
.046	1.168	14	16									
.0328	.833	20	20	97	38.8	54						
.0232	.589	28	30	51	20.4	74.4						
.0164	.417	35	40	28	11.2	85.6						
.0116	.295	48	50	16	6.4	92						
.0082	.208	65	70									
.0058	.147	100	100	13	5.2	97.2						
.0041	.104	150	140									
.0029	.074	200	200									
.0029	.074	200	200	5	2	99.2						
			Totals									

4988-3

DeWild Grant Reckert & Associates Co.
Architecture Engineering Planning

TM RURAL WATER DISTRICT

SCALE; 1" = 600'



SHT. NO. 105.B
WELL NO. 4
5'N.C.L.
135'N.C.L.
58'N.C.L.
51'N.C.L.
10" W.L.
MAP DRAWN ON TM BASE OF DGR BY JAMES GOODMAN, DISTANCES MEASURED FROM CORNERS
12/7/99
UVM AQUIFER - WELL #4
150' EAST, 124' NORTH FROM THE SOUTHWEST CORNER SECTION 25, T10N R55W.
REFERENCE BANNER 1992
FOR WELL LINE DETAIL
25'S.C.L.
37'S.C.L.
28'S.C.L.
BLOW-OFF
22'E.C.L.
22'E.C.L.
WELL NO. 3
LEO DECKERT
34 N.C.Rd.
118' NORTH, 100' EAST FROM WEST QUARTER CORNER OF SECTION 31, T10N R54W
4" Hydrant
34' E. of Rd.
22' N. of Dr.
11'W.C.L.
Hydrant Valve
37' E. of Rd.
19' N. of Dr.
Mainline Valve
38' E. of Rd.
14' N. of Dr.
11'W.C.L.
DOLTON AQUIFER
WELL #3
SW NW SEC 31, T10N R54W
8" W.L.
150' W.C.L. RF
DOLTON AQUIFER
TM WELL #2
(NW NE SEC 8, T10N R55W)
260' WEST, 107' SOUTH FROM SE CORNER SECTION 36 T10N R55W

RECEIPT

Division of Water Rights № 4 9446

South Dakota Department of Water and Natural Resources

Pierre, December 19, 1983

RECEIVED OF T M Rural Water District, PO Box 445 Parker, SD 57053

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

Fee for Application for Permit No. 4988-3 to Appropriate Water, to construct works and to put water to beneficial use	700	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**	700	00

By John Hatch

Chief Engineer JOHN HATCH/ms

Layne-Western Company, Inc. A Marley Company

4430 Commercial Avenue · Omaha, Nebraska 68110 · Phone: 402/451-2388

October 28, 1983

Mr. David Holman, P.E.
DeWild Grant Reckart & Associates
315 First Avenue
Rock Rapids, Iowa 51246

REC'D OCT 31 1983

Re: T.M. Rural Water District

Dear Dave:

Enclosed please find two (2) copies of the drillers logs and electric logs for the drilling which we recently completed at the above reference project. As you know, test hole 83-2 proved to contain 36' of very uniform sands and I would recommend that the district consider this location for the construction of the permanent well. I would also recommend that you install 30' of 12" screen from the 156' level up to the 126' level. We also suggest that we gravel pack up to the 120' level with the remaining backfill to be clay and bentonite.

I will order a 30' screen with an 80 slot opening this morning. This I will do verbally and if there is any change we still have today to modify that order.

If you have any questions concerning the above or the enclosed, please contact me at our offices.

Yours very truly,

David L. Johnson

David L. Johnson, P.E.

bjg

Encl.

P.S. Also enclosed are specs on Cook screen

LAYNE MINNESOTA
company

3147 CALIFORNIA ST. NE
MINNEAPOLIS, MN 55418
(612) 781-9553

• WATER WELLS • WATER TREATMENT
• PUMPS • DRILLED PIER FOUNDATIONS

December 12, 1983

Mr. John Hatch, P.E.
Chief Engineer, Water Rights Division
Foss Building
Pierre, South Dakota 57501

Dear Mr. Hatch,

We have an agreement with Layne Western Company, Omaha, Nebr., whereby we work together on various projects in South Dakota. On the T & M Rural Water Project, we discussed this job with them, and allowed them to work under our South Dakota Well Drillers Licence No. 33.

During the construction of the observation wells and the permanent well, our Mr. Dave Daithorp, from the Sioux Falls office, visited the job twice during the construction.

We hope this has not caused any inconvenience with your office on this project. If we can be of further assistance, please feel free to contact us.

Very truly yours,

LAYNE MINNESOTA COMPANY

Warren Lindeke
President

lt

SOUTH Dakota Department of
Water & Natural Resources
Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501

Water Rights Division
605 773-3352

December 14, 1983

RE: TM Water System

Dave Johnson
Layne Western Company
4430 Commercial Ave
Omaha NE 68110

Dear Mr. Johnson:

This will acknowledge receipt of the letter from Mr. Warren Lindeke, Layne Minnesota Company and confirm the telephone conversation December 9, 1983 regarding the working agreement between Layne Western and Layne Minnesota. Mr. Lindeke's letter answers the question I had concerning the TM well drilling and the legal requirement to be licensed to drill water wells in South Dakota.

We have already mailed you an application form to apply for a 1984 South Dakota Well Drillers License. If Layne Western is licensed to drill wells, this will prevent future misunderstandings.

Very truly yours,

JOHN HATCH, Chief Engineer
Water Rights Division

JH:ks

cc: Warren Lindeke
David Holman, DeWild, Grant & Reckert

DeWild Grant Reckert & Associates Co.

Architecture Engineering Planning

315 First Avenue
Rock Rapids, IA 51246
Telephone 712 472 2531

December 15, 1983

Department of Water and Natural Resources
Water Rights Division
Joe Foss Building
Pierre, South Dakota 57501

Attention: John Hatch

Re: TM Rural Water District
DGR Project No. 3260

Dear John:

On behalf of TM Rural Water District, find enclosed two (2) copies of the Application for Permit to Appropriate Water Within the State of South Dakota. In addition to the application, find enclosed the following information.

1. Map showing the general location of the diversion points, 2 copies.

2. Form 2A, 2 copies.

3. Test Well for TM Rural Water District, specification and drawings, 1 copy.

4. Drillers log and electric log on the test well and associated observation wells, 2 copies.

5. Sieve analysis data with recommended gravel pack and screen slot size noted, 2 copies.

6. Gravel pack data, 2 copies.

7. Screen data, 2 copies.

8. Driller's recommendations, 2 copies.

9. A filing fee ($700.00) based upon 3.34 cfs.

I believe that your office has been previously furnished with the drawdown and recovery data associated with the test pumping of the recently constructed well.

At your request, a copy of the feasibility study will be furnished. As discussed with Jim Goodman, the study is based upon the primary water source being located southeast of Parker in the Parker Centerville Outwash.

Denver, CO
Tel: 303 458 0311

Sioux City, IA
Tel: 712 277 3049

Sioux Falls, SD
Tel: 605 339 4157

As a matter of clarification, the amount of water claimed is based upon well field capacity and not anticipated water use. It is estimated that with three wells, the system will generally utilize one well for average day and two wells for peak day. The third well would be utilized as a backup.

Should you have questions or desire additional information, please advise. If not, we will assume that we can anticipate notification regarding publication requirements associated with the February 1984 Water Management Board meeting.

Very truly yours,

DEWILD GRANT RECKERT
& ASSOCIATES COMPANY

David Holman

David E. Holman, P. E.

DEH:mrw
Enclosure

cc: Jim Goodman, DWNR
: System office

REPORT ON APPLICATION NO. 4988-3

TM RURAL WATER SYSTEM

December 22, 1983

Application No. 4988-3, TM Rural Water System, is for 3.34 cubic feet per second of water from the 4.0 cfs authorized under Future Use Permit No. 4979-3. Application No. 4988-3 is for three production wells located in Section 32, T101N, R54W, Section 31, T101N, R54W, Section 8, T100N, R55W and Section 12, T100N, R56W.

Permit No. 4979-3 has the following qualification:

> That prior to making spedific applications to construct works and to put the water reserved by this right to beneficial use, aquifer pump testing must be conducted.

This qualification was met by aquifer testing and the following discussion will cover the geology and hydrology work completed to date.

The aquifer from which TM proposes to withdraw water is an artesian glacial sand and gravel aquifer. Test drilling by the South Dakota Geological Survey, the applicant and DWNR, Water Rights indicates that the aquifer varies in thickness from 0 to 60 feet thick. Eighteen observation wells monitor the un-named aquifer. A plot of water levels from the wells using November 17, 1983 water level readings and a topographic mean sea level elevation indicates that there is essentially no hydraulic gradient in the study area. Typically a 3 to 5 foot gradient is found in artesian aquifers such as this. The lack of a gradient could be attributed to the error in using contour maps instead of surveyed elevations and to affects of Hanson Rural Water System withdrawals.

Water quality from the observation wells indicates an area of good quality water (600 TDS) surrounded by an area of poorer quality water (1200 TDS). A question which should be addressed is whether withdrawal of water by high capacity wells will cause poorer quality water to migrate to the TM well field and the existing Hanson County Rural Water System well field. The velocity of the water movement can be calculated, but a piezometric map (scaled to mean sea level) must be prepared to predict water quality problems. To date surveying has not been completed.

The analysis of data obtained from an aquifer test conducted during November, 1983 shows a value for transmissivity of 20,000 gpd/ft and a storage cofficient of 2×10^{-4}. These values were obtained from a 72 hour test conducted by TM. These values are very close to aquifer values obtained from the Hanson Rural Water System aquifer test conducted five miles to the northwest of TM (Barari, 1979).

The Hanson Rural Water System aquifer test report (Barari, 1979) predicted drawdowns of less than 12 feet at a distance of one mile after five years of pumping. Actual drawdowns have been 9-14 feet after 1.5 years of pumping. This would indicate that boundary conditions exist which were not indicated in the aquifer test data. The water levels in observation wells surrounding the Hanson system appear to be reaching an equilibrium at the present time (hydrographs attached).

Using T=20,000 gpd/ft S = 2×10^{-4} Q = 900 gpm the affects upon the Hanson system (approximately 5 miles distance) by TM pumping after one year would be 14 feet of drawdown. This value is calculated assuming no boundary conditions and no recharge to the system. The addition of the drawdown will drop the artesian head in the aquifer and will cause additional pumping costs.

Conclusions

1. Water reserved by Future Use Permit No. 4979-3 can be developed without impairment of the aquifer supply.

2. A decrease of water quality could occur but with information presently available, predictions of this degradation cannot be made.

3. Qualifications of the future use permit have been met.

4. Observation wells exist to monitor the aquifer.

Gale N Selken

GALE N SELKEN
Hydrologist

Barari, Assad; Pump Test for Hanson Rural Water System, South Dakota Open File Report UR#19, 1979.

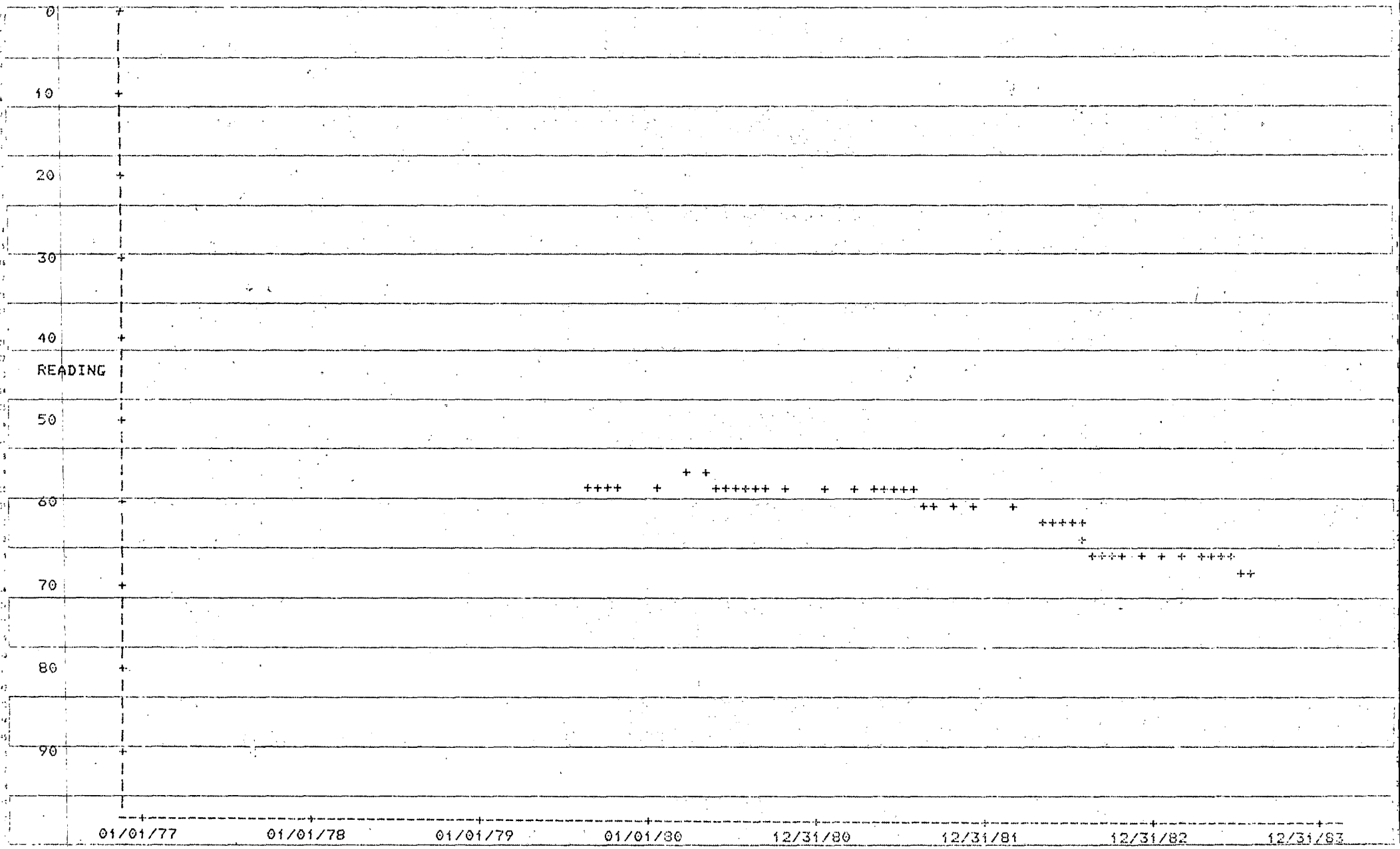
DWNR, Water Rights, Permit No. 4979-3, TM Water System Future Use permit.

DWNR, Water Rights, Observation well records, microfiche and computer files.

DWNR, Water Rights, work file containing maps, cross-sections, type curves and raw aquifer test data, unpublished.

OBS_WELL=MC-79D

PLOT OF READING*DATE SYMBOL USED IS +



NOTE: 7 OBS HIDDEN

UQS0009 - END OF DATA SET

OBS_WELL=MC-79C

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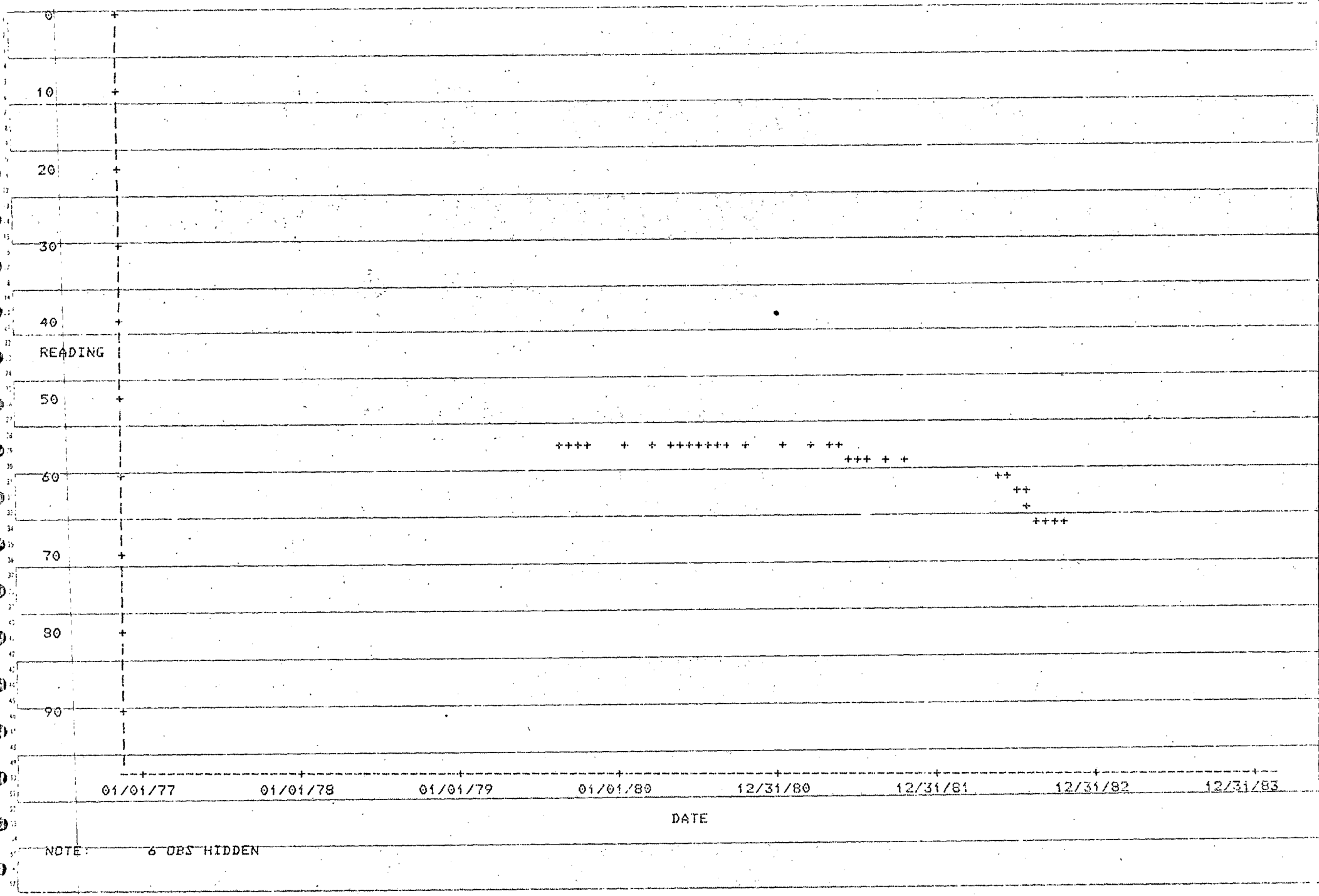
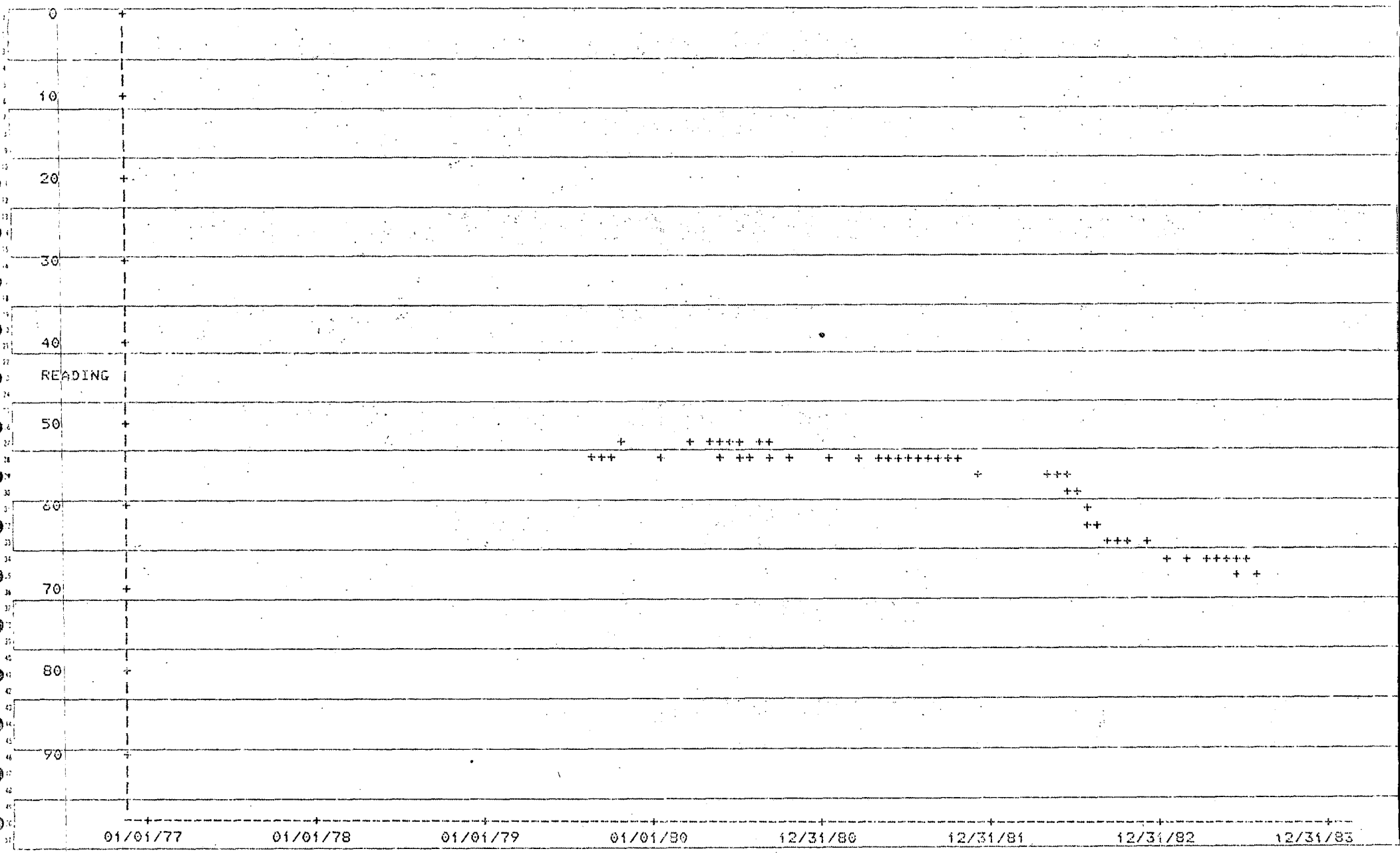


NOTE: 6 OBS HIDDEN

OBS_WELL=MC-79B

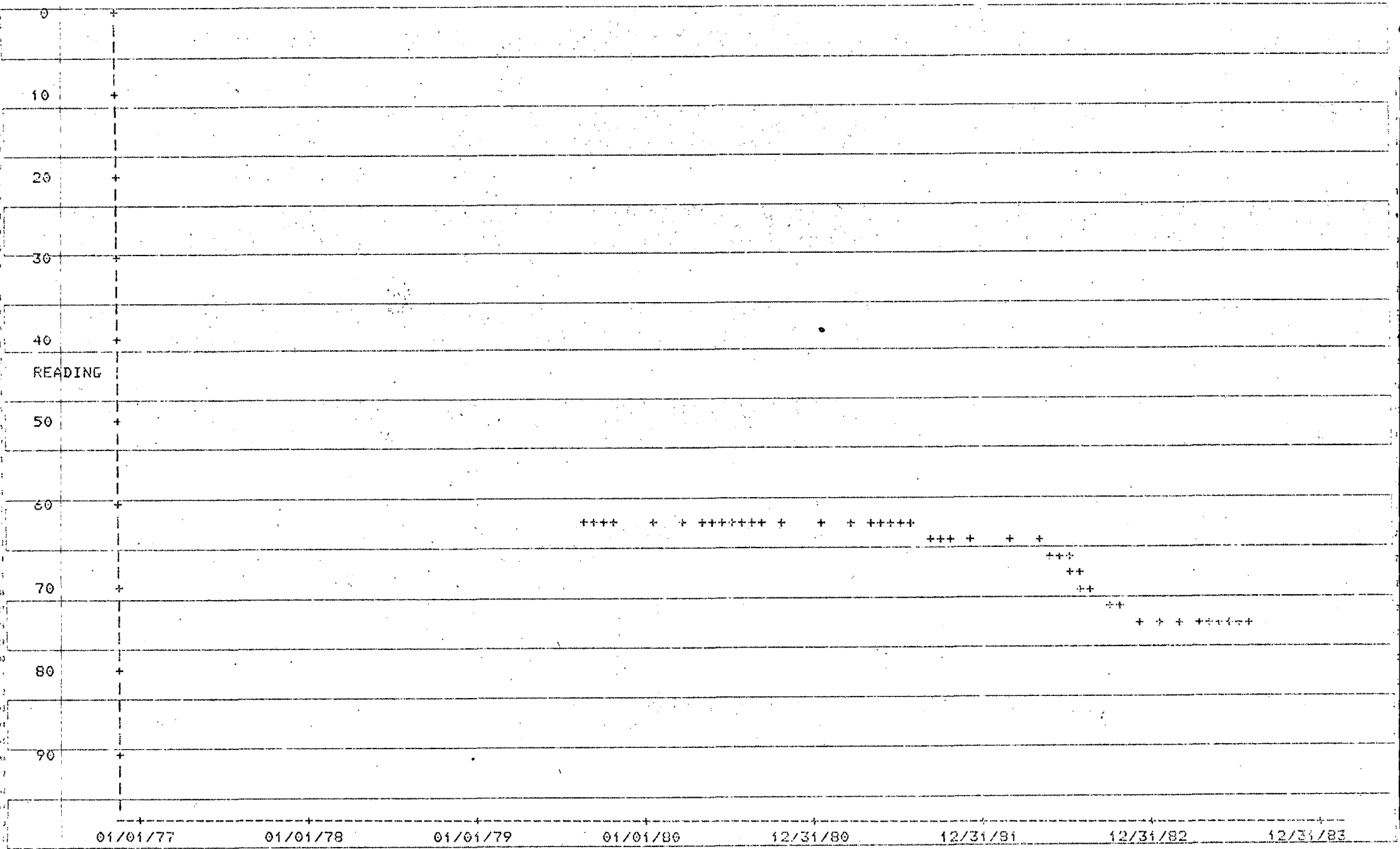
PLOT OF READING*DATE SYMBOL USED IS +



NOTE: 2 OBS HIDDEN

OBS_WELL=MC-79A

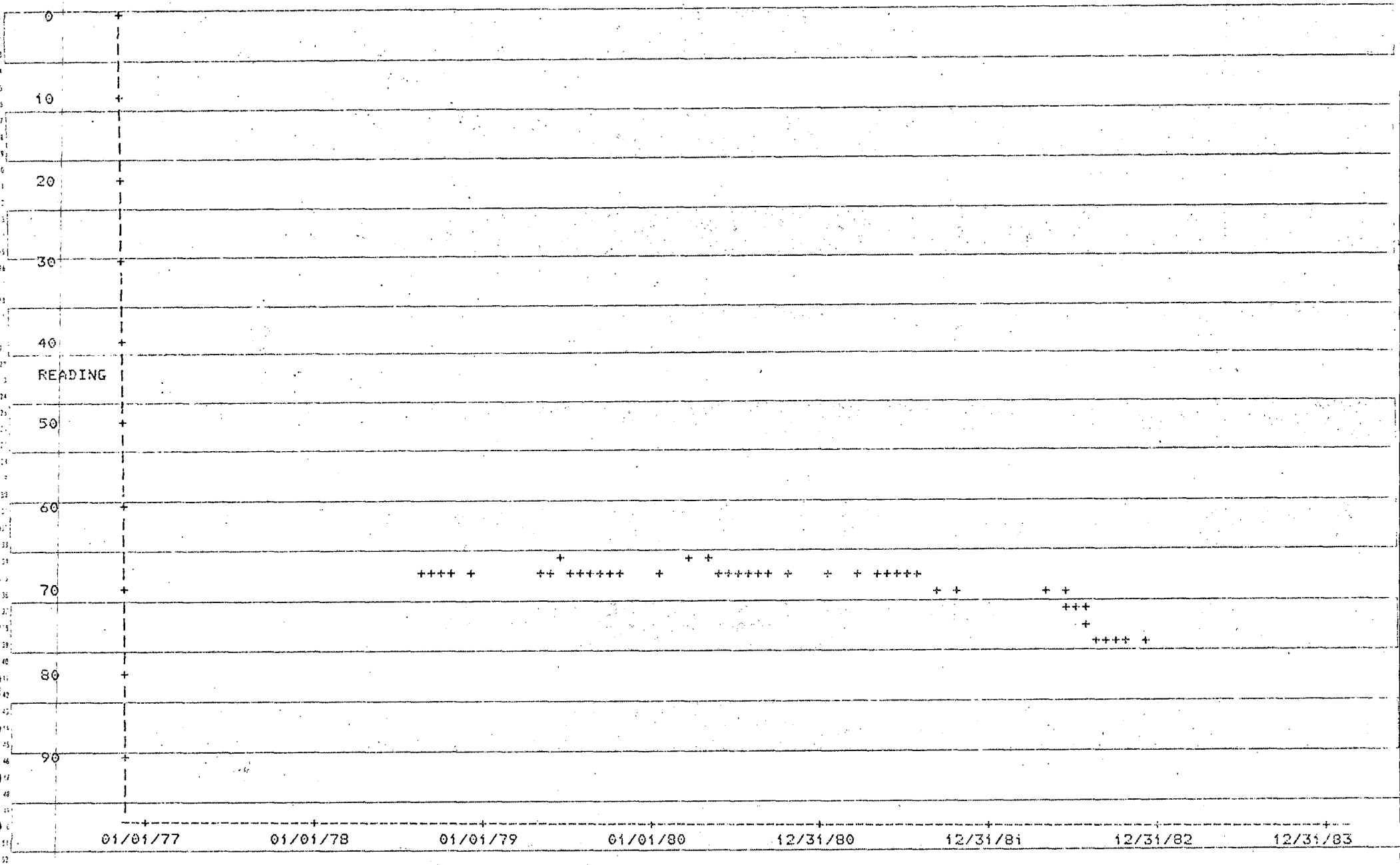
PLOT OF READING*DATE SYMBOL USED IS +



NOTE: 5 OBS HIDDEN

OBS_WELL=MC-77A

PLOT OF READING*DATE SYMBOL USED IS +



NOTE: 8 OBS HIDDEN

RECOMMENDATION OF CHIEF ENGINEER FOR WATER PERMIT

APPLICATION NO. 4988-3, TM Rural Water District

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. 4988-3, TM Rural Water District, PO Box 445, Parker SD.

The Chief Engineer is recommending APPROVAL of Application No. 4988-3 because 1) there is reasonable probability that there is unappropriated water available for the applicant's proposed use, 2) that the proposed diversion can be developed without unlawful impairment of existing rights, 3) that the proposed use is a beneficial use and 4) in the public interest with the following qualifications:

> The wells approved under this Permit are 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 wells having prior water rights.

The attached report is a part of this recommendation.

John Hatch

JOHN HATCH, Chief Engineer
December 29, 1983

No. 4988-3

SOUTH Dakota Department of
Water & Natural Resources
Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501

605 773-3352
Water Rights Division

December 29, 1983

New Era
Box 577
Parker, South Dakota 57053

Dear Editor:

Enclosed is a Notice of Intent to Appropriate Water by the TM Rural Water District Application No. 4988-3, in Turner County, South Dakota. Please publish this notice once each week for two consecutive weeks in your paper. The first publication should be on, or before January 4, 1984.

The APPLICANT MUST VERIFY TO YOU THAT THE NOTICE IS TO BE PUBLISHED, before you make the first publication. The applicant is to pay the cost of publication and should make the necessary arrangements with you to pay these costs.

Please receipt for this notice IMMEDIATELY after first publication attaching thereto a copy of the first publication so that it may be compared with the records. For your convenience, you may use the printed form below for this purpose.

After final publication please complete and mail to this office, the enclosed Form 8 to furnish Proof of Publication. The permit to appropriate water cannot be considered by the Water Management Board until proof of publication has been received.

Very truly yours,

KCL:ms

enclosures

Kevin C. Larson
Water Resources Engineer

cc: applicant

* *

NO.________ Date________

TO: Water Rights Division
Joe Foss Building
Pierre SD 57501

We are in receipt of your letter of ________, 19___ enclosing Notice of Proposed Appropriation of Water, as proposed in Application No.________ which was first published in our issue of ________, 19___. ENCLOSED IS A COPY OF THIS FIRST PUBLICATION.

NAME________

NEWSPAPER________

WNR-807-4/83

No. 4988-3

SOUTH Dakota Department of
Water & Natural Resources
Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501

605 773-3352
Water Rights Division

December 29, 1983

Tribune
Box 250
Bridgewater, South Dakota 57319

Dear Editor:

Enclosed is a Notice of Intent to Appropriate Water by the TM Rural Water District Application No. 4988-3, in McCook County, South Dakota. Please publish this notice once each week for two consecutive weeks in your paper. The first publication should be on, or before January 5, 1984.

The APPLICANT MUST VERIFY TO YOU THAT THE NOTICE IS TO BE PUBLISHED, before you make the first publication. The applicant is to pay the cost of publication and should make the necessary arrangements with you to pay these costs.

Please receipt for this notice IMMEDIATELY after first publication attaching thereto a copy of the first publication so that it may be compared with the records. For your convenience, you may use the printed form below for this purpose.

After final publication please complete and mail to this office, the enclosed Form 8 to furnish Proof of Publication. The permit to appropriate water cannot be considered by the Water Management Board until proof of publication has been received.

Very truly yours,

KCL:ms

enclosures

Kevin C. Larson
Water Resources Engineer

cc: applicant

* *

NO.__________ Date____________________

TO: Water Rights Division
Joe Foss Building
Pierre SD 57501

We are in receipt of your letter of ________, 19__ enclosing Notice of Proposed Appropriation of Water, as proposed in Application No._______ which was first published in our issue of ________, 19__. ENCLOSED IS A COPY OF THIS FIRST PUBLICATION.

NAME____________________

NEWSPAPER____________________

WNR-807-4/83

No. 4988-3

SOUTH DAKOTA Department of
Water & Natural Resources
Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501

605 773-3352
Water Rights Division

December 29, 1983

Courier
RR 2, Box 210
Freeman, South Dakota 57029

Dear Editor:

Enclosed is a Notice of Intent to Appropriate Water by the TM Rural Water District Application No. 4988-3, in Hutchinson County, South Dakota. Please publish this notice once each week for two consecutive weeks in your paper. The first publication should be on, or before January 4, 1984.

The APPLICANT MUST VERIFY TO YOU THAT THE NOTICE IS TO BE PUBLISHED, before you make the first publication. The applicant is to pay the cost of publication and should make the necessary arrangements with you to pay these costs.

Please receipt for this notice IMMEDIATELY after first publication attaching thereto a copy of the first publication so that it may be compared with the records. For your convenience, you may use the printed form below for this purpose.

After final publication please complete and mail to this office, the enclosed Form 8 to furnish Proof of Publication. The permit to appropriate water cannot be considered by the Water Management Board until proof of publication has been received.

Very truly yours,

Kevin C. Larson
Water Resources Engineer

KCL:ms

enclosures

cc: applicant

* *

NO.______________ Date______________________________

TO: Water Rights Division
Joe Foss Building
Pierre SD 57501

We are in receipt of your letter of __________, 19__ enclosing Notice of Proposed Appropriation of Water, as proposed in Application No.________ which was first published in our issue of __________, 19__. ENCLOSED IS A COPY OF THIS FIRST PUBLICATION.

NAME______________________________

NEWSPAPER______________________________

WNR-807-4/83

DWRN 806-7/83

WP ~~or WR~~ No. **4988-3**

Instruction to Newspaper - Publish first publication of the following Notice on or before **January 4, 1984** with 2nd publication 1 week later. The applicant is responsible for payment.

NOTICE OF HEARING on Application No. **4988-3** to Appropriate Water ~~and/or to Amend Water Permit or Water Rights No~~. _____

Notice is hereby given that **the TM Rural Water District** whose mailing address is **POB 445, Parker**, South Dakota has made an application for a permit

to appropriate 3.34 cubic feet per second from groundwater reserved by Future Use Permit No. 4979-3 from four wells approximately 159' deep, the points of diversion to be located as follows: (1) SW¼, Section 32, Twp 101N, Range 54W; (2) Section 31 Twp 101N, Range 54W except the W½SE¼: (3) Section 8 Twp 100N, Range 55W; (4) Lot 2 except 0.51 acres and Lot 3, less Lot A of 2 and 3 and Lot 4, Section 12, Twp 100N, Range 56W. Said water to be used for providing water supplies for a Rural Water System.

Pursuant to SDCL 46-2A-2 the Chief Engineer of the Water Rights Division recommends **Approval** of Application No. **4988-3** because 1) unappropriated water is available, 2) will be no unlawful impairment of existing rights, 3) is beneficial use of water and 4) is in the public interest.

This application will be considered by the Water Management Board at **the Civil Defense Room, basement, Capitol Building, Pierre, SD February 15** 19**84** at 10:00 am.

The recommendation of the Chief Engineer is not final or binding upon the Board and the Board is authorized to make a determination on this 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 **February 3, 1984**. The petition may be informal, but it must include a statement describing the petitioners interest in the application, the reason 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, 46-5-1 thru 46-5-16, 46-5-24, 46-5-25, 46-5-30.2, 46-5-31; 46-2A-1 thru 46-2A-10, 46-2A-12; (~~ground~~) 46-6-3, 46-6-3.1, 46-6-6.1, 46-6-10, 46-6-13, 46-6-14; (~~future use~~) 46-5-38 thru 46-5-40; (~~transfer lands~~) ~~46-5-30.4, 46-5-33 thru 46-5-35; (10,000 AFA) 46-5-20.1, 46-5-8.1~~; and Board Rules ARSD 74:02:01:01 thru 74:02:01:15; (~~future use~~) 74:02:01:24 thru 74:02:01:25; (~~10,000 AFA~~) ~~74:02:01:15:02 thru 74:02:01:15:05~~.

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 the 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, DWNR, 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 any person who has filed a petition to oppose or support the application. The request for extension must be filed with the Chief Engineer by **February 3, 1984**.

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

No. 4988-3

PROOF OF PUBLICATION

STATE OF SOUTH DAKOTA)
) ss.
County Hutchinson)

I, Glenn Gering he

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

Water was taken from the Freeman Courier

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

City of Freeman

County of Hutchinson and State of South Dak that the said notice was published in said newspaper on the follo two dates:

January 4, 1984

January 11, 1984

Glenn Gering
(Signature)

Publisher
(Title)

Jan. 12, 1984
(Date Signed)

JAN 1984
DIVISION OF
WATER RIGHTS
Pierre, SD

Cost of Printing: $42.37

Notice of Hearing on Application No. 4988-3 to Appropriate Water

Notice is hereby given that the TM Rural Water District whose mailing address is Post Office Box 445, Parker, South Dakota, has made an application for a permit to appropriate 3.34 cubic feet per second from groundwater reserved by Future Use Permit No. 4979-3 from four wells approximately 159 feet deep, the points of diversion to be located as follows: (1) SW¼, Section 32, Twp 101N, Range 54W; (2) Section 31 Twp 101N, Range 54W except the W½SE¼; (3) Section 8 Twp 100N, Range 55W; (4) Lot 2 except 0.51 acres and Lot 3, less Lot A of 2 and 3 and Lot 4, Section 12, Twp 100N, Range 56W. Said water to used for providing water supplies for a Rural Water System.

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This application will be considered by the Water Management Board at the Civil Defense Room basement, Capitol Building, Pierre, South Dakota, February 15, 1984, at 10:00 A.M.

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2jan11

Affidavit of Publication

STATE OF SOUTH DAKOTA)
) ss.
COUNTY OF TURNER)

EARL J. BORMANN

of said County and State, being duly sworn, on his oath says:

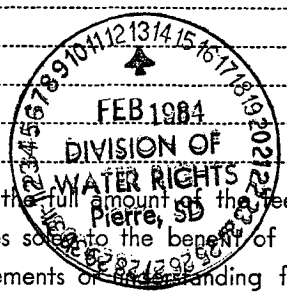
THE NEW ERA is a weekly newspaper of general circulation, printed and published in Parker, in Turner County and State of South Dakota by Earl J. Bormann, and has been such a newspaper during the times hereinafter mentioned; that the said newspaper is a legal newspaper, that is has a bonafide circulation of more than 200 copies weekly, that it has been published within said county of Turner in the English language for more than fifty-two successive weeks next prior to the publication of the notice hereinafter mentioned, and has been printed during said period and at the present time, in whole or in part in an office maintained at the said place of publication; and that I, the undersigned, am

owner--editor

of said newspaper, in charge of the advertising department thereof, and have personal knowledge of all facts stated in this affidavit; that the advertisement headed Notice of Hearing On Application No. 4988-3 To Appropriate Water

a printed copy of which is hereto attached, was printed and published in the said newspaper for two times; that said notice was published in the issues of said newspaper on the dates as follows, to-wit:

The first publication being made on Thurs., January 5th, 1984;
the second publication on Thursday, January 12th, 1984;
the third publication on ....., 19.....;
the fourth publication on ....., 19.....;
the fifth publication on ....., 19.....;
the sixth publication on ....., 19.....;
and the last publication on ....., 19.....;



that $ 37.00, the full amount of the fee charged for publication of the annexed notice, insures solely to the benefit of the publishers of the said newspaper; that no arrangements 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 person whomsoever.

Earl J. Bormann

Subscribed and sworn to before me this 12th day of January, 19 84

Harry J. Munkvold

Notary Public, Turner County, South Dakota.

HARRY J. MUNKVOLD
Notary Public, Turner County, S.D.
My Commission Expires: March 30, 1990

NOTICE OF HEARING
on Application No. 4988-3
to Appropriate Water

Notice is hereby given that The TM Rural Water District, whose mailing address is P.O. Box 445, Parker, South Dakota has made an application for a permit to appropriate 3.34 cubic feet per second from groundwater reserved by Future Use Permit No. 4979-3 from four wells approximately 159 feet deep, the points of diversion to be located as follows: (1) SW¼, Section 32, Twp 101N, Range 54W; (2) Section 31, Twp 101N, Range 54W except the W½SE¼; (3) Section 8, Twp 100N, Range 55W. (4) Lot 2 except 0.51 acres and Lot 3, less Lot A of 2 and 3 and Lot 4, Section 12, Twp 100N, Range 56W. Said water to be used for providing water supplies for a Rural Water System.

Pursuant to SDCL 46-2A-2 the Chief Engineer of the Water Rights Division recommends Approval of Application No. 4988-3 because 1) unappropriated water is available, 2) will be no unlawful impairment of existing rights, 3) is beneficial use of water and 4) is in the public interest.

This application will be considered by the Water Management Board at the Civil Defense Room, basement, Capitol Building, Pierre, SD, February 15, 1984 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 make a determination on this 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 Chief Engineer by February 3, 1984. The petition may be informal, but it must

Publication Fees $ 37.00

Received Payment,

petitioners interest in the application, the reason 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.

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(2tc41 — January 5 & 12, 1984)

PRINTER'S AFFIDAVIT OF PUBLICATION

IN ..... COURT

STATE OF SOUTH DAKOTA)
) ss.
COUNTY OF TURNER)

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Filed in the ..... on the

..... day of ....., 19....

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Attorney for .....

Publication Fee - - - - - $.....

Notary Fee - - - - - - $.....

Total - - - - - - $.....

Received Payment:

.....

PUBLIC NOTICE

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Printer's Affidavit of Publication

AFFIDAVIT OF PUBLICATION

STATE OF SOUTH DAKOTA)
)ss.
COUNTY OF McCOOK)

DANNY SCHWANS, of said County and state, being first duly sworn on his oath, says THE BRIDGEWATER TRIBUNE is a weekly newspaper of general circulation, printed and published in Bridgewater, in McCook County, and State of South Dakota, by himself, and has been such newspaper during the times hereinafter mentioned; that the said newspaper is a legal newspaper, that it has a bonafide circulation of more than 200 copies weekly, that it has been published within said County of McCook for more than fifty-two successive weeks prior to the publication of the notice hereinafter mentioned and has been printed during said period and at the present time, in whole in an office maintained at said place of publication; and that I, the undersigned, am publisher of said newspaper, in charge of the advertising department thereof, and have personal knowledge of all facts in this affidavit; that the advertisement headed Public Notice Notice of Hearing on application No. 4988-3 To appropriate Water

a printed copy of which is hereto attached, was printed and published in the said newspaper for 2 weeks; that said notice was published in the issues of said paper on the dates as follows, to-wit: The first publication being made on

January 5, 19 84;

the second publication on January 12, 19 84;

the third publication on ....., 19.....;

the fourth publication on ....., 19.....;

the fifth publication on ....., 19.....;

the sixth publication on ....., 19.....;

and the last publication on ....., 19.....;

that $ 4.95 being the full amount of the fees for publication of the annexed notice, insures solely to the benefit of the publisher of the said newspaper; 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 person whomsoever.

Dorcas Koerner

Subscribed and sworn to before me this 10th day of February, 19 84.

Donna M. Pressler

Notary Public, McCook County.

FEB 1984
DIVISION OF
WATER RIGHTS
Pierre, SD

SOUTH DAKOTA GEOLOGICAL SURVEY
Science Center
University of South Dakota
Vermillion, South Dakota 57069
(605) 624-4471

4983

2-16-84

John -

I have enclosed a copy of the letter sent to TM summarizing the results of the groundwater study to date.

Let us know if you have any questions or comments.

Comment:
#2. continued drawdown can be attributed to increased pumpage by Hanson Rural Water

Dean

DEPARTMENT OF WATER AND NATURAL RESOURCES
SOUTH DAKOTA GEOLOGICAL SURVEY
Science Center, USD
Vermillion, SD 57069
(605) 624-4471

February 16, 1984

Mr. Bob Milbauer, Chairman
TM Rural Water District
P. O. Box 445
Parker, SD 57033

Dear Bob:

The following is a summary of the oral report that was presented to the TM Rural Water District Board of Directors and your engineers on February 7, 1984, regarding the results of the aquifer test, current findings, and status of the ground-water study in the Dolton area.

On December 2, 1983, an aquifer test was conducted on a 160-foot deep well located 1 mile east of Dolton. The test well was pumped at the rate of 950 gallons per minute for a period of 72 hours. Water level measurements were made during the pumping and recovery phases on a regular basis in eight observation wells within a 1-mile radius of the aquifer test site. By the end of the pumping period a total of 40 feet of drawdown had occurred in the pumping well, while 15 feet of drawdown was observed in observation wells one-half mile away and 9 feet of drawdown occurred in observation wells at a distance of 1 mile from the test site. By January 21, 1984, the water level in the pumped well had recovered to within 0.95 feet of the original pre-pumping level.

Analysis of the drawdown data indicates that the aquifer has the capability to transmit and yield the required amount of water for TM's purposes (approximately 500 gpm average day use). Based on the available data, the aquifer thins rapidly to the south, east, and west and it terminates within about 2 miles in those directions. North and northwest of the test site, the aquifer thickens and is present at least 3 miles to the north and approximately 5 miles to the northwest. However, the entire areal extent of the aquifer has not yet been delineated to the north and northeast. Termination of the aquifer in close proximity to the well (boundary conditions) will cause more drawdown in the aquifer than would otherwise be expected. This means that significant drawdowns may be expected to occur in the aquifer under long-term high-capacity pumping rates.

Water samples were collected before, during, and after the test from the test well and from two domestic wells located one-half mile east (Ray Branson well) and three-fourths of a mile south (by railroad tracks) of the test site. Chemical analyses of the samples indicate no significant change in water quality

during the 72 hours of pumping.

Visual examination of discharge water during pumping showed a persistent yellowish tint to the water. The water also emitted a strong "rotten-egg" odor near the discharge pipe which indicates the presence of hydrogen sulfide gas.

Based on current available data and extent of analysis the following preliminary conclusions and observations can be made as to the suitability of the aquifer for the proposed development by TM Rural Water District.

1. Based on the aquifer test analysis, the aquifer has the capability to yield the quantities of water requested by the TM Rural Water District.

2. The drawdowns recorded during the aquifer test indicate the presence of aquifer boundaries, thus significant drawdowns may be expected by pumping a high-capacity well in the area over time. Drawdown data from observation wells around the Hanson Rural water System (located in the same aquifer about 5 miles to the northwest of the test site) show a continuing drop in the water levels over the past year and a half. This indicates that the cone of depression has not yet intercepted a source of recharge equal to discharge from the aquifer. Similar results may be expected for TM's area of the aquifer. The impact on nearby domestic wells in the area is the object of ongoing analysis.

3. The overall quality of ground water in the portion of the aquifer tested is excellent when compared with other confined glacial aquifers in eastern South Dakota. As was discussed at a previous TM Board meeting, the quality of ground water in portions of the aquifer underlying the Dolton area is significiantly better than the ground water in the surficial Parker-Centerville aquifer.

4. According to preliminary calculations, the water quality of wells developed for TM's use, pumping at a rate of 500 gpm (average day use), may show some gradual degradation within a 5-year period after development due to the presence of poorer quality water in nearby areas of the aquifer. The TM aquifer test well water has a total dissolved solids (TDS) of 600 parts per million (ppm), while Ray Branson's domestic well, located one-half mile east, has a TDS of around 1200 ppm. An observation well installed for the ground-water study located 1 mile south of the test site has a TDS of 2400 ppm.

5. The source of the yellow tint of the water has not yet been determined. It is not known what impact the yellow tint may have on the desirability of the water for use by the Rural water System. A set of water samples collected from the Hanson Rural water System wells and analyzed by the U.S. Geological Survey did not identify the cause of the tint color. The Office of Drinking water, Department of Water and Natural Resources in Pierre, has collected a second set of samples from a domestic well three-fourths of a mile south of the test site and also from the Hanson Rural water System wells. These will be analyzed by the U.S. Geological Survey and the EPA lab in Denver for bacterial and total organic carbon content. Results of these analyses will not be known for approximately one month. It is also suspected that some quantities of methane gas may be found in the aquifer since some methane is present in the Hanson Rural water System wells. The presence of the methane has not caused any apparent problems for the Hanson Rural Water System.

Evaluation of the data is continuing and the final report containing maps and data will be forwarded after completion. If you have any questions relative to the preliminary conclusions or observations, or desire further information, please let us know

Sincerely,

Dean E. Holly

Dean E. Holly
Hydrogeologist

For the State Geologist

DH:co
cc: John Hatch
Dave Holman

South Dakota Department of
Water & Natural Resources
Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501

4988-3

March 15, 1984

TM Rural Water District
PO Box 445
Parker, South Dakota 57053

Dear Sir:

Enclosed herewith is your Water Permit No. 4988-3 as approved by the Water Management Board authorizing you to construct your water diversion system and the water to beneficial use, not exceeding the limits as specified in said Water Permit No. 4988-3.

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 acquistion of a Water Right.

Very truly yours,

John Hatch

JOHN HATCH, Chief Engineer
Water Rights Division

JH: ms

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.

No. _____

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

Post Office _____

Date June 19, 1985

TO: Water Rights
Joe Foss Building
Pierre, South Dakota 57501

Dear Sirs:

This is to inform you that I have completed the construction of the water diversion system and/~~or~~ that I have put the water to beneficial use ~~*to maximum extent it is going to be used~~, not exceeding the amounts as specified in Water Right No. 4988-3 .

Water Right Permit No. 4988-3states that the diversion system is to be constructed by Feb. 15, 1989 , and that the water is put to beneficial use by Feb. 15, 1993 .

The diversion system was completed on June 13, 1985 . Applying the water to beneficial use was completed on July 1985 .

You may schedule an inspection so that ~~the Certificate of Construction and/or~~ the Water License may be issued, thus completing my acquisition of a water right.

Robert Milbauer
(Signature)

* Initial operation of the water treatment plant was started on June 13, 1985 with initial water sales anticipated in July 1985. Full operation will not be realized until this fall.

SOUTH DAKOTA Department of
Water & Natural Resources

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

Water Rights Division
605 773-3352

January 17, 1986

N O T I C E

TO: Lin Bleeker, Manager
Hanson Rural Water System
Box 324
Emery SD 57332

FROM: John Hatch, Chief Engineer
Water Rights Division

SUBJECT: Amendment of Water Permit No. 4432-3

Notice is hereby given that the Water Management Board will consider adding the following qualifications to Water Permit No. 4432-3:

1. That the total annual appropriation under this Permit is limited to 435.5 acre feet (142 million gallons)

2. That the Hanson Rural Water System submit an annual report of water use to the Chief Engineer of the Water Rights Division.

The hearing to consider amendment of the above qualifications to Water Permit No. 4432-3 will be held March 6, 1986 at 10:00 am in Room 216, Joe Foss Building, 523 E Capitol, Pierre SD.

January 31, 1979, a hearing was held by the Water Management Board to consider Future Use Permit Application No. 4349-3 submitted by Hanson Rural Water System. At the hearing held January 31, 1979, testimony was given stating that the system would require an average annual withdrawal rate of 270 gallons per minute. An average annual withdrawal rate of 270 gpm is equivalent to 435.5 acre feet per year. The Findings of Fact, Conclusions of Law and the Final Decision adopted by the Board August 13, 1979 included the qualification to limit the Rural Water System to 435.5 acre feet per year. Proposed qualifications No. 1 & 2 listed above should have been included on Water Permit No. 4432-3 to be consistent with Future Use Permit No. 4349-3.

The hearing will be conducted pursuant to the provisions of SDCL 46-1-14, 46-2-9, 46-2-11, 46-2-17. This is a contested case hearing pursuant to procedures contained in SDCL 1-26.

Following the hearing the Water Management Board can:

1. Add Qualifications No. 1 and/or 2,
2. Postpone any action,
3. Take no action.

This hearing is an adversary proceeding. The permit owner 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 the State Supreme Court as provided by law.

JH:KL:ks

Water Rights Division - DWNR

Conversation or File Documentation

File No. TM RWS 4988-3

NAME OF PERSON OR FILE: KENNETH HOFER

ADDRESS: BOX 67 A DOLTON S.D. COUNTY TURNER

DATE: 5/13/87 TELEPHONE

RE: WELL PROBLEM (DOLTON AQUIFER)

COMMENTS:

WELL LOCATION - IN SECTION 18 T100N R 55W TURNER County JUST SOUTH OF THE TOWN OF DOLTON.

MR. HOFER SAID HE HAD WELL PROBLEMS LAST WEEK AND HAD TO GET SOMEONE TO LOWER HIS PUMP. HE PUMPED AIR [illegible] AND THEN ADDED A LENGTH OF PIPE TO HIS SUBMERSIBLE. HE THOUGHT THE WELL WAS 150' DEEP.

I GOT HIS DATA FOR 6 NEARBY OBS WELLS, A SKETCH MAP AND WELL LOGS OF SAME. I ALSO TOLD HIM THAT WE WERE SEEING DRAWDOWN IN THIS AQUIFER DUE TO PUMPING BY TM. HE SEEMED SATISFIED WITH THE EXPLANATION AND I TOLD HIM TO CONTACT US IF HE HAS ANY QUESTIONS. HE ALSO THOUGHT THERE WAS A WELL IN TOWN ALSO HAVING THE SAME PROBLEMS.

HE WAS ASKING FOR GALE SCHEIN. APPARENTLY HE HAD GALE'S CARD.

File in Permit or other file as necessary. Use to document conversations and what the other party was told; why action or decision was made.

NAME: JAS.

4/82

SOUTH Dakota Department of
Water & Natural Resources
Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501-3181

July 21, 1988

Larry Ernster
TM Rural Water District
PO Box 445
Parker SD 57053

Dear Mr. Ernster:

This letter is in response to our phone conversation on July 20, 1988 to change a well location specified on Permit No. 4988-3 from 12-T100N-R56W to the SW1/4 25-T101N-R55W. Currently, the TM rural water system has 3 wells, 2 wells located in section 8-T100N-R55W and 1 well located in section 31-T101N-R54W. The well located in section 31 may be abandoned due to well construction problems and methane problems.

I found during a review of the permits that the proposed well location in the SW1/4 section 25-T101N-R55W is not included in the future use area specified on Permit No. 4979-3. Permit No. 4988-3 appropriates 3.34 cfs (reserved by Future Use Permit No. 4979-3) from 4 wells to be located in the future use area included on Permit No. 4979-3. Permit No. 4988-3 can not be amended to change the well location to an area not included on Future Use Permit No. 4979-3. The well location can not be changed because a priority date is assigned to the Future Use Permit No. 4979-3 for a specific amount of water and location from which water can be diverted. The location in section 25 is outside the area included on Permit No. 4979-3.

An application for a new permit can be submitted for a well or wells to be located in the SW1/4 section 25-T101N-R55W. However, the application will have a new priority date and will not be an amendment to Permit No. 4988-3. Enclosed are application forms with an instruction sheet.

Please contact me if you have any questions.

Sincerely,

Ron Duvall
Natural Resources Engineer
605 773-3352

enc.

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South Dakota

RECOMMENDATION OF CHIEF ENGINEER FOR AMENDMENT OF WATER PERMIT NO. 4988-3, TM Rural Water District

The following is the recommendation of the Chief Engineer, Water Rights Division, Department of Water and Natural Resources concerning Amendment of Water Permit Application No. 4988-3, TM Rural Water District, PO Box 445, Parker SD.

The Chief Engineer is recommending AMENDMENT of Permit No. 4988-3 with the following qualification:

1. That maximum withdrawals of water under Water Permit No. 4988-3 are limited on a temporary basis to 600 acre-feet annually until December 31, 1992.

2. That the TM Rural Water District report to the Chief Engineer annually the amount of water withdrawn each year from the Dolton Aquifer.

See the attached report for additional information.

JOHN HATCH, Chief Engineer
June 15, 1989

SOUTH Dakota Department of
Water & Natural Resources
Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501-3181

July 5, 1989

NOTICE

TO: Keith Schroeder, Chairman
Hanson Rural Water System
Box 324
Emery SD 57332

FROM: John Hatch, Chief Engineer
Water Rights Division
605 773-3352

SUBJECT: Review of Future Use Water Permit No. 4349-3 and Amendment of Water Permit No. 4432-3

Consideration of the seven year review of Future Use Permit No. 4349-3 and amendment of Water Permit No. 4432-3 were deferred by the Water Management Board on March 6, 1986 (see enclosed correspondence). The Board deferred action at the request of Lin Bleeker to allow time for the rural water system to submit additional applications.

The rural water system has submitted Water Permit Application No. 4432A-3 to increase the annual water use and to add another production well. Therefore, Future Use Permit No. 4349-3 and Permit No. 4432-3 are rescheduled for Board consideration with Application No. 4432A-3. The hearing on Permit Nos. 4349-3, 4432-3 and Application No. 4432A-3 is scheduled for 10:00 am on July 26, 1989, at the Hilton Inn, Deerfield Room, 445 Mt. Rushmore Road, Rapid City SD.

Applicable provisions of the notice of hearing published on January 23 and 30, 1986 in the Mitchell Daily Republic and the notice of hearing dated January 17, 1986 (copies enclosed) will still apply at this hearing.

cc: John Haak, Assistant Attorney General

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South Dakota

SOUTH Dakota Department of
Water & Natural Resources
Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501-3181

July 7, 1989

NOTICE

TO: Larry N Ernster
TM Rural Water District
PO Box 445
Parker SD 57053

FROM: John Hatch, Chief Engineer
Water Rights Division
605 773-3352

SUBJECT: Amendment of Water Permit No. 4988-3, TM Rural Water District

Notice is given that the Water Management Board will consider amending Water Permit No. 4988-3 with the following qualifications:

1) That maximum withdrawals of water under Water Permit No. 4988-3 are limited on a temporary basis to 600 acre-feet annually until December 31, 1992.

2) That the TM Rural Water District report to the Chief Engineer annually the amount of water withdrawn each year from the Dolton Aquifer.

The water level in the Dolton aquifer has been declining since the early 1980's. The proposed amendment to Permit No. 4988-3 is to limit increases in annual use from the Dolton aquifer to determine if the water level will stabilize. The hearing to consider amending Permit No. 4988-3 will be held at 10:00 am on July 26, 1989, Deerfield Room, Hilton Inn, 445 Mt. Rushmore Road, Rapid City SD. The agenda time is an estimate. The actual time of hearing may be later than 10:00 am due to prior agenda items. The time of the hearing may be delayed upon receipt of a written request for a delay. The written request for a delay must be received by July 21, 1989.

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This is a contested case hearing pursuant to procedures contained in SDCL 1-26. The Board has legal authority and jurisdiction to consider this matter pursuant to SDCL 49-2-9 and 46-2-11 and the hearing will be held pursuant to SDCL 46-1-14 and 46-2-17.

After all evidence is taken at the hearing, the Board may issue a decision to: 1) add qualification No. 1 and/or No. 2, 2) defer action or 3) take no action. This hearing is an adversary proceeding. Any party has the right to be present or to be represented by a lawyer. 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.

cc: John Haak, Assistant Attorney General
Hanson Rural Water System

CERTIFICATION

I hereby certify that on July 7, 1989 I have personally deposited with the U.S. Mail postage prepaid envelopes containing a Notice of Amendment of Water Permit No. 4988-3 addressed as follows:

Larry N Ernster
TM Rural Water District
PO Box 445
Parker SD 57053

Hanson Rural Water System
PO Box 324
Emery SD 57332

Karen Schlaak
KAREN SCHLAAK
Senior Secretary

STATE OF SOUTH DAKOTA)
) SS
COUNTY OF HUGHES)

Sworn to, before me, this 10th day of July, 1989.

JOHN HATCH
SEAL NOTARY PUBLIC SEAL
SOUTH DAKOTA
My Commission Expires Apr. 1, 1993

John Hatch
Notary Public

LAW OFFICES
ZIMMER AND DUNCAN
Law Building
P.O. Box 547
PARKER, SOUTH DAKOTA 57053-0547

JOHN H. ZIMMER
DENNIS L. DUNCAN
PATRICIA A. CARLSON
THOMAS J. DEADRICK

Area Code 605
Telephone 297-4446
FAX #
605-297-4488

Julv 11, 1989

Mr. John Hatch
Chief Engineer
Water Rights Division
SD Department of Water and Natural Resources
Joe Foss Building
Pierre, South Dakota 57501-3181

Dear John:

In re: TM Rural Water District
Amendment of Water Permit No. 4988-3

I am in receipt of your July 7 Notice concerning the proposed amendment of Water Permit No. 4988-3. I expect that TM Rural Water District will vigorously oppose this action. In order to formulate our decision however, I would ask that I be provided with the following information:

(1) A copy of all hydrology studies in the possession of the Department of Water and Natural Resources concerning the Dolton Aquifer.

(2) A copy of all hydrology studies known to the Department of Water and Natural Resources but not in their possession concerning the Dolton Aquifer.

(3) Please state whether a notice to limit withdrawal in the Dolton Aquifer was sent to any other person or party including but not limited to Hanson Rural Water.

(4) If the answer to the preceding inquiry was in the affirmative, please provide a copy of said Notice.

I will evaluate our position concerning requesting a delay in the

hearing and will make a timely request for delay if that becomes necessary.

Sincerely yours,

Dennis Duncan

DENNIS L. DUNCAN

yle

CC: Larry Ernster, Manager
Irvin Dykstra, President Board of Directors

SOUTH Dakota Department of
Water & Natural Resources
Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501-3181

July 13, 1989

Mr. Dennis L. Duncan
Law Building
P.O. Box 547
Parker, SD 57053-0547

re: request for information concerning Dolton aquifer

Mr. Duncan:

I am enclosing copies of reports concerning the Dolton aquifer as per your request. These include:

1. Selken, Gale, 1983 Report on Application No. 4979-3 TM Rural Water System.

2. Selken, Gale, 1983 Report on Application No. 4988-3 TM Rural Water System.

3. Selken, Gale, 1988 Water Permit Application No. 5195-3 Hanson Rural Water System Inc.

4. Selken, Gale, 1988 Report on Application No. 4988A-3 TM Rural Water District.

The following reports or draft of reports can be obtained from:

Department of Water and Natural Resources
South Dakota Geological Survey
Science Center USD
Vermillion, SD 57069

1. Barari, Assad, and Cripe, Carl, 1977, Ground-water study for the Hanson Rural Water System.

2. Barari, Assad, 1979, Pump test for the Hanson Rural Water System.

3. Holly, Dean 1984, Letter to Bob Milbauer, Chairman TM Rural Water District; summary of oral report concerning aquifer test, current findings and status of ground-water study in Dolton area.

4. Holly, D.E., 1986, Progress report: Ground-water movement within till in the vicinity of Dolton, South Dakota.

The Geological Survey may have additional data concerning the Dolton aquifer in the preliminary data for Turner County study.

If you have any questions please contact me.

Sincerely,

Gale N Selken P.E.

Gale N. Selken P.E.
Hydrologist III

LAW OFFICES
ZIMMER AND DUNCAN
Law Building
P.O. Box 547
PARKER, SOUTH DAKOTA 57053-0547

JOHN H. ZIMMER
DENNIS L. DUNCAN
PATRICIA A. CARLSON
THOMAS J. DEADRICK

Area Code 605
Telephone 297-4446
FAX #
605-297-4488

July 18, 1989

Mr. John Hatch
Chief Engineer
Water Rights Division
SD Department of Water and Natural Resources
Joe Foss Building
Pierre, South Dakota 57501-3181

Dear John:

In re: TM Rural Water District
Amendment of Water Permit No. 4988-3

Please be advised that the TM Rural Water District would request that they be granted a continuance of the hearing scheduled for July 26, 1989 until a date in the future to be agreed upon by the parties. We have materials that we need to have reviewed by consultants and would not have our case prepared by the 26th. Please advise whether the Water Management Board would grant this request.

Conditioned on agreement to a compromise on the temporary acre feet limitation I believe TM Rural Water District would agree that they would report to the Chief Engineer annually the amount of water withdrawn each year from the Dolton Aquifer. It is our contention however that the temporary limitation of 600 acre feet of water to be withdrawn from the Aquifer would unreasonably limit future growth by TM Rural Water. As the Board is aware rural water system water usage traditionally grows as the system matures. Even without added user projects the proposed limitation unfairly limits the growth potential of TM.

On behalf of the Board I would inquire whether the 600 acre feet maximum is a negotiable figure. TM may be in a position to negotiate a temporary acre feet limitation maximum with the Water Management Board without the necessity for a contested hearing if there is room for compromise in your figure.

Finally, I am in receipt of the materials you submitted to me on July

13, 1989, however you did not submit an answer to my question concerning whether a notice to limit withdrawal was sent to any other person or party including but not limited to Hanson Rural Water.

Sincerely yours,

DENNIS L. DUNCAN

yle

SOUTH Dakota Department of
Water & Natural Resources
Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501-3181

July 18, 1989

Ruth D Boehm, Finance Officer
Town of Dolton
Box 3
Dolton SD 57023

Dear Ms. Boehm:

I am writing to acknowledge receipt of your petition dated July 11, 1989 and to clarify the content of Water Permit Application No. 4432A-3.

The petition indicates the residents of Dolton are opposed to the rural water system drilling another production well. The well in question (No. 78-5), is a currently existing monitoring well that is to become a production well if that part of the application is approved. Well No. 78-5 is to be used to supplement the supply system with no increase in the total pumping rate of the entire system. This will allow the system to meet demands if the main production well becomes inoperable.

I have also enclosed for your information a notice of hearing dated July 7, 1989, concerning Water Permit No. 4988-3 held by the TM Rural Water District.

Please contact me if you have any questions.

Sincerely,

Ron Duvall
Natural Resources Engineer
605 773-3352

enc.

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South Dakota

STATE OF SOUTH DAKOTA

OFFICE OF ATTORNEY GENERAL

STATE CAPITOL
Pierre, South Dakota 57501-5090
Phone (605) 773-3215

ROGER A. TELLINGHUISEN
ATTORNEY GENERAL

JUL 1989
DIVISION OF
WATER RIGHTS
Pierre, SD

July 18, 1989

Harold H. Deering, Jr.
Henry Carlson Building
1108 W. Bailey
Sioux Falls, SD 57104

Re: **TM Rural Water District**

Dear Harold:

Enclosed please find a Notice in the above-referenced matter as you and I discussed earlier. Because of the potential perception of a conflict of interest, I will not be involved in this matter. Please contact John Hatch if you need additional information.

Thank you.

Sincerely.

John E. Haak
Assistant Attorney General

JEH:bn
Enclosure
cc: John Hatch
Larry N. Ernster

South Dakota Department of
Water & Natural Resources
Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501-3181

July 21, 1989

NOTICE

TO: Larry N Ernster
TM Rural Water District
PO Box 445
Parker SD 57053

FROM: John Hatch, Chief Engineer
Water Rights Division
605 773-3352

SUBJECT: Delay of Hearing to Consider Amendment of Water Permit No. 4988-3, TM Rural Water District

Pursuant to the written request dated July 18, 1989, by Dennis L Duncan, attorney representing TM Rural Water District, the Water Management Board will **NOT** consider amending Water Permit No. 4988-3 at the July 25 and 26, 1989 Board meeting. The hearing to consider amendment of Permit No. 4988-3 will be held at 11:30 am, September 27, 1989, Room 216, Joe Foss Building, 523 E Capitol, Pierre SD. The agenda time is an estimate. The actual time of hearing may be later than 11:30, due to prior agenda items. Applicable provisions of the Notice dated July 7, 1989 will still apply at this hearing.

Mr. Duncan has asked if the proposed 600 acre-feet limitation is negotiable. The Water Management Board will make the final decision on any acre-feet limitation. Documentation should be provided to support changing the proposed acre-feet limitation. Any acre-feet restriction should be based upon water service to existing connections to the TM system not future connections. The reason for the proposed amendment is to stabilize water use from the aquifer and then examine the effect on aquifer recharge over a three year period. The three year study is needed to determine if the declining water level (head pressure) in the Dolton Aquifer will stabilize under current annual withdrawals from the aquifer. Please provide any information by August 25, 1989.

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The Hanson Rural Water System has received notice that the Chief Engineer has recommended that the portion of Water Permit Application No. 4432-3 to increase the existing 435.5 acre-feet limitation be deferred. Enclosed are copies of notices dated January 17, 1986 and July 5, 1989, concerning amendment of Permit No. 4432-3. No other notices to limit withdrawals have been sent water users from the Dolton Aquifer.

Enclosed for your information are copies of the report on Water Permit Application No. 4432A-3, Hanson Rural Water System and the recommendation for Application No. 4432A-3.

cc: Dennis L Duncan, Attorney
Harold Deering, Assistant Attorney General
Hanson Rural Water System
Ruth Boehm, Finance Officer Town of Dolton

CERTIFICATION

I hereby certify that on July 21, 1989 I have personally deposited with the U.S. Mail postage prepaid envelopes containing a Notice on Delay of Hearing to Consider Amendment of Water Permit No. 4988-3, TM Rural Water System addressed as follows:

Larry N Ernster, TM Rural Water District, PO Box 445, Parker SD 57053
Dennis L Duncan, Attorney, PO Box 547, Parker SD 57053-0547
Keith Schroeder, Chairman, Hanson Rural Water, Box 324, Emery SD 57332
Ruth D Boehm, Finance Officer, Town of Dolton, Box 3, Dolton SD 57023
Harold Deering, Assistant Attorney General, Henry Carlson Bldg, 1108 N Bailey, Sioux Falls SD 57104

Karen Schlaak
KAREN SCHLAAK
Senior Secretary

STATE OF SOUTH DAKOTA)
) SS
COUNTY OF HUGHES)

Sworn to, before me, this 24th day of July, 1989.

JOHN HATCH
SEAL NOTARY PUBLIC SOUTH DAKOTA SEAL
My Commission Expires Apr. 1, 1993

John Hatch
Notary Public

SOUTH Dakota Department of
Water & Natural Resources
Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501-3181

August 15, 1989

Dennis Duncan
Zimmerman and Duncan
Attorneys at Law
P.O. Box 547
Parker, S.D. 57053

Mr. Duncan:

Enclosed please find a report by Assad Barari to the Hanson Rural Water System and A copy of a petition from residents of Dolton having well problems.

During the deposition, I stated that there were approximately 20 names on the petition. The petition with the 20 names were opposed to Hanson Rural Water System drilling a new well not necessarily the people having problems with their wells.

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

Sincerely,

Gale N. Selken

Gale N. Selken P.E.
Hydrologist
605 773-3352

CELEBRATE THE CENTURY
1889-1989 South Dakota

SOUTH Dakota Department of
Water & Natural Resources
Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501-3181

September 28, 1989

Larry Ernster, Manager
TM Rural Water System
PO Box 445
Parker, South Dakota 57053

Mr. Ernster:

Enclosed please find application forms for a water right.

During the Water Management meeting on September 27, 1989 you asked if your not attending the meeting in Parker on September 11, 1989 had anything to do with my recommendation to the Board. The answer to this question is absolutely no. My recommendations to the Water Management Board are based on information available and on professional judgement not on whether or not someone attends or doesn't attend a meeting.

If you have any questions that I can help you with please contact this office.

Sincerely,

Gale N Selken

Gale N. Selken P.E.
Natural Resources Engineer IV
605 773-3352

enclosures

CELEBRATE THE CENTURY
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South Dakota

SOUTH Dakota Department of
Water & Natural Resources
Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501-3181

October 4, 1989

NOTICE

TO: Larry N Ernster
TM Rural Water District
PO Box 445
Parker SD 57053

FROM: John Hatch, Chief Engineer
Water Rights Division
605 773-3352

SUBJECT: Preparation of Findings of Fact, Conclusions of Law and Final Decision

The Water Management Board has directed John Guhin, the Board's attorney to prepare proposed Findings of Fact, Conclusions of Law and a Final Decision on amendment of Water Permit No. 4988-3. The Board will consider the proposed Findings, Conclusions and Final Decision at 1:00 pm, December 6, 1989, Room 216, Joe Foss Building, Pierre SD. The agenda time is an estimate. The actual time of consideration may be delayed due to prior agenda items.

The Board has requested that a copy of the proposed Findings, Conclusions and Final Decision be mailed to each Board member and TM Rural Water District and their attorney, Dennis L Duncan by November 16, 1989. Any comments pertaining to the proposed Findings, Conclusions and Decision are to be mailed to each Board member, the Board attorney, TM Rural Water District and their attorney by November 24, 1989.

The public hearing on this amendment was completed September 27, 1989. No additional testimony will be received on December 6, 1989.

cc: Dennis L Duncan, Attorney

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CERTIFICATION

I hereby certify that on October 4, 1989 I have personally deposited with the U.S. Mail postage prepaid envelopes containing a Notice on Preparation of Findings of Fact, Conclusions of Law and Final Decision for Water Permit No. 4988-3 to those persons listed below:

Larry N Ernster, TM Rural Water District, PO Box 445, Parker SD 57053
Dennis L. Duncan, Attorney, PO Box 547, Parker SD 57053-0547

Karen Schlaak
KAREN SCHLAAK
Senior Secretary

STATE OF SOUTH DAKOTA)
) SS
COUNTY OF HUGHES)

Sworn to, before me, this 5th day of October, 1989.

John Hatch
Notary Public

JOHN HATCH
SEAL NOTARY PUBLIC SOUTH DAKOTA SEAL
My Commission Expires Apr. 1, 1993

South Dakota Department of
Water & Natural Resources
Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501-3181

October 10, 1989

Larry N Ernster
TM Rural Water District
PO Box 445
Parker SD 57053

Dear Mr. Ernster:

I am writing in regard to the Water Management Board motion on September 27, 1989 to amend Water Permit No. 4988-3. The following proposed decision is our interpretation of the Board motion:

"1. That TM Rural Water District locate and develop an alternate water supply(s) within 5 years with annual progress reports presented to the Board.

2. That Permit No. 4988-3 is amended to limit the annual water use authorized by this permit to 610 acre-feet during 1989 with up to a 6 percent increase per year for a 5 year period.

3. Limiting annual withdrawals does not affect the September 28, 1983 priority date for any water pumped under Permit No. 4988-3 during the 5 year period."

The proposed decision is subject to change by John Guhin, Board attorney, during preparation of the findings of fact, conclusions of law and final decision and by the Board when the findings, conclusions and a final decision are considered at the December 1989 Board meeting. The first progress report regarding an alternate water supply(s) will need to be presented to the Board in December of 1990. Notice will be given of the time and place.

Please contact Ron Duvall, staff engineer, at (605) 773-3352, if you have any questions.

Very truly yours,

Delvin D. Brosz

for JOHN HATCH, Chief Engineer
Water Rights Division

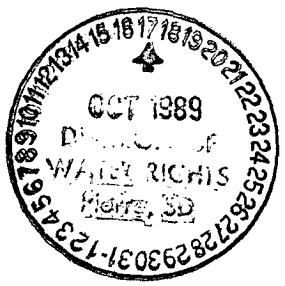
cc: Water Management Board
John Guhin, Assistant Attorney General
Harold Deering, Assistant Attorney General
Dennis Duncan, Attorney

CELEBRATE THE CENTURY
1889-1989 South Dakota

LAW OFFICES
ZIMMER AND DUNCAN
Law Building
P.O. Box 547
PARKER, SOUTH DAKOTA 57053-0547

JOHN H. ZIMMER
DENNIS L. DUNCAN
PATRICIA A. CARLSON
THOMAS J. DEADRICK

Area Code 605
Telephone 297-4446
FAX #
605-297-4488



October 16, 1989

Mr. Ron Duvall
Water Rights Division
SD Department of Water and Natural Resources
Joe Foss Building
Pierre, South Dakota 57501-3181

Dear Mr. Duvall:

In re: TM Rural Water District
Amendment of Water Permit No. 4988-3

I am in receipt of John Hatch's October 10, 1989 letter with respect to the Water Management Board's September 27, 1989 proposed decision. I would agree with your interpretation of that a decision as it affects the items set forth in paragraphs 1, 2 and 3 of that letter.

I do have a question concerning the priority dates of the permits with respect to Hanson County and TM. As I understand it, Hanson County's Permit #4432-3 has been amended to increase annual withdrawal to 567 acre feet. TM's Permit #4988-3 was amended to set a maximum annual withdrawal where heretofore no acre foot limitation existed. I would appreciate being advised as to the Water Rights Division's opinion of the priority of the amended permit of TM Rural Water #4988-3 and the increase in the acre feet permitted Hanson County by the amendment of Permit #4432-3. In other words, does Hanson have priority to TM's withdrawal for 435.5 acre feet or 567 acre feet?

Sincerely yours,

Dennis Duncan

DENNIS L. DUNCAN

yle

South Dakota Department of
Water & Natural Resources
Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501-3181

October 17, 1989

Dennis L Duncan, attorney
Zimmer and Duncan
PO Box 547
Parker SD 57053-0547

Dear Mr. Duncan:

This letter is in response to your letter dated October 16, 1989 regarding the priority dates assigned to the Hanson Rural Water System and the TM Rural Water District.

Water Permit No. 4432A-3 approved for Hanson Rural Water System authorizes an increase in the annual water appropriation from 435.5 acre-feet to 567 acre-feet. The additional 131.5 acre-feet of water will be assigned a March 14, 1989 priority date. Therefore, the additional 131.5 acre-feet of water annually authorized by Permit No. 4432A-3 will be junior in priority to Permit No. 4988-3 held by the TM Rural Water District.

Please contact me if you have any further questions.

Sincerely,

Ron Duvall
Natural Resources Engineer
605 773-3352

CELEBRATE THE CENTURY
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South Dakota

SOUTH Dakota Department of
Water & Natural Resources
Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501-3181

January 8, 1990

NOTICE

TO: Larry N Ernster
TM Rural Water District
PO Box 445
Parker SD 57053

FROM: John Hatch, Chief Engineer
Water Rights Division
605 773-3352

SUBJECT: Adoption of Findings of Fact, Conclusions of Law and Final Decision

This is to notify you that a Final Decision, including Findings of Fact, Conclusions of Law were adopted by the Water Management Board for amendment of Water Permit No. 4988-3 which was considered at the December 6-7, 1989 meeting.

Enclosed is copy of the signed final Decision, Findings and Conclusion. South Dakota Statutes provide that the decision of the Board may be appealed to the Courts.

CERTIFICATION

I hereby certify that on January 8, 1990 I have personally deposited with the U.S. Mail postage prepaid envelopes containing a Notice of Adoption of Findings of Fact, Conclusions of Law and Final Decision for Water Permit No. 4988-3 to those persons listed below:

Larry N Ernster, TM Rural Water District, PO Box 445, Parker SD 57053
Dennis L. Duncan, Attorney, PO Box 547, Parker SD 57053-0547

Karen Schlaak
KAREN SCHLAAK
Senior Secretary

STATE OF SOUTH DAKOTA)
) SS
COUNTY OF HUGHES)

Sworn to, before me, this 9th day of January, 1990.

John Hatch
Notary Public

JOHN HATCH
NOTARY PUBLIC
SEAL SOUTH DAKOTA SEAL
My Commission Expires Apr. 1, 1993

TM Rural Water District

P.O. Box 445, Parker, South Dakota 57053 • Phone (605) 297-3334

5/24/91

Mr. John Hatch, Chief Engineer
Division of Water Rights
Department of Environment & Natural Resources
Pierre, SD 57501

Dear Mr. Hatch:

I am writing for two reasons. First, I want to tell you of our plans for a supplemental water source. Second, I need your opinion as to how to go about resolving a possible problem.

TM has spent considerable resources in studying various possible water supplies. It appears that drilling a well is the only economically feasible option at this time and the one that will get additional water the soonest. The water from a basal aquifer well will be blended with the existing supply to allow us to keep up to the demand for water. Meanwhile, other more permanent options will still be pursued.

The Board of Directors has taken action to drill a 4" test well into the basal aquifer. An agreement has also been entered in with Banner Associates to handle the engineering of the test well through the completion of a production well. This 4" exploration well is expected to be done fairly soon. If all works out, a 12" well for doing an aquifer test will be constructed this fall. We don't anticipate being able to complete the design, financing and construction of the controls and pipeline this year; but hopefully, that could be accomplished by late spring of 1992.

Which brings me to the second point. Even though I would hope not to exceed the limitation imposed by our Water Rights Permit in the Dolton aquifer. I am needing to know what we would need to do if we would be exceeding the limit this year. My hope is that you would be able to allow us an additional amount this year, if needed, in light of the fact that we are taking positive steps and making a commitment for an additional well.

Please advise me of any steps we need to take in respect to these matters.

Thank you.

Sincerely,

Ken Pedersen

Ken Pedersen
Manager

DEPARTMENT of ENVIRONMENT and NATURAL RESOURCES
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE SOUTH DAKOTA 57501-3181

June 7, 1991

Ken Pedersen
TM Rural Water District
P.O. Box 445
Parker, SD 57053

Dear Mr. Pedersen:

I am writing in response to your letter dated May 24, 1991. You have requested our opinion on resolution of possible water use problems.

The TM Rural Water District presently holds Future Use Water Permit No. 5358-3 for 1500 acre feet of water annually from the basal aquifer. You have advised that TM is proceeding with drilling a test well and development of a basal aquifer production well. A water permit application will need to be submitted for the proposed well and the reserved water to be used. Once the test well is constructed you should submit a permit application for the production well.

The Water Management Board placed an acre-foot limitation on Water Permit No. 4988-3 which allowed pumping of 610 acre feet of water in 1989 and a 6% per year increase in pumping for five years. For calendar year 1991, TM is allowed to pump no more than 685.4 acre feet of water. Pumping more than 685.4 acre feet will be a violation of the qualifications to Permit No. 4988-3.

The 685.4 acre feet limitation for 1991 is not a guideline. It is the maximum amount of water that TM can pump in 1991. If you believe TM will exceed this amount, conservation measures will need to be implemented. Another option is to place the new basal aquifer well on line this summer.

Very truly yours,

John Hatch

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

South Dakota

DEPARTMENT of ENVIRONMENT and NATURAL RESOURCES
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE SOUTH DAKOTA 57501-3181

GREAT FACES. GREAT PLACES.

December 6, 1991

Bruce Bonjour, Attorney
Lindquist and Vennum
4200 IDS Center
Minneapolis, Minnesota 55402

Dear Mr. Bonjour:

As requested in our telephone conversation December 5, 1991, I have enclosed the following:

1. June 7, 1991 letter to Ken Pedersen, Manager TM Rural Water District
2. June 13, 1989 Hanson Rural Water System Water Permit Application Report
3. August 22, 1988 TM Rural Water District Water Permit Application Report
4. December 22, 1983 TM Rural Water District Water Permit Application Report

Please advise, if you have any questions on this information.

Very truly yours

John Hatch

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

4988-3

DEPARTMENT of ENVIRONMENT and NATURAL RESOURCES
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE SOUTH DAKOTA 57501-3181

January 7, 1992

TM RWS
Larry Ernster
PO Box 445
Parker SD 57053

Dear Mr. Ernster:

Pursuant to a qualification on Water Permit/Right No(s). 4988-3, we are requesting that the TM RWS report to the Chief Engineer the amount of water withdrawn for the year 1991. Please respond by February 10, 1992.

If you have any questions concerning this or other water rights questions, please contact Don Frye, Natural Resources Analyst, (605) 773-3352.

Very truly yours,

Ron Duvall,
Natural Resources Engineer
for JOHN HATCH, Chief Engineer
Water Rights Division

TM Rural Water District

P.O. Box 445, Parker, South Dakota 57053 • Phone (605) 297-3334

1/9/92
Department of Environment and Natural Resources
Water Rights Division
Attention: Ron Duvall
Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501-3181

Dear Mr. Duvall:

Enclosed please find a copy of the water used by TMRWD from the Dolton aquifer during 1991.

Please change your records and mailing list to show me as manager and contact person. Mr. Ernster has not worked for TM since October 1989.

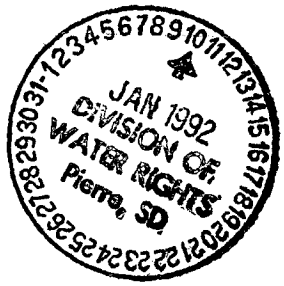
If you have any questions or need more information please contact me.

Sincerely,

Ken Pedersen
Manager

DENR192.WPS

USEWTP91.WKS



WTP

Water Useage
In Gallons

1991	Meter Reading	Monthly Use	Daily Average
1/1	940,130,000	15,560,000	501,935
2/1	955,690,000	13,650,000	487,500
3/1	969,340,000	15,850,000	511,290
4/1	985,190,000	16,860,000	562,000
5/1	1,002,050,000	17,830,000	575,161
6/1	1,019,880,000	18,740,000	624,667
7/1	1,038,620,000	22,020,000	710,323
8/1	1,060,640,000	22,470,000	724,839
9/1	1,083,110,000	19,200,000	640,000
10/1	1,102,310,000	18,670,000	602,258
11/1	1,120,980,000	17,580,000	586,000
12/1	1,138,560,000	15,650,000	504,839
1/1	1,154,210,000		

YTD Useage	214,080,000	Monthly Average	17,840,000

1991 Water Rights 223,323,060

Percent Used 95.9%
Percent of Year Used 100.0%

4988-3

TM Rural Water District

P.O. Box 445, Parker, South Dakota 57053 • Phone (605) 297-3334

Department of Environment and Natural Resources
Water Rights Division
Joe Foss Building
523 East Capitol
Pierre, SD 57501-3181

1/5/93

Attention: Ron Duvall

Re: Water Use during 1992

Dear Mr. Duvall:

TM Rural Water District used the following amounts of water from the named aquifers during 1992.

Dolton (4988-3)	207,953,200 gallons
Upper Vermillion Missouri (5608-3)	2,816,800 gallons

I am enclosing a copy of my water usage report for the year.

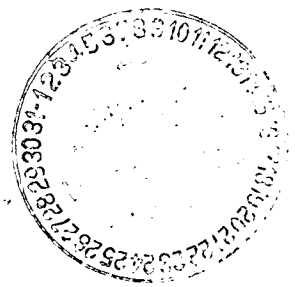
If you need more information please contact me.

Sincerely,

Ken Pedersen
Manager

DENRWUSE.WPS

4988-3



92USEWTP.WKS

WTP

Water Useage
In Gallons

1992	Meter Reading		Monthly Use	Daily Average
1/1	154,210,000			
2/1	168,400,000		14,190,000	457,742
3/1	182,710,000		14,310,000	511,071
4/1	199,500,000		16,790,000	541,613
5/1	4,750,000	NEW METER	16,750,000	558,333
6/1	27,420,000		22,670,000	731,290
7/1	49,930,000		22,510,000	750,333
8/1	68,650,000		18,720,000	603,871
9/1	86,430,000		17,780,000	573,548
10/1	104,090,000		17,660,000	588,667
11/1	120,890,000		16,800,000	541,935
12/1	135,990,000		15,100,000	503,333
1/1	153,480,000		17,490,000	564,194

YTD Useage	210,770,000	Monthly Average	17,564,167

1992 UVM #4 Use	2,816,800
1992 Dolton Water Use	207,953,200
1992 Dolton Water Rights	236,722,443
% of Dolton Rights Used	87.8%
Percent of Year Used	100.0%

4988-3

DEPARTMENT of ENVIRONMENT and NATURAL RESOURCES
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE SOUTH DAKOTA 57501-3181

January 13, 1994

Ken Pedersen
TM Rural Water District
PO Box 445
Parker, SD 57053

Dear Mr. Pedersen:

Pursuant to a qualification on Water Permit/Right Nos. 5608-3 (Upper Vermillion Missouri Aquifer) & 4988-3 (Dolton Aquifer), I am requesting that the TM Rural Water District report the total amount of water diverted from the Upper Vermillion Missouri Aquifer and the Dolton Aquifer during 1993. Please respond by January 31, 1994.

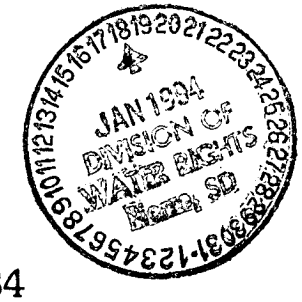
If you have any questions concerning this or other water rights questions, please contact Barry McLaury, Natural Resources Analyst, (605) 773-3352.

Sincerely,

RON DUVALL, Natural Resources Engineer
for JOHN HATCH, Chief Engineer
Water Rights Division

TM Rural Water District

P.O. Box 445, Parker, South Dakota 57053 • Phone (605) 297-3334



January 17, 1994

Department of Environment and Natural Resources
Water Rights Division
Joe Foss Building
523 East Capitol
Pierre, SD 57501-3181

Attention: Ron Duvall

Re: Water Use during 1993

Dear Mr. Duvall:

TM Rural Water District used the following amounts of water from the named aquifers during 1993.

Dolton (4988-3)	166,117,400 gallons
Upper Vermillion Missouri (5608-3)	66,732,600 gallons

I am enclosing a copy of my water usage report for the year.

If you need more information please contact me.

Sincerely,

Ken Pedersen

Ken Pedersen
Manager

DENRUSE3.WPS

WTP	Water Useage In Gallons		
1993	Meter Reading	Monthly Use	Daily Average
1/1	153,480,000	16,760,000	540,645
2/1	170,240,000	15,660,000	559,286
3/1	185,900,000	18,550,000	598,387
4/1	204,450,000	18,840,000	628,000
5/1	223,290,000	19,590,000	631,935
6/1	242,880,000	20,150,000	671,667
7/1	263,030,000	21,200,000	683,871
8/1	284,230,000	22,890,000	738,387
9/1	307,120,000	20,280,000	676,000
10/1	327,400,000	21,340,000	688,387
11/1	348,740,000	18,790,000	626,333
12/1	367,530,000	18,800,000	606,452
1/1	386,330,000		
YTD Useage	232,850,000	Monthly Average 19,404,167	DAILY AVG 637,446

WELL #4		
Meter Reading	Monthly Use	Percent of Total
2,816,800	1,638,200	10%
4,455,000	6,307,600	40%
10,762,600	6,924,360	37%
17,686,960	6,612,680	35%
24,299,640	6,532,626	33%
30,832,266	6,551,234	33%
37,383,500	5,837,961	28%
43,221,461	5,481,039	24%
48,702,500	4,682,300	23%
53,384,800	6,358,100	30%
59,742,900	4,559,400	24%
64,302,300	5,247,100	28%
69,549,400		

USE FROM EACH AQUIFER		Percent of Total
1993 UVM #4 Use	66,732,600	29%
1993 Dolton Water Use	166,117,400	71%

WATER RIGHT STATUS	
1993 Dolton Water Rights	250,925,790
% of Dolton Rights Used	66.2%
Percent of Year Used	100.0%

E-9867

93USEWTP.WKS

Form 12

Permit No. 4988-3

Vermillion 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, **November 1, 1999**, made a thorough examination of the water use system constructed by **TM Rural Water District** of **PO Box 445, Parker, SD, 57053** holder of Permit No. **4988-3**, bearing the priority of **September 28, 1983** authorizing the diversion of **3.34** cu. ft. per second from **Dolton aquifer** for **rural water system** purposes, in **Hutchinson, McCook, Miner, Turner and Minnehaha** Counties.

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

A. Works used to divert the water:

Three wells, 12 inch diameter, 156 feet 172 feet and 175 feet deep all with stainless steel well screen and equipped with submersible pumps capable of producing 650 gpm, 425 gpm and 425 gpm respectively, for a total of 1500 gpm.

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

Pipeline from the wells to treatment plant located in the southeast of the southwest of section 8, T100N R55W in Turner County.

C. Works used to apply water to beneficial use:

Buried pipelines from the treatment plant to rural and municipal users.

The system is in the following condition **excellent**. The points of diversion are located **well #1, 120 feet north and 106 feet west of the southeast corner of section 8, T100N R55W, well #2, 260 feet west and 107 feet south of the southeast corner of section 36, T101N R55W (NW ¼ NE ¼ of section 8, T100N R55W) and well #3. 100 feet east and 118 feet north of the west quarter corner of section 31, T101N R54W**. The works are capable of diverting and conveying to the place of use **3.34** cu. ft. per second of water which is to be used for **rural water system use**. Water has been put to beneficial use to the maximum extent as follows:

The license should be issued for **3.34** cfs .

Applicable permit qualifications have been complied with: Yes (X) No **X**

Exceptions to compliance are: **none** Date report completed: **December 3, 1999**

James A Goodman
Natural Resources Engineer
DENR, Water Rights Program

FIELD INVESTIGATION REPORT FOR PERMIT NO. 4988-3

DATE OF INVESTIGATION:	**November 1, 1999**
NAME & ADDRESS OF INVESTIGATION CONTACT/ RELATIONSHIP TO PERMIT HOLDER, IF APPLICABLE	**Ken Pedersen, Manager**
NAME & ADDRESS OF PERMIT HOLDER	**TM Rural Water District** **PO Box 445** **Parker, SD 57053**
DIVERSION POINT LEGAL LOCATION	**Well #1, 120 feet north and 106 feet west of the southeast corner of section 8, T100N R55W in Turner County, Well #2, 260 feet west and 107 feet south of southeast corner of section 36, T101N R55W (NW ¼ NE ¼ of section 8, T100N R55W in Turner County) , and Well #3, 100 feet east and 118 feet north of the west quarter corner of section 31, T101N R54W in McCook County.**

Other permit(s) associated with the project: **from Future Use 4979-3 , 5608A-3**

WELL INFORMATION:

1) Well Drilling Firm: **#1 (Layne Western Company), #2(Huron Drilling), #3 (Layne Western Company)**
2) No. of Wells **three**
3) Depth(s) **#1, 156 feet, #2, 172 feet, #3, 175 feet**
4) Well log is available (Y) N
5) Comment: **Original #3 well (Huron Drilling) has been replaced**

Casing:

1) Diameter **#1, 12 inch, #2, 12 inch, #3, 12 inch**
2) Length **#1, 128 feet, #2, 142 feet, #3, 150 feet**
3) Type **steel, .375 wall**

Screen:

1) Type **stainless steel**
2) Length **#1, 30 feet 12 inch Cook, #2, 30 feet 12 inch 80 slot Johnson, #3, 28 feet 12 inch 50 slot**
3) Static water level **#1, 59 feet, #2, 64 feet, #3, 96 feet**

PERMIT NO. 4988-3

Pump:

1) Make **Layne in all three wells**
2) Model **#1, 8RKHC, #2 and #3, 8 PRHC**
3) Size _____
4) Capacity **#1, 650 gpm, #2, 425 gpm, #3, 425 gpm**
5) **Motor:**

1) Make **Franklin in all three**
2) Model No. _____
3) Horsepower rating **#1, 40 HP, #2 and #3, 30 HP**

PERMIT QUALIFICATIONS:

1) Special qualifications to permit being abided by (Y)/N
2) All structures, wells and lands on map (Y)/N

DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3181
www.state.sd.us/denr

February 1, 2000

4988-3
5608-3

TM Rural Water District
Ken Pedersen, Manager
P.O. Box 445
Parker, SD 57053

Dear Mr. Pedersen:

The investigation of your water use systems was conducted on November 1, 1999, by James A. Goodman, staff engineer. The investigation included the extent of application of water to beneficial use, as developed under Water Permit Nos. 4988-3 and 5608-3. Your final water right documents, the Water Licenses, can now be issued. Upon licensing, the applicable portions of Water Permit No. 5608A-3 will be incorporated into 5608-3.

Statutes require that we charge a $50.00 fee per license ($100.00 total) for the investigation and issuance of the Water Licenses. Upon receipt of the $50.00 fee per license from you ($100.00 total), we will begin processing your Water Licenses.

Please remit fee to:
Department of Environment & Natural Resources
Water Rights Program
523 E. Capitol
Pierre, SD 57501-3181

Sincerely,

Cheryl F. Frost
Secretary
Water Rights Program
(605) 773-3352

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

RECEIPT

Water Rights Program

South Dakota Department of Environment and Natural Resources

NO 416409

Pierre, March 2, 2000

RECEIVED OF TM Rural Water District, Box 445, Parker, SD 57053
the following amount in fees for services rendered as provided for by law:

Fee for Application for Permit No. _____ to Appropriate Water, to construct 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. 4988-3	50	00
Fee for Filing Transfer Form _____		
Fee for Filing Extension Request _____		
Fee for _____		
_____		
_____		
_____		
(Any Other Work Provided by Law) **Total**	50	00

By Garland Erbele
Chief Engineer

DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3181
www.state.sd.us/denr

APR 1 0 2000

4988-3
5608-3

TM Rural Water District
Ken Pedersen, Manager
P.O. Box 445
Parker, SD 57053

Dear Mr. Pedersen:

Enclosed are Water License Nos. 4988-3 and 5608-3. These are the final water right documents completing your process of obtaining a Water Right. Enclosed are Receipt Nos. 416409 and 416410 in the amount of $50.00 each which you paid for the investigation and issuance of the Water Licenses.

For your information SDCL 46-6-27 requires that if the owner of an existing well, such as the wells authorized by Water Right Nos. 4988-3 and 5608-3, 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 Licenses, the State Water Laws provide that you have a continuing right to use the water. If you have any questions, please contact our office.

Sincerely,

Garland Erbele

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

ks
enclosures

NOTE: The applicable portions of No. 5608A-3 are incorporated into Water License No. 5608-3.

STATE OF SOUTH DAKOTA

WATER LICENSE NO. 4988-3

(1) TM Rural Water District, PO Box 445, Parker SD 57053 made Application No. 4988-3, December 19, 1983 for a water permit to divert 3.34 cubic feet of water per second from groundwater (four wells), McCook and Turner Counties, South Dakota for rural water system use purposes. Permit No. 4988-3, with a priority date of September 28, 1983 (established by Future Use Permit No. 4979-3) was approved February 15, 1984 and issued to the applicant for diversion of water with construction of the described water supply system to be completed on or before February 15, 1989 and for the application to beneficial use of said water on or before February 15, 1993.

(2) It is certified that the permit holder 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 3.34 cubic feet of water per second for beneficial use. The location of the diversion points are:

Well #1 - 120 feet north and 106 feet west of the southeast corner **(SE ¼ SE ¼) Sec 8-T100N-R55W**
Well #2 - 260 feet west and 107 feet south of the southeast corner Sec 36-T101N-R55W
(NW ¼ NE ¼ Sec 8-T100N-R55W)
Well #3 - 100 feet east and 118 feet north of the west quarter corner **(SW ¼ NW ¼) Sec 31-T101N-R54W**

(3) The permit holder has complied with the provisions of South Dakota State Law relating to the application of water to beneficial use to supply water in Hutchinson, McCook, Miner, Turner and Minnehaha Counties.

(4) Pursuant to South Dakota Water Law 46-5-30.1 TM Rural Water District, PO Box 445, Parker SD 57053 the holder and/or owner of Water Right No. 4988-3 is issued a license to appropriate water, the right to use 3.34 cubic feet of water per second from groundwater (three wells) with a priority date of September 28, 1983 (established by Future Use Permit No. 4979-3) from the location specified in (2) of this license for rural water system use. This license is subject to any limitations or qualifications listed in Water Right No. 4988-3 and subject to South Dakota State Law.

Garland Erbele

GARLAND ERBELE, Chief Engineer
Water Rights Program
Department of Environment and Natural Resources

APR 1 0 2000
date

DGR

SPECIFICATIONS AND DRAWINGS

TEST WELL

for

TM RURAL WATER DISTRICT

PARKER, SOUTH DAKOTA

SEPTEMBER 1983

DeWild Grant Reckert & Assoc. Co.

JOB NO. 3260

DeWild Grant Reckert & Associates Co.

Architecture Engineering Planning

315 First Avenue
Rock Rapids, IA 51246
Telephone 712 472 2531

DATE: September 28, 1983

PROJECT: Test Well
TM Rural Water District
Parker, SD

PROPOSAL DUE DATE: October 5, 1983

ADDENDUM NO. 1

The following revisions are hereby made to the Specifications and Drawings and said revisions shall become a binding part of the Specifications and Drawings.

1. Add Alternative Proposal Item 8A per the attached PROPOSAL form.

2. Per the attached PROPOSAL form, a clarifying paragraph was added: "It is understood that upon acceptance of the low Base Proposal, the Owner shall have the right to select either steel or plastic casing."

3. Correct 2.01 A 3 d(page TS-4) to read"
"d. Casing 12" diameter by 131' long as shown on the drawings."

4. Correct 2.01 B 2 c (page TS-4) to read:
"c. PVC casing (Schedule 40) 2 inches diameter by 130 feet long."

5. Renumber 2.04 GRAVEL PACKING MEDIA and 2.05 CONCRETE GROUT to 2.05 and 2.06 respectively.

6. Add the following:

"2.04 PLASTIC CASING PIPE:

A. Material: Material used to produce the pipe shall conform to ASTM D1784, cell classification 12454-B.

The pipe shall be precision extruded from new poly-vinylchloride material and shall be homogeneous throughout and free from cracks, holes, foreign inclusions or other defects and shall be made per ASTM F-480.

B. Joints: Certa-Lok as manufactured by CertainTeed.

C. Size: 12 inches.

D. Wall Thickness: SDR 21.

7. Change 3.03 A (page TS-7) to read:
"A. The Contractor shall drill a 6 inch diameter observation well/pilot hole to obtain the data and samples required to design the gravel pack and screen size. In addition, the hole shall be held open long enough for the Owner to complete borehole geophysical operations prior to drilling the 20 inch diameter hole.

8. Correct 3.03 C (page TS-7) to read:
"C. The 20 inch diameter hole is to provide a 4 inch thickness in the gravel pack and grout.

9. Add the following paragraph to 4.02 E: "....in the Contractor's Proposal.

During the extended test, two (2) shutdowns will be acceptable if the length of each shutdown does not exceed one (1) hour and if the shutdowns are at least 12 hours apart.

This ADDENDUM NO. 1 shall become a legal and binding part of Specifications and Drawings. All BIDDERS shall acknowledge receipt of this ADDENDUM NO. 1 on the PROPOSAL and agree to accept the revisions indicated and prepare proposals in accordance therein.

DEWILD GRANT RECKERT & ASSOCIATES COMPANY

By David Holman
David Holman, South Dakota Reg. No. 3473

DH:kld

Revised/Addendum No. 1

PROPOSAL

To: TM Rural Water District
Parker, South Dakota

Gentlemen:

The undersigned being familiar with all the details, conditions and requirements hereby propose to furnish all labor, tools, materials, and equipment necessary for the production well construction and test pumping and all related and appurtenant work as described in the specifications dated September 26, 1983. All prices shall include sales taxes and all other applicable taxes and fees.

It is understood that upon acceptance of the low Base Proposal, the Owner shall have the right to accept either steel or plastic casing.

Item No.	No. of Units	Description	Unit Price	Total Cost
1.	Job	Test hole/observation well mobilization, lump sum	$ L.S.	$_____
2.	620 L.F.	Test hole/observation well and pilot hole drilling with material samples, per lin. ft.	$_____	$_____
3.	465 L.F.	Observation well screen, casing, gravel pack, and sealing mixture, per lin. ft.	$_____	$_____
4.	2 Ea.	Observation well development and water sample collection, per ea.	$_____	$_____
5.	2 Ea.	Observation well concrete seal at surface and galvanized pipe with cover, per ea.	$_____	$_____
6.	Job	Test well mobilization, lump sum	$ L.S.	$_____

Item No.	No. of Units	Description	Unit Price	Total Cost
7.	155 L.F.	20" drill hole, per lin. ft.	$_____	$_____
8.	131 L.F.	12" steel casing, per lin. ft.	$_____	$_____
9.	25 L.F.	12" stainless steel screen, per lin. ft.	$_____	$_____
10.	40 L.F.	Gravel pack, per lin. ft.	$_____	$_____
11.	108 L.F.	Cement grout, per lin. ft.	$_____	$_____
12.	Job	Well development, lump sum	$ L.S.	$_____
13.	Job	Test pump mobilization, lump sum	$ L.S.	$_____
14.	72 Hrs.	Initial period test pump operation, with measurements, per hr.	$_____	$_____
15.	96 Hrs.	Extended period test pump operation, with measurements, per hr.	$_____	$_____
16.	24 Hrs.	Initial period recovery measurements, per hr.	$_____	$_____
17.	48 Hrs.	Extended period recovery measurements, per hr.	$_____	$_____
18.	Job	Samples/records	$ L.S.	$_____
19.	Job	Disinfection and cap, lump sum	$ L.S.	$_____
		TOTAL BASE BID		$_____
8.A.	131 L.F.	Alternative Bid Item, 12" plastic casing, per lin. ft.	$_____	$_____

Respectfully submitted,

_____

By_____

Date_____

Bidder acknowleges receipt of the following ADDENDUM:

_____

By_____

Date_____

TEST WELL SPECIFICATIONS
AND
DRAWINGS

TM RURAL WATER DISTRICT
PARKER, SOUTH DAKOTA

DGR Project No. 3260

September 1983

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.

By David Holman
David Holman, P.E.

Registration No. 3473

Date September 26, 1983

DEWILD GRANT RECKERT AND ASSOCIATES COMPANY
ARCHITECTURE - ENGINEERING - PLANNING
ROCK RAPIDS, IOWA
SIOUX CITY, IOWA
SIOUX FALLS, SOUTH DAKOTA
DENVER, COLORADO

TEST WELL SPECIFICATIONS
AND DRAWINGS
TM RURAL WATER DISTRICT
PARKER, SOUTH DAKOTA

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PROPOSAL FORMS

September 26, 1983

Re: Request for Proposal
Test Well
TM Rural Water District
Parker, South Dakota

Gentlemen:

With reference to the following technical specifications, we are soliciting proposals for the exploratory test drilling, observation well construction and construction, development and test pumping of one (1) test well on behalf of the TM Rural Water District.

If interested in this work, please submit your proposal to our Rock Rapids office before October 5, 1983. Should the work be awarded to you, work shall begin within ten (10) calendar days of the date of Notice to Proceed. Work shall be complete within thirty (30) days thereafter, unless you are delayed by unforseen circumstances over which you have no control.

Payment will be made upon satisfactory completion of the specified work. Billing should be consistent with your Proposal and submitted to our office for review.

Thank you in advance for your proposal. Should you have questions, please contact me or Gary Patton at 712-472-2531.

Very truly yours,

DEWILD GRANT RECKERT
& ASSOCIATES COMPANY

David Holman

David Holman, P.E.

DH:dae

PROPOSAL

To: TM Rural Water District
Parker, South Dakota

Gentlemen:

The undersigned being familiar with all the details, conditions and requirements hereby propose to furnish all labor, tools, materials, and equipment necessary for the production well construction and test pumping and all related and appurtenant work as described in the specifications dated September 26, 1983. All prices shall include sales taxes and all other applicable taxes and fees.

Item No.	No. of Units	Description	Unit Price	Total Cost
1.	Job	Test hole/observation well mobilization, lump sum	$ L.S.	$_____
2.	620 L.F.	Test hole/observation well and pilot hole drilling with material samples, per lin. ft.	$_____	$_____
3.	465 L.F.	Observation well screen, casing, gravel pack, and sealing mixture, per lin. ft.	$_____	$_____
4.	2 Ea.	Observation well development and water sample collection, per ea.	$_____	$_____
5.	2 Ea.	Observation well concrete seal at surface and galvanized pipe with cover, per ea.	$_____	$_____
6.	Job	Test well mobilization, lump sum	$ L.S.	$_____

Item No.	No. of Units	Description	Unit Price	Total Cost
7.	155 L.F.	20" drill hole, per lin. ft.	$_____	$_____
8.	131 L.F.	12" steel casing, per lin. ft.	$_____	$_____
9.	25 L.F.	12" stainless steel screen, per lin. ft.	$_____	$_____
10.	40 L.F.	Gravel pack, per lin. ft.	$_____	$_____
11.	108 L.F.	Cement grout, per lin. ft.	$_____	$_____
12.	Job	Well development, lump sum	$ L.S.	$_____
13.	Job	Test pump mobilization, lump sum	$ L.S.	$_____
14.	72 Hrs.	Initial period test pump operation, with measurements, per hr.	$_____	$_____
15.	96 Hrs.	Extended period test pump operation, with measurements, per hr.	$_____	$_____
16.	24 Hrs.	Initial period recovery measurements, per hr.	$_____	$_____
17.	48 Hrs.	Extended period recovery measurements, per hr.	$_____	$_____
18.	Job	Samples/records	$ L.S.	$_____
19.	Job	Disinfection and cap, lump sum	$ L.S.	$_____
		TOTAL		$_____

Respectfully submitted,

_____

By_____

Date_____

CONTRACT FORMS

NOTICE OF AWARD

To: _____

_____

_____

_____

_____

PROJECT Description: _____

_____

_____

You are hereby notified that your BID has been accepted for items in the amount of $_____.

You are required to return an acknowledged copy of this NOTICE OF AWARD to the OWNER.

Dated this ____ day of _____, 19__.

_____
Owner

By _____

Title _____

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE OF AWARD is hereby acknowledged by _____

this the ____ day of _____, 19__.

By _____

Title _____

AGREEMENT

THIS AGREEMENT, made this ____ day of _____. 19__, by and between _____,
(Name of Owner)(an Individual)

and _____
doing business as (an individual), or (a partnership), or (a corporation) hereinafter called "CONTRACTOR".

WITNESSETH: That for and in consideration of the payments and agreements hereinafter mentioned:

1. The CONTRACTOR will commence and complete the construction of

_____

2. The CONTRACTOR will furnish all of the material, supplies, tools, equipment, labor and other services necessary for the construction and completion of the PROJECT described herein.

3. The CONTRACTOR will commence the work required by the CONTRACT DOCUMENTS within _____ calendar days after the date of the NOTICE TO PROCEED and will complete the same within _____ calendar days unless the period for completion is extended otherwise by the CONTRACT DOCUMENTS.

4. The CONTRACTOR agrees to perform all of the WORK described in the CONTRACT DOCUMENTS and comply with the terms therein for the sum of $_____, or as shown in the BID schedule.

5. The term "CONTRACT DOCUMENTS" means and includes the following:

A. Request for Proposal.

B. Proposal.

C. Agreement.

D. NOTICE OF AWARD.

E. NOTICE TO PROCEED.

F. CHANGE ORDER.

G. DRAWINGS prepared by _____ numbered _____ through _____, and dated _____, 19__.

H. SPECIFICATIONS prepared or issued by

_____

dated _____, 19__.

I. ADDENDA:

No. _____, dated _____, 19__

No. _____, dated _____, 19__

No. _____, dated _____, 19__

No. _____, dated _____, 19__

No. _____, dated _____, 19__

No. _____, dated _____, 19__

6. The OWNER will pay the CONTRACTOR in the manner and at such times as set forth in the Request for Proposal such amounts as required by the Proposal.

7. This Agreement shall be binding upon all parties hereto and their respective heirs, executors, administrators, successors, and assigns.

IN WITNESS WHEREOF, the parties hereto have executed, or caused to be executed by their duly authorized officials, this Agreement in _____ (number of copies) each which shall be deemed an original on the date first above written.

OWNER:

_____

By _____

Name _____
(Please Type)

(SEAL)

ATTEST:

_____

Name _____
(Please Type)

Title _____

CONTRACTOR:

_____

By _____

Name _____
(Please Type)

Address _____

_____

(SEAL)

ATTEST:

_____

Name _____
(Please Type)

Title _____

NOTICE TO PROCEED

To: _____ Date: _____

_____ Project: _____

_____ _____

_____ _____

_____ _____

You are hereby notified to commence WORK in accordance with the Agreement dated _____, 19__, on or before _____, 19__, and you are to complete the WORK within _____ consecutive calendar days thereafter. The date of completion of all WORK is therefore _____, 19__.

_____
Owner

By _____

Title _____

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE TO PROCEED is hereby acknowledged by

_____

this the ____ day of _____,

19___.

_____

By _____

Title _____

TECHNICAL SPECIFICATIONS

SECTION 1

WELL

PART 1 - GENERAL

1.01 SCOPE OF WORK:

A. The Contractor shall furnish and install all equipment, materials, labor, and appurtenances required and necessary for the drilling of exploratory test holes, observation well construction and for the complete and satisfactory construction, disinfection, and testing of a test well designated as TM Test Well.

1.02 SUBMITTALS:

A. Shop drawings of stainless steel screen and casing pipe.

B. Samples of formations encountered, tagged and identified. Samples for each five feet of drilling and each change of formation encountered shall be collected.

C. Two copies of the following to the Engineer:

1. Driller's log.

2. Mud loss data, if applicable.

3. Screen sieve analysis of water bearing formations.

4. Pumping and drawdown test records and log sheets.

5. As-built drawing of well.

D. Submit to state agencies required reports and samples.

E. An accurate record as assembled of the order, number, size and lengths of the individual pieces of pipe and fittings installed in the well shall be kept on the job and included with as-built drawings.

F. A written daily report describing the nature of material encountered, the work done during each day, including the items of work accomplished, such as depth drilled, casing set, etc., the water level in the well at the beginning and end of each shift and such other pertinent data as is requested by the Engineer.

1.03 LOCATION:

A. The location of the well is as shown on the Drawings, approximatley 1 mile east of Dolton, South Dakota.

B. The Owner has option to the land for the well site.

C. The location of the test well will be marked.

1.04 LOCAL CONDITIONS:

A. Test holes were drilled and completed near the proposed test well site. See Appendix for existing data.

B. The information given regarding subsurface conditions at the proposed well is intended to assist the Contractor in preparing his bid. However, the Owner does not guarantee its accuracy, nor that it is necessarily indicative of conditions prevailing or to be encountered in sinking the well to be constructed hereunder, and the Contractor shall satisfy himself regarding all local conditions affecting his work by personal investigation and neither the information contained in this section nor that derived from maps, drawings, or plans, or from the Owner or his agents or employees shall act to relieve the Contractor from any responsibility hereunder or from fulfilling any and all of the terms and requirements of his contract with the Owner.

1.05 PERMITS, CERTIFICATES, LAWS AND ORDINANCES:

A. The Contractor shall, at his own expense, procure all permits, certificates and licenses required of him by law for the execution of his work. He shall comply with all federal, state, or local laws, ordinances or rules and regulations relating to the performance of work.

1.06 BOUNDARIES OF WORK:

A. The Owner shall provide land or right-of-way for the work specified in this contract and make suitable provisions for egress and ingess, and the Contractor shall not enter on or occupy with men, tools, equipment, or material, any ground outside the property of the Owner without the written consent of the Owner of such ground. Other contractors and employees or agents of the Owner may for all necessary purposes enter upon the work and premises used by this Contractor and this Contractor shall conduct his work so as not to impede unnecessarily any work being done by others on or adjacent to the site.

1.07 PROTECTION OF SITE:

A. Except as otherwise provided herein, the Contractor shall protect all structures, pipelines, trees, power lines, shrubbery, lawns and agricultural crops during the progress of his work; shall remove from the site all cuttings, drillings, debris, and unused materials.

B. Water pumped from the well shall be conducted by temporary pipelines or wood or metal flumes approved by the Engineer to natural drainage channels away from the well site. Water shall not be discharged at a location which would cause flooding of or ponding on adjacent land not owned or controlled by the Owner, except by special permission in writing by the Owner and affected land owner(s).

C. Upon completion of the work, the site shall be restored as nearly as possible to its original condition, including the replacement, at the Contractor's sole expense, of any facility or landscaping which has been damaged beyond restoration to its original condition or which has been destroyed.

1.08 TEMPORARY ELECTRICAL ENERGY AND WATER:

A. The Contractor shall make arrangements for and pay the cost of any temporary electric energy. The Contractor shall be responsible for furnishing and transporting water to the drilling site.

1.09 COMPETENT WORKMEN:

A. The Contractor shall employ only competent workmen for the execution of his work and all such work shall be performed under the direct supervision of experienced personnel satisfactory to the Engineer.

1.10 FACILITIES OR MATERIALS TO BE FURNISHED BY THE OWNER OR BY OTHERS:

A. Space on which to work.

PART 2 - PRODUCTS

2.01 GENERAL REQUIREMENTS:

A. One (1) test well required, designated TM Test Well on the drawings, depth of bottom of screen below existing ground shall be approximately 155 feet. A section through the proposed well is included in the project drawings.

1. Complete detailed specifications of the work are as in other sections of these specifications.

2. The intent is finish the well at the bottom of the water bearing formation which is estimated to be 155 feet.

3. The completed well shall consist of the following principal items.

   a. Pilot hole, 6 inches minimum diameter by 155 feet deep, including samples and required tests.

   b. Finished hole, 20 inches diameter by 155 feet deep.

   c. Stainless steel screen, 12 inches diameter by 25 feet long, as shown on the drawings.

   d. Casing, 131 inches diameter by 41 feet long, as shown on the drawings.

   e. Selected gravel pack material from the bottom of the hole to 115 feet below the ground surface (approximately 40 feet of gravel pack).

   f. Grout seal from top of gravel pack to seven (7) feet below existing ground level.

   g. Development of well as specified.

   h. Test pumping of well as specified.

   i. Disinfection and capping of well.

B. Three (3) exploratory test holes/observation wells.

1. Each observation well shall be finished to the bottom of the water bearing formation.

2. Each completed observation well shall consist of the following estimated principal items:

   a. Finished hole, 6 inches minimum diameter by 155 feet deep.

   b. Slot cut PVC well screen (Schedule 40), 2 inches minimum diameter by 25 feet long.

   c. PVC casing (Schedule 40) 2 inches diameter by 140 feet long.

d. Gravel pack and clay-bentonite sealing mixture.

e. Concrete seal at surface and galvanized pipe with cover.

f. Development of each well as specified.

e. Proper abandonment of well, at no additional cost, if requested by Owner.

h. Completion of observation well(s) is contingent upon test hole log and the driller's and engineer's evaluation of the log. Should the test hole be undesirable as a location for an observation well, an additional hole or holes shall or may be drilled in accordance with these specifications, the Engineer's directions and the unit prices bid for test hole drilling.

2.02 SCREEN AND FITTINGS:

A. Reference Standard: AISI Type No. 304, 18-8 stainless steel.

B. Minimum Wall Thickness: 7 gauge (3/16 inch).

C. Manufacturers:

1. Johnson or Cook wire wound type, 12 inch inside diameter (I.D.) stainless steel screen with an outside diameter of 12.75 inches.

D. Bottom Plate: A 3/16 inch thick, 18-8 stainless steel plate shall be securely welded to the bottom of the screen for sealing the bottom of the well.

E. All sections and connections shall be welded together with full circumferential joints.

F. Screen Length: Shall be adequate to extend at least 80 percent of the full thickness of the water bearing formation; to be approved by the Engineer.

G. Screen Slot Size: To be determined by the Contractor and Screen Manufacturer, but in general shall be sized to retain ninety percent (90%) of the particle size of the select gravel packing media.

2.03 STANDARD STEEL CASING PIPE:

A. Material: Black steel pipe, ASTM Specification A106 and A53.

B. Joints: All sections shall be welded together with full circumferential joints.

C. Size: 12 inch inside diameter.

D. Wall Thickness: Minimum of 0.375 inches.

E. Weight: 49.56 pounds per foot (for plain end pipe).

2.04 GRAVEL PACKING MEDIA:

A. Gravel Packing Media: Washed gravel which is screened to the gradation best suited for the maximum development of water from the well aquifer and which, after development, will result in a finished well which does not pump sand.

B. Gradation: Determined by the Contractor and Screen Manufacturer after screen sieve analyses of samples taken from the water bearing formation have been completed and plotted.

C. Uniformity Coefficient: Less than 1.7 (1.5 or less preferred).

D. 70 Percent Size: Approximately four to six times the 70 percent size of the formation sand particles.

E. Testing: Immerse in concentrated, warm hydrochloric acid for 24 hours. Maximum loss shall not exceed 5 percent by weight of sample tested.

F. Gravel pack material shall consist of washed non-calcareous gravel. Approved sources are Northern Gravel Co., Muscatine, Iowa and Eau Claire Sand & Gravel Co., Eau Claire, Wisconsin.

G. Add and mix calcium hypochlorite, HTH or equal, 0.50 pounds per cubic yard of gravel, at the time gravel packing media is placed in well.

2.05 CONCRETE GROUT:

A. The concrete grout shall consist of a mixture of equal parts of sand and Portland cement and the minimum quantity of clean water (not over 6 gallons per cubic foot of cement) required to give a consistency that can be forced through the grout pipes.

PART 3 - DESCRIPTION OF WELL CONSTRUCTION WORK

3.01 SCOPE:

A. The Contractor shall furnish all labor, tools, equipment and material required to advance test hole(s) and to construct the well including all drilling and placing required to construct and install the screen, casing, gravel packing, concrete grout seal, and including all development work required.

3.02 GENERAL:

A. The well shall be drilled by either straight or reverse rotary drilling method.

3.03 DRILLING AND SAMPLING PROCEDURE:

A. The Contractor shall drill a 6 inch diameter observation well/pilot hole to obtain the data and samples required to design the gravel pack and screen size and then drill another hole 20 inches in diameter.

B. In the event that substantial differences in formation depths from those anticipated are encountered, the Contractor shall immediately contact the Engineer for instructions before proceeding further.

C. The 20 inch diameter hole is to provide a 3 inch thickness in the gravel pack and grout.

D. The Contractor shall take accurate material samples of unwashed cuttings for each five feet of drilling and at each change of formation throughout the entire depth of the well.

E. The Contractor and Screen Manufacturer shall, from the sieve anlysis, make a selection of the proper gradation of the gravel pack, and in turn, the proper size screen openings for the permanent well. The selections shall be reviewed with the Engineer prior to ordering the gravel pack and screen.

F. All mud loss shall be accurately tabulated during the drilling operation, if applicable.

3.04 SCREEN AND CASING INSTALLATION:

A. Stainless steel screen, 12 inch diameter, in one section, shall be installed concentrically in the drill hole.

B. The screen shall have a stainless steel bottom and shall be installed at the bottom of the well.

C. Extending upward from the screen a 12 inch diameter steel casing pipe shall be rigidly installed and fastened by full circumferential welded joints.

D. All of the described screen and casing shall be centered in the drill hole with suitable centering guides.

E. Centering guides shall not be welded directly to wire wound portion of the screen.

3.05 GRAVEL PACKING:

A. Following the setting of the 12 inch casing and attached screen, the annular spaces between the screen and drill hole shall be filled with selected washed and graded gravel pack.

B. The gravel shall be installed through a tremie pipe of 2 inch minimum diameter and raised in lifts no greater than 10 feet at one time. The gravel pack material shall be installed from the bottom of the well continuously upward to a point approximately 15 feet above the top of the screen.

C. Calcium hypochlorite, HTH or equal, shall be added and mixed with the gravel packing material at the rate of 0.50 pound per cubic yard of material at the time the material is placed in the well.

3.06 CONCRETE GROUT SEAL:

A. A concrete grout seal shall be installed from the top of the gravel pack to seven (7) feet below existing ground level.

B. Install concrete grout under pressure by means of a grout pump from the bottom of the annular opening upward to the required depth in one continuous operation.

C. Discontinue work on the well for 72 hours, or 24 hours when quick-set cement is used, to permit proper setting of the concrete grout.

3.07 DEVELOPMENT OF WELL:

A. The Contractor shall furnish all necessary pumps, compressors, high pressure jets, plungers, or other needed equipment and shall develop the well by such approved methods as shall be necessary to give the maximum yield to water per foot of drawdown and extract

from the water bearing formation in the well the maximum practical quantities of sand as may, during the life of the well, be drawn through the screen when the well is pumped under maximum conditions of drawdown, on either a continuous or intermittent basis.

B. The process shall be continued until the water from the well runs clear and continues to run clear after periods of stopping and starting of the development pumping equipment while pumping the well at a rate of up to 600 gallons per minute.

C. In the event that chemical additives, such as polyphosphates, are required to aid in development of the well through dissolving drilling muds, silts or clays which may have sealed or partially sealed the outer surfaces of the bore hole in the water bearing portion of the aquifer, the Contractor shall furnish and apply same at no additional cost to the Owner.

D. The methods of developing to be used shall be submitted to and approved by the Engineer. The minimum development time considered acceptable for the well is 8 hours. The Contractor shall provide such additional development time as required for the well at no additional cost to the Owner to meet the efficiency requirements specified below.

E. The completed well shall have an actual efficiency of not less than 80 percent of the theoretical efficiency, based on the pumping test specified in Section 4.05 hereof. The efficiency shall be calculated by the Engineer using non-equilibrium methods and making due allowance for the actual penetration of the aquifer with the amount of screen installed.

F. The completed well shall not pump sand.

G. Failure by the Contractor to construct a well with an efficiency of 80 percent or higher, as defined above, or to construct a sand free well will be considered negligence on the part of the Contractor and may result in refusal to accept the well by the Owner.

H. Each observation well shall be developed so that the water level in the well reflects the water level or piezometric surface in the aquifer. This shall be determined by measuring the static water level and then pouring a volume of clear water into the well equivalent to the volume within a five foot length of the casing. If the water level returns to the initial static level within five minutes, the observation well will be considered open.

PART 4 - TESTING FOR YIELD AND DRAWDOWN

4.01 SCOPE:

A. The Contractor shall furnish all labor, materials, equipment and appurtenant items required to conduct and complete the pumping test described herein for the well.

4.02 GENERAL:

A. The pumping test on well will consist of a 72 hour drawdown test followed by an 24 hour recovery observation period, with drawdown observations made in accordance with the schedule set out in Part 4.05.

B. After the well has been completely constructed, developed and cleaned out and the depth of the well accurately measured, the Contractor shall notify the Engineer to that effect and shall make the necessary arrangements for conducting the pumping test.

C. The Engineer may order the Contractor to make additional pumping tests if the test pump fails within the initial 72 hour test period or the Contractor neglects to perform proper observations.

D. All tests shall be run with similar equipment and in a like manner to that hereinafter described. Tests shall be made at least 72 hours apart. Additional tests requested by the Engineer because of pump failure during the initial 72 hour period or Contractor negligence will be at the Contractor's expense.

E. If conditions are encountered during the 72 hour test period which indicate that additional data are required, the Engineer may direct the test pumping continue for a longer period, not to exceed 96 hours (a total of 168 hours). Such extensions of the test pumping period shall be paid for consistent with the unit prices in the Contractor's Proposal.

4.03 TEST PUMP:

A. The Contractor shall furnish and install necessary pumping equipment required for pumping of the well.

B. The pump shall be capable of pumping to the required point of discharge a maximum of at least 600 gallons per minute but with satisfactory throttling devices so that the discharge may be reduced to 100 gallons per minute if so directed by the Engineer. The pumping rate shall be determined by the Engineer prior to calibrating the test equipment, but is estimated to be 400 gpm.

C. The pumping unit shall be complete with prime mover of ample power, controls and appurtenances including all drives, gears and universal shafts and shall be capable of being operated without interruption and at a uniform rate throughout the test.

4.04 AUXILIARY EQUIPMENT:

A. The Contractor shall furnish all necessary discharge piping for the pumping unit, which shall be of sufficient size and length to conduct the water being pumped to the point of discharge, which will preclude the possibility of local recharge by percolation. Prior to pumping the Engineer's approval of the discharge point is required. Up to 1,200 feet of discharge piping may be required.

B. The Contractor shall furnish, install and maintain equipment of approved size and type for accurately measuring the flow of water; such equipment to be a weir box, orifice or water meter.

C. To measure the level of the water in the pumping and observation wells the Contractor shall furnish three (3) electric water level sounding devices, capable of indicating drawdown to the nearest 1/8 inch (0.01 ft.).

D. Air lines shall not be used in measuring pumping levels during the pumping tests.

4.05 PUMPING AND RECOVERY TESTS:

A. The Contractor shall calibrate his test pump so that he knows precisely the rate of flow to be expected throughout the duration of the pumping test. This flow rate shall be held absolutely constant throughout the entire test pumping period.

B. The Contractor shall furnish sufficient competent personnel to make the necessary observations. The water level in the well and the designated observation well(s) shall be recorded immediately prior to the start of the pumping test. The schedule of observations shall be as shown below:

<u>(During Pumping and Recovery Period)</u>

Each 1 minute for first 5 minutes.
Each 5 minutes for next 55 minutes.
Each 20 minutes for next 60 minutes.
Each 30 minutes for next 2 hours.
Each 60 minutes for remainder of pump and recovery test.

C. Upon completion of the pumping period the test pump will be stopped and drawdown recovery shall be recorded 24-72 hours according to the above schedule consistent with the length of the pumping test.

D. Each observer shall initial and record the time of each observation as well as the drawdown at each time on an approved log sheet. In addition to drawdown and recovery readings, the Contractor shall also record the following regarding the test pump:

1. Type of pump used in the test.

2. Rated horsepower and capacity.

3. Dimensional data as to pump setting, and location of intake with respect to ground level.

One copy of each log sheet shall be delivered to the Engineer upon completion of each test.

4.06 REMOVAL OR TEST EQUIPMENT:

A. Upon instructions received from the Engineer that the pumping test has been satisfactorily completed, the Contractor shall immediately proceed to remove any and all equipment furnished by him for the pumping test.

B. The Contractor shall remove by bailing, pumping, or other approved methods any sand, stones, or foreign material that may have become deposited in the well.

PART 5 - TESTING FOR PLUMBNESS AND ALIGNMENT

5.01 SCOPE OF WORK:

A. If requested by the Engineer, the Contractor shall furnish all labor, material, equipment and tools required to test the well for plumbness and alignment.

5.02 REQUIREMENT TO TEST:

A. The hole shall be constructed and all casing and liners set round, plumb and true to line as defined herein. To demonstrate the compliance of his work with this requirement the Contractor shall if requested by the Engineer, make the tests described herein in the manner prescribed by, and to the satisfaction of, the Engineer.

B. Tests for alignment and plumbness must be made after the complete construction of the well and before acceptance. Additional tests, however, may be made by the Contractor during the performance of the Work.

C. No specific payments shall be made by the Owner for making these tests.

5.03 DESCRIPTION OF TEST:

A. Plumbness and alignment shall be tested by lowering into each well to the top of the screen a section of pipe 20 feet long or a dummy of the same length. The outer diameter of the plumb shall not be more than 1/2 inch smaller than the diameter of that part of the casing or hole being tested.

B. If a dummy is used it shall consist of a rigid spindle with three rings, each ring being 12 inches long. The rings shall be truly cylindrical and shall be spaced one at each end of the dummy and one ring in the center thereof. The central member of the dummy shall be rigid so that it will maintain the alignment of the axes of the rings.

5.04 REQUIREMENTS FOR PLUMBNESS AND ALIGNMENT:

A. The plumbness and alignment of the well shall be corrected by the Contractor at his own expense if:

1. The pipe or dummy fails to move freely throughout the length of the casing or hole to the top of the screen. (Requirement for alignment).

2. The well varies from the vertical in excess of two-thirds the inside diameter of that part of the well being tested per 100 feet of depth, or beyond limitations of this test. (Requirement for plumbness).

B. Should the Contractor fail to correct such faulty alignment of plumbness, the Engineer may refuse to accept the well.

C. The Engineer may waive the requirements of this paragraph for plumbness if all of the following apply:

1. The Contractor has exercised all possible care in constructing the well and the defect is due to circumstances beyond his control.

2. The utility of the completed well will not materially affected.

3. The cost of remedial measures will be excessive.

D. In no event will the provisions of this paragraph with respect to alignment be waived.

PART 6 - DISINFECTION

6.01 TIME OF DISINFECTION:

A. After the well has been completely constructed, it shall be thoroughly cleaned of all foreign substances, including tools, timbers, rope, debris of any kind, cement, oil, grease, joint dope and scum.

B. The casing pipe shall be thoroughly swabbed, using alkalies if necessary, to remove oil, grease, or joint dope.

C. The well shall then be disinfected with a chlorine solution.

6.02 CHLORINE SOLUTION:

A. The chlorine solution used for disinfecting the well shall be of such volume and strength and shall be so applied that a concentration of at least 50 ppm of chlorine shall be obtained in all parts of the well.

B. Chlorine solution shall be prepared and applied in accordance with the directions of, and to the satisfaction of, the Engineer, and shall remain in the well for a minimum of 24 hours prior to removal by pumping.

C. After the above specified chlorination the Contractor shall obtain bacteriological samples for analysis. If satisfactory results are not obtained the Contractor will immediately be contacted and instructed to re-disinfect the well at his own expense until satisfactory results are obtained.

6.03 REQUIREMENTS FOR DISINFECTION OF PUMPING EQUIPMENT:

A. In the event that the test pump is installed after the well has been disinfected, all exterior parts of the pump and discharge piping coming in contact with the water shall be dusted with a chlorine compound as directed by the Engineer.

PART 7 - SAMPLES AND RECORDS

7.01 CHEMICAL ANALYSIS:

A. Upon completion of the test pumping the Contractor shall take two (2) samples of water (1 gallon total volume minimum) from the well and submit them to the Owner.

7.02 SAMPLE SUBMITTAL REQUIREMENTS:

A. The Contractor shall furnish the well log, mud loss data, casing and grouting schedule, cutting samples, and the results of pumping test, of each well and each observation well to the Engineer.

B. Well log shall include the following:

1. Reference point for all depth measurement.

2. Depth at which each change of formation occurs.

3. Depth at which the water was first encountered.

4. Identification of the material of which each stratum is composed.

5. Nominal hole diameter of the well bore.

6. Total depth of the completed hole.

7. Depth or location of any lost drilling fluids, drilling materials or tools.

8. Depth and description of the well casing.

9. Description of well screens including diameter, length, material, slot sizes, amount of open area, and location.

PART 8 - PROTECTION OF QUALITY OF WATER

8.01 PRECAUTIONS TO BE TAKEN:

A. The Contractor shall take such precautions as are necessary or as may be required permanently to prevent contaminated water or water having undesirable physical or chemical characteristics from entering, through the opening made by the Contractor in drilling the well, the stratum from which the well is to draw its supply.

B. The Contractor shall also take all necessary precautions during the construction period to prevent contaminated water, gasoline, etc., from entering the well either through the opening or by seepage through the ground surface.

8.02 CORRECTIVE WORK:

A. In the event that the well becomes contaminated or that water having undesirable physical or chemical characteristics does enter the well due to the neglect of the Contractor, he shall, at his own expense, perform such work or supply such casing, seals, sterilizing agents or other material as may be necessary to eliminate the contamination or shut off the undesirable water.

PART 9 - TEMPORARY CAPPING

A. At all times during the progress of the work, the Contractor shall protect the well in such manner as effectively to prevent either tampering with the well or the entrance of foreign matter into it, and, upon suspension of the work for any reason, he shall provide and set a substantial screwed, flanged or welded cap satisfactory to the Owner on the well. The cap shall be installed such that the water level in the well can be measured with an electric drawdown probe.

PART 10 - ABANDONMENT OF WELL(S)

10.01 SCOPE:

A. The Contractor shall furnish all labor, materials, equipment and appurtenant items required to conduct and complete any necessary or requested well abandonments.

10.02 GENERAL:

A. In the event that the Contractor fails to sink the well to the depth specified or to such depth as ordered by the Engineer, or should he abandon the well because of loss of tools, negligence, or for any other cause, he shall, if required and as directed by the Owner, and at his own expense, fill the abandoned hole and remove any casing and materials installed therein. Salvaged material furnished by the Contractor shall remain his property.

B. Upon the request of the Owner, the Contractor shall properly abandon any and all associated observation wells at no additional cost to the Owner.

10.03 PERMANENT ABANDONMENT OF WELLS:

A. A well that is to be permanently abandoned shall be disconnected from the system and the hole filled to prevent contaminating materials from entering the water-bearing ground formations. Concrete or cement grout shall be used for sealing material; however, if the well is so large that the use of these materials is not practical, the filling materials should be selected so as to restore natural conditions as nearly as possible. Sand and heavy drilling fluid may be used in sand and gravel sections of wells.

B. All materials debris and obstructions that may interfere with sealing operations shall be removed from the well. Liner pipe shall be removed or perforated when necessary to assure placement of an effective seal. The State agency which regulates well construction will be consulted for instruction in case of abandonment of a contaminated well or where there is a question of proper procedure.

C. All casing and screen may be salvaged except casing that has been cemented in place. The well shall be filled with appropriate sealing materials.

D. The top of the hole shall be filled with 10 feet of concrete or cement grout to within 2 feet of the ground surface. Casing remaining in the hole shall be cut off at least 2 feet below land surface. The remaining top 2 feet of hole shall be filled with native top soil.

E. An abandoned well shall be filled and sealed by one of the following methods in accordance with the materials penetrated, in such a manner as to prevent it from acting as a channel for pollution:

1. A well in unconsolidated deposits shall be filled with clean sand and puddled clay or cement grout to provide a permeability no greater than the natural condition.

2. The section of a well in a cavernous or creviced rock (such as cavernous limestone or basalt lava crack, creviced granite, etc.) shall be filled with concrete or cement grout or alternate layers of concrete or cement grout, gravel or stone aggregate. The filling shall be completed at the top by a layer of cement grout extending at least ten feet (10 ft.) into the above overlying formation.

3. When concrete, cement grout, puddled clay or heavy drilling fluid is used for sealing an abandoned well, it shall be inserted in the well through a grout pipe from the bottom of the well upward to the surface under pressure and in one continuous operation.

4. Test wells shall be sealed to prevent the well from being a channel for the vertical movement of water and a source of contamination to the groundwater supply.

PART 11 - CLEAN UP

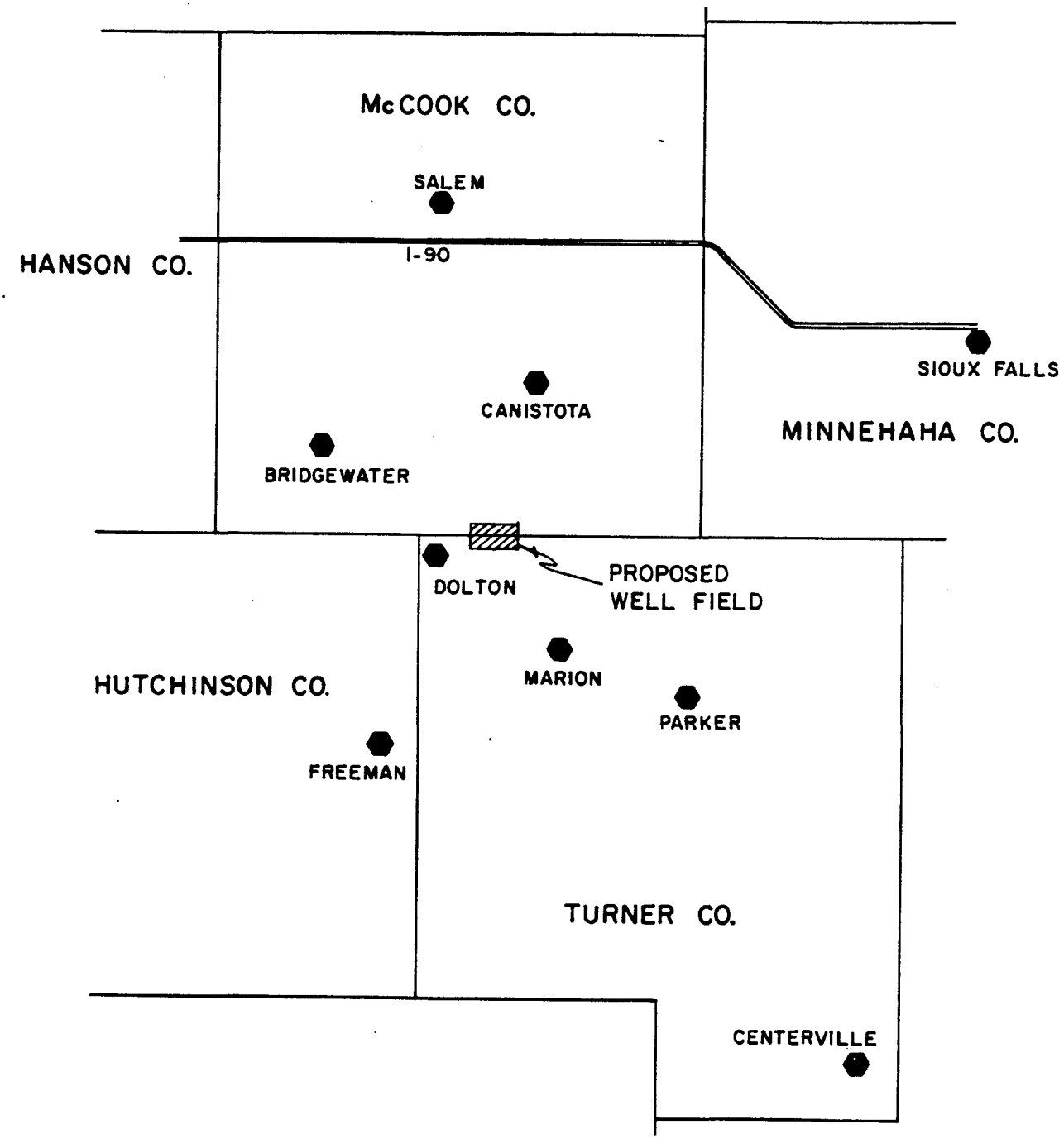
A. The Contractor shall fill and level the mud pits and shall remove all debris and leave the site in a clean condition satisfactory to the Owner.

* * * END OF SECTION * * *

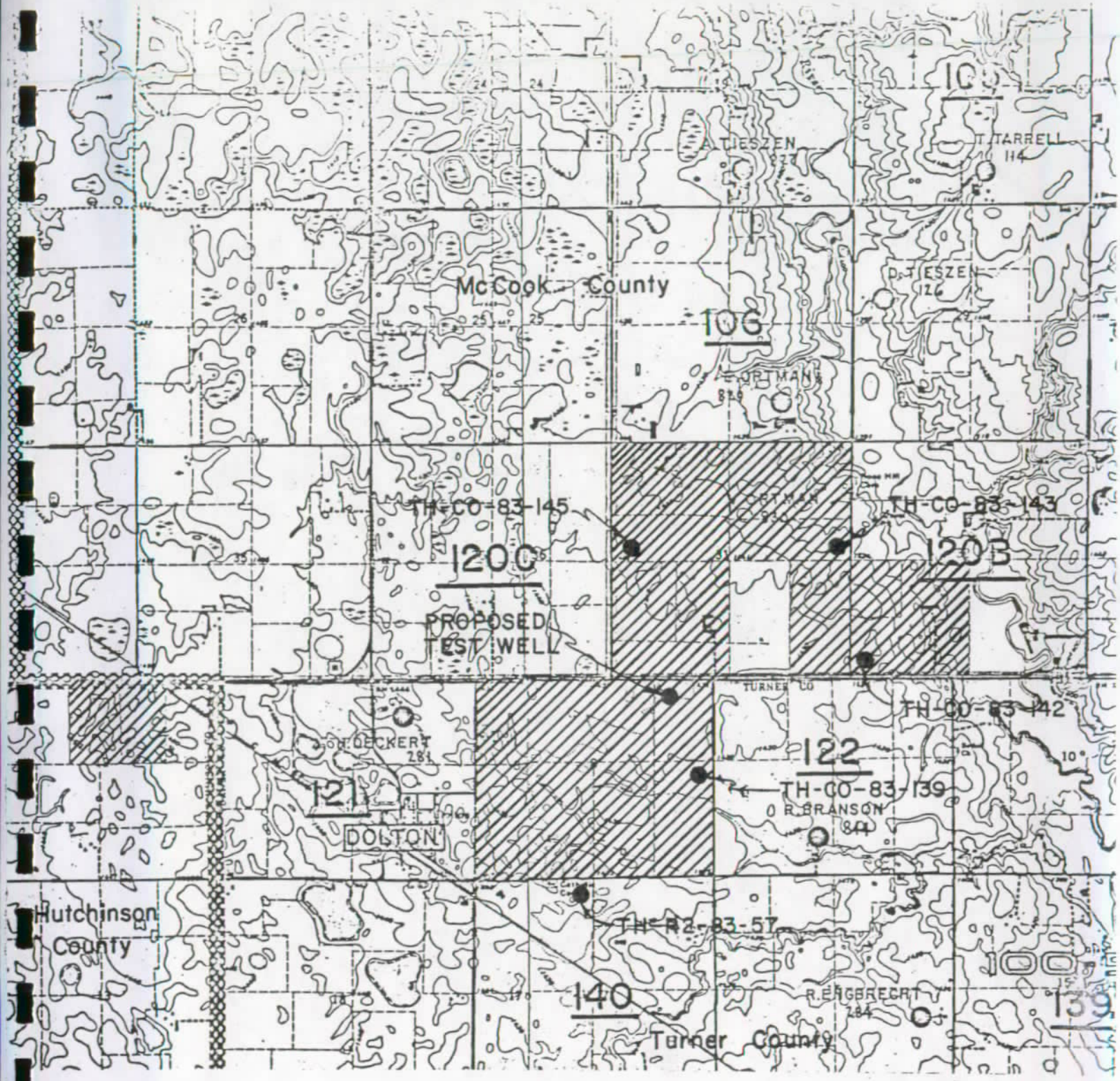
DRAWINGS

Counties

Orig Appl	New Appl.	Actual
WELL LOCATIONS		



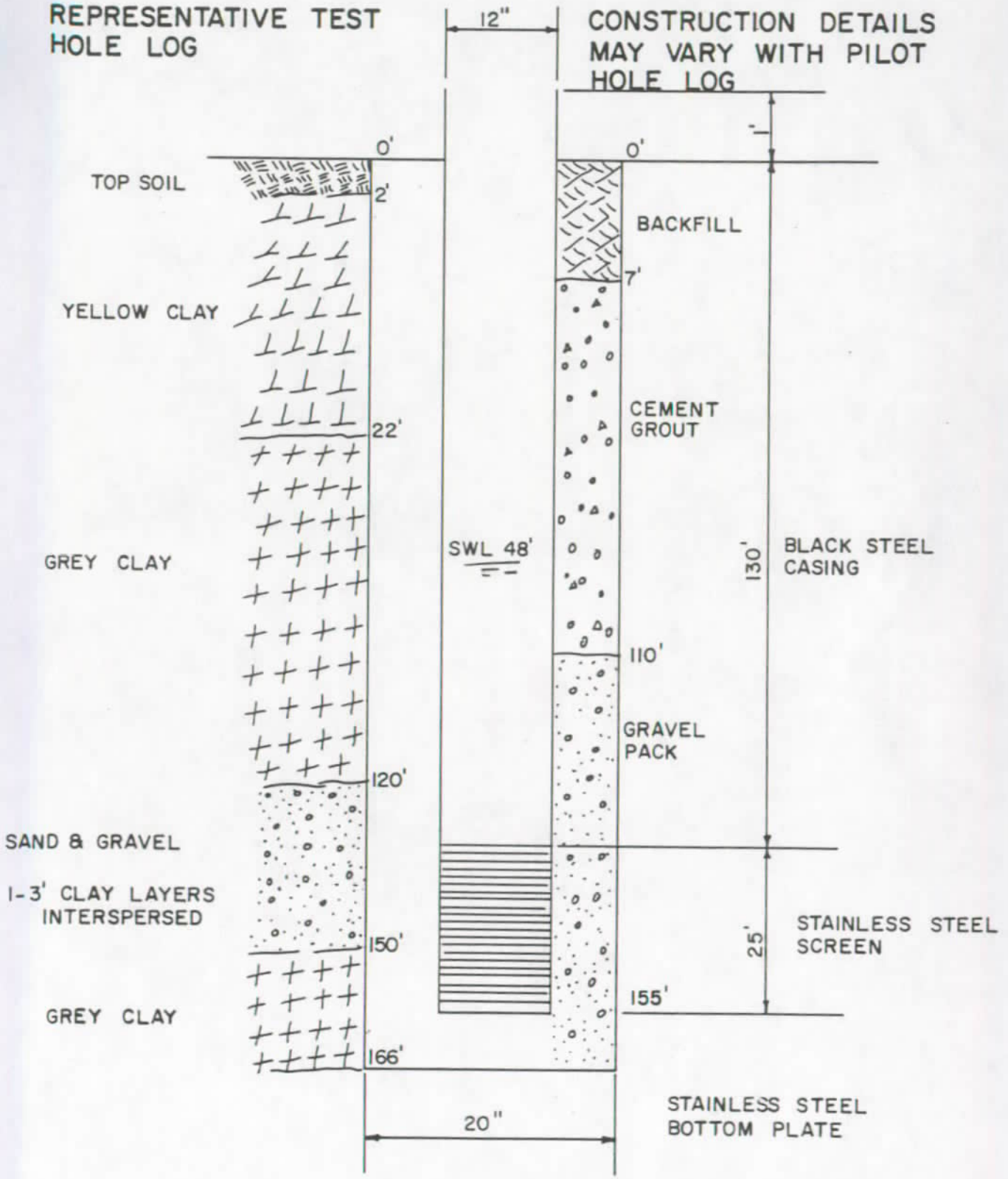
GENERAL LOCATION MAP
TM WELL FIELD



LOCATION PLAN

TM TEST WELL

PROPOSED WELL DESIGN

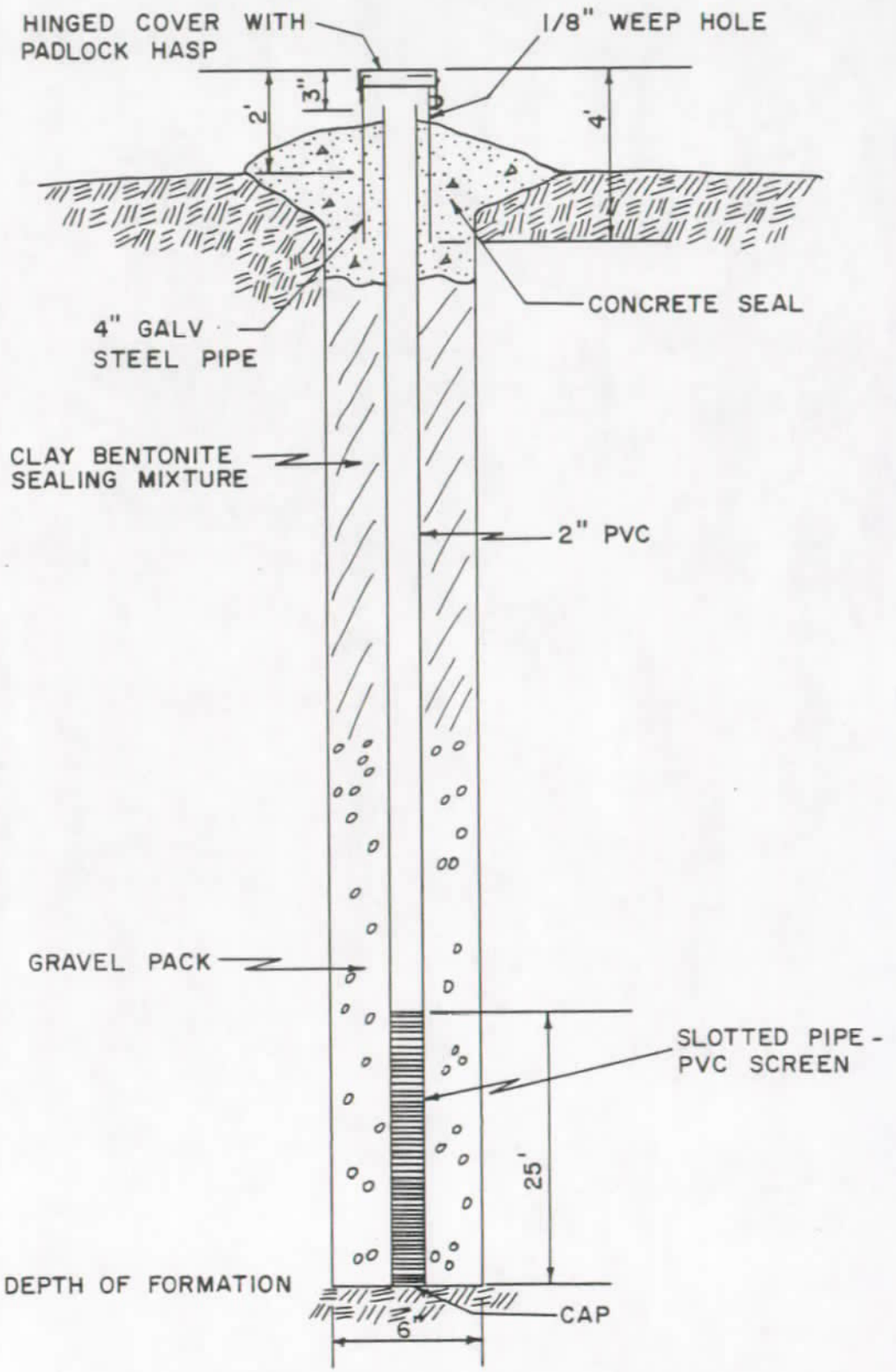


WELL CROSS SECTION

TM RURAL WATER DISTRICT
PARKER, S.D.

PROPOSED OBSERVATION WELL CONSTRUCTION

DRAWING NOT TO SCALE



OBSERVATION WELL DETAILS

TM RURAL WATER DISTRICT
PARKER, S.D.

SOUTH DAKOTA GEOLOGICAL SURVEY

Location

Location 100N-55W-8dbaa Section: T. R.

Test Hole: CO-83-139 Well: Land Owner:

County: Turner Date: 8-8-83 Elevation: 1425(T)

E-Log: Samples: 120-150 Drilling Company: SDGS

Project: Turner-McCook RWS Geologist: D. Holly

Rotary: Comb Auger: Driller: S. Mitchell

PRELIMINARY REPORT SUBJECT TO MODIFICATION

Thickness	Lithologic Description	From - to Feet
0-2	Silt, grayish-brown, clayey (topsoil)	
2-22	Clay, dusky yellow to light olive brown; silty, sandy, gravelly, oxidized, calcareous (till)	
22-120	Clay, medium-dk olive gray, silty, sandy, gravelly, sandy, oxidized, calcareous (till)	
120-150	Sand and gravel, medium sand to very fine gravel, some fine to medium gravel; most subangular to subrounded quartz, carbonate, mudrock and black crystalline rock fragments; contains some thin clay layers 1-4 feet thick.	
150-166	Clay, medium-dark-gray, silty, sandy, gravelly; unoxidized, calcareous (till)	
	T.D 166	
	Total casing & screen 150' 147'	
	5' sandpoint & 15' between slots above sand point	
	Gravel packed.	
	M.P. 2.2'	
	W.L. 49.8'	
	Cond 700 - no yellow color - well pumped excellent - made all kinds of water	

ICON-54W-8daaq

SAMPLE _____

WATER QUALITY—PAGE 2

Ca	33 m JEQ/ mcc 9/14/83	Cd	b
Na	183 m mcc 9/14/83	Ag	b
Mg	9 m JEQ/ mcc 9/14/83	Mo	b
HCO_3	m	Sr	m
CO_3	m	B	b
Cl	26 m DAD 8/19/83	Ni	b
SO_4	38 m DAD 9->-83	Rb	m
K	8.0 m JEQ/ mcc 9/14/83	Cs	b
Li	m	Be	b
Mn	0.01 m mcc 9/14/83	Ba	b
Fe	<0.05 m mcc 9/14/83	Cr	b
F	0.58 m JWF 8/19/83	Zn	b
NO_3-N	<0.05 m DAD 8/19/83	Cu	b
Al	m	Pb	b
Si	m	Hg	b
As	b	Se	b
Sb	b	TDS	650 m@180°C DAD 8-18-83

m=ppm(mg/l), b=ppb(µg/l)

COND 944 µmhos@25°C DAD 8-16-83

SOUTH DAKOTA GEOLOGICAL SURVEY

Location 100N-55W-17bccc Section: T. R.

Test Hole: R2-83-S7 Well: Land Owner:

County: Turner Date: 6-23-83 Elevation: 1930 (T)

E-Log: Yes Samples: 130-160, 225-242 Drilling Company: SDGS

Project: Turner-McCook RWS Geologist: D Holly

Rotary: ✓ Auger: Driller: M. Thompson

PRELIMINARY REPORT SUBJECT TO MODIFICATION

Thickness	Page 1 of 2 Lithologic Description	From - to Feet
0-3	Silt, gravelly-black, clayey (topsoil)	
3-18	Clay, light-olive brown, silty, sandy, gravelly; oxidized, calcareous (till)	
18-85	Clay, medium-dark gray, silty, sandy, gravelly; unoxidized, calcareous; gravel lenses from 22 & 23 27-28 (till)	
85-92	Sand and gravel, coarse sand to very fine gravel; mostly subangular to subrounded carbonate and mudrock fragments	
92-130	Clay, medium-dark gray, silty, sandy, gravelly; unoxidized, calcareous (till)	
130-160	Sand and gravel, coarse sand to fine gravel; silty, clayey; mostly subangular to subrounded carbonate and mudrock fragments; contains many clay layers from 1 to 3 feet thick	
160-225	Clay, medium-dark gray, silty, sandy, gravelly; unoxidized, calcareous (till)	
225-242	Sand and gravel coarse sand to medium gravel; silty, clayey; mostly subangular to subrounded carbonate and mudrock fragments; contains numerous clay layers from 1 to 3 feet thick	
242-250	Clay, medium-dark gray, silty, sandy, gravelly; unoxidized, calcareous (till)	

SOUTH DAKOTA GEOLOGICAL SURVEY

Location

Location 100N-55W-17booo (cont) Section: T. R.

Test Hole: Well: Land Owner:

County: Date: Elevation:

E-Log: Samples: Drilling Company:

Project: Geologist:

Rotary: Auger: Driller:

Thickness	Lithologic Description	From - to Feet
250-251	Quartzite, pink; took lots of water;	
	may have been a thin layer of	
	chalk above quartzite	
	Total casing and screen 15 ft;	
	includes 5 ft 018 slot sandpoint	
	and 15 ft hacksaw slots above	
	sandpoint. Gravel packed w/concrete sand	
	Stick-up 1.9 ft	
	W. L. 55.2 ft 6-25-83	
	Elec. Conductivity 700 Mmhos/cm	

PRELIMINARY REPORT SUBJECT TO MODIFICATION

100N-55W-17baaq

SAMPLE _____

WATER QUALITY—PAGE 2

Ca	24 m TQB 6/29/83	Cd	b
Na	220 m TQB 6/29/83	Ag	b
Mg	8 m TQB 6/29/83	Mo	b
HCO_3	m	Sr	m
CO_3	m	B	b
Cl	20 m 6-28-83 DAD	Ni	b
SO_4	10 m DAD 6-28-83	Rb	m
K	m	Cs	b
Li	m	Be	b
Mn	0.26 m TQB 6/29/83	Ba	b
Fe	0.39 m TQB 6/29/83	Cr	b
F	.55 m JWF 6/28/83	Zn	b
NO_3-N	0.28 m DAD 6-28-83	Cu	b
Al	m	Pb	b
Si	m	Hg	b
As	b	Se	b
Sb	b	TDS	600 m@180°C JWF 6/29/83
		COND	1030 1030 µmhos@25°C JWF 6/29/83

m=ppm(mg/l), b=ppb(µg/l)

SOUTH DAKOTA GEOLOGICAL SURVEY

Location

Location 101N - 54W - 3loddd Section: T. R.

Test Hole: CO-83-143 Well: Land Owner:

County: McCook Date: 8-10-83 Elevation: ~~1420~~ 1420 (T)

E-Log: yes Samples: 160-180, 243-253 Drilling Company: SDGS

Project: Turner-McCook RWS Geologist: D Holly

Rotary: Combo Auger: Driller: S. Mitchell

PRELIMINARY REPORT SUBJECT TO MODIFICATION

Thickness	Lithologic Description	From - to Feet
0-2	Silt, grayish-black sandy (topsoil)	
2-12	Clay, dusky-yellow to light-olive-brown, silty sandy, gravelly, oxidized, calcareous (till)	
12-~~42~~ 39	Gravel, very fine to coarse, sandy; mostly subangular to subrounded carbonate, ~~and~~ black crystalline and ~~mig~~ assorted, lighter colored silicate rock fragments; highly oxidized ~~to~~ from 12-30 feet.	
~~42~~ 54-125	Clay, medium-dark-gray, silty, sandy, gravelly; unoxidized, calcareous; contains many sand lenses (till)	
125-184	Sand, fine to very coarse, gravelly; mostly subrounded carbonate and black crystalline rock fragments and quartz; contains many clay layers from 1 to 2 feet thick	
184-243	Clay, medium-dark-gray, silty, sandy, gravelly; unoxidized, calcareous; contains sand lenses from 209 to 215 feet and 218 to 221 feet (till)	
243-253	Sand and gravel, medium sand to very fine gravel; mostly subrounded carbonate, black mudrock and black crystalline rock fragments and quartz	
253-256	Clay or maybe chalk, some chalk fragments were found but could have been in sand and gravel - chalk very chattery	

Total casing & screen 185'
5' sandpoint & 15' hacksaw slots above point
Gravel packed.

M.P. 1.8
U.C. 33.7 8-10-83
Cond 1000 8-10-83

T.D 256.

10N-54W-31 add'd

SAMPLE _____

WATER QUALITY—PAGE 2

Ca	87 m JEQ/ mcc 9/14/83	Cd	b
Na	247 m mcc 9/14/83	Ag	b
Mg	25 m JEQ/ mcc 9/14/83	Mo	b
HCO_3	m	Sr	m
CO_3	m	B	b
Cl	20 m DAD 8/14/83	Ni	b
SO_4	492 m DAD 9-7-83	Rb	m
K	14.2 m JEQ/ mcc 9/14/83 dup 14.2	Cs	b
Li	m	Be	b
Mn	0.42 m mcc 9/14/83	Ba	b
Fe	<0.05 m mcc 9/14/83	Cr	b
F	0.50 m JWE 8/19/83	Zn	b
NO_3-N	<0.05 m DAD 8/14/83	Cu	b
Al	m	Pb	b
Si	m	Hg	b
As	b	Se	b
Sb	b	TDS	1110 m@180°C DAD 8-18-83
		COND	1590 µmhos@25°C DAD 8-16-83

m=ppm(mg/l), b=ppb(µg/l)

SOUTH DAKOTA GEOLOGICAL SURVEY

Location

Location 101N-54W-31bccc Section: T. R.

Test Hole: CO-83-145 Well: Land Owner:

County: McCook Date: 8-11-83 Elevation: 1440 (T)

E-Log: Yes Samples: 145-155 Drilling Company: SDGS

Project: Turner-McCook RWS Geologist: D Holly

Rotary: Combo Auger: Driller: S. Mitchell

PRELIMINARY REPORT SUBJECT TO MODIFICATION

Thickness	Lithologic Description	From - to Feet
0-2	Silt, grayish-black, clayey (topsoil)	
2-24	Clay, dusky-yellow to light olive brown, silty, sandy, gravelly, oxidized, calcareous (till)	
24-136	Clay, medium-dark gray, silty, sandy, gravelly, unoxidized, calcareous, contains several sand layers approximately 1 foot thick	
136-155	Sand, medium to very coarse, gravelly, mostly subrounded quartz, carbonate and black crystalline rock fragments; contains several clay or silt layers from 1 to 3 feet thick.	
155-180	Silt, medium dark gray very clayey, to very sandy	
180-206	Clay, medium-dark gray, silty, sandy, gravelly, unoxidized, calcareous (till)	
	T.D. 206	
136	Chatters but hard no sand samples, sandy Thin sand @ 155'	Total casing & screen ~~157~~ 153 ft
70	Rotary sand	5' sandpoint & 15' hacksaw slots above sandpoint.
	Gravel packed	
	M.P. 2.1	
	W.L. 15.4 8-12-83 sulfate smell	
	Grad. 700 8-12-83 well color	

101N-54W-31 bccc

SAMPLE _____

WATER QUALITY—PAGE 2

Ca	44 m JEQ/ MCC 9/14/83	Cd	b
Na	7.8 m MCC 9/14/83	Ag	b
Mg	1.8 m JEQ/ MCC 9/14/83	Mo	b
HCO_3	m	Sr	m
CO_3	m	B	b
Cl	22 m DAD 8/14/83	Ni	b
SO_4	61 m DAD 9-7-83	Rb	m
K	8.8 m JEQ/ MCC 9/14/83	Cs	b
Li	m	Be	b
Mn	0.08 m MCC 9/14/83	Ba	b
Fe	<0.05 m MCC 9/14/83	Cr	b
F	0.55 m JWF 8/19/83	Zn	b
NO_3-N	<0.05 m DAD 8/14/83	Cu	b
Al	m	Pb	b
Si	m	Hg	b
As	b	Se	b
Sb	b	TDS	680 m@180°C DAD 8-18-83
		COND	1020 µmhos@25°C DAD 8-16-83

m=ppm(mg/l), b=ppb(µg/l)

SOUTH DAKOTA GEOLOGICAL SURVEY

Location

Location 10N-5W-32ccc Section: T. R.

Test Hole: CO-83-142 Well: Land Owner:

County: ~~Turner~~ McCook Date: 8-9-83 Elevation: 1420(T)

E-Log: Yes Samples: 135-145, 145-155 Drilling Company: SDGS

Project: Turner-McCook RWS Geologist: D. Holly

Rotary: Combo Auger: Driller: S. Mitchell

PRELIMINARY REPORT SUBJECT TO MODIFICATION

Thickness	Lithologic Description	From - to Feet
0-2	Silt, grayish black ~~clay~~ sandy (topsoil)	
2-12	Clay, dusky-yellow to light-olive brown, silty, sandy, gravelly; oxidized, calcareous (till)	
12-132	Clay, medium dark gray - silty, sandy, gravelly; unoxidized, calcareous; sand lenses common throughout interval from 1 to 3 feet thick (till)	
132-158	Sand and gravel; medium sand to very fine gravel; mostly subangular to subrounded carbonate, ~~tl~~ mudrock and black crystalline rock fragments and quartz; contains several clay and silt lenses from 1 to 3 feet thick	
158-186	Clay, medium-dark-gray, silty, sandy, gravelly; unoxidized, calcareous till	
	T.D 186 Ft.	
	Total Casing & Screen 160 Ft.	
	5 sand point + & 15 hacksaw slots above sand point	
	Gravel packed	M.P. 2.2'

12-45 Sand
45-135 Clay
135-150 Sand
150-162 Sand & clay
162-186 Clay
T.D. 186

W.L. 45' 8-10-83 Cond 1000

Cond 1000

10IN-54W-32cccc

SAMPLE _____

WATER QUALITY—PAGE 2

Ca	88 m JEQ/ mcc 9/14/83	Cd	b
Na	26 m mcc 9/14/83	Ag	b
Mg	22 m JEQ/ mcc 9/14/83	Mo	b
HCO_3	m	Sr	m
CO_3	m	B	b
Cl	12 m DAD 8/19/83	Ni	b
	512 correction by mcc 9/15/83		
SO_4	~~227~~ m 9-7-83 DAD	Rb	m
K	13.9 m JEQ/ mcc 9/14/83	Cs	b
Li	m	Be	b
Mn	0.56 m mcc 9/14/83	Ba	b
Fe	0.07 m mcc 9/14/83 Average of 2 values N_2 = .43 ppm Dup = .44 ppm	Cr	b
F	0.44 m JWF 8/19/83	Zn	b
NO_3-N	9 0.05 m DAD 8/14/83	Cu	b
Al	m	Pb	b
Si	m	Hg	b
As	b	Se	b
Sb	b	TDS	1140 m@180°C DAD 8-18
		COND	1609 µmhos@25°C DAD 8

m=ppm(mg/l), b=ppb(µg/l)

ORIGINAL

SOUTH DAKOTA DEPARTMENT OF

WATER AND NATURAL RESOURCES

* *

IN THE MATTER OF THE AMENDMENT OF WATER PERMIT NO. 4988-3, TM RURAL WATER DISTRICT.

* *

DEPOSITION OF GALE N. SELKEN

* *

BEFORE: Richard A. Christoffer, Notary Public and Registered Professional Reporter, Pierre, South Dakota.

* * * * *

APPEARANCES: DENNIS DUNCAN, ESQ.
Zimmerman and Duncan
Attorneys at Law
P. O. Box 547
Parker, South Dakota 57053

Attorney for TM Rural Water District.

HAROLD H. DEERING, JR., ESQ.
Assistant Attorney General
500 E. Capitol
Pierre, South Dakota 57501

Attorney for South Dakota Department of Water & Natural Resources.

PROCEEDINGS: The above-entitled Deposition commenced at 4:45 p.m. on Wednesday, August 9, 1989, in the Attorney General's Conference Room, Capitol Building, Pierre, South Dakota.

CAPITAL REPORTING SERVICES
P. O. Box 903
Pierre, SD 57501
(605) 224-7611

GALE N. SELKEN, having been first duly sworn, was examined and testified as follows:

EXAMINATION

BY MR. DUNCAN:

Q Would you please state you name for the record.

A Gale N. Selken.

MR. DUNCAN: I assume we can have the standard stipulation on this?

MR. DEERING: That's fine.

BY MR. DUNCAN:

Q And your age?

A 39.

Q Occupation?

A I'm a hydrologist for the Department of Water and Natural Resources.

Q How long have you been in that particular position with the South Dakota Department of Water and Natural Resources?

A Since 1976.

Q And during that period of time you've always been employed by the Department as a hydrologist?

A No. I have held titles of Natural Resources Engineer I, II, and III, and also Hydrologist I, II, and III.

Q For my benefit primarily could you describe what a hydrologist is as it would affect your employment by

the Department.

A As employed by the Department a hydrologist does ground water studies, surface water studies, including flood routing, modeling of ground water flow. Also depends which division they are working for, which various fields they are into. As I am employed I work both in surface water and ground water fields.

Q Mr. Selken, as I understand it you're familiar with the Notice of Hearing that's been served on TM Rural Water District concerning a limitation, a proposed limitation to be put on their diversion of water from the Dolton aquifer; is that correct?

A That's correct.

Q And just very briefly could you describe for me what role, if any, would you have had in any decision making process which resulted in that Notice of Hearing concerning TM Rural Water?

A That Notice came out after I wrote a report on the Dolton aquifer concerning the Hanson Rural Water System and TM Rural Water System.

Q Now, as I understand it, the TM Rural Water System, you have done some studies concerning the Dolton aquifer after they began pumping in 1985; is that correct?

A That's correct.

Q And it's based on these studies that you have done and

studies that you have reviewed that ultimately this action was taken by the Department to notice this hearing; is that correct?

A That's correct.

Q And you would have made a recommendation to Mr. Hatch who is the Chief Engineer of the Water Rights Division?

A That's correct.

Q You would be in a position to directly report to Mr. Hatch? A fair statement that he would be a superior of yours?

A That's correct.

Q Mr. Selken, describe for me, if you could, what studies have been done on the Dolton aquifer that you have personally participated in.

A Published studies or just background studies?

Q Let's go with published studies first.

A Okay. Our geological survey is published -- I can't even recall the title of it -- a report to Hanson Rural Water System concerning an aquifer test they have done. That was published by Assad Barari. Also one when they did the initial test drilling for Hanson Rural Water System. The preliminary one on Turner County that includes portions of the Dolton aquifer.

Unpublished I have done computer models on the Dolton aquifer, two ground water models. We have

observation wells in the area. And I have written reports for the various water rights that have come out of the Dolton aquifer, Hanson and TM Rural Water.

Q Mr. Barari, he is employed by the South Dakota Geological; is that correct?

A That's correct. That's also the Department of Water and Natural Resources. It is a Division of.

Q Okay. Now, has Mr. Barari made some recommendation to the Department of Water and Natural Resources that some use restriction be placed on the TM permit?

A Mr. Barari, the last report that he wrote and submitted to Hanson Rural Water recommended that they can put in their additional well and that there is a problem with the water levels in the aquifer. The letter that I got from Mr. Barari that I introduced at the last hearing stated there was various options that could happen.

MR. DUNCAN: Directing my question to Mr. Deering, would you make copies of those various letters and recommendations that Mr. Selken has referred to available to me, please?

MR. DEERING: I don't have them. But, yeah, I assume we can get them.

THE WITNESS: No problem. They are part of the public record.

BY MR. DUNCAN:

Q Quite possibly, Mr. Selken, if you could just make me a copy of the entire record of this Hanson County -- well, let me back up. How voluminous of a document would that be?
A Probably about six inches thick.
Q Well, why don't we do that. If you would make available to me your correspondence from Mr. Barari, any summaries of his reports or recommendations that he has made, and any written summaries or recommends that you made to Mr. Hatch. It would be within your ability to make these available to me?
A Yes.
Q All right, thank you.

Mr. Selken, I'm interested in this Hanson County diversion.

Now, for the means of -- I know Mr. Deering is pretty familiar with this -- but it is my understanding there are two principal, two water districts or rural water systems that are pumping out of the Dolton aquifer; is that correct?
A That's correct.
Q And in both instances for these rural water systems they had received permission or a permit from the South Dakota Department of Water and Natural Resources to use as their primary source of water the Dolton aquifer; is

that correct?

A The permit was granted by the Water Management Board, not by the Department, but that's correct.

Q I stand corrected.

And the Water Management Board is the public entity that either approves or denies the applications that are submitted?

A That's correct.

Q I guess that's what I am getting at.

With respect to Hanson County Rural Water now for just a minute, various applications have been submitted to the Board -- can I refer to the Water Management Board as the Board?

A Certainly.

Q And we will know what we are talking about here.

All right, starting over. Various applications have been submitted to the Board by Hanson Rural Water to allow them to pump water out of the Dolton aquifer; is that correct?

A That's correct.

Q And in all instances have these applications been approved by the Board as best you can recall?

A They have been approved with restrictions.

Q All right. And when was the latest application submitted to the Board that was approved with

restriction; if you can recall?
A It would be at the July Board Meeting.
Q July of 1989?
A 1989.
Q Prior to the July, 1989, Board Meeting when was the last application submitted and approved to the Board; if you can recall?
A For Hanson?
Q Yes.
A The application number is 5195-3, which allowed them to hook on the town of Ethan where there was no additional water appropriated from their existing appropriation. And I believe that was granted last fall.
Q And during that period of time, to the best of your knowledge, was it ever discussed with Hanson County Rural Water that there may have to be some further restriction on their permit other than the restrictions placed on their existing permit?
A Not to my knowledge.
Q All right. Now, if I can direct your attention to --

MR. DUNCAN: Maybe we can have the court reporter mark that, please.

(Deposition Exhibit #1, 6 page document, marked for identification)

BY MR. DUNCAN:

Q Mr. Selken, I will show you what's been marked Exhibit No. 1 and ask you if you can identify that document, please.
A It's a document from John Hatch to TM Rural Water District saying here is their permit, it's been approved, not to exceed the limits as described in the permit.
Q All right. This particular exhibit, I'm going through and counting the pages, it appears to be a 5 page exhibit. Is that a fair statement?
A Yes, it is.
Q And the first page is a letter from Mr. Hatch to the District dated March 15, 1984, concerning Permit 4988-3. In the letter it refers to the diversion of water for beneficial use. What do you mean by that?
A Beneficial use is described in the statutes as domestic, industrial, municipal.
Q Whatever it says in the statutes?
A Whatever it says in the statutes.
Q Okay, I am not going to expect you, because I don't know, either.
A To quote it word for word, I can't do it.
Q That's fine.

Now, basically what's the process for getting this permit that's referred to in Mr. Hatch's March 15,

1984, letter?

A The process is the applicant fills out the application, mails it in. When we get the application it is stamped with a priority date. That will be the priority date for the application. We advertise it for hearing. There is a report written on it. It goes before the Water Management Board for public hearing. They can either approve it, deny it, or gualify it. After that time that letter that you have in front of the exhibit is mailed out saying the action of the Board.

Q Mr. Selken, in your tenure with the Department how many similar letters have you seen to this one that was written by Mr. Hatch that have been sent out concerning permits? Can you make an estimate at all?

A Probably 8,000-9,000 of them.

Q Okay. Is this, for lack of a better word, is this a form letter that is on the word processor that they crank out and fill in the blanks?

A That's correct.

Q And it is my understanding, then, that there is an application process that you go through, and on the second page -- I'm going to mark on here that this is, on Exhibit No. 1, that the first page is page 1, when I refer to the second page I will refer to it as page 2. The back of that I will refer to it as page 3. And

then I will number those pages consecutively through page 6, I guess, which might be something different than we originally talked about a 5 page document.

I will refer you to page No. 2 and ask you if you can indicate for the purposes of the record what is that document, which is page 2 of Exhibit No. 1.

A Page 2 is the Application For Permit that is filled out by the applicant. In this case TM Rural Water District. Describes how much water they want to use, how they are are going to do it, and for what time period they are going to use it for.

Q All right. And then page 3 is -- what is that document.

A Page 3 is the back portion of the Application. It has any stipulations or qualifications the Board puts on the permit. It tells you the time frames of receipt of the application, the priority date, when they have to have work completed, and when they have to put it to beneficial use.

Q Mr. Selken, the front page is entitled Application -- Page 2 is entitled Application, page 3 is entitled Water Permit; is that right?

A That's correct.

Q And understand I'm not asking you for a legal conclusion here, but from your familiarity with the

water laws of the State of South Dakota you understand the laws refer to an application and they also refer to a permit; is that correct?

A I understand that, yes.

Q So in our conversations here today would you agree with me that the application and the permit are two separate and distinct terms and they are two separate and distinct documents?

A Yes.

Q Mr. Selken, with respect to the Water Permit that's found on page 3, I'm not asking word for word, but would a similar permit have been, in form, a similar permit been granted to Hanson County Rural Water, let's say, as late as July of this year?

A There was one submitted by Hanson this year.

Q All right.

A I believe it was in June, if I'm not mistaken.

Q Okay. But, in any event, the permits that Hanson County have are of a similar type of document?

A Same type of document. It is a form.

Q I am sorry, I didn't mean to cut you off.

A It is a form document.

Q Now, as I understand it, the documents, the water permits similar to the one found here on page 3 that have been granted to Hanson Rural Water, as you have

indicated, contain some limitation or restriction; is that correct?

A That's correct.

Q And is that limitation or restriction noted on that water permit?

A Yes, it will be.

Q And is that restriction or limitation, is that what Mr. Hatch is referring to in the first full paragraph of his March 15, '84, letter, where he said you may put the water to beneficial use not exceeding the limits specified in water permit and then there is a number?

A That's correct.

Q So it is your understanding if there is limitations or restrictions placed upon the water permit that they are to be placed, actually placed in writing on the permit; is that correct?

A That's been my understanding, yes.

Q Mr. Selken, again I would ask you to refer to the document entitled Water Permit which is on page 3 of Exhibit No. 1. Do you find any limitation as to use on that particular Permit?

A Yes, there is.

Q And what is the limitation for use?

A It says, "The wells approved under this Permit are 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 wells having prior water rights."

Also states, "The priority date for this Permit is established by Future Use Permit 4979-3."

Q So on behalf of the Department any limitation on use that you see here is established by that language that they may not affect needed water supplies in domestic wells; is that correct?

A And prior water rights. Those were the conditions that were put on at the time the permit was issued.

Q All right. As I understand it, though, there are no -- in the Hanson County water rights there is an actual acre-feet of amount of water that can be taken from the aquifer; is that correct?

A That's correct.

Q There isn't such a restriction on the TM permit; is that correct?

A At this time that's correct.

Q And any action by the Board to place some type of a restriction on that would be done in a method to amend the present water permit of TM Rural Water; is that correct?

A That's correct.

Q When we are talking about the diversion of this water is there a term of art used by hydrologists concerning mining water?
A Mining water is addressed in the statutes.
Q Okay. What does that term mean to you; mining water?
A Mining water to me means that you are exceeding the annual recharge, or taking more water out than is being put back into the system.
Q What factors were taken into consideration by the Board, if you know, when they placed restrictions on the Hanson County water withdrawal? What factors did they take into consideration in arriving at their decision?
A I don't believe I attended that hearing. I can't really tell you.
Q Okay.
A If I did, I didn't write the report, so. I cannot tell you what they took into account at that meeting.
Q Mr. Selken, I guess what I am trying to drive at here, and I told you I will try to keep this brief and I will try to keep my promise to you, when these permits were originally granted there wasn't much known about that Dolton aquifer, was there?
A That's correct.
Q And most of the information that has been put together

concerning the Dolton aquifer would be, is it a fair statement, have been put together in the last four or five years?

A It's been an ongoing process. Barari did the first drilling down there for Hanson.

Q And you have taken, can I use the term, special interest in that particular aquifer, you have done some additional studies concerning the recharge of that aquifer?

A Any time we get an application in we do studies for an aquifer. So special consideration for this one I would have to say no. It's part of the job I do.

Q You have indicated that you've had some hand in the recommendations that were made to the Board concerning the effort to limit the TM water permit. What factors did you take into consideration in making a recommendation to the Board that the TM permit be restricted or limited?

A The factors I have looked at are the amount of water that's been withdrawn by both Hanson and TM. The period of useage as they came on line. I am comparing the amount of water they pumped versus the drop in our observation wells. At the present time we are monitoring approximately 17 observation wells. 17 or 18 in the Dolton aquifer. And we have been taking

measurements on them since 1977 is the earliest well we have in there. We are taking that data and plotting it. And that's included in the report that I believe I mailed to you with all the hydrographs on the back. To me the hydrographs indicate that they are still declining and I have a question of whether or not we have the recharge of the system that we need to maintain the water withdrawal from it.

Q What domestic wells have been affected by the, if you know, by the withdrawal of water pursuant to the TM permit?

A We've gotten or have received in the Department petitions from, I believe, 21 people who have domestic wells who have been affected.

Q I don't mean to be argumentative with you, Mr. Selken, because you know your business a lot better than I do, but isn't it a fair statement that the vast majority, if not all, of these domestic wells are not actually pumping out of the Dolton aquifer that you have your test wells in?

A No, that's not correct.

Q Which ones -- it is my understanding that there is more than one strata of water in here; is that correct?

A That's correct. There is a three-layered system there. You have a superficial sand and gravel. Which is

approximately 40 to 60 foot below land surface. The Dolton aquifer starts at approximately 150 feet and goes to approximately 200. Then you have a lower system that starts at about 270 and it is about 50 to 60 foot thick. Then you have quartzite.

Q In order to save us some time today would it be possible for you and Counsel to provide me with the names of the people or the entities whose domestic wells are being affected by the draw down on the Dolton aquifer?

A Yes.

MR. DEERING: Sure.

THE WITNESS: Part of our public record over there.

MR. DEERING: These guys (indicating)?

THE WITNESS: That's part of them right there.

BY MR. DUNCAN:

Q With respect, again, to the Dolton aquifer, are there any other municipal or rural water systems that pump out of the aquifer other than just Hanson County and TM?

A There are no other permits that we know of that are out of the Dolton aquifer as we know it right now.

Q Okay. Isn't it a fair statement that to a great degree

the Dolton aquifer hasn't been accurately mapped as to its size; isn't that correct? There is some question as to the accuracy of how big it is?

A We estimate it at 82 square miles right now. That's subject to change as we do more drilling.

Q Okay. Did the Department, or did you, I guess I should ask the question more appropriately, did you take into consideration the fact of any added user projects that TM Rural Water may have recently put on line when you recommended that this restriction be placed on their use?

A This restriction is based on last year's pumping that they reported to me.

Q Okay. So I guess your answer to that question is you did not take into consideration any added user projects that may have been approved by the Department of Water and Natural Resources?

A No, I did not.

Q Did you, prior to making the recommendation to the Board, did you try to get any current pumping data up, say, through the months of May and June of 1989 from TM Rural Water?

A I believe I did in May. I called them and got up to whenever I wrote the report on it.

Q Okay. And then how did you arrive -- tell me how you

arrived at the figure that you eventually arrived at as to what you would recommend to be a limitation put on the pumping ability of TM?

A As I already stated, I based it on last year's pumping.

Q So what you did is you took what they pumped, what TM Rural Water pumped in 1988 and said that's what they should pump for '89?

A That's correct.

Q Without any regard to any added users or any other factors?

A That's correct.

Q Did you consult anyone else in the Department as to getting more current data concerning how this might affect the rural water system before you made the recommendation?

A No, I did not.

Q And it is my understanding that the Board accepted your recommendation without amendment? You recommended so many acre-feet and they took your recommendation?

A This matter hasn't been to the Board on TM yet.

Q Didn't they have to -- the Board sent out the Notice, though, didn't they?

A The Notice comes out of the Division.

Q All right, okay.

A This matter has not been before the Water Management

Board on TM.

Q Okay, I misunderstood your previous statement, then.

All right, what you are telling me is the recommendation that you made to propose a 600 acre-feet limitation, that was your recommendation? That figure was your recommendation?

A That recommendation was made to John Hatch who actually writes the recommendation for the Board. But that's correct, I did make that 600 acre-foot limitation recommendation.

Q Okay. And I understand the information you are going to give to me concerning the Dolton aquifer, those 19 some odd people, that's going to indicate that there's been a reduction in needed water supplies to these people out of the Dolton aquifer; is that correct?

A It will indicate the peoples' names, the fact that I went out there, investigated, what I found. I'm not sure what else is in there.

Q All right. I guess when I get it I can find out. Okay.

The fact of the matter is, though, that the permit that was granted TM Rural Water did not specify an acre-feet limitation on it as to the amount of water that TM could appropriate, did it?

A That's correct. I believe that was based on my report

and recommendation to the Board.

Q What factors go into the recharge of an aquifer other than the obvious one, you are pumping a lot of water out. But how does an aquifer such as the Dolton aquifer recharge itself?

A On a buried aquifer such as Dolton aquifer there is a lot of discussion how it recharges. It can be from a different formation inducing water from, in this case, I believe the Niobara Chalk. It can get some water from the glacial till that overlies it and underlies it. And if we ever do find out where it outcrops it can get water in through where the aquifer actually comes to the land surface.

Q And there is a potential that this aquifer has -- someplace it surfaces on the surface of the land; is that correct?

A It's a possibility. We haven't found an area where it does yet.

Q And what does the Department intend to do if there is a restriction put on the TM Rural Water ability to take water from the aquifer? What steps does the Department intend to take to identify why there isn't this recharge in the aquifer?

A That was the purpose for -- speaking for the Department, I can't. Because I am not the Department

head. Speaking for Water Rights and the report I wrote on TM and Hanson, the reason for the limitation was to allow pumping to stabilize at a certain level. With that we could see if our hydrographs are going to level out or going to continue to decline. If we put a cap on it and they continue to decline the question of recharging is -- there probably isn't any or is very very little. That is the reason for the cap.

My recommendation to Mr. Hatch was that this be put on for a period of three years. At which time it will be brought back to the Water Management Board with that data. If they flatten out and show there is a recharge, if the hydrographs flatten out and show there is recharge we can take the caps off and they can proceed like any other water right. If they continue to decline then we are going to be looking at shutting off water rights in order of priority.

Q Mr. Selken, has this ever been discussed, the potential that the water rights might be shut down on TM, has that ever been discussed with anybody, I'm asking by you, discuss that with anybody that has represented TM Rural Water; an employee, engineer, anyone? Have you, do you recall, ever discussed that with somebody?

A I believe I discussed it with some of the Board. They asked what the ultimate solution would be if we are

actually mining water down there. I said we will shut off permits in the order of priority.

Q Have you ever discussed that with representatives of DeWild, Grant & Reckert, or anybody, the manager of TM, or anyone?

A When I said the Board, I meant some of the Board Members for TM.

Q Okay, I'm sorry.

A I believe I did discuss that with, I believe it is Mr. Ernster, isn't it, the manager of TM? I said that could be the ultimate solution if we are actually mining water down there.

Q Is it a fair statement that you don't take into consideration any economic impact when you make your recommendations such as the one you have made to limit water withdrawal?

A No, I do not.

Q I think it would be that that's kind of out of your bailiwick; is that correct?

A That's correct. I have put in some of the reports that there will be an economic impact by lowering the artesian head and they will have additional pumping costs. But other than that, no, I do not get into the economics of it.

Q One more question is there's not always a one to one

relationship with recharge and pumping, is there, in all aquifers? I mean, there isn't always a continual so much water is going out and so much is being recharged every year?

A No, it's a cycle to rainfall and the weather dictates. Any given year you may not get any recharge to the system. Rainfall and weather dictates.

Q And your studies have shown that the rate of decline in the water level has somewhat, I'm not going to use the term stabilized, but it is becoming -- the percentage rate is declining every year; is that correct?

A That's correct.

MR. DUNCAN: I don't think I have anything further.

MR. DEERING: I don't have anything.

MR. DUNCAN: You have the opportunity if you wish to have Mr. Christoffer put the deposition that I have taken into written form and submit it to you and you get to read it and see if there are any errors in it and then sign it. Most of the time we rely on his transcription of what you said and clean up the questions I ask so I don't look too stupid.

THE WITNESS: I will waive that right to sign it.

MR. DUNCAN: All right. Thanks.

(Deposition concluded)

STATE OF SOUTH DAKOTA)

CERTIFICATE

COUNTY OF HUGHES)

I, Richard A. Christoffer, Notary Public and Registered Professional Reporter in the State of South Dakota, do hereby certify that the Deposition of Gale N. Selken, contained on the foregoing pages 1 through 25, inclusive, was reduced to stenographic writing by me and thereafter transcribed; that said proceedings commenced on the 9th day of August, 1989, in the Attorney General's Conference Room, Capitol Building, Pierre, South Dakota, and that the following is a full, true, and complete transcript of my shorthand notes of the proceedings had at the time and place above set forth.

Dated this 14th day of August, 1989.

RICHARD A. CHRISTOFFER
Registered Professional Reporter

CAPITAL REPORTING SERVICES
P. O. Box 903
Pierre, SD 57501
(605) 224-7611

South Dakota Department of
Water & Natural Resources
Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501

4988-3

March 15, 1984

EXHIBIT 1
8/9/89

TM Rural Water District
PO Box 445
Parker, South Dakota 57053

Dear Sir:

Enclosed herewith is your Water Permit No. 4988-3 as approved by the Water Management Board authorizing you to construct your water diversion system and the water to beneficial use, not exceeding the limits as specified in said Water Permit No. 4988-3 .

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 acquistion of a Water Right.

Very truly yours,

John Hatch

JOHN HATCH, Chief Engineer
Water Rights Division

JH: ms

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.

WNR-809-5/83

RM 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. 4988-3 Hydrologic Unit 10160011 10170102
Map No. 4988-3 Basin ~~JR~~ JR VR
Newspaper New Era Courier Tribune
Parker Freeman Bridgewater

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 ☐

3:45 pm
DEC 1983
DIVISION OF WATER RIGHTS
Pierre, SD
2 copies

Type of Application: Check one or more of the following

New ☒ Vested Right ☐ Future Use ☐ Change Use ☐
☐ Amend Permit No. _____ with old priority date retained
Change 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. 4979-3

1. Name of Applicant TM Rural Water District Phone No. (605) 297-3334
   Post Office Address P. O. Box 445 (Street, RR or Box) State South Dakota Zip Code 57053
2. Amount of water claimed (c.f.s) 3.34 cfs
3. Source of water supply shallow confined aquifer, unnamed to date
4. Location of point of diversion (1) SW¼ of Sec. 32 T101N R54W; (2) All of Sec.31 except W½ of SE¼ T101N R54W; (3) Sec.8 T100N R55W; (4) Lot 2 except 0.51 acres and Lot 3 less Lot A of 2 and 3 and Lot 4 of Sec.12, T100N R56W, a total of 125.88 acres. County Turner, McCook, Hutchinson
5. Counties where water will be used Turner, McCook, Minnehaha, Hutchinson
6. Annual period during which water is to be used 12 months/year
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)
   TM Rural Water District. A complete water system including wells, treatment facility, pumping stations, storage structures, distribution system and miscellaneous appurtenant items for distribution of potable water to meet domestic and livestock needs of the members. Membership will include 800-850 rural users and the communities of Canistota, Davis and Viborg.

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 Turner)ss

I, Robert Milbauer, Chairman of _____ the applicant, certify that I have read the foregoing application, have examined the attached map and that the matters therein stated are true and that I intend, and am able to complete the necessary construction.

Signed Robert Milbauer

Subscribed and sworn to before me this 16 day of December 19 83

MARY L. MEADORS
NOTARY PUBLIC
SOUTH DAKOTA

Mary L. Meadors
Notary Public (or other qualified officer)

WATER PERMIT

The Water Management Board hereby approves Water Permit Application No. 4988-3

T M Rural Water District (Applicant) Box 445 Parker (Post Office Address)

South Dakota (State) 57053 (Zip Code) With the following qualifications.

The wells approved under this Permit are 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 wells having prior water rights.

Priority date for this permit established by Future Use permit # 4979-3

Date of first receipt of application December 19, 1983.

Date of return to applicant for correction, amendments or changes required —, 19—.

Date of receipt of corrected application —, 19—. Approved February 15, 1984.

The Water Management Board hereby approves this Water Permit No. 4988-3 authorizing the construction of the water use system and the placing of water to beneficial use as stated in the Application and as qualified in the Water Permit approval, subject, however, to the following limitations and conditions:

1. The date from which applicant may claim right is September 28, 1983.
2. The equivalent of at least one-fifth of the specified work is to be completed on or before August 15, 1986.
3. The whole of said work is to be completed on or before February 15, 1989.
4. The limit of time from proof of beneficial use of water appropriated in accordance herewith is February 15, 1993.
5. The water appropriated shall be used for the purpose of rural water system
6. The prior right of all persons who, by compliance with the laws of the State of South Dakota, have acquired a right to the use of water must not be unlawfully impaired by this appropriation.
7. The amount of the appropriation herein granted shall not exceed 3.34 cubic feet per second; neither shall it exceed the capacity of the above described water supply system nor shall it exceed the amount of water needed for beneficial uses served and to which water is actually and beneficially applied for rural water system on or before February 15, 1993; said water to be used during the following described annual period: CONTINUOUS

WATER MANAGEMENT BOARD

By: John Hatch
Chief Engineer

Division of Water Rights
Dept. of Water and Natural Resources

March 15, 1984

3

Supplemental Information

(type or print in ink)

1. Well Information - ~~Proposed~~ Actual construction of test well (see attached information)

a) Drill Hole Diameter 20 inches Depth 159 feet

b) Casing Type steel Diameter 12 inches Thickness 0.375 inches

c) Screen Type stainless steel Diameter 12 inches Thickness 7 gauge (3/16 inch)

d) Gravel Pack Thickness 4 inches Length of Gravel Pack 40 feet

e) Depth to Top of Water Bearing Material 120 feet

f) Depth of Water (ground surface to water level) 50 feet

g) Distance to nearest existing domestic well:

On applicants property N/A On property owned by others approx. ½ mile
Ray Branson, a TM member

2. Dugout Information Estimates N/A

a) Surface Dimensions _____ Depth _____

b) Depth to water (ground surface to water level) _____

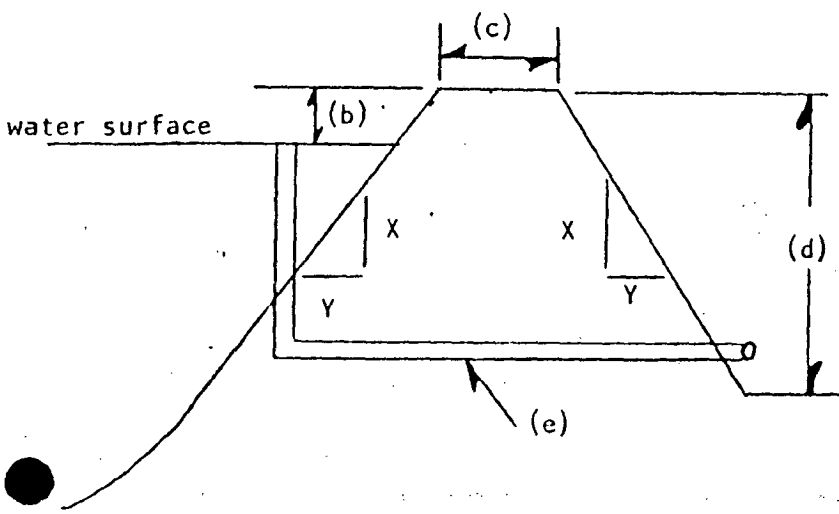
3. Water Storage Dams N/A

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) Outlet Dimensions:
Pipe diameter _____

Spillway width _____

f) X & Y Slope
Upstream _____

Downstream _____

Surface Area of Impoundment _____

Storage _____ acre feet

Drainage area above dam _____

Robert Millbauer
Signature of Applicant

RECOMMENDATION OF CHIEF ENGINEER FOR WATER PERMIT

APPLICATION No. 4979-3, TM Rural Water District

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. 4979-3, TM Rural Water District, PO Box 445, Parker, South Dakota.

The Chief Engineer is recommending APPROVAL of Future Use Application No. 4979-3 because 1) there is reasonable probability that there is unappropriated water available for appropriation, 2) that the quantity of water reserved will be needed by the TM Rural Water District, 3) the proposed use will be a beneficial use and 4) in the public interest with the following qualifications:

1. That prior to making specific applications to construct works and to put the water reserved by this permit to beneficial use, aquifer pump testing must be conducted.

2. That Future Use Permit No. 4979-3 is approved with the stipulation that the Permit to appropriate water is subject to review by the Water Management Board as to accomplishment thereunder upon expiration of seven (7) years.

3. At such time as definite plans are made to construct works and put the water reserved by this permit to beneficial use, specific applications for all or any part of the reserved water must be submitted prior to construction of facilities pursuant to SDCL 46-5-38.1.

4. This permit is approved for groundwater less than 155 feet deep.

The attached report is a part of this recommendation.

John Hatch

JOHN HATCH, Chief Engineer
October 12, 1983

REPORT ON APPLICATION NO. 4979-3
TM RURAL WATER DISTRICT
October 7, 1983

TM Rural Water District has submitted future use Application No. 4979-3 to reserve 4.0 cubic feet per second of water from wells approximately 155 feet deep for rural water system use. The water would be withdrawn from an unnamed aquifer in Section 31, T101N, R54W, Section 8, T100N, R55W and Section 12, T100N, R56W.

The South Dakota Geological Survey has drilled five test holes around the proposed future use area. The drill logs indicate that a medium sand to fine gravel aquifer exists from approximately 130 to 150 feet below ground level. This information along with information from drilling for Hanson Rural Water System (Permits No. 4349-3 & 4432-3) and Water Rights test drilling indicates that the formation is extensive enough to provide a reasonable probability that water is available for the project.

Before an actual water use permit is approved, an aquifer test should be conducted to calculate aquifer characteristics and the number of wells which would be required to meet the systems needs.

Gale N Selken

GALE N SELKEN
Hydrologist

DeWild Grant Reckert & Associates Co.
Architecture Engineering and Planning

315 First Avenue
Rock Rapids, Iowa 51246
(712) 472-2531

September 16, 1988

Department of Water & Natural Resources
Joe Foss Building
Pierre, SD 57501-3181

Attn: Raymond Birchem

Re: TM Rural Water District
Well No. 3 Replacement
DGR File No. 36219

Dear Raymond:

Enclosed are plans and specifications on the above referenced project for your review. Please call me with any questions or comments you may have.

Very truly yours,

DEWILD GRANT RECKERT
& ASSOCIATES COMPANY

Gary Patton, P.E.

GP:jkv

Enclosure

cc: Jim Goodman, w/encl.

3460 West 38th Avenue
Denver, Colorado 80211
(303) 458-0311

1051 Office Park Road
West Des Moines, Iowa 50265
(515) 225-8346

600 Sioux City Federal Plaza Bldg.
Sioux City, Iowa 51101
(712) 277-3049

1113 East 14th Street
Sioux Falls, South Dakota 57104
(605) 339-4157

CONTRACT DOCUMENTS
FOR

CONSTRUCTION OF
WELL NO. 3 REPLACEMENT

TM RURAL WATER DISTRICT

PARKER, SOUTH DAKOTA

September 1988

DeWild Grant Reckert & Assoc. Co.

DGR Project No. 36219

BID FORM

PROJECT IDENTIFICATION:

Construction of Well No. 3 Replacement

THIS BID IS SUBMITTED TO:

TM Rural Water District
Parker, South Dakota

---

1. The undersigned BIDDER proposes and agrees, if this BID is accepted, to enter into an agreement with OWNER in the form included in the Contract Documents to perform and furnish all Work as specified or indicated in the Contract Documents for the Contract Price and within the Contract Time indicated in this Bid and in accordance with the other terms and conditions of the Contract Documents.

2. BIDDER accepts all of the terms and conditions of the Solicitation for Bids and Instructions to Bidders. This Bid will remain subject to acceptance for thirty days after the day of Bid opening. BIDDER will sign and submit the Agreement with the Bonds and other documents required by the Bidding Requirements within fifteen days after the date of OWNER's Notice of Award.

3. In submitting this Bid, BIDDER represents, as more fully set forth in the Agreement, that:

a. BIDDER has examined copies of all the Bidding Documents and of the following Addenda (receipt of all which is hereby acknowledged):

Date	Number
_____	_____
_____	_____
_____	_____

b. BIDDER has familiarized itself with the nature and extent of the Contract Documents, Work, site, locality, and all local conditions and Laws and Regulations that in any manner may affect cost, progress, performance or furnishing of the Work.

c. BIDDER has obtained and carefully studied all such examinations, investigations, explorations, tests and studies which pertain to the subsurface or physical conditions at the site or otherwise may affect the cost, progress, performance or furnishing of the Work as BIDDER considers necessary for the performance or furnishing of the Work at the Contract Price, within the Contract Time and in accordance with the other items and conditions of the Contract Documents, including specifically the provisions of paragraph 4.2 of the General Conditions; and no additional examinations, investigations, explorations, tests, reports or similar information or data are or will be required by BIDDER for such purposes.

d. BIDDER has reviewed and checked all information and data shown or indicated on the Contract Documents with respect to existing Underground Facilities at or contiguous to the site and assumes responsibility for the accurate location of said Underground Facilities. No additional examinations, investigations, explorations, tests, reports or similar information or data in respect of said Underground Facilities are or will be required by BIDDER in order to perform and furnish the Work at the Contract Price, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents, including specifically the provisions of paragraph 4.3 of the General Conditions.

e. BIDDER has correlated the results of all observations, examinations, investigations, exploration, tests, reports and studies with the terms and conditions of the Contract Documents.

f. BIDDER has given ENGINEER written notice of all conflicts, errors or discrepancies that it has discovered in the Contract Documents and the written resolution thereof by ENGINEER is acceptable to BIDDER.

g. This Bid is genuine and not made in the interest of or on behalf of any undisclosed person, firm or corporation and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; BIDDER has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; BIDDER has not solicited or induced any person, firm, or corporation to refrain from bidding; and BIDDER has not sought by collusion to obtain for itself any advantage over any other Bidder or over OWNER.

4. BIDDER will complete the Work in accordance with the Contract Documents for the following price(s):

BID SCHEDULE

NOTE: All prices shall include sales and use taxes, excise taxes, and all other applicable taxes and fees.

Item No.	No. of Units	Description	Unit Price	Total Cost
1.	Job	Mobilization, lump sum	$ L.S.	$_____
2.	180 L.F.	Pilot hole drilling, including sampling and records, per lin. ft.	$_____	$_____
3.	180 L.F.	18" drill hole, including samples and records, per lin. ft.	$_____	$_____
4.	152 L.F.	12" steel casing, per lin. ft.	$_____	$_____
5.	28 L.F.	12" stainless steel screen, per lin. ft.	$_____	$_____
6.	68 L.F.	Gravel pack, per lin. ft.	$_____	$_____
7.	102 L.F.	Grout seal, per lin. ft.	$_____	$_____
8.	32 Hrs.	Well development, per hr.	$_____	$_____
9.	Job	Installation and removal of test pump and equipment, lump sum	$ L.S.	$_____
10.	500 L.F.	Installation and removal of temporary discharge piping, per lin. ft.	$_____	$_____
11.	24 Hrs.	Test pumping, observations and records for maximum 24-hour test, per hr.	$_____	$_____
12.	12 Hrs.	Recovery observations and records, per hr.	$_____	$_____
13.	Job	Collection of water samples, disinfection and cap, lump sum	$ L.S.	$_____

Item No.	No. of Units	Description	Unit Price	Total Cost
14.	Job	Abandonment of existing Well No. 3, lump sum	$ L.S.	$_____
15.	Job	Remove pitless adapter and pump and motor from existing Well No. 3 and reinstall in new well, lump sum	$ L.S.	$_____
16.	35 L.F.	Increase pump setting depth, per lin. ft.	$_____	$_____
17.	Job	Furnish and install underground piping connection from new well to existing discharge line, lump sum	$ L.S.	$_____
		TOTAL BASE BID		$_____

ALTERNATIVE BID ITEM:

Item No.	No. of Units	Description	Unit Price	Total Cost
18.	Job	Furnish and install new pump and motor in new well, lump sum	$ L.S.	$_____
		TOTAL ALTERNATIVE BID*		$_____

*Total Base Bid plus Bid Item No. 18

5. Quantities are not guaranteed. Final payment will be based on actual quantities.

Owner may reduce the duration of the pumping test (Bid Item No. 10), to as short as 4 hours.

Owner may reduce the duration of recovery readings (Bid Item No. 11), to as short as 2 hours.

6. BIDDER agrees that the Work will be substantially complete within 120 calendar days of Contract Award.

BIDDER agrees that the Work will be completed and ready for final payment within 150 days of Contract Award.

BIDDER accepts the provisions of the Agreement as to liquidated damages in the event of failure to complete the Work on time.

7. The terms used in this Bid which are defined in the General Conditions of the Construction Contract included as part of the Contract Documents have the meaning assigned to them in the General Conditions.

SUBMITTED ON _____.

If BIDDER is:

An Individual

By_____
(Individual's Name)

doing business as_____

Business address:_____

_____

Phone No.:_____

A Partnership

By_____
(Firm Name)

_____
(general partner)

Business address:_____

_____

Phone No.:_____

A Corporation

By_____
(Corporation Name)

_____
(state of incorporation)

By_____
(name of person authorized to sign)

_____
(Title)

(Corporate Seal)

Attest_____
(Secretary)

Business address:_____

_____

Phone No.:_____

A Joint Venture

By_____
(Name)

_____
(Address)

By_____
(Name)

_____
(Address)

(Each joint venturer must sign. The manner of signing for each individual, partnership and corporation that is a party to the joint venture should be in the manner indicated above.

MEMO TO: Well Contractors

FROM: Gary Patton, P.E.

DATE: September 15, 1988

RE: Solicitation for Bids
Well No. 3 Replacement
TM Rural Water District

We are soliciting proposals on behalf of TM Rural Water District for the construction of Well No. 3 Replacement.

We are requesting that proposals be addressed to:

TM Rural Water District
Box 445
Parker, South Dakota 57053

and be received no later than:

12:00 Noon, C.D.T., Monday, September 26, 1988

The general intent is that the well contractor will construct one new well, remove the pitless adapter and pump and motor from the old well and reinstall this equipment in the new well, and install underground piping to connect the new well to the existing discharge line. Others will complete the electrical work. The completion time is 120 days after Contract Award.

The Liquidated Damages provisions of the specifications provide for damages in the amount of $25.00 for each consecutive calendar day the well is not considered operational.

We appreciate your responsiveness to this solicitation.

DEWILD GRANT RECKERT
& ASSOCIATES COMPANY

By Gary Patton
Gary Patton, P.E.
Project Manager

GJP:ldb

CONTRACT DOCUMENTS

FOR

CONSTRUCTION OF WELL NO. 3 REPLACEMENT

TM RURAL WATER DISTRICT

PARKER, SOUTH DAKOTA

September 1988

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.

By _____
Gary Patton, P.E.

Registration No. 3612

Date September 14, 1988

DGR Project No. 36219

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

CONSTRUCTION OF WELL NO. 3 REPLACEMENT
TM RURAL WATER DISTRICT
PARKER, SOUTH DAKOTA

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SOLICITATION FOR BIDS

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DATE: September 15, 1988

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We appreciate your responsiveness to this solicitation.

DEWILD GRANT RECKERT
& ASSOCIATES COMPANY

By Gary Patton
Gary Patton, P.E.
Project Manager

GJP:ldb

BID DOCUMENTS

INSTRUCTIONS TO BIDDERS

1. Examination of Contract Documents and Site:

1.1 It is the responsibility of each Bidder before submitting a Bid, to (a) examine the Contract Documents thoroughly, (b) visit the site to become familiar with local conditions that may affect cost, progress, performance or furnishing of the Work, (c) consider federal, state and local Laws and Regulations that may affect cost, progress, performance or furnishing of the Work, (d) study and carefully correlate Bidder's observations with the Contract Documents, and (e) notify Engineer of all conflicts, errors or discrepancies in the Contract Documents.

1.2 Before submitting a Bid, each Bidder will, at Bidder's own expense, make or obtain any additional examinations, investigations, explorations, tests and studies and obtain any additional information and data which pertain to the physical conditions (surface, subsurface and Underground Facilities) at or contiguous to the site or otherwise which may affect cost, progress, performance or furnishing of the Work and which Bidder deems necessary to determine its Bid for performing and furnishing the Work in accordance with the time, price and other terms and conditions of the Contract Documents.

1.3 On request in advance, Owner will provide each Bidder access to the site to conduct such explorations and tests as each Bidder deems necessary for submission of a Bid. Bidder shall fill all holes, clean up and restore the site to its former condition upon completion of such explorations.

1.4 The lands upon which the Work is to be performed, rights-of-way and easements for access thereto and other lands designated for use by Contractor in performing the Work are identified in the Contract Documents. Any additional lands and access thereto required for temporary construction facilities or storage of materials and equipment are to be provided by Contractor. Easements for permanent structures or permanent changes in existing structures are to be obtained and paid for by Owner unless otherwise provided in the Contract Documents.

1.5 The submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article 4, that without exception the Bid is premised upon performing and furnishing the Work required by the Contract Documents and such means, methods, techniques, sequences or procedures of construction as may be indicated in or required by the Contract Documents, and that the Contract Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

2. Interpretations and Addenda:

2.1 All questions about the meaning or intent of the Contract Documents are to be directed to Engineer. Interpretations or clarifications considered necessary by Engineer in response to such questions will be issued by Addenda mailed or delivered to all parties recorded by Engineer as having received the Bidding Documents. Questions received less than ten days prior to the date for opening of bids may not be answered. Only questions answered by formal written Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

2.2 Addenda may also be issued to modify the Bidding Documents as deemed advisable by Owner or Engineer.

3. Contract Time: The numbers of days within which, or the dates by which, the Work is to be substantially completed and also completed and ready for final payment (the Contract Time) are set forth in the Bid Form and the Agreement.

4. Liquidated Damages: Provisions for liquidated damages are set forth in the Agreement.

5. Substitute or "Or-Equal" Items: The Contract, if awarded, will be on the basis of materials and equipment described in the Drawings or specified in the Specifications without consideration of possible substitute or "or-equal" items unless specific provision is made for consideration of "or-equal" equipment in the Specifications and "or-equal" status is granted by addendum. Whenever it is indicated in the Drawings or specified in the Specifications that a substitute or "or-equal" item of material or equipment may be furnished or used by Contractor if acceptable to Engineer, application for such acceptance will not be considered by Engineer until after the Effective Date of the Agreement. The procedure for submission of any such application by Contractor and consideration by Engineer is set forth in Paragraphs 6.7.1, 6.7.2 and 6.7.3 of the General Conditions and may be supplemented in the General Requirements.

6. Subcontractors, Suppliers and Others:

6.1 Contractor may not subcontract more than 50% of the Work without prior approval of the Owner.

6.2 No Contractor shall be required to employ any Subcontractor, Supplier, other person or organization against whom Contractor has reasonable objection.

7. Bid Form:

7.1 The Bid Form is included with the Bidding Documents; additional copies may be obtained from Engineer.

7.2 All blanks on the Bid Form must be completed in ink or by typewriter.

7.3 Bids by corporations must be executed in the corporate name by the president or a vice-president (or other corporate officer accompanied by evidence of authority to sign) and the corporate seal must be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation must be shown below the signature.

7.4 Bids by partnerships must be executed in the partnership name and signed by a partner, whose title must appear under the signature and the official address of the partnership must be shown below the signature.

7.5 All names must be typed or printed below the signature.

7.6 The Bid shall contain an acknowledgement of receipt of all Addenda (the numbers of which must be filled in on the Bid Form).

7.7 The address and telephone number for communications regarding the Bid must be shown.

8. Submission of Bids: Prospective Bidders are furnished one copy of the Bidding Documents with one separate unbound copy of the Bid Form. The Bidding Documents may be retained by the Bidder. The unbound copy of the Bid Form is to be completed and submitted.

9. Bids to Remain Subject to Acceptance: All bids will remain subject to acceptance for thirty days after the day of the Bid opening, but Owner may, in its sole discretion, release any Bid prior to that date.

10. Award of Contract:

10.1 Owner reserves the right to reject any and all Bids, to waive any and all informalities not involving price, time or changes in the Work and to negotiate contract terms with the Successful Bidder, and the right to disregard all nonconforming, nonresponsive, unbalanced or conditional Bids. Also, Owner reserves the right to reject the Bid of any Bidder if Owner believes that it would not be in the best interest of the Project to make an award to that Bidder, whether because the Bid is not responsive or the Bidder is unqualified or of doubtful financial ability or fails to meet any other pertinent standard or criteria established by Owner. Discrepancies in the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.

10.2 In evaluating Bids, Owner will consider the qualifications of the Bidders, whether or not the Bids comply with the prescribed requirements, and such alternates, unit prices and other data, as may be requested in the Bid Form or prior to the Notice of Award.

10.3 Owner may conduct such investigations as Owner deems necessary to assist in the evaluation of any Bid and to establish the responsibility, qualifications and financial ability of Bidders, proposed Subcontractors, Suppliers and other persons and organizations to perform and furnish the Work in accordance with the Contract Documents to Owner's satisfaction within the prescribed time.

10.4 If the contract is to be awarded, Owner will give the Successful Bidder a Notice of Award within thirty days after the day of the Bid opening.

11. Contract Security: Paragraph 5.1 of the General Conditions and the Supplementary Conditions set forth Owner's requirements as to performance and payment Bonds. When the Successful Bidder delivers the executed Agreement to Owner, it must be accompanied by the required performance and payment Bonds.

12. Signing of Agreement: When Owner gives a Notice of Award to the Successful Bidder, it will be accompanied by the required number of unsigned counterparts of the Agreement with all other written Contract Documents attached. Within five days thereafter Contractor shall sign and deliver the required number of counterparts of the Agreement and attached documents to Owner with the required Bonds. Within ten days thereafter Owner shall deliver one fully signed counterpart to Contractor. Each counterpart is to be accompanied by a complete set of the Drawings with appropriate identification.

13. Sales, Use and Excise Taxes: All sales, use and Contractor's excise taxes applicable to this project shall be included in the respective unit or lump sum items.

14. Retainage: Provisions concerning retainage are set forth in the Agreement.

BID FORM

PROJECT IDENTIFICATION:

Construction of Well No. 3 Replacement

THIS BID IS SUBMITTED TO:

TM Rural Water District
Parker, South Dakota

---

1. The undersigned BIDDER proposes and agrees, if this BID is accepted, to enter into an agreement with OWNER in the form included in the Contract Documents to perform and furnish all Work as specified or indicated in the Contract Documents for the Contract Price and within the Contract Time indicated in this Bid and in accordance with the other terms and conditions of the Contract Documents.

2. BIDDER accepts all of the terms and conditions of the Solicitation for Bids and Instructions to Bidders. This Bid will remain subject to acceptance for thirty days after the day of Bid opening. BIDDER will sign and submit the Agreement with the Bonds and other documents required by the Bidding Requirements within fifteen days after the date of OWNER's Notice of Award.

3. In submitting this Bid, BIDDER represents, as more fully set forth in the Agreement, that:

a. BIDDER has examined copies of all the Bidding Documents and of the following Addenda (receipt of all which is hereby acknowledged):

Date	Number
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_____	_____
_____	_____

b. BIDDER has familiarized itself with the nature and extent of the Contract Documents, Work, site, locality, and all local conditions and Laws and Regulations that in any manner may affect cost, progress, performance or furnishing of the Work.

c. BIDDER has obtained and carefully studied all such examinations, investigations, explorations, tests and studies which pertain to the subsurface or physical conditions at the site or otherwise may affect the cost, progress, performance or furnishing of the Work as BIDDER considers necessary for the performance or furnishing of the Work at the Contract Price, within the Contract Time and in accordance with the other items and conditions of the Contract Documents, including specifically the provisions of paragraph 4.2 of the General Conditions; and no additional examinations, investigations, explorations, tests, reports or similar information or data are or will be required by BIDDER for such purposes.

d. BIDDER has reviewed and checked all information and data shown or indicated on the Contract Documents with respect to existing Underground Facilities at or contiguous to the site and assumes responsibility for the accurate location of said Underground Facilities. No additional examinations, investigations, explorations, tests, reports or similar information or data in respect of said Underground Facilities are or will be required by BIDDER in order to perform and furnish the Work at the Contract Price, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents, including specifically the provisions of paragraph 4.3 of the General Conditions.

e. BIDDER has correlated the results of all observations, examinations, investigations, exploration, tests, reports and studies with the terms and conditions of the Contract Documents.

f. BIDDER has given ENGINEER written notice of all conflicts, errors or discrepancies that it has discovered in the Contract Documents and the written resolution thereof by ENGINEER is acceptable to BIDDER.

g. This Bid is genuine and not made in the interest of or on behalf of any undisclosed person, firm or corporation and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; BIDDER has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; BIDDER has not solicited or induced any person, firm, or corporation to refrain from bidding; and BIDDER has not sought by collusion to obtain for itself any advantage over any other Bidder or over OWNER.

4. BIDDER will complete the Work in accordance with the Contract Documents for the following price(s):

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NOTE: All prices shall include sales and use taxes, excise taxes, and all other applicable taxes and fees.

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6.	68 L.F.	Gravel pack, per lin. ft.	$_____	$_____
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13.	Job	Collection of water samples, disinfection and cap, lump sum	$ L.S.	$_____

Item No.	No. of Units	Description	Unit Price	Total Cost
14.	Job	Abandonment of existing Well No. 3, lump sum	$ L.S.	$_____
15.	Job	Remove pitless adapter and pump and motor from existing Well No. 3 and reinstall in new well, lump sum	$ L.S.	$_____
16.	35 L.F.	Increase pump setting depth, per lin. ft.	$_____	$_____
17.	Job	Furnish and install underground piping connection from new well to existing discharge line, lump sum	$ L.S.	$_____
		TOTAL BASE BID		$_____

ALTERNATIVE BID ITEM:

Item No.	No. of Units	Description	Unit Price	Total Cost
18.	Job	Furnish and install new pump and motor in new well, lump sum	$ L.S.	$_____
		TOTAL ALTERNATIVE BID*		$_____

*Total Base Bid plus Bid Item No. 18

5. Quantities are not guaranteed. Final payment will be based on actual quantities.

Owner may reduce the duration of the pumping test (Bid Item No. 10), to as short as 4 hours.

Owner may reduce the duration of recovery readings (Bid Item No. 11), to as short as 2 hours.

6. BIDDER agrees that the Work will be substantially complete within 120 calendar days of Contract Award.

BIDDER agrees that the Work will be completed and ready for final payment within 150 days of Contract Award.

BIDDER accepts the provisions of the Agreement as to liquidated damages in the event of failure to complete the Work on time.

7. The terms used in this Bid which are defined in the General Conditions of the Construction Contract included as part of the Contract Documents have the meaning assigned to them in the General Conditions.

SUBMITTED ON _____.

If BIDDER is:

An Individual

By_____
(Individual's Name)

doing business as_____

Business address:_____

_____

Phone No.:_____

A Partnership

By_____
(Firm Name)

_____
(general partner)

Business address:_____

_____

Phone No.:_____

A Corporation

By_____
(Corporation Name)

_____
(state of incorporation)

By_____
(name of person authorized to sign)

_____
(Title)

(Corporate Seal)

Attest_____
(Secretary)

Business address:_____

_____

Phone No.:_____

A Joint Venture

By_____
(Name)

_____
(Address)

By_____
(Name)

_____
(Address)

(Each joint venturer must sign. The manner of signing for each individual, partnership and corporation that is a party to the joint venture should be in the manner indicated above.

CONTRACT FORMS

AGREEMENT

THIS AGREEMENT is dated as of the ____ day of _____ in the year 19___ by and between the _____
(hereinafter called OWNER) and _____

_____
(hereinafter called CONTRACTOR).

OWNER and CONTRACTOR, in consideration of the mutual covenants hereinafter set forth, agree as follows:

Article 1. WORK

CONTRACTOR shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows:

Construction of Well No. 3 Replacement

Article 2. ENGINEER

The Project has been designed by DeWild Grant Reckert and Associates Company, Rock Rapids, Iowa who is hereinafter called ENGINEER and who is to act as OWNER's representative, assume all duties and responsibilities and have the rights and authority assigned to ENGINEER in the Contract Documents in connection with completion of the Work in accordance with the Contract Documents.

Article 3. CONTRACT TIME

3.1 The Work will be substantially completed within 120 calendar days of Contract Award.

The Work will be completed and ready for final payment in accordance with paragraph 14.13 of the General Conditions within 150 calendar days of Contract Award.

3.2 Liquidated Damages: OWNER and CONTRACTOR recognize that time is of the essence of this Agreement and that OWNER will suffer financial loss if the Work is not completed within the times specified in paragraph 3.1 above, plus any extensions thereof allowed in accordance with Article 12 of the General

Conditions. They also recognize the delays, expense and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by OWNER if the Work is not completed on time. Accordingly, instead of requiring any such proof, OWNER and CONTRACTOR agree that as liquidated damages for delay (but not as a penalty) CONTRACTOR shall pay OWNER

Twenty-five and no/100---------- dollars ($ 25.00)

for each day that expires after the time specified in paragraph 3.1 for Substantial Completion until the Work is substantially complete. Such liquidated damages shall pertain to both Sections 1 and 2 of the Work. After Substantial Completion if CONTRACTOR shall neglect, refuse or fail to complete the remaining Work within the Contract Time or any proper extension thereof granted by OWNER, CONTRACTOR shall pay OWNER Twenty-five and no/100 ---------- dollars ($ 25.00) for each day that expires after the time specified in paragraph 3.1 for completion and readiness for final payment.

Article 4. CONTRACT PRICE

4.1 OWNER shall pay CONTRACTOR for completion of the Work in accordance with the Contract Documents as per the prices established by the Bid Schedule, Exhibit A hereto.

Article 5. PAYMENT PROCEDURES

CONTRACTOR shall submit Applications for Payment in accordance with Article 14 of the General Conditions. Applications shall include all costs for materials and equipment incorporated into the project to the date of the application.

Final payment shall be made to the Contractor when the work is completed and accepted by the Owner. The total amount of the payment shall be the amount of the contract plus the value of all changes as reflected in approved contract change orders. The entire balance found to be due the Contractor but excepting such sums as may be lawfully retained by the Owner, shall be paid to the Contractor. Such payment shall be conditioned, however, upon the submission by the Contractor of evidence satisfactory to the Owner that all claims for labor, material, and any other outstanding indebtedness in connection with this Contract have been paid.

The Owner will make payments as follows:

A. ONE LUMP SUM will be made for the whole contract, upon acceptance by the Owner of all work required hereunder and compliance by the Contractor with all the terms and conditions of this contract.

   Prior to final payment, a change order will be issued to revise the contract unit quantities to reflect the actual number of units installed by the Contractor.

Article 6. CONTRACTOR'S REPRESENTATIONS

In order to induce OWNER to enter into this Agreement CONTRACTOR makes the following representations.

6.1 CONTRACTOR has familiarized itself with the nature and extent of the Contract Documents, Work, site, locality, and all local conditions and Laws and Regulations that in any manner may affect cost, progress, performance or furnishing of the Work.

6.2 CONTRACTOR has obtained and carefully studied (or assumes responsibility for obtaining and carefully studying) all such examinations, investigations, explorations, tests, reports and studies which pertain to the subsurface or physical conditions at or contiguous to the site or otherwise may affect the cost, progress, performance or furnishing of the Work as CONTRACTOR considers necessary for the performance or furnishing of the Work at the Contract Price, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents, including specifically the provisions of paragraph 4.2 of the General Conditions; and no additional examinations, investigation, explorations, tests, reports, studies or similar information or data are or will be required by CONTRACTOR for such purposes.

6.3 CONTRACTOR has reviewed and checked all information and data shown or indicated on the Contract Documents with respect to existing Underground Facilities at or contiguous to the site and assumes responsibility for the accurate location of said Underground Facilities. No additional examinations, investigations, explorations, tests, reports, studies or similar information or data in respect of said Underground Facilities are or will be required by CONTRACTOR in order to perform and furnish the Work at the Contract Price, within the Contract Time and in accordance with other terms and conditions of the Contract Documents, including specifically the provisions of paragraph 4.3 of the General Conditions.

6.4 CONTRACTOR has correlated the results of all such observations, examinations, investigations, explorations, tests, reports and studies with the terms and conditions of the Contract Documents.

6.5 CONTRACTOR has given ENGINEER written notice of all conflicts, errors or discrepancies that he has discovered in the Contract Documents and the written resolution thereof by ENGINEER is acceptable to CONTRACTOR.

Article 7. CONTRACT DOCUMENTS

The Contract Documents which comprise the entire agreement between OWNER and CONTRACTOR concerning Work consist of the following:

7.1 This Agreement (pages A-1 to A-5, inclusive).

7.2 Exhibit A to this Agreement, Bid Form (pages BF-1 to BF-6, inclusive).

7.3 Performance and Payment Bonds, identified as Exhibits B and C and consisting of 2 pages each.

7.4 Notice of Award.

7.5 General Conditions (pages 1 to 33, inclusive).

7.6 Supplementary Conditions (pages SC-1 to SC-4, inclusive).

7.7 Specifications and Drawings bearing the title Construction of Well No. 3 Replacement, TM Rural Water District, dated September 12, 1988.

7.8 Addenda numbers ___ to ___, inclusive.

7.9 The following which may be delivered or issued after the Effective Date of the Agreement and are not attached hereto: All Written Amendments and other documents amending, modifying, or supplementing the Contract Documents pursuant to paragraphs 3.4 and 3.5 of the General Conditions.

7.10 The documents listed in paragraph 7.2 et seq. above are attached to this Agreement (except as expressly noted otherwise above).

There are no Contract Documents other than those listed above in this Article 7. The Contract Documents may only be amended, modified or supplemented as provided in paragraphs 3.4 and 3.5 of the General Conditions.

Article 8. MISCELLANEOUS

8.1 Terms used in this Agreement which are defined in Article 1 of the General Conditions will have the meanings indicated in the General Conditions.

8.2 No assignment by a party hereto of any rights under or interests in the Contract Documents will be binding on another party hereto without the written consent of the party sought to be bound; and specifically but without limitation moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

8.3 OWNER and CONTRACTOR each binds itself, its partners, successors, assigns and legal representatives to the other party hereto, its partners, successors, assigns and legal representatives in respect to all covenants, agreements and obligations contained in the Contract Documents.

IN WITNESS WHEREOF, OWNER and CONTRACTOR have signed this Agreement in five copies. One counterpart each has been delivered to OWNER, CONTRACTOR and ENGINEER. All portions of the Contract Documents have been signed or identified by OWNER and CONTRACTOR or by ENGINEER on their behalf.

This Agreement will be effective on _____, 1988.

OWNER	CONTRACTOR
_____	_____
By_____	By_____
(SEAL)	(SEAL)
Attest_____	Attest_____
Address for giving notices	Address for giving notices
_____	_____
_____	_____
(If OWNER is a public body, attach evidence of authority to sign and resolution or other documents authorizing execution of Agreement)	License No._____
	Agent for services or process:
	_____
	_____
	(If CONTRACTOR is a corporation, attach evidence of authority to sign)

Construction Performance Bond

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

CONTRACTOR (Name and Address):

SURETY (Name and Principal Place of Business):

OWNER (Name and Address):

CONSTRUCTION CONTRACT
Date:
Amount:
Description (Name and Location):

BOND
Date (Not earlier than Construction Contract Date):
Amount:
Modifications to this Bond Form:

CONTRACTOR AS PRINCIPAL
Company: (Corp. Seal)

Signature: _____
Name and Title:

SURETY
Company: (Corp. Seal)

Signature: _____
Name and Title:

CONTRACTOR AS PRINCIPAL
Company: (Corp. Seal)

Signature: _____
Name and Title:

SURETY
Company: (Corp. Seal)

Signature: _____
Name and Title:

EJCDC No. 1910-28A (1984 Edition)
Prepared through the joint efforts of The Surety Association of America, Engineers' Joint Contract Documents Committee, The Associated General Contractors of America, and the American Institute of Architects.

1. The Contractor and the Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.

2. If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except to participate in conferences as provided in Subparagraph 3.1.

3. If there is no Owner Default, the Surety's obligation under this Bond shall arise after:

3.1. The Owner has notified the Contractor and the Surety at its address described in Paragraph 10 below, that the Owner is considering declaring a Contractor Default and has requested and attempted to arrange a conference with the Contractor and the Surety to be held not later than fifteen days after receipt of such notice to discuss methods of performing the Construction Contract. If the Owner, the Contractor and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default; and

3.2. The Owner has declared a Contractor Default and formally terminated the Contractor's right to complete the contract. Such Contractor Default shall not be declared earlier than twenty days after the Contractor and the Surety have received notice as provided in Subparagraph 3.1; and

3.3. The Owner has agreed to pay the Balance of the Contract Price to the Surety in accordance with the terms of the Construction Contract or to a contractor selected to perform the Construction Contract in accordance with the terms of the contract with the Owner.

4. When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

4.1. Arrange for the Contractor, with consent of the Owner, to perform and complete the Construction Contract; or

4.2. Undertake to perform and complete the Construction Contract itself, through its agents or through independent contractors; or

4.3. Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and the contractor selected with the Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 6 in excess of the Balance of the Contract Price incurred by the Owner resulting from the Contractor's default; or

4.4. Waive its right to perform and complete, arrange for completion, or obtain a new contractor and with reasonable promptness under the circumstances:

1. After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, tender payment therefor to the Owner; or

2. Deny liability in whole or in part and notify the Owner citing reasons therefor.

5. If the Surety does not proceed as provided in Paragraph 4 with reasonable promptness, the Surety shall be deemed to be in default on this Bond fifteen days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Subparagraph 4.4, and the Owner refuses the payment tendered or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.

6. After the Owner has terminated the Contractor's right to complete the Construction Contract, and if the Surety elects to act under Subparagraph 4.1, 4.2, or 4.3 above, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. To the limit of the amount of this Bond, but subject to commitment by the Owner of the Balance of the Contract Price to mitigation of costs and damages on the Construction Contract, the Surety is obligated without duplication for:

6.1. The responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;

6.2. Additional legal, design professional and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 4; and

6.3. Liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

7. The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, or successors.

8. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

9. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

10. Notice to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the signature page.

11. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

12. Definitions.

12.1. Balance of the Contract Price: The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made, including allowance to the Contractor of any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

12.2. Construction Contract: The agreement between the Owner and the Contractor identified on the signature page, including all Contract Documents and changes thereto.

12.3. Contractor Default: Failure of the Contractor, which has neither been remedied nor waived, to perform or otherwise to comply with the terms of the Construction Contract.

12.4. Owner Default: Failure of the Owner, which has neither been remedied nor waived, to pay the Contractor as required by the Construction Contract or to perform and complete or comply with the other terms thereof.

(FOR INFORMATION ONLY—Name, Address and Telephone)

AGENT or BROKER:

OWNER'S REPRESENTATIVE (Architect, Engineer or other party):

Exhibit C

Construction Payment Bond

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

CONTRACTOR (Name and Address):

SURETY (Name and Principal Place of Business):

OWNER (Name and Address):

CONSTRUCTION CONTRACT
Date:
Amount:
Description (Name and Location):

BOND
Date (Not earlier than Construction Contract Date):
Amount:
Modifications to this Bond Form:

CONTRACTOR AS PRINCIPAL
Company: (Corp. Seal)

Signature: _____
Name and Title:

SURETY
Company: (Corp. Seal)

Signature: _____
Name and Title:

CONTRACTOR AS PRINCIPAL
Company: (Corp. Seal)

Signature: _____
Name and Title:

SURETY
Company: (Corp. Seal)

Signature: _____
Name and Title:

EJCDC No. 1910-28B (1984 Edition)
Prepared through the joint efforts of the Surety Association of America, Engineers' Joint Contract Documents Committee, The Associated General Contractors of America, American Institute of Architects, American Subcontractors Association, and the Associated Specialty Contractors.

1. The Contractor and the Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner to pay for labor, materials and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference.

2. With respect to the Owner, this obligation shall be null and void if the Contractor:

2.1. Promptly makes payment, directly or indirectly, for all sums due Claimants, and

2.2. Defends, indemnifies and holds harmless the Owner from all claims, demands, liens or suits by any person or entity who furnished labor, materials or equipment for use in the performance of the Construction Contract, provided the Owner has promptly notified the Contractor and the Surety (at the address described in Paragraph 12) of any claims, demands, liens or suits and tendered defense of such claims, demands, liens or suits to the Contractor and the Surety, and provided there is no Owner Default.

3. With respect to Claimants, this obligation shall be null and void if the Contractor promptly makes payment, directly or indirectly, for all sums due.

4. The Surety shall have no obligation to Claimants under this Bond until:

4.1. Claimants who are employed by or have a direct contract with the Contractor have given notice to the Surety (at the address described in Paragraph 12) and sent a copy, or notice thereof, to the Owner, stating that a claim is being made under this Bond and, with substantial accuracy, the amount of the claim.

4.2. Claimants who do not have a direct contract with the Contractor:

1. Have furnished written notice to the Contractor and sent a copy, or notice thereof, to the Owner, within 90 days after having last performed labor or last furnished materials or equipment included in the claim stating, with substantial accuracy, the amount of the claim and the name of the party to whom the materials were furnished or supplied or for whom the labor was done or performed; and
2. Have either received a rejection in whole or in part from the Contractor, or not received within 30 days of furnishing the above notice any communication from the Contractor by which the Contractor has indicated the claim will be paid directly or indirectly; and
3. Not having been paid within the above 30 days, have sent a written notice to the Surety (at the address described in Paragraph 12) and sent a copy, or notice thereof, to the Owner, stating that a claim is being made under this Bond and enclosing a copy of the previous written notice furnished to the Contractor.

5. If a notice required by Paragraph 4 is given by the Owner to the Contractor or to the Surety, that is sufficient compliance.

6. When the Claimant has satisfied the conditions of Paragraph 4, the Surety shall promptly and at the Surety's expense take the following actions:

6.1. Send an answer to the Claimant, with a copy to the Owner, within 45 days after receipt of the claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed.

6.2. Pay or arrange for payment of any undisputed amounts.

7. The Surety's total obligation shall not exceed the amount of this Bond, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.

8. Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any Construction Performance Bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and the Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.

9. The Surety shall not be liable to the Owner, Claimants or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligations to make payments to, give notices on behalf of, or otherwise have obligations to Claimants under this Bond.

10. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

11. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the location in which the work or part of the work is located or after the expiration of one year from the date (1) on which the Claimant gave the notice required by Subparagraph 4.1 or Clause 4.2 (iii), or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

12. Notice to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the signature page. Actual receipt of notice by Surety, the Owner or the Contractor, however accomplished, shall be sufficient compliance as of the date received at the address shown on the signature page.

13. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. The intent is, that this Bond shall be construed as a statutory bond and not as a common law bond.

14. Upon request by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor shall promptly furnish a copy of this Bond or shall permit a copy to be made.

15. DEFINITIONS

15.1. Claimant: An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials or equipment for use in the performance of the Contract. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials or equipment were furnished.

15.2. Construction Contract: The agreement between the Owner and the Contractor identified on the signature page, including all Contract Documents and changes thereto.

15.3. Owner Default: Failure of the Owner, which has neither been remedied nor waived, to pay the Contractor as required by the Construction Contract or to perform and complete or comply with the other terms thereof.

(FOR INFORMATION ONLY—Name, Address and Telephone)

AGENT or BROKER:

OWNER'S REPRESENTATIVE (Architect, Engineer or other party):

NOTICE OF AWARD

Dated _____, 19___

TO: _____
(BIDDER)

ADDRESS: _____

_____

_____

OWNER'S PROJECT NO. _____

PROJECT _____

OWNER'S CONTRACT NO. _____

CONTRACT FOR _____

_____
(Insert name of Contract as it appears in the Bidding Documents)
_____

You are notified that your Bid dated _____, 198___ for the above Contract has been considered. You are the apparent successful bidder and have been awarded a contract for _____

_____

_____
(Indicate total Work, alternates or sections of Work awarded)

The Contract Price of your contract is _____

_____ Dollars ($).

Three copies of each of the proposed Contract Documents (except Drawings) accompany this Notice of Award. Three sets of the Drawings will be delivered separately or otherwise made available to you immediately.

You must comply with the following conditions precedent within five days of the date of this Notice of Award, that is by _____, 198___.

1. You must deliver to the OWNER three fully executed counterparts of the Agreement including all the Contract Documents. This includes the triplicate sets of Drawings. Each of the Contract Documents must bear your signature on (the cover) (every) page.
2. You must deliver with the executed Agreement the Contract Security (Bonds) as specified in the Instructions to Bidders (paragraph 17), General Conditions (paragraph 5.1) and Supplementary Conditions (paragraph SC-5.1).

EJCDC No. 1910-22 (1983 Edition)

Prepared by the Engineers' Joint Contract Documents Committee and endorsed by The Associated General Contractors of America.

3. (List other conditions precedent).

Failure to comply with these conditions within the time specified will entitle OWNER to consider your bid abandoned, to annul this Notice of Award and to declare your Bid Security forfeited.

Within ten days after you comply with those conditions, OWNER will return to you one fully signed counterpart of the Agreement with the Contract Documents attached.

_____
(OWNER)

By _____
(AUTHORIZED SIGNATURE)

_____
(TITLE)

Copy to ENGINEER
(Use Certified Mail,
Return Receipt Requested)

NOTICE TO PROCEED

Dated _____, 19 ___

TO: _____
(CONTRACTOR)

ADDRESS: _____

_____

_____

OWNER'S PROJECT NO. _____

PROJECT _____

OWNER'S CONTRACT NO. _____

CONTRACT FOR _____

_____
(Insert name of Contract as it appears in the Bidding Documents)

_____

You are notified that the Contract Time under the above contract will commence to run on _____, 19___. By that date, you are to start performing your obligations under the Contract Documents. In accordance with Article 3 of the Agreement the dates of Substantial Completion and Final Completion are _____, 19___ and _____, 19___, respectively.

Before you may start any Work at the site, paragraph 2.7 of the General Conditions provides that you and Owner must each deliver to the other (with copies to ENGINEER) certificates of insurance which each is required to purchase and maintain in accordance with the Contract Documents.

Also before you may start any Work at the site, you must
(add other requirements)

_____

_____

_____

_____

_____

_____

Copy to ENGINEER
(Use Certified Mail,
Return Receipt Requested)

_____
(OWNER)

By _____
(AUTHORIZED SIGNATURE)

_____
(TITLE)

EJCDC 1910-23 (1983 Edition)

Prepared by the Engineers' Joint Contract Documents Committee and endorsed by The Associated General Contractors of America.

MISCELLANEOUS FORMS

APPLICATION FOR PAYMENT NO. _____

To _____(OWNER)
Contract for _____.
OWNER's Project No. _____. ENGINEER's Project No. _____.
For Work accomplished through the date of _____.

ITEM	CONTRACTOR's Schedule of Values			Work Completed	
	Unit Price	Quantity	Amount	Quantity	Amount
	$		$		$
Total (Orig. Contract)			$		$
C.O. No. 1					
C.O. No. 2					

Accompanying Documentation:

_____
_____
_____
_____

GROSS AMOUNT DUE	$_____
LESS ____% RETAINAGE	$_____
AMOUNT DUE TO DATE	$_____
LESS PREVIOUS PAYMENTS	$_____
AMOUNT DUE THIS APPLICATION	$_____

CONTRACTOR'S Certification:

The undersigned CONTRACTOR certifies that (1) all previous progress payments received from OWNER on account of Work done under the Contract referred to above have been applied to discharge in full all obligations of CONTRACTOR incurred in connection with Work covered by prior Applications for Payment numbered 1 through _____inclusive; and (2) title to all materials and equipment incorporated in said Work or otherwise listed in or covered by this Application for Payment will pass to OWNER at time of payment free and clear of all liens, claims, security interests and encumbrances (except such as covered by Bond acceptable to OWNER).

Dated _____, 19____ _____
CONTRACTOR

By _____

Payment of the above AMOUNT DUE THIS APPLICATION is recommended.

Dated _____, 19____ _____
ENGINEER

By _____

EJCDC No. 1910-8-E (1983 Edition)
Prepared by the Engineers' Joint Contract Documents Committee and endorsed by The Associated General Contractors of America.

No. .....

RECOMMENDATION OF PAYMENT

OWNER's Project No. ..... ENGINEER's Project No. .....

Project .....

CONTRACTOR .....

Contract For ..... Contract Date .....

Application Date ..... Application Amount .....

For Period Ending .....

To .....
OWNER

Attached hereto is the CONTRACTOR's Application for Payment for Work accomplished under the Contract through the date indicated above. The Application meets the requirements of the Contract Documents and includes the CONTRACTOR's Certificate stating that all previous payments to him under the Contract have been applied by him to discharge in full all of his obligations in connection with the Work covered by all prior Applications for Payments.

In accordance with the Contract the undersigned recommends payment to the CONTRACTOR of the amount due as shown below.

.....
ENGINEER

Dated ....., 19..... By .....

STATEMENT OF WORK

Original Contract Price	$	Work to Date	$ .....
Net Change Orders	$	Amount Retained	$ .....
Current Contract Price	$	Subtotal	$ .....
Work to be Done	$	Previous Payments Recommended	$ .....
		Amount Due This Payment	$ .....

NSPE-ACEC 1910-8-C (1978 Edition)

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WORK DIRECTIVE CHANGE

(Instructions on reverse side) No. _____

PROJECT:

DATE OF ISSUANCE:

OWNER:

(Name, Address)

CONTRACTOR:

OWNER's Project No. _____

ENGINEER:

CONTRACT FOR:

ENGINEER's Project No. _____

You are directed to proceed promptly with the following change(s):

Description:

Purpose of Work Directive Change:

Attachments: (list documents supporting change)

If a claim is made that the above change(s) have affected Contract Price or Contract Time, any claim for a Change Order based thereon will involve one of the following methods of determining the effect of the change(s).

Method of determining change in Contract Price:

- ☐ Time and materials
- ☐ Unit prices
- ☐ Cost plus fixed fee
- ☐ Other _____

Estimated increase (decrease) in Contract Price: $_____. If the change involves an increase, the estimated amount is not to be exceeded without further authorization.

Method of determining change in Contract Time:

- ☐ Contractor's records
- ☐ Engineer's records
- ☐ Other _____

Estimated increase (decrease) in Contract Time: _____days. If the change involves an increase, the estimated time is not to be exceeded without further authorization.

RECOMMENDED:

by _____
Engineer

AUTHORIZED:

by _____
Owner

EJCDC No. 1910-8-F (1983 Edition)

Prepared by the Engineers' Joint Contract Documents Committee and endorsed by the Associated General Contractors of America.

CERTIFICATE OF SUBSTANTIAL COMPLETION

OWNER's Project No. ..... ENGINEER's Project No. .....

Project .....

CONTRACTOR .....

Contract For ..... Contract Date .....

This Certificate of Substantial Completion applies to all Work under the Contract Documents or to the following specified parts thereof:

To .....
OWNER

And To .....
CONTRACTOR

The Work to which this Certificate applies has been inspected by authorized representatives of OWNER, CONTRACTOR and ENGINEER, and that Work is hereby declared to be substantially complete in accordance with the Contract Documents on

.....
DATE OF SUBSTANTIAL COMPLETION

A tentative list of items to be completed or corrected is attached hereto. This list may not be all-inclusive, and the failure to include an item in it does not alter the responsibility of CONTRACTOR to complete all the Work in accordance with the Contract Documents. The items in the tentative list shall be completed or corrected by CONTRACTOR within _____days of the above date of Substantial Completion.

EJCDC No. 1910-8-D (1983 Edition)
Prepared by the Engineers' Joint Contract Documents Committee and endorsed by The Associated General Contractors of America.

The responsibilities between OWNER and CONTRACTOR for security, operation, safety, maintenance, heat, utilities, insurance and warranties shall be as follows:

RESPONSIBILITIES:

OWNER: _____

_____

_____

CONTRACTOR: _____

_____

_____

The following documents are attached to and made a part of this Certificate:

This certificate does not constitute an acceptance of Work not in accordance with the Contract Documents nor is it a release of CONTRACTOR's obligation to complete the Work in accordance with the Contract Documents.

Executed by ENGINEER on ....., 19 .....

.....
ENGINEER

By .....

CONTRACTOR accepts this Certificate of Substantial Completion on ....., 19 .....

.....
CONTRACTOR

By .....

OWNER accepts this Certificate of Substantial Completion on ....., 19 .....

.....
OWNER

By .....

Form No. FD/1

CERTIFICATE OF CONTRACTOR AND INDEMNITY AGREEMENT

_____ certifies that he is the *_____
Title or Designation

of _____, the Contractor,
Name of Contractor

in a contract No. _____ dated _____, entered into between the Contractor and _____
Name of Owner

the Owner, for the construction of _____
Name of Project

_____:

and that he is authorized to and does make this Certificate and Indemnity Agreement on behalf of the Contractor in order to induce the Owner to make payment to the Contractor, in accordance with the provisions of the Contract. Undersigned further certifies that:

1. The Project has been completed in accordance with provisions of the Construction Contract; provided however, that acceptance by the Owner shall not be deemed to relieve the Contractor of his obligations contained in the Construction Contract with respect to defective workmanship and materials discovered within _____ year(s) after the date of completion.

2. All persons who have furnished labor in connection with the Project have been paid in full at hourly wage rates not less than those, if any, set forth in the Construction Contract; that all manufacturers, materialmen and subcontractors which furnished any materials or services, or both, for the Project have been paid in full; that no lien has been filed against the Project and no person has any right to claim any lien against the Project.

3. That the Contractor has delivered to the Owner duplicate releases of liens executed by all manufacturers, materialmen and subcontractors that furnished materials or services for the project as follows:

Name	Kind of Material and Services
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

If the Owner pays the Contractor the total amount due under the Contract, which the Contractor agrees is $_____ including $_____ for ** state sales and use taxes paid by the Contractor, the Contractor will indemnify and hold harmless and does hereby undertake and agree to indemnify and hold harmless the Owner, including the defense of any suit, from any claim, demand or lien arising out of the acts of the Contractor in the performance of the Contract for which the Contractor is liable and which may have been or may be filed against the Owner.

_____

Signature

* President, Vice-President, Partner or Owner, or, if undersigned is other than one of foregoing, Power of Attorney signed by one of the foregoing in favor of the undersigned should be attached. Indicate applicable designation.

** In addition, Contractor shall submit a detailed statement of sales and use taxes paid in accordance with requirements of statute in state having jurisdiction.

Form No. FD/2

ARCHITECT/ENGINEER STATEMENT OF COMPLETION AND OWNER'S ACCEPTANCE OF CONTRACT CONSTRUCTION

TO: _____

_____

_____

_____
Project Designation

I, the undersigned Architect/Engineer of the above designated project, do hereby state that:

1. The construction provided for pursuant to Construction Contract No._____, dated _____, including all approved amendments and change orders, (hereinafter called the "Project") between

_____("Owner")

and_____("Contractor")

has been completed as of _____and to the best of my knowledge, information and belief, based on observations made during the period of construction, is in substantial compliance with the provisions of the Construction Contract, including all plans, specification and drawings, and modifications thereof.

To the best of my knowledge, information and belief,

2. Defects in workmanship and materials reported during the period of construction of the Project have been corrected.

3. The total cost of the project as completed is _____

_____dollars ($_____).

4. The Final Inventory attached hereto and made a part hereof is a complete and accurate summary of the work performed in accordance with the Construction Contract.

Accepted:

_____
Owner

By_____

Date_____

Attest:_____

DEWILD GRANT RECKERT & ASSOCIATES CO.

By_____

Title_____

Date_____

Form No. FD/3

CONTRACTOR'S RECEIPT FOR FINAL PAYMENT

Name of Project _____ Date _____

Previous Contract Payments	Final Contract Payment	Total Contract Payments
$_____	$_____	$ _____

The undersigned acknowledges receipt of the final contract payment shown above as satisfaction in full of all claims of the undersigned under the Construction Contract between the undersigned and _____
Name of Owner

_____ dated _____

as amended, and as complete performance by the Owner of all obligations to be performed by him pursuant thereto. The total amount received under this contract is shown above.

Name of Contractor _____

By _____

Form No. FD/4

WAIVER AND RELEASE OF LIEN

WHEREAS, the undersigned, _____
NAME OF MANUFACTURER, MATERIALMAN OR SUBCONTRACTOR

has furnished to _____ the following:
NAME OF CONTRACTOR

_____ for use in the construction of a project belonging
KIND OF MATERIAL AND SERVICES FURNISHED

to _____, and designated as,
NAME OF OWNER

_____
NAME OF PROJECT

NOW, THEREFORE, the undersigned, _____
NAME OF MANUFACTURER, MATERIALMAN OR SUBCONTRACTOR

for and in consideration of $_____, and other good and valuable consideration, the receipt whereof is hereby acknowledged, do (es) hereby waive and release any and all liens, or right to or claim of lien, on the above described project and premises, under any law, common or statutory, on account of labor or materials, or both, heretofore or hereafter furnished by the undersigned to or for the account of said _____ for said project.
NAME OF CONTRACTOR

Given under my (our) hand (s) and seal (s) this _____ day of _____, 19_____.

_____
NAME OF MANUFACTURER, MATERIALMAN OR SUBCONTRACTOR

By _____

PRESIDENT, VICE-PRESIDENT, PARTNER OR OWNER, OR, IF SIGNED BY OTHER THAN ONE OF FOREGOING, ACCOMPANIED BY POWER OF ATTORNEY SIGNED BY ONE OF THE FOREGOING IN FAVOR OF THE SIGNER. (USE DESIGNATION APPLICABLE)

CONTRACT CONDITIONS

GENERAL CONDITIONS

This document has important legal consequences; consultation with an attorney is encouraged with respect to its completion or modification.

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

Engineers' Joint Contract Documents Committee

and

Issued and Published Jointly By

PROFESSIONAL ENGINEERS IN PRIVATE PRACTICE
A practice division of the
NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS

AMERICAN CONSULTING ENGINEERS COUNCIL

AMERICAN SOCIETY OF CIVIL ENGINEERS

CONSTRUCTION SPECIFICATIONS INSTITUTE

This document has been approved and endorsed by

The Associated General Contractors of America

These General Conditions have been prepared for use with the Owner-Contractor Agreements (No. 1910-8-A-1 or 1910-8-A-2, 1983 editions). Their provisions are interrelated and a change in one may necessitate a change in the others. Comments concerning their usage are contained in the Commentary on Agreements for Engineering Services and Contract Documents, No. 1910-9, 1981 edition. For guidance in the preparation of Supplementary Conditions, see Guide to the Preparation of Supplementary Conditions (No. 1910-17, 1983 edition). When bidding is involved, the Standard Form of Instructions to Bidders (No. 1910-12, 1983 edition) may be used.

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GENERAL CONDITIONS

ARTICLE 1—DEFINITIONS

Wherever used in these General Conditions or in the other Contract Documents the following terms have the meanings indicated which are applicable to both the singular and plural thereof:

Addenda—Written or graphic instruments issued prior to the opening of Bids which clarify, correct or change the bidding documents or the Contract Documents.

Agreement—The written agreement between OWNER and CONTRACTOR covering the Work to be performed; other Contract Documents are attached to the Agreement and made a part thereof as provided therein.

Application for Payment—The form accepted by ENGINEER which is to be used by CONTRACTOR in requesting progress or final payments and which is to include such supporting documentation as is required by the Contract Documents.

Bid—The offer or proposal of the bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

Bonds—Bid, performance and payment bonds and other instruments of security.

Change Order—A document recommended by ENGINEER, which is signed by CONTRACTOR and OWNER and authorizes an addition, deletion or revision in the Work, or an adjustment in the Contract Price or the Contract Time, issued on or after the Effective Date of the Agreement.

Contract Documents—The Agreement, Addenda (which pertain to the Contract Documents), CONTRACTOR's Bid (including documentation accompanying the Bid and any post-Bid documentation submitted prior to the Notice of Award) when attached as an exhibit to the Agreement, the Bonds, these General Conditions, the Supplementary Conditions, the Specifications and the Drawings as the same are more specifically identified in the Agreement, together with all amendments, modifications and supplements issued pursuant to paragraphs 3.4 and 3.5 on or after the Effective Date of the Agreement.

Contract Price—The moneys payable by OWNER to CONTRACTOR under the Contract Documents as stated in the Agreement (subject to the provisions of paragraph 11.9.1 in the case of Unit Price Work).

Contract Time—The number of days (computed as provided in paragraph 17.2) or the date stated in the Agreement for the completion of the Work.

CONTRACTOR—The person, firm or corporation with whom OWNER has entered into the Agreement.

defective—An adjective which when modifying the word Work refers to Work that is unsatisfactory, faulty or deficient, or does not conform to the Contract Documents, or does not meet the requirements of any inspection, reference standard, test or approval referred to in the Contract Documents, or has been damaged prior to ENGINEER's recommendation of final payment (unless responsibility for the protection thereof has been assumed by OWNER at Substantial Completion in accordance with paragraph 14.8 or 14.10).

Drawings—The drawings which show the character and scope of the Work to be performed and which have been prepared or approved by ENGINEER and are referred to in the Contract Documents.

Effective Date of the Agreement—The date indicated in the Agreement on which it becomes effective, but if no such date is indicated it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.

ENGINEER—The person, firm or corporation named as such in the Agreement.

Field Order—A written order issued by ENGINEER which orders minor changes in the Work in accordance with paragraph 9.5 but which does not involve a change in the Contract Price or the Contract Time.

General Requirements—Sections of Division 1 of the Specifications.

Laws and Regulations; Laws or Regulations—Laws, rules, regulations, ordinances, codes and/or orders.

Notice of Award—The written notice by OWNER to the apparent successful bidder stating that upon compliance by the apparent successful bidder with the conditions precedent enumerated therein, within the time specified, OWNER will sign and deliver the Agreement.

Notice to Proceed—A written notice given by OWNER to CONTRACTOR (with a copy to ENGINEER) fixing the date on which the Contract Time will commence to run and on which CONTRACTOR shall start to perform CONTRACTOR'S obligations under the Contract Documents.

OWNER—The public body or authority, corporation, association, firm or person with whom CONTRACTOR has entered into the Agreement and for whom the Work is to be provided.

Partial Utilization—Placing a portion of the Work in service for the purpose for which it is intended (or a related purpose) before reaching Substantial Completion for all the Work.

Project—The total construction of which the Work to be provided under the Contract Documents may be the whole, or a part as indicated elsewhere in the Contract Documents.

Resident Project Representative—The authorized representative of ENGINEER who is assigned to the site or any part thereof.

Shop Drawings—All drawings, diagrams, illustrations, schedules and other data which are specifically prepared by or for CONTRACTOR to illustrate some portion of the Work and all illustrations, brochures, standard schedules, performance charts, instructions, diagrams and other information prepared by a Supplier and submitted by CONTRACTOR to illustrate material or equipment for some portion of the Work.

Specifications—Those portions of the Contract Documents consisting of written technical descriptions of materials, equipment, construction systems, standards and workmanship as applied to the Work and certain administrative details applicable thereto.

Subcontractor—An individual, firm or corporation having a direct contract with CONTRACTOR or with any other Subcontractor for the performance of a part of the Work at the site.

Substantial Completion—The Work (or a specified part thereof) has progressed to the point where, in the opinion of ENGINEER as evidenced by ENGINEER's definitive certificate of Substantial Completion, it is sufficiently complete, in accordance with the Contract Documents, so that the Work (or specified part) can be utilized for the purposes for which it is intended; or if there be no such certificate issued, when final payment is due in accordance with paragraph 14.13. The terms "substantially complete" and "substantially completed" as applied to any Work refer to Substantial Completion thereof.

Supplementary Conditions—The part of the Contract Documents which amends or supplements these General Conditions.

Supplier—A manufacturer, fabricator, supplier, distributor, materialman or vendor.

Underground Facilities—All pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels or other such facilities or attachments, and any encasements containing such facilities which have been installed underground to furnish any of the following services or materials: electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, sewage and drainage removal, traffic or other control systems or water.

Unit Price Work—Work to be paid for on the basis of unit prices.

Work—The entire completed construction or the various separately identifiable parts thereof required to be furnished under the Contract Documents. Work is the result of performing services, furnishing labor and furnishing and incorporating materials and equipment into the construction, all as required by the Contract Documents.

Work Directive Change—A written directive to CONTRACTOR, issued on or after the Effective Date of the Agreement and signed by OWNER and recommended by ENGINEER, ordering an addition, deletion or revision in the Work, or responding to differing or unforeseen physical conditions under which the Work is to be performed as provided in paragraph 4.2 or 4.3 or to emergencies under paragraph 6.22. A Work Directive Change may not change the Contract Price or the Contract Time, but is evidence that the parties expect that the change directed or documented by a Work Directive Change will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Time as provided in paragraph 10.2.

Written Amendment—A written amendment of the Contract Documents, signed by OWNER and CONTRACTOR on or after the Effective Date of the Agreement and normally dealing with the nonengineering or nontechnical rather than strictly Work-related aspects of the Contract Documents.

ARTICLE 2—PRELIMINARY MATTERS

Delivery of Bonds:

2.1. When CONTRACTOR delivers the executed Agreements to OWNER, CONTRACTOR shall also deliver to OWNER such Bonds as CONTRACTOR may be required to furnish in accordance with paragraph 5.1.

Copies of Documents:

2.2. OWNER shall furnish to CONTRACTOR up to ten copies (unless otherwise specified in the Supplementary Conditions) of the Contract Documents as are reasonably necessary for the execution of the Work. Additional copies will be furnished, upon request, at the cost of reproduction.

Commencement of Contract Time; Notice to Proceed:

2.3. The Contract Time will commence to run on the thirtieth day after the Effective Date of the Agreement, or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within thirty days after the Effective Date of the Agreement. In no event will the Contract Time commence to run later than the seventy-fifth day after the day of Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier.

Starting the Project:

2.4. CONTRACTOR shall start to perform the Work on the date when the Contract Time commences to run, but no Work shall be done at the site prior to the date on which the Contract Time commences to run.

Before Starting Construction:

2.5. Before undertaking each part of the Work, CONTRACTOR shall carefully study and compare the Contract Documents and check and verify pertinent figures shown

thereon and all applicable field measurements. CONTRACTOR shall promptly report in writing to ENGINEER any conflict, error or discrepancy which CONTRACTOR may discover and shall obtain a written interpretation or clarification from ENGINEER before proceeding with any Work affected thereby; however, CONTRACTOR shall not be liable to OWNER or ENGINEER for failure to report any conflict, error or discrepancy in the Contract Documents, unless CONTRACTOR had actual knowledge thereof or should reasonably have known thereof.

2.6. Within ten days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), CONTRACTOR shall submit to ENGINEER for review:

2.6.1. an estimated progress schedule indicating the starting and completion dates of the various stages of the Work;

2.6.2. a preliminary schedule of Shop Drawing submissions; and

2.6.3. a preliminary schedule of values for all of the Work which will include quantities and prices of items aggregating the Contract Price and will subdivide the Work into component parts in sufficient detail to serve as the basis for progress payments during construction. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work which will be confirmed in writing by CONTRACTOR at the time of submission.

~~2.7. Before any Work at the site is started, CONTRACTOR shall deliver to OWNER, with a copy to ENGINEER, certificates (and other evidence of insurance requested by OWNER) which CONTRACTOR is required to purchase and maintain in accordance with paragraphs 5.3 and 5.4, and OWNER shall deliver to CONTRACTOR certificates (and other evidence of insurance requested by CONTRACTOR) which OWNER is required to purchase and maintain in accordance with paragraphs 5.6 and 5.7.~~

Preconstruction Conference:

2.8. Within twenty days after the Effective Date of the Agreement, but before CONTRACTOR starts the Work at the site, a conference attended by CONTRACTOR, ENGINEER and others as appropriate will be held to discuss the schedules referred to in paragraph 2.6, to discuss procedures for handling Shop Drawings and other submittals and for processing Applications for Payment, and to establish a working understanding among the parties as to the Work.

Finalizing Schedules:

2.9. At least ten days before submission of the first Application for Payment a conference attended by CONTRACTOR, ENGINEER and others as appropriate will be held to finalize the schedules submitted in accordance with paragraph 2.6. The finalized progress schedule will be acceptable to ENGINEER as providing an orderly progression of the Work to completion within the Contract Time, but such acceptance will neither impose on ENGINEER responsibility for the progress or scheduling of the Work nor relieve CONTRACTOR from full responsibility therefor. The finalized schedule of Shop Drawing submissions will be acceptable to ENGINEER as providing a workable arrangement for processing the submissions. The finalized schedule of values will be acceptable to ENGINEER as to form and substance.

ARTICLE 3—CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

Intent:

3.1. The Contract Documents comprise the entire agreement between OWNER and CONTRACTOR concerning the Work. The Contract Documents are complementary; what is called for by one is as binding as if called for by all. The Contract Documents will be construed in accordance with the law of the place of the Project.

3.2. It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents. Any Work, materials or equipment that may reasonably be inferred from the Contract Documents as being required to produce the intended result will be supplied whether or not specifically called for. When words which have a well-known technical or trade meaning are used to describe Work, materials or equipment such words shall be interpreted in accordance with that meaning. Reference to standard specifications, manuals or codes of any technical society, organization or association, or to the Laws or Regulations of any governmental authority, whether such reference be specific or by implication, shall mean the latest standard specification, manual, code or Laws or Regulations in effect at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated. However, no provision of any referenced standard specification, manual or code (whether or not specifically incorporated by reference in the Contract Documents) shall be effective to change the duties and responsibilities of OWNER, CONTRACTOR or ENGINEER, or any of their consultants, agents or employees from those set forth in the Contract Documents, nor shall it be effective to assign to ENGINEER, or any of ENGINEER's consultants, agents or employees, any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of paragraph 9.15 or 9.16. Clarifications and interpretations of the Contract Documents shall be issued by ENGINEER as provided in paragraph 9.4.

3.3. If, during the performance of the Work, CONTRACTOR finds a conflict, error or discrepancy in the Contract Documents, CONTRACTOR shall so report to ENGINEER in writing at once and before proceeding with the Work affected thereby shall obtain a written interpretation or clarification

from ENGINEER; however, CONTRACTOR shall not be liable to OWNER or ENGINEER for failure to report any conflict, error or discrepancy in the Contract Documents unless CONTRACTOR had actual knowledge thereof or should reasonably have known thereof.

Amending and Supplementing Contract Documents:

3.4. The Contract Documents may be amended to provide for additions, deletions and revisions in the Work or to modify the terms and conditions thereof in one or more of the following ways:

3.4.1. a formal Written Amendment,

3.4.2. a Change Order (pursuant to paragraph 10.4), or

3.4.3. a Work Directive Change (pursuant to paragraph 10.1).

As indicated in paragraphs 11.2 and 12.1, Contract Price and Contract Time may only be changed by a Change Order or a Written Amendment.

3.5. In addition, the requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, in one or more of the following ways:

3.5.1. a Field Order (pursuant to paragraph 9.5),

3.5.2. ENGINEER's approval of a Shop Drawing or sample (pursuant to paragraphs 6.26 and 6.27), or

3.5.3. ENGINEER's written interpretation or clarification (pursuant to paragraph 9.4).

Reuse of Documents:

3.6. Neither CONTRACTOR nor any Subcontractor or Supplier or other person or organization performing or furnishing any of the Work under a direct or indirect contract with OWNER shall have or acquire any title to or ownership rights in any of the Drawings, Specifications or other documents (or copies of any thereof) prepared by or bearing the seal of ENGINEER; and they shall not reuse any of them on extensions of the Project or any other project without written consent of OWNER and ENGINEER and specific written verification or adaptation by ENGINEER.

ARTICLE 4—AVAILABILITY OF LANDS; PHYSICAL CONDITIONS; REFERENCE POINTS

Availability of Lands:

4.1. OWNER shall furnish, as indicated in the Contract Documents, the lands upon which the Work is to be performed, rights-of-way and easements for access thereto, and such other lands which are designated for the use of CONTRACTOR. Easements for permanent structures or permanent changes in existing facilities will be obtained and paid for by OWNER, unless otherwise provided in the Contract Documents. If CONTRACTOR believes that any delay in OWNER's furnishing these lands, rights-of-way or easements entitles CONTRACTOR to an extension of the Contract Time, CONTRACTOR may make a claim therefor as provided in Article 12. CONTRACTOR shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

Physical Conditions:

4.2.1. *Explorations and Reports:* Reference is made to the Supplementary Conditions for identification of those reports of explorations and tests of subsurface conditions at the site that have been utilized by ENGINEER in preparation of the Contract Documents. CONTRACTOR may rely upon the accuracy of the technical data contained in such reports, but not upon nontechnical data, interpretations or opinions contained therein or for the completeness thereof for CONTRACTOR's purposes. Except as indicated in the immediately preceding sentence and in paragraph 4.2.6, CONTRACTOR shall have full responsibility with respect to subsurface conditions at the site.

4.2.2. *Existing Structures:* Reference is made to the Supplementary Conditions for identification of those drawings of physical conditions in or relating to existing surface and subsurface structures (except Underground Facilities referred to in paragraph 4.3) which are at or contiguous to the site that have been utilized by ENGINEER in preparation of the Contract Documents. CONTRACTOR may rely upon the accuracy of the technical data contained in such drawings, but not for the completeness thereof for CONTRACTOR's purposes. Except as indicated in the immediately preceding sentence and in paragraph 4.2.6, CONTRACTOR shall have full responsibility with respect to physical conditions in or relating to such structures.

4.2.3. *Report of Differing Conditions:* If CONTRACTOR believes that:

4.2.3.1. any technical data on which CONTRACTOR is entitled to rely as provided in paragraphs 4.2.1 and 4.2.2 is inaccurate, or

4.2.3.2. any physical condition uncovered or revealed at the site differs materially from that indicated, reflected or referred to in the Contract Documents,

CONTRACTOR shall, promptly after becoming aware thereof and before performing any Work in connection therewith (except in an emergency as permitted by paragraph 6.22), notify OWNER and ENGINEER in writing about the inaccuracy or difference.

4.2.4. *ENGINEER's Review:* ENGINEER will promptly review the pertinent conditions, determine the necessity of obtaining additional explorations or tests with respect thereto and advise OWNER in writing (with a copy to CONTRACTOR) of ENGINEER's findings and conclusions.

4.2.5. *Possible Document Change:* If ENGINEER concludes that there is a material error in the Contract Documents or that because of newly discovered conditions a change in the Contract Documents is required, a Work Directive Change or a Change Order will be issued as provided in Article 10 to reflect and document the consequences of the inaccuracy or difference.

4.2.6. *Possible Price and Time Adjustments:* In each such case, an increase or decrease in the Contract Price or an extension or shortening of the Contract Time, or any combination thereof, will be allowable to the extent that they are attributable to any such inaccuracy or difference. If OWNER and CONTRACTOR are unable to agree as to the amount or length thereof, a claim may be made therefor as provided in Articles 11 and 12.

Physical Conditions—Underground Facilities:

4.3.1. *Shown or Indicated:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the site is based on information and data furnished to OWNER or ENGINEER by the owners of such Underground Facilities or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

4.3.1.1. OWNER and ENGINEER shall not be responsible for the accuracy or completeness of any such information or data; and.

~~4.3.1.2. CONTRACTOR shall have full responsibility for reviewing and checking all such information and data, for locating all Underground Facilities shown or indicated in the Contract Documents, for coordination of the Work with the owners of such Underground Facilities during construction, for the safety and protection thereof as provided in paragraph 6.20 and repairing any damage thereto resulting from the Work, the cost of all of which will be considered as having been included in the Contract Price.~~

4.3.2. *Not Shown or Indicated.* If an Underground Facility is uncovered or revealed at or contiguous to the site which was not shown or indicated in the Contract Documents and which CONTRACTOR could not reasonably have been expected to be aware of, CONTRACTOR shall, promptly after becoming aware thereof and before performing any Work affected thereby (except in an emergency as permitted by paragraph 6.22), identify the owner of such Underground Facility and give written notice thereof to that owner and to OWNER and ENGINEER. ENGINEER will promptly review the Underground Facility to determine the extent to which the Contract Documents should be modified to reflect and document the consequences of the existence of the Underground Facility, and the Contract Documents will be amended or supplemented to the extent necessary. During such time, CONTRACTOR shall be responsible for the safety and protection of such Underground Facility as provided in paragraph 6.20. CONTRACTOR shall be allowed an increase in the Contract Price or an extension of the Contract Time, or both, to the extent that they are attributable to the existence of any Underground Facility that was not shown or indicated in the Contract Documents and which CONTRACTOR could not reasonably have been expected to be aware of. If the parties are unable to agree as to the amount or length thereof, CONTRACTOR may make a claim therefor as provided in Articles 11 and 12.

Reference Points:

4.4. OWNER shall provide engineering surveys to establish reference points for construction which in ENGINEER's judgment are necessary to enable CONTRACTOR to proceed with the Work. CONTRACTOR shall be responsible for laying out the Work (unless otherwise specified in the General Requirements), shall protect and preserve the established reference points and shall make no changes or relocations without the prior written approval of OWNER. CONTRACTOR shall report to ENGINEER whenever any reference point is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points by professionally qualified personnel.

ARTICLE 5—BONDS AND INSURANCE

Performance and Other Bonds:

5.1. CONTRACTOR shall furnish performance and payment Bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all CONTRACTOR's obligations under the Contract Documents. These Bonds shall remain in effect at least until one year after the date when final payment becomes due, except as otherwise provided by Law or Regulation or by the Contract Documents. CONTRACTOR shall also furnish such other Bonds as are required by the Supplementary Conditions. All Bonds shall be in the forms prescribed by Law or Regulation or by the Contract Documents and be executed by such sureties as are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Audit Staff Bureau of Accounts, U.S. Treasury Department. All Bonds signed by an agent must be accompanied by a certified copy of the authority to act.

5.2. If the surety on any Bond furnished by CONTRACTOR is declared a bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of

the Project is located or it ceases to meet the requirements of paragraph 5.1. CONTRACTOR shall within five days thereafter substitute another Bond and Surety, both of which must be acceptable to OWNER.

Contractor's Liability Insurance:

5.3. CONTRACTOR shall purchase and maintain such comprehensive general liability and other insurance as is appropriate for the Work being performed and furnished and as will provide protection from claims set forth below which may arise out of or result from CONTRACTOR's performance and furnishing of the Work and CONTRACTOR's other obligations under the Contract Documents, whether it is to be performed or furnished by CONTRACTOR, by any Subcontractor, by anyone directly or indirectly employed by any of them to perform or furnish any of the Work, or by anyone for whose acts any of them may be liable:

5.3.1. Claims under workers' or workmen's compensation, disability benefits and other similar employee benefit acts;

5.3.2. Claims for damages because of bodily injury, occupational sickness or disease, or death of CONTRACTOR's employees;

5.3.3. Claims for damages because of bodily injury, sickness or disease, or death of any person other than CONTRACTOR's employees;

5.3.4. Claims for damages insured by personal injury liability coverage which are sustained (a) by any person as a result of an offense directly or indirectly related to the employment of such person by CONTRACTOR, or (b) by any other person for any other reason;

5.3.5. Claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom;

5.3.6. Claims arising out of operation of Laws or Regulations for damages because of bodily injury or death of any person or for damage to property; and

5.3.7. Claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.

The insurance required by this paragraph 5.3 shall include the specific coverages and be written for not less than the limits of liability and coverages provided in the Supplementary Conditions, or required by law, whichever is greater. The comprehensive general liability insurance shall include completed operations insurance. All of the policies of insurance so required to be purchased and maintained (or the certificates or other evidence thereof) shall contain a provision or endorsement that the coverage afforded will not be cancelled, materially changed or renewal refused until at least thirty days' prior written notice has been given to OWNER and ENGINEER by certified mail. All such insurance shall remain in effect until final payment and at all times thereafter when CONTRACTOR may be correcting, removing or replacing *defective* Work in accordance with paragraph 13.12. In addition, CONTRACTOR shall maintain such completed operations insurance for at least two years after final payment and furnish OWNER with evidence of continuation of such insurance at final payment and one year thereafter.

Contractual Liability Insurance:

5.4. The comprehensive general liability insurance required by paragraph 5.3 will include contractual liability insurance applicable to CONTRACTOR's obligations under paragraphs 6.30 and 6.31.

Owner's Liability Insurance:

~~5.5. OWNER shall be responsible for purchasing and~~ maintaining OWNER's own liability insurance and, at OWNER's option, may purchase and maintain such insurance as will protect OWNER against claims which may arise ~~from operations under the Contract Documents.~~

Property Insurance:

~~5.6. Unless otherwise provided in the Supplementary~~ Conditions, OWNER shall purchase and maintain property insurance upon the Work at the site to the full insurable value thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall include the interests of OWNER, CONTRACTOR, Subcontractors, ENGINEER and ENGINEER's consultants in the Work, all of whom shall be listed as insureds or additional insured parties, shall insure against the perils of fire and extended coverage and shall include "all risk" insurance for physical loss and damage including theft, vandalism and malicious mischief, collapse and water damage, and such other perils as may be provided in the Supplementary Conditions, and shall include damages, losses and expenses arising out of or resulting from any insured loss or incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers, architects, attorneys and other professionals). If not covered under the "all risk" insurance or otherwise provided in the Supplementary Conditions, CONTRACTOR shall purchase and maintain similar property insurance on portions of the Work stored on and off the site or in transit when such portions of the Work are to be included in an Application for ~~Payment.~~

~~5.7. OWNER shall purchase and maintain such boiler and~~ machinery insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of OWNER, CONTRACTOR, Subcontractors, ENGINEER AND ENGINEER's consultants in the Work, all of whom shall be ~~listed as insured or additional insured parties.~~

5.8. All the policies of insurance (or the certificates or other evidence thereof) required to be purchased and maintained by OWNER in accordance with paragraphs 5.6 and 5.7 will contain a provision or endorsement that the coverage afforded will not be cancelled or materially changed or renewal refused until at least thirty days' prior written notice has been given to CONTRACTOR by certified mail and will contain waiver provisions in accordance with paragraph 5.11.2.

5.9. OWNER shall not be responsible for purchasing and maintaining any property insurance to protect the interests of CONTRACTOR, Subcontractors or others in the Work to the extent of any deductible amounts that are provided in the Supplementary Conditions. The risk of loss within the deductible amount, will be borne by CONTRACTOR, Subcontractor or others suffering any such loss and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.

5.10. If CONTRACTOR requests in writing that other special insurance be included in the property insurance policy, OWNER shall, if possible, include such insurance, and the cost thereof will be charged to CONTRACTOR by appropriate Change Order or Written Amendment. Prior to commencement of the Work at the site, OWNER shall in writing advise CONTRACTOR whether or not such other insurance has been procured by OWNER.

Waiver of Rights:

5.11.1. OWNER and CONTRACTOR waive all rights against each other for all losses and damages caused by any of the perils covered by the policies of insurance provided in response to paragraphs 5.6 and 5.7 and any other property insurance applicable to the Work, and also waive all such rights against the Subcontractors, ENGINEER, ENGINEER's consultants and all other parties named as insureds in such policies for losses and damages so caused. As required by paragraph 6.11, each subcontract between CONTRACTOR and a Subcontractor will contain similar waiver provisions by the Subcontractor in favor of OWNER, CONTRACTOR, ENGINEER, ENGINEER's consultants and all other parties named as insureds. None of the above waivers shall extend to the rights that any of the insured parties may have to the proceeds of insurance held by OWNER as trustee or otherwise payable under any policy so issued.

5.11.2. OWNER and CONTRACTOR intend that any policies provided in response to paragraphs 5.6 and 5.7 shall protect all of the parties insured and provide primary coverage for all losses and damages caused by the perils covered thereby. Accordingly, all such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any of the parties named as insureds or additional insureds, and if the insurers require separate waiver forms to be signed by ENGINEER or ENGINEER's consultant OWNER will obtain the same, and if such waiver forms are required of any Subcontractor, CONTRACTOR will obtain the same.

Receipt and Application of Proceeds:

5.12. Any insured loss under the policies of insurance required by paragraphs 5.6 and 5.7 will be adjusted with OWNER and made payable to OWNER as trustee for the insureds, as their interests may appear, subject to the requirements of any applicable mortgage clause and of paragraph 5.13. OWNER shall deposit in a separate account any money so received, and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof and the Work and the cost thereof covered by an appropriate Change Order or Written Amendment.

5.13. OWNER as trustee shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within fifteen days after the occurrence of loss to OWNER's exercise of this power. If such objection be made, OWNER as trustee shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If required in writing by any party in interest, OWNER as trustee shall, upon the occurrence of an insured loss, give bond for the proper performance of such duties.

Acceptance of Insurance:

5.14. If OWNER has any objection to the coverage afforded by or other provisions of the insurance required to be purchased and maintained by CONTRACTOR in accordance with paragraphs 5.3 and 5.4 on the basis of its not complying with the Contract Documents, OWNER shall notify CONTRACTOR in writing thereof within ten days of the date of delivery of such certificates to OWNER in accordance with paragraph 2.7. If CONTRACTOR has any objection to the coverage afforded by or other provisions of the policies of insurance required to be purchased and maintained by OWNER in accordance with paragraphs 5.6 and 5.7 on the basis of their not complying with the Contract Documents, CONTRACTOR shall notify OWNER in writing thereof within ten days of the date of delivery of such certificates to CONTRACTOR in accordance with paragraph 2.7. OWNER and CONTRACTOR shall each provide to the other such additional information in respect of insurance provided by each as the other may reasonably request. Failure by OWNER or CONTRACTOR to give any such notice of objection within the time provided shall constitute acceptance of such insurance purchased by the other as complying with the Contract Documents.

Partial Utilization—Property Insurance:

5.15. If OWNER finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work, such use or occupancy may be accomplished in accordance with paragraph 14.10; provided that no

such use or occupancy shall commence before the insurers providing the property insurance have acknowledged notice thereof and in writing effected the changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be cancelled or lapse on account of any such partial use or occupancy.

ARTICLE 6—CONTRACTOR'S RESPONSIBILITIES

Supervision and Superintendence:

6.1. CONTRACTOR shall supervise and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. CONTRACTOR shall be solely responsible for the means, methods, techniques, sequences and procedures of construction, but CONTRACTOR shall not be responsible for the negligence of others in the design or selection of a specific means, method, technique, sequence or procedure of construction which is indicated in and required by the Contract Documents. CONTRACTOR shall be responsible to see that the finished Work complies accurately with the Contract Documents.

6.2. CONTRACTOR shall keep on the Work at all times during its progress a competent resident superintendent, who shall not be replaced without written notice to OWNER and ENGINEER except under extraordinary circumstances. The superintendent will be CONTRACTOR's representative at the site and shall have authority to act on behalf of CONTRACTOR. All communications given to the superintendent shall be as binding as if given to CONTRACTOR.

Labor, Materials and Equipment:

6.3. CONTRACTOR shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. CONTRACTOR shall at all times maintain good discipline and order at the site. Except in connection with the safety or protection of persons or the Work or property at the site or adjacent thereto, and except as otherwise indicated in the Contract Documents, all Work at the site shall be performed during regular working hours, and CONTRACTOR will not permit overtime work or the performance of Work on Saturday, Sunday or any legal holiday without OWNER's written consent given after prior written notice to ENGINEER.

6.4. Unless otherwise specified in the General Requirements, CONTRACTOR shall furnish and assume full responsibility for all materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities and all other facilities and incidentals necessary for the furnishing, performance, testing, start-up and completion of the Work.

6.5. All materials and equipment shall be of good quality and new, except as otherwise provided in the Contract Documents. If required by ENGINEER, CONTRACTOR shall furnish satisfactory evidence (including reports of required tests) as to the kind and quality of materials and equipment. All materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned in accordance with the instructions of the applicable Supplier except as otherwise provided in the Contract Documents; but no provision of any such instructions will be effective to assign to ENGINEER, or any of ENGINEER's consultants, agents or employees, any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of paragraph 9.15 or 9.16.

Adjusting Progress Schedule:

6.6. CONTRACTOR shall submit to ENGINEER for acceptance (to the extent indicated in paragraph 2.9) adjustments in the progress schedule to reflect the impact thereon of new developments; these will conform generally to the progress schedule then in effect and additionally will comply with any provisions of the General Requirements applicable thereto.

Substitutes or "Or-Equal" Items:

6.7.1. Whenever materials or equipment are specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier the naming of the item is intended to establish the type, function and quality required. Unless the name is followed by words indicating that no substitution is permitted, materials or equipment of other Suppliers may be accepted by ENGINEER if sufficient information is submitted by CONTRACTOR to allow ENGINEER to determine that the material or equipment proposed is equivalent or equal to that named. The procedure for review by ENGINEER will include the following as supplemented in the General Requirements. Requests for review of substitute items of material and equipment will not be accepted by ENGINEER from anyone other than CONTRACTOR. If CONTRACTOR wishes to furnish or use a substitute item of material or equipment, CONTRACTOR shall make written application to ENGINEER for acceptance thereof, certifying that the proposed substitute will perform adequately the functions and achieve the results called for by the general design, be similar and of equal substance to that specified and be suited to the same use as that specified. The application will state that the evaluation and acceptance of the proposed substitute will not prejudice CONTRACTOR's achievement of Substantial Completion on time, whether or not acceptance of the substitute for use in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with OWNER for work on the Project) to adapt the design to the proposed substitute and whether or not incorporation or use of the substitute in connection with the Work is subject to payment of any license fee or

royalty. All variations of the proposed substitute from that specified will be identified in the application and available maintenance, repair and replacement service will be indicated. The application will also contain an itemized estimate of all costs that will result directly or indirectly from acceptance of such substitute, including costs of redesign and claims of other contractors affected by the resulting change, all of which shall be considered by ENGINEER in evaluating the proposed substitute. ENGINEER may require CONTRACTOR to furnish at CONTRACTOR's expense additional data about the proposed substitute.

6.7.2. If a specific means, method, technique, sequence or procedure of construction is indicated in or required by the Contract Documents, CONTRACTOR may furnish or utilize a substitute means, method, sequence, technique or procedure of construction acceptable to ENGINEER, if CONTRACTOR submits sufficient information to allow ENGINEER to determine that the substitute proposed is equivalent to that indicated or required by the Contract Documents. The procedure for review by ENGINEER will be similar to that provided in paragraph 6.7.1 as applied by ENGINEER and as may be supplemented in the General Requirements.

6.7.3. ENGINEER will be allowed a reasonable time within which to evaluate each proposed substitute. ENGINEER will be the sole judge of acceptability, and no substitute will be ordered, installed or utilized without ENGINEER's prior written acceptance which will be evidenced by either a Change Order or an approved Shop Drawing. OWNER may require CONTRACTOR to furnish at CONTRACTOR's expense a special performance guarantee or other surety with respect to any substitute. ENGINEER will record time required by ENGINEER and ENGINEER's consultants in evaluating substitutions proposed by CONTRACTOR and in making changes in the Contract Documents occasioned thereby. Whether or not ENGINEER accepts a proposed substitute, CONTRACTOR shall reimburse OWNER for the charges of ENGINEER and ENGINEER's consultants for evaluating each proposed substitute.

Concerning Subcontractors, Suppliers and Others:

6.8.1. CONTRACTOR shall not employ any Subcontractor, Supplier or other person or organization (including those acceptable to OWNER and ENGINEER as indicated in paragraph 6.8.2), whether initially or as a substitute, against whom OWNER or ENGINEER may have reasonable objection. CONTRACTOR shall not be required to employ any Subcontractor, Supplier or other person or organization to furnish or perform any of the Work against whom CONTRACTOR has reasonable objection.

6.8.2. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers or other persons or organizations (including those who are to furnish the principal items of materials and equipment) to be submitted to OWNER in advance of the specified date prior to the Effective Date of the Agreement for acceptance by OWNER and ENGINEER and if CONTRACTOR has submitted a list thereof in accordance with the Supplementary Conditions, OWNER's or ENGINEER's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the bidding documents or the Contract Documents) of any such Subcontractor, Supplier or other person or organization so identified may be revoked on the basis of reasonable objection after due investigation, in which case CONTRACTOR shall submit an acceptable substitute, the Contract Price will be increased by the difference in the cost occasioned by such substitution and an appropriate Change Order will be issued or Written Amendment signed. No acceptance by OWNER or ENGINEER of any such Subcontractor, Supplier or other person or organization shall constitute a waiver of any right of OWNER or ENGINEER to reject *defective* Work.

6.9. CONTRACTOR shall be fully responsible to OWNER and ENGINEER for all acts and omissions of the Subcontractors, Suppliers and other persons and organizations performing or furnishing any of the Work under a direct or indirect contract with CONTRACTOR just as CONTRACTOR is responsible for CONTRACTOR's own acts and omissions. Nothing in the Contract Documents shall create any contractual relationship between OWNER or ENGINEER and any such Subcontractor, Supplier or other person or organization, nor shall it create any obligation on the part of OWNER or ENGINEER to pay or to see to the payment of any moneys due any such Subcontractor, Supplier or other person or organization except as may otherwise be required by Laws and Regulations.

6.10. The divisions and sections of the Specifications and the identifications of any Drawings shall not control CONTRACTOR in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.

6.11. All Work performed for CONTRACTOR by a Subcontractor will be pursuant to an appropriate agreement between CONTRACTOR and the Subcontractor which specifically binds the Subcontractor to the applicable terms and conditions of the Contract Documents for the benefit of OWNER and ENGINEER and contains waiver provisions as required by paragraph 5.11. CONTRACTOR shall pay each Subcontractor a just share of any insurance moneys received by CONTRACTOR on account of losses under policies issued pursuant to paragraphs 5.6 and 5.7.

Patent Fees and Royalties:

6.12. CONTRACTOR shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product or device is specified in the Contract Documents for use in the performance of the Work and if to the actual knowledge of OWNER

or ENGINEER its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by OWNER in the Contract Documents. CONTRACTOR shall indemnify and hold harmless OWNER and ENGINEER and anyone directly or indirectly employed by either of them from and against all claims, damages, losses and expenses (including attorneys' fees and court and arbitration costs) arising out of any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product or device not specified in the Contract Documents, and shall defend all such claims in connection with any alleged infringement of such rights.

Permits:

6.13. Unless otherwise provided in the Supplementary Conditions, CONTRACTOR shall obtain and pay for all construction permits and licenses. OWNER shall assist CONTRACTOR, when necessary, in obtaining such permits and licenses. CONTRACTOR shall pay all governmental charges and inspection fees necessary for the prosecution of the Work, which are applicable at the time of opening of Bids, or if there are no Bids on the Effective Date of the Agreement. CONTRACTOR shall pay all charges of utility owners for connections to the Work, and OWNER shall pay all charges of such utility owners for capital costs related thereto such as plant investment fees.

Laws and Regulations:

6.14.1. CONTRACTOR shall give all notices and comply with all Laws and Regulations applicable to furnishing and performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither OWNER nor ENGINEER shall be responsible for monitoring CONTRACTOR's compliance with any Laws or Regulations.

6.14.2. If CONTRACTOR observes that the Specifications or Drawings are at variance with any Laws or Regulations, CONTRACTOR shall give ENGINEER prompt written notice thereof, and any necessary changes will be authorized by one of the methods indicated in paragraph 3.4. If CONTRACTOR performs any Work knowing or having reason to know that it is contrary to such Laws or Regulations, and without such notice to ENGINEER, CONTRACTOR shall bear all costs arising therefrom; however, it shall not be CONTRACTOR's primary responsibility to make certain that the Specifications and Drawings are in accordance with such Laws and Regulations.

Taxes:

6.15. CONTRACTOR shall pay all sales, consumer, use and other similar taxes required to be paid by CONTRACTOR in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

Use of Premises:

6.16. CONTRACTOR shall confine construction equipment, the storage of materials and equipment and the operations of workers to the Project site and land and areas identified in and permitted by the Contract Documents and other land and areas permitted by Laws and Regulations, rights-of-way, permits and easements, and shall not unreasonably encumber the premises with construction equipment or other materials or equipment. CONTRACTOR shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof or of any land or areas contiguous thereto, resulting from the performance of the Work. Should any claim be made against OWNER or ENGINEER by any such owner or occupant because of the performance of the Work, CONTRACTOR shall promptly attempt to settle with such other party by agreement or otherwise resolve the claim by arbitration or at law. CONTRACTOR shall, to the fullest extent permitted by Laws and Regulations, indemnify and hold OWNER and ENGINEER harmless from and against all claims, damages, losses and expenses (including, but not limited to, fees of engineers, architects, attorneys and other professionals and court and arbitration costs) arising directly, indirectly or consequentially out of any action, legal or equitable, brought by any such other party against OWNER or ENGINEER to the extent based on a claim arising out of CONTRACTOR's performance of the Work.

6.17. During the progress of the Work, CONTRACTOR shall keep the premises free from accumulations of waste materials, rubbish and other debris resulting from the Work. At the completion of the Work CONTRACTOR shall remove all waste materials, rubbish and debris from and about the premises as well as all tools, appliances, construction equipment and machinery, and surplus materials, and shall leave the site clean and ready for occupancy by OWNER. CONTRACTOR shall restore to original condition all property not designated for alteration by the Contract Documents.

6.18. CONTRACTOR shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall CONTRACTOR subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

Record Documents:

6.19. CONTRACTOR shall maintain in a safe place at the site one record copy of all Drawings, Specifications, Addenda, Written Amendments, Change Orders, Work Directive Changes, Field Orders and written interpretations and clarifications (issued pursuant to paragraph 9.4) in good order and annotated to show all changes made during construction. These record documents together with all approved samples and a counterpart of all approved Shop Drawings will be available to ENGINEER for reference. Upon com-

pletion of the Work, these record documents, samples and Shop Drawings will be delivered to ENGINEER for OWNER.

Safety and Protection:

6.20. CONTRACTOR shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. CONTRACTOR shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

6.20.1. all employees on the Work and other persons and organizations who may be affected thereby;

6.20.2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the site; and

6.20.3. other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities and Underground Facilities not designated for removal, relocation or replacement in the course of construction.

CONTRACTOR shall comply with all applicable Laws and Regulations of any public body having jurisdiction for the safety of persons or property or to protect them from damage, injury or loss; and shall erect and maintain all necessary safeguards for such safety and protection. CONTRACTOR shall notify owners of adjacent property and of Underground Facilities and utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation and replacement of their property. All damage, injury or loss to any property referred to in paragraph 6.20.2 or 6.20.3 caused, directly or indirectly, in whole or in part, by CONTRACTOR, any Subcontractor, Supplier or any other person or organization directly or indirectly employed by any of them to perform or furnish any of the Work or anyone for whose acts any of them may be liable, shall be remedied by CONTRACTOR (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of OWNER or ENGINEER or anyone employed by either of them or anyone for whose acts either of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of CONTRACTOR). CONTRACTOR's duties and responsibilities for the safety and protection of the Work shall continue until such time as all the Work is completed and ENGINEER has issued a notice to OWNER and CONTRACTOR in accordance with paragraph 14.13 that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

6.21. CONTRACTOR shall designate a responsible representative at the site whose duty shall be the prevention of accidents. This person shall be CONTRACTOR's superintendent unless otherwise designated in writing by CONTRACTOR to OWNER.

Emergencies:

6.22. In emergencies affecting the safety or protection of persons or the Work or property at the site or adjacent thereto, CONTRACTOR, without special instruction or authorization from ENGINEER or OWNER, is obligated to act to prevent threatened damage, injury or loss. CONTRACTOR shall give ENGINEER prompt written notice if CONTRACTOR believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby. If ENGINEER determines that a change in the Contract Documents is required because of the action taken in response to an emergency, a Work Directive Change or Change Order will be issued to document the consequences of the changes or variations.

Shop Drawings and Samples:

6.23. After checking and verifying all field measurements and after complying with applicable procedures specified in the General Requirements, CONTRACTOR shall submit to ENGINEER for review and approval in accordance with the accepted schedule of Shop Drawing submissions (see paragraph 2.9), or for other appropriate action if so indicated in the Supplementary Conditions, five copies (unless otherwise specified in the General Requirements) of all Shop Drawings, which will bear a stamp or specific written indication that CONTRACTOR has satisfied CONTRACTOR's responsibilities under the Contract Documents with respect to the review of the submission. All submissions will be identified as ENGINEER may require. The data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials and similar data to enable ENGINEER to review the information as required.

6.24. CONTRACTOR shall also submit to ENGINEER for review and approval with such promptness as to cause no delay in Work, all samples required by the Contract Documents. All samples will have been checked by and accompanied by a specific written indication that CONTRACTOR has satisfied CONTRACTOR's responsibilities under the Contract Documents with respect to the review of the submission and will be identified clearly as to material, Supplier, pertinent data such as catalog numbers and the use for which intended.

6.25.1. Before submission of each Shop Drawing or sample CONTRACTOR shall have determined and verified all quantities, dimensions, specified performance criteria, installation requirements, materials, catalog numbers and similar data with respect thereto and reviewed or coordinated each Shop Drawing or sample with other Shop Drawings and samples and with the requirements of the Work and the Contract Documents.

6.25.2. At the time of each submission, CONTRACTOR shall give ENGINEER specific written notice of each variation that the Shop Drawings or samples may have from the requirements of the Contract Documents, and, in addition, shall cause a specific notation to be made on

each Shop Drawing submitted to ENGINEER for review and approval of each such variation.

6.26. ENGINEER will review and approve with reasonable promptness Shop Drawings and samples, but ENGINEER's review and approval will be only for conformance with the design concept of the Project and for compliance with the information given in the Contract Documents and shall not extend to means, methods, techniques, sequences or procedures of construction (except where a specific means, method, technique, sequence or procedure of construction is indicated in or required by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions. CONTRACTOR shall make corrections required by ENGINEER, and shall return the required number of corrected copies of Shop Drawings and submit as required new samples for review and approval. CONTRACTOR shall direct specific attention in writing to revisions other than the corrections called for by ENGINEER on previous submittals.

6.27. ENGINEER's review and approval of Shop Drawings or samples shall not relieve CONTRACTOR from responsibility for any variation from the requirements of the Contract Documents unless CONTRACTOR has in writing called ENGINEER's attention to each such variation at the time of submission as required by paragraph 6.25.2 and ENGINEER has given written approval of each such variation by a specific written notation thereof incorporated in or accompanying the Shop Drawing or sample approval; nor will any approval by ENGINEER relieve CONTRACTOR from responsibility for errors or omissions in the Shop Drawings or from responsibility for having complied with the provisions of paragraph 6.25.1.

6.28. Where a Shop Drawing or sample is required by the Specifications, any related Work performed prior to ENGINEER's review and approval of the pertinent submission will be the sole expense and responsibility of CONTRACTOR.

Continuing the Work:

6.29. CONTRACTOR shall carry on the Work and adhere to the progress schedule during all disputes or disagreements with OWNER. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by paragraph 15.5 or as CONTRACTOR and OWNER may otherwise agree in writing.

Indemnification:

6.30. To the fullest extent permitted by Laws and Regulations CONTRACTOR shall indemnify and hold harmless OWNER and ENGINEER and their consultants, agents and employees from and against all claims, damages, losses and expenses, direct, indirect or consequential (including but not limited to fees and charges of engineers, architects, attorneys and other professionals and court and arbitration costs) arising out of or resulting from the performance of the Work, provided that any such claim, damage, loss or expense (a) is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself) including the loss of use resulting therefrom and (b) is caused in whole or in part by any negligent act or omission of CONTRACTOR, any Subcontractor, any person or organization directly or indirectly employed by any of them to perform or furnish any of the Work or anyone for whose acts any of them may be liable, regardless of whether or not it is caused in part by a party indemnified hereunder or arises by or is imposed by Law and Regulations regardless of the negligence of any such party.

6.31. In any and all claims against OWNER or ENGINEER or any of their consultants, agents or employees by any employee of CONTRACTOR, any Subcontractor, any person or organization directly or indirectly employed by any of them to perform or furnish any of the Work or anyone for whose acts any of them may be liable, the indemnification obligation under paragraph 6.30 shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for CONTRACTOR or any such Subcontractor or other person or organization under workers' or workmen's compensation acts, disability benefit acts or other employee benefit acts.

6.32. The obligations of CONTRACTOR under paragraph 6.30 shall not extend to the liability of ENGINEER, ENGINEER's consultants, agents or employees arising out of the preparation or approval of maps, drawings, opinions, reports, surveys, Change Orders, designs or specifications.

ARTICLE 7—OTHER WORK

Related Work at Site:

7.1. OWNER may perform other work related to the Project at the site by OWNER's own forces, have other work performed by utility owners or let other direct contracts therefor which shall contain General Conditions similar to these. If the fact that such other work is to be performed was not noted in the Contract Documents, written notice thereof will be given to CONTRACTOR prior to starting any such other work; and, if CONTRACTOR believes that such performance will involve additional expense to CONTRACTOR or requires additional time and the parties are unable to agree as to the extent thereof, CONTRACTOR may make a claim therefor as provided in Articles 11 and 12.

7.2. CONTRACTOR shall afford each utility owner and other contractor who is a party to such a direct contract (or OWNER, if OWNER is performing the additional work with OWNER's employees) proper and safe access to the site and a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such work, and shall properly connect and coordinate the Work with theirs. CONTRACTOR shall do all cutting, fitting and patching of the Work that may be required to make its several parts come together properly and integrate with such other work. CON-

TRACTOR shall not endanger any work of others by cutting, excavating or otherwise altering their work and will only cut or alter their work with the written consent of ENGINEER and the others whose work will be affected. The duties and responsibilities of CONTRACTOR under this paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of CONTRACTOR in said direct contracts between OWNER and such utility owners and other contractors.

7.3. If any part of CONTRACTOR's Work depends for proper execution or results upon the work of any such other contractor or utility owner (or OWNER), CONTRACTOR shall inspect and promptly report to ENGINEER in writing any delays, defects or deficiencies in such work that render it unavailable or unsuitable for such proper execution and results. CONTRACTOR's failure so to report will constitute an acceptance of the other work as fit and proper for integration with CONTRACTOR's Work except for latent or non-apparent defects and deficiencies in the other work.

Coordination:

7.4. If OWNER contracts with others for the performance of other work on the Project at the site, the person or organization who will have authority and responsibility for coordination of the activities among the various prime contractors will be identified in the Supplementary Conditions, and the specific matters to be covered by such authority and responsibility will be itemized, and the extent of such authority and responsibilities will be provided, in the Supplementary Conditions. Unless otherwise provided in the Supplementary Conditions, neither OWNER nor ENGINEER shall have any authority or responsibility in respect of such coordination.

ARTICLE 8—OWNER'S RESPONSIBILITIES

8.1. OWNER shall issue all communications to CONTRACTOR through ENGINEER.

8.2. In case of termination of the employment of ENGINEER, OWNER shall appoint an engineer against whom CONTRACTOR makes no reasonable objection, whose status under the Contract Documents shall be that of the former ENGINEER. Any dispute in connection with such appointment shall be subject to arbitration.

8.3. OWNER shall furnish the data required of OWNER under the Contract Documents promptly and shall make payments to CONTRACTOR promptly after they are due as provided in paragraphs 14.4 and 14.13.

8.4. OWNER's duties in respect of providing lands and easements and providing engineering surveys to establish reference points are set forth in paragraphs 4.1 and 4.4. Paragraph 4.2 refers to OWNER's identifying and making available to CONTRACTOR copies of reports of explorations and tests of subsurface conditions at the site and in existing structures which have been utilized by ENGINEER in preparing the Drawings and Specifications.

8.5. OWNER's responsibilities in respect of purchasing and maintaining liability and property insurance are set forth in paragraphs 5.5 through 5.8.

8.6. OWNER is obligated to execute Change Orders as indicated in paragraph 10.4.

8.7. OWNER's responsibility in respect of certain inspections, tests and approvals is set forth in paragraph 13.4.

8.8. In connection with OWNER's right to stop Work or suspend Work, see paragraphs 13.10 and 15.1. Paragraph 15.2 deals with OWNER's right to terminate services of CONTRACTOR under certain circumstances.

ARTICLE 9—ENGINEER'S STATUS DURING CONSTRUCTION

Owner's Representative:

9.1. ENGINEER will be OWNER's representative during the construction period. The duties and responsibilities and the limitations of authority of ENGINEER as OWNER's representative during construction are set forth in the Contract Documents and shall not be extended without written consent of OWNER and ENGINEER.

Visits to Site:

9.2. ENGINEER will make visits to the site at intervals appropriate to the various stages of construction to observe the progress and quality of the executed Work and to determine, in general, if the Work is proceeding in accordance with the Contract Documents. ENGINEER will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. ENGINEER's efforts will be directed toward providing for OWNER a greater degree of confidence that the completed Work will conform to the Contract Documents. On the basis of such visits and on-site observations as an experienced and qualified design professional, ENGINEER will keep OWNER informed of the progress of the Work and will endeavor to guard OWNER against defects and deficiencies in the Work.

Project Representation:

9.3. If OWNER and ENGINEER agree, ENGINEER will furnish a Resident Project Representative to assist ENGINEER in observing the performance of the Work. The duties, responsibilities and limitations of authority of any such Resident Project Representative and assistants will be as provided in the Supplementary Conditions. If OWNER designates another agent to represent OWNER at the site who is not ENGINEER's agent or employee, the duties, responsibilities and limitations of authority of such other person will be as provided in the Supplementary Conditions.

Clarifications and Interpretations:

9.4. ENGINEER will issue with reasonable promptness such written clarifications or interpretations of the requirements of the Contract Documents (in the form of Drawings or otherwise) as ENGINEER may determine necessary, which shall be consistent with or reasonably inferable from the overall intent of the Contract Documents. If CONTRACTOR believes that a written clarification or interpretation justifies an increase in the Contract Price or an extension of the Contract Time and the parties are unable to agree to the amount or extent thereof, CONTRACTOR may make a claim therefor as provided in Article 11 or Article 12.

Authorized Variations in Work:

9.5. ENGINEER may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Time and are consistent with the overall intent of the Contract Documents. These may be accomplished by a Field Order and will be binding on OWNER, and also on CONTRACTOR who shall perform the Work involved promptly. If CONTRACTOR believes that a Field Order justifies an increase in the Contract Price or an extension of the Contract Time and the parties are unable to agree as to the amount or extent thereof, CONTRACTOR may make a claim therefor as provided in Article 11 or 12.

Rejecting Defective Work:

9.6. ENGINEER will have authority to disapprove or reject Work which ENGINEER believes to be *defective*, and will also have authority to require special inspection or testing of the Work as provided in paragraph 13.9, whether or not the Work is fabricated, installed or completed.

Shop Drawings, Change Orders and Payments:

9.7. In connection with ENGINEER's responsibility for Shop Drawings and samples, see paragraphs 6.23 through 6.29 inclusive.

9.8. In connection with ENGINEER's responsibilities as to Change Orders, see Articles 10, 11 and 12.

9.9. In connection with ENGINEER's responsibilities in respect of Applications for Payment, etc., see Article 14.

Determinations for Unit Prices:

9.10. ENGINEER will determine the actual quantities and classifications of Unit Price Work performed by CONTRACTOR. ENGINEER will review with CONTRACTOR ENGINEER's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). ENGINEER's written decisions thereon will be final and binding upon OWNER and CONTRACTOR, unless, within ten days after the date of any such decision, either OWNER or CONTRACTOR delivers to the other party to the Agreement and to ENGINEER written notice of intention to appeal from such a decision.

Decisions on Disputes:

9.11. ENGINEER will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. Claims, disputes and other matters relating to the acceptability of the Work or the interpretation of the requirements of the Contract Documents pertaining to the performance and furnishing of the Work and claims under Articles 11 and 12 in respect of changes in the Contract Price or Contract Time will be referred initially to ENGINEER in writing with a request for a formal decision in accordance with this paragraph, which ENGINEER will render in writing within a reasonable time. Written notice of each such claim, dispute and other matter will be delivered by the claimant to ENGINEER and the other party to the Agreement promptly (but in no event later than thirty days) after the occurrence of the event giving rise thereto, and written supporting data will be submitted to ENGINEER and the other party within sixty days after such occurrence unless ENGINEER allows an additional period of time to ascertain more accurate data in support of the claim.

9.12. When functioning as interpreter and judge under paragraphs 9.10 and 9.11, ENGINEER will not show partiality to OWNER or CONTRACTOR and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity. The rendering of a decision by ENGINEER pursuant to paragraphs 9.10 and 9.11 with respect to any such claim, dispute or other matter (except any which have been waived by the making or acceptance of final payment as provided in paragraph 14.16) will be a condition precedent to any exercise by OWNER or CONTRACTOR of such rights or remedies as either may otherwise have under the Contract Documents or by Laws or Regulations in respect of any such claim, dispute or other matter.

Limitations on ENGINEER's Responsibilities:

9.13. Neither ENGINEER's authority to act under this Article 9 or elsewhere in the Contract Documents nor any decision made by ENGINEER in good faith either to exercise or not exercise such authority shall give rise to any duty or responsibility of ENGINEER to CONTRACTOR, any Subcontractor, any Supplier, or any other person or organization performing any of the Work, or to any surety for any of them.

9.14. Whenever in the Contract Documents the terms "as ordered", "as directed", "as required", "as allowed", "as approved" or terms of like effect or import are used, or the adjectives "reasonable", "suitable", "acceptable", "proper" or "satisfactory" or adjectives of like effect or import are used to describe a requirement, direction, review or judgment of ENGINEER as to the Work, it is intended that such requirement, direction, review or judgment will be solely to evaluate the Work for compliance with the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective shall not be

effective to assign to ENGINEER any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of paragraph 9.15 or 9.16.

9.15. ENGINEER will not be responsible for CONTRACTOR's means, methods, techniques, sequences or procedures of construction, or the safety precautions and programs incident thereto, and ENGINEER will not be responsible for CONTRACTOR's failure to perform or furnish the Work in accordance with the Contract Documents.

9.16. ENGINEER will not be responsible for the acts or omissions of CONTRACTOR or of any Subcontractor, any Supplier, or of any other person or organization performing or furnishing any of the Work.

ARTICLE 10—CHANGES IN THE WORK

10.1. Without invalidating the Agreement and without notice to any surety, OWNER may, at any time or from time to time, order additions, deletions or revisions in the Work; these will be authorized by a Written Amendment, a Change Order, or a Work Directive Change. Upon receipt of any such document, CONTRACTOR shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).

10.2. If OWNER and CONTRACTOR are unable to agree as to the extent, if any, of an increase or decrease in the Contract Price or an extension or shortening of the Contract Time that should be allowed as a result of a Work Directive Change, a claim may be made therefor as provided in Article 11 or Article 12.

10.3. CONTRACTOR shall not be entitled to an increase in the Contract Price or an extension of the Contract Time with respect to any Work performed that is not required by the Contract Documents as amended, modified and supplemented as provided in paragraphs 3.4 and 3.5, except in the case of an emergency as provided in paragraph 6.22 and except in the case of uncovering Work as provided in paragraph 13.9.

10.4. OWNER and CONTRACTOR shall execute appropriate Change Orders (or Written Amendments) covering:

10.4.1. changes in the Work which are ordered by OWNER pursuant to paragraph 10.1, are required because of acceptance of *defective* Work under paragraph 13.13 or correcting *defective* Work under paragraph 13.14, or are agreed to by the parties;

10.4.2. changes in the Contract Price or Contract Time which are agreed to by the parties; and

10.4.3. changes in the Contract Price or Contract Time which embody the substance of any written decision rendered by ENGINEER pursuant to paragraph 9.11;

provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, CONTRACTOR shall carry on the Work and adhere to the progress schedule as provided in paragraph 6.29.

10.5. If notice of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Time) is required by the provisions of any Bond to be given to a surety, the giving of any such notice will be CONTRACTOR's responsibility, and the amount of each applicable Bond will be adjusted accordingly.

ARTICLE 11—CHANGE OF CONTRACT PRICE

11.1. The Contract Price constitutes the total compensation (subject to authorized adjustments) payable to CONTRACTOR for performing the Work. All duties, responsibilities and obligations assigned to or undertaken by CONTRACTOR shall be at his expense without change in the Contract Price.

11.2. The Contract Price may only be changed by a Change Order or by a Written Amendment. Any claim for an increase or decrease in the Contract Price shall be based on written notice delivered by the party making the claim to the other party and to ENGINEER promptly (but in no event later than thirty days) after the occurrence of the event giving rise to the claim and stating the general nature of the claim. Notice of the amount of the claim with supporting data shall be delivered within sixty days after such occurrence (unless ENGINEER allows an additional period of time to ascertain more accurate data in support of the claim) and shall be accompanied by claimant's written statement that the amount claimed covers all known amounts (direct, indirect and consequential) to which the claimant is entitled as a result of the occurrence of said event. All claims for adjustment in the Contract Price shall be determined by ENGINEER in accordance with paragraph 9.11 if OWNER and CONTRACTOR cannot otherwise agree on the amount involved. No claim for an adjustment in the Contract Price will be valid if not submitted in accordance with this paragraph 11.2.

11.3. The value of any Work covered by a Change Order or of any claim for an increase or decrease in the Contract Price shall be determined in one of the following ways:

11.3.1. Where the Work involved is covered by unit prices contained in the Contract Documents, by application of unit prices to the quantities of the items involved (subject to the provisions of paragraphs 11.9.1. through 11.9.3, inclusive).

11.3.2. By mutual acceptance of a lump sum (which may include an allowance for overhead and profit not necessarily in accordance with paragraph 11.6.2.1).

11.3.3. On the basis of the Cost of the Work (determined as provided in paragraphs 11.4 and 11.5) plus a CONTRACTOR's Fee for overhead and profit (determined as provided in paragraphs 11.6 and 11.7).

Cost of the Work:

11.4. The term Cost of the Work means the sum of all costs necessarily incurred and paid by CONTRACTOR in the proper performance of the Work. Except as otherwise may be agreed to in writing by OWNER, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall include only the following items and shall not include any of the costs itemized in paragraph 11.5:

11.4.1. Payroll costs for employees in the direct employ of CONTRACTOR in the performance of the Work under schedules of job classifications agreed upon by OWNER and CONTRACTOR. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits which shall include social security contributions, unemployment, excise and payroll taxes, workers' or workmen's compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. Such employees shall include superintendents and foremen at the site. The expenses of performing Work after regular working hours, on Saturday, Sunday or legal holidays, shall be included in the above to the extent authorized by OWNER.

11.4.2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to CONTRACTOR unless OWNER deposits funds with CONTRACTOR with which to make payments, in which case the cash discounts shall accrue to OWNER. All trade discounts, rebates and refunds and all returns from sale of surplus materials and equipment shall accrue to OWNER, and CONTRACTOR shall make provisions so that they may be obtained.

11.4.3. Payments made by CONTRACTOR to the Subcontractors for Work performed by Subcontractors. If required by OWNER, CONTRACTOR shall obtain competitive bids from Subcontractors acceptable to CONTRACTOR and shall deliver such bids to OWNER who will then determine, with the advice of ENGINEER, which bids will be accepted. If a subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work Plus a Fee, the Subcontractor's Cost of the Work shall be determined in the same manner as CONTRACTOR's Cost of the Work. All subcontracts shall be subject to the other provisions of the Contract Documents insofar as applicable.

11.4.4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys and accountants) employed for services specifically related to the Work.

11.4.5. Supplemental costs including the following:

11.4.5.1. The proportion of necessary transportation, travel and subsistence expenses of CONTRACTOR's employees incurred in discharge of duties connected with the Work.

11.4.5.2. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office and temporary facilities at the site and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost less market value of such items used but not consumed which remain the property of CONTRACTOR.

11.4.5.3. Rentals of all construction equipment and machinery and the parts thereof whether rented from CONTRACTOR or others in accordance with rental agreements approved by OWNER with the advice of ENGINEER, and the costs of transportation, loading, unloading, installation, dismantling and removal thereof—all in accordance with terms of said rental agreements. The rental of any such equipment, machinery or parts shall cease when the use thereof is no longer necessary for the Work.

11.4.5.4. Sales, consumer, use or similar taxes related to the Work, and for which CONTRACTOR is liable, imposed by Laws and Regulations.

11.4.5.5. Deposits lost for causes other than negligence of CONTRACTOR, any Subcontractor or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.

11.4.5.6. Losses and damages (and related expenses), not compensated by insurance or otherwise, to the Work or otherwise sustained by CONTRACTOR in connection with the performance and furnishing of the Work (except losses and damages within the deductible amounts of property insurance established by OWNER in accordance with paragraph 5.9), provided they have resulted from causes other than the negligence of CONTRACTOR, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of OWNER. No such losses, damages and expenses shall be included in the Cost of the Work for the purpose of determining CONTRACTOR's Fee. If, however, any such loss or damage

requires reconstruction and CONTRACTOR is placed in charge thereof. CONTRACTOR shall be paid for services a fee proportionate to that stated in paragraph 11.6.2.

11.4.5.7. The cost of utilities, fuel and sanitary facilities at the site.

11.4.5.8. Minor expenses such as telegrams, long distance telephone calls, telephone service at the site, expressage and similar petty cash items in connection with the Work.

11.4.5.9. Cost of premiums for additional Bonds and insurance required because of changes in the Work and premiums for property insurance coverage within the limits of the deductible amounts established by OWNER in accordance with paragraph 5.9.

11.5. The term Cost of the Work shall not include any of the following:

11.5.1. Payroll costs and other compensation of CONTRACTOR's officers, executives, principals (of partnership and sole proprietorships), general managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks and other personnel employed by CONTRACTOR whether at the site or in CONTRACTOR's principal or a branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in paragraph 11.4.1 or specifically covered by paragraph 11.4.4—all of which are to be considered administrative costs covered by the CONTRACTOR's Fee.

11.5.2. Expenses of CONTRACTOR's principal and branch offices other than CONTRACTOR's office at the site.

11.5.3. Any part of CONTRACTOR's capital expenses, including interest on CONTRACTOR'S capital employed for the Work and charges against CONTRACTOR for delinquent payments.

11.5.4. Cost of premiums for all Bonds and for all insurance whether or not CONTRACTOR is required by the Contract Documents to purchase and maintain the same (except for the cost of premiums covered by subparagraph 11.4.5.9 above).

11.5.5. Costs due to the negligence of CONTRACTOR, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of *defective* Work, disposal of materials or equipment wrongly supplied and making good any damage to property.

11.5.6. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in paragraph 11.4.

CONTRACTOR's Fee:

11.6. The CONTRACTOR's Fee allowed to CONTRACTOR for overhead and profit shall be determined as follows:

11.6.1. a mutually acceptable fixed fee; or if none can be agreed upon,

11.6.2. a fee based on the following percentages of the various portions of the Cost of the Work:

11.6.2.1. for costs incurred under paragraphs 11.4.1 and 11.4.2, the CONTRACTOR's Fee shall be fifteen percent;

11.6.2.2. for costs incurred under paragraph 11.4.3, the CONTRACTOR's Fee shall be five percent; and if a subcontract is on the basis of Cost of the Work Plus a Fee, the maximum allowable to CONTRACTOR on account of overhead and profit of all Subcontractors shall be fifteen percent;

11.6.2.3. no fee shall be payable on the basis of costs itemized under paragraphs 11.4.4, 11.4.5 and 11.5;

11.6.2.4. the amount of credit to be allowed by CONTRACTOR to OWNER for any such change which results in a net decrease in cost will be the amount of the actual net decrease plus a deduction in CONTRACTOR's Fee by an amount equal to ten percent of the net decrease; and

11.6.2.5. when both additions and credits are involved in any one change, the adjustment in CONTRACTOR's Fee shall be computed on the basis of the net change in accordance with paragraphs 11.6.2.1 through 11.6.2.4, inclusive.

11.7. Whenever the cost of any Work is to be determined pursuant to paragraph 11.4 or 11.5, CONTRACTOR will submit in form acceptable to ENGINEER an itemized cost breakdown together with supporting data.

Cash Allowances:

11.8. It is understood that CONTRACTOR has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be done by such Subcontractors or Suppliers and for such sums within the limit of the allowances as may be acceptable to ENGINEER. CONTRACTOR agrees that:

11.8.1. The allowances include the cost to CONTRACTOR (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the site, and all applicable taxes; and

11.8.2. CONTRACTOR's costs for unloading and handling on the site, labor, installation costs, overhead, profit and other expenses contemplated for the allowances have been included in the Contract Price and not in the

allowances. No demand for additional payment on account of any thereof will be valid.

Prior to final payment, an appropriate Change Order will be issued as recommended by ENGINEER to reflect actual amounts due CONTRACTOR on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

Unit Price Work:

11.9.1. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the established unit prices for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by CONTRACTOR will be made by ENGINEER in accordance with Paragraph 9.10.

11.9.2. Each unit price will be deemed to include an amount considered by CONTRACTOR to be adequate to cover CONTRACTOR's overhead and profit for each separately identified item.

~~11.9.3. Where the quantity of any item of Unit Price Work performed by CONTRACTOR differs materially and significantly from the estimated quantity of such item indicated in the Agreement and there is no corresponding adjustment with respect to any other item of Work and if CONTRACTOR believes that CONTRACTOR has incurred additional expense as a result thereof, CONTRACTOR may make a claim for an increase in the Contract Price in accordance with Article 11 if the parties are unable to agree as to the amount of any such increase.~~

ARTICLE 12—CHANGE OF CONTRACT TIME

12.1. The Contract Time may only be changed by a Change Order or a Written Amendment. Any claim for an extension or shortening of the Contract Time shall be based on written notice delivered by the party making the claim to the other party and to ENGINEER promptly (but in no event later than thirty days) after the occurrence of the event giving rise to the claim and stating the general nature of the claim. Notice of the extent of the claim with supporting data shall be delivered within sixty days after such occurrence (unless ENGINEER allows an additional period of time to ascertain more accurate data in support of the claim) and shall be accompanied by the claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant has reason to believe it is entitled as a result of the occurrence of said event. All claims for adjustment in the Contract Time shall be determined by ENGINEER in accordance with paragraph 9.11 if OWNER and CONTRACTOR cannot otherwise agree. No claim for an adjustment in the Contract Time will be valid if not submitted in accordance with the requirements of this paragraph 12.1.

12.2. The Contract Time will be extended in an amount equal to time lost due to delays beyond the control of CONTRACTOR if a claim is made therefor as provided in paragraph 12.1. Such delays shall include, but not be limited to, acts or neglect by OWNER or others performing additional work as contemplated by Article 7, or to fires, floods, labor disputes, epidemics, abnormal weather conditions or acts of God.

12.3. All time limits stated in the Contract Documents are of the essence of the Agreement. The provisions of this Article 12 shall not exclude recovery for damages (including but not limited to fees and charges of engineers, architects, attorneys and other professionals and court and arbitration costs) for delay by either party.

ARTICLE 13—WARRANTY AND GUARANTEE; TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

Warranty and Guarantee:

13.1. CONTRACTOR warrants and guarantees to OWNER and ENGINEER that all Work will be in accordance with the Contract Documents and will not be *defective*. Prompt notice of all defects shall be given to CONTRACTOR. All *defective* Work, whether or not in place, may be rejected, corrected or accepted as provided in this Article 13.

Access to Work:

13.2. ENGINEER and ENGINEER's representatives, other representatives of OWNER, testing agencies and governmental agencies with jurisdictional interests will have access to the Work at reasonable times for their observation, inspecting and testing. CONTRACTOR shall provide proper and safe conditions for such access.

Tests and Inspections:

13.3. CONTRACTOR shall give ENGINEER timely notice of readiness of the Work for all required inspections, tests or approvals.

13.4. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) to specifically be inspected, tested or approved. CONTRACTOR shall assume full responsibility therefor, pay all costs in connection therewith and furnish ENGINEER the required certificates of inspection, testing or approval. CONTRACTOR shall also

be responsible for and shall pay all costs in connection with any inspection or testing required in connection with OWNER's or ENGINEER's acceptance of a Supplier of materials or equipment proposed to be incorporated in the Work, or of materials or equipment submitted for approval prior to CONTRACTOR's purchase thereof for incorporation in the Work. The cost of all inspections, tests and approvals in addition to the above which are required by the Contract Documents shall be paid by OWNER (unless otherwise specified).

13.5. All inspections, tests or approvals other than those required by Laws or Regulations of any public body having jurisdiction shall be performed by organizations acceptable to OWNER and CONTRACTOR (or by ENGINEER if so specified).

13.6. If any Work (including the work of others) that is to be inspected, tested or approved is covered without written concurrence of ENGINEER, it must, if requested by ENGINEER, be uncovered for observation. Such uncovering shall be at CONTRACTOR's expense unless CONTRACTOR has given ENGINEER timely notice of CONTRACTOR's intention to cover the same and ENGINEER has not acted with reasonable promptness in response to such notice.

13.7. Neither observations by ENGINEER nor inspections, tests or approvals by others shall relieve CONTRACTOR from CONTRACTOR's obligations to perform the Work in accordance with the Contract Documents.

Uncovering Work:

13.8. If any Work is covered contrary to the written request of ENGINEER, it must, if requested by ENGINEER, be uncovered for ENGINEER's observation and replaced at CONTRACTOR's expense.

13.9. If ENGINEER considers it necessary or advisable that covered Work be observed by ENGINEER or inspected or tested by others, CONTRACTOR, at ENGINEER's request, shall uncover, expose or otherwise make available for observation, inspection or testing as ENGINEER may require, that portion of the Work in question, furnishing all necessary labor, material and equipment. If it is found that such Work is *defective*, CONTRACTOR shall bear all direct, indirect and consequential costs of such uncovering, exposure, observation, inspection and testing and of satisfactory reconstruction, (including but not limited to fees and charges of engineers, architects, attorneys and other professionals), and OWNER shall be entitled to an appropriate decrease in the Contract Price, and, if the parties are unable to agree as to the amount thereof, may make a claim therefor as provided in Article 11. If, however, such Work is not found to be *defective*, CONTRACTOR shall be allowed an increase in the Contract Price or an extension of the Contract Time, or both, directly attributable to such uncovering, exposure, observation, inspection, testing and reconstruction; and, if the parties are unable to agree as to the amount or extent thereof, CONTRACTOR may make a claim therefor as provided in Articles 11 and 12.

Owner May Stop the Work:

13.10. If the Work is *defective*, or CONTRACTOR fails to supply sufficient skilled workers or suitable materials or equipment, or fails to furnish or perform the Work in such a way that the completed Work will conform to the Contract Documents, OWNER may order CONTRACTOR to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of OWNER to stop the Work shall not give rise to any duty on the part of OWNER to exercise this right for the benefit of CONTRACTOR or any other party.

Correction or Removal of Defective Work:

13.11. If required by ENGINEER, CONTRACTOR shall promptly, as directed, either correct all *defective* Work, whether or not fabricated, installed or completed, or, if the Work has been rejected by ENGINEER, remove it from the site and replace it with *nondefective* Work. CONTRACTOR shall bear all direct, indirect and consequential costs of such correction or removal (including but not limited to fees and charges of engineers, architects, attorneys and other professionals) made necessary thereby.

One Year Correction Period:

13.12. If within one year after the date of Substantial Completion or such longer period of time as may be prescribed by Laws or Regulations or by the terms of any applicable special guarantee required by the Contract Documents or by any specific provision of the Contract Documents, any Work is found to be *defective*, CONTRACTOR shall promptly, without cost to OWNER and in accordance with OWNER's written instructions, either correct such *defective* Work, or, if it has been rejected by OWNER, remove it from the site and replace it with *nondefective* Work. If CONTRACTOR does not promptly comply with the terms of such instructions, or in an emergency where delay would cause serious risk of loss or damage, OWNER may have the *defective* Work corrected or the rejected Work removed and replaced, and all direct, indirect and consequential costs of such removal and replacement (including but not limited to fees and charges of engineers, architects, attorneys and other professionals) will be paid by CONTRACTOR. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications or by Written Amendment.

Acceptance of Defective Work:

13.13. If, instead of requiring correction or removal and replacement of *defective* Work, OWNER (and, prior to ENGINEER's recommendation of final payment, also ENGINEER) prefers to accept it, OWNER may do so. CONTRACTOR shall bear all direct, indirect and consequential

costs attributable to OWNER's evaluation of and determination to accept such *defective* Work (such costs to be approved by ENGINEER as to reasonableness and to include but not be limited to fees and charges of engineers, architects, attorneys and other professionals). If any such acceptance occurs prior to ENGINEER's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and OWNER shall be entitled to an appropriate decrease in the Contract Price, and, if the parties are unable to agree as to the amount thereof, OWNER may make a claim therefor as provided in Article 11. If the acceptance occurs after such recommendation, an appropriate amount will be paid by CONTRACTOR to OWNER.

OWNER May Correct Defective Work:

13.14. If CONTRACTOR fails within a reasonable time after written notice of ENGINEER to proceed to correct and to correct *defective* Work or to remove and replace rejected Work as required by ENGINEER in accordance with paragraph 13.11, or if CONTRACTOR fails to perform the Work in accordance with the Contract Documents, or if CONTRACTOR fails to comply with any other provision of the Contract Documents, OWNER may, after seven days' written notice to CONTRACTOR, correct and remedy any such deficiency. In exercising the rights and remedies under this paragraph OWNER shall proceed expeditiously. To the extent necessary to complete corrective and remedial action, OWNER may exclude CONTRACTOR from all or part of the site, take possession of all or part of the Work, and suspend CONTRACTOR's services related thereto, take possession of CONTRACTOR's tools, appliances, construction equipment and machinery at the site and incorporate in the Work all materials and equipment stored at the site or for which OWNER has paid CONTRACTOR but which are stored elsewhere. CONTRACTOR shall allow OWNER, OWNER's representatives, agents and employees such access to the site as may be necessary to enable OWNER to exercise the rights and remedies under this paragraph. All direct, indirect and consequential costs of OWNER in exercising such rights and remedies will be charged against CONTRACTOR in an amount approved as to reasonableness by ENGINEER, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and OWNER shall be entitled to an appropriate decrease in the Contract Price, and, if the parties are unable to agree as to the amount thereof, OWNER may make a claim therefor as provided in Article 11. Such direct, indirect and consequential costs will include but not be limited to fees and charges of engineers, architects, attorneys and other professionals, all court and arbitration costs and all costs of repair and replacement of work of others destroyed or damaged by correction, removal or replacement of CONTRACTOR's *defective* Work. CONTRACTOR shall not be allowed an extension of the Contract Time because of any delay in performance of the Work attributable to the exercise by OWNER of OWNER's rights and remedies hereunder.

ARTICLE 14—PAYMENTS TO CONTRACTOR AND COMPLETION

Schedule of Values:

14.1. The schedule of values established as provided in paragraph 2.9 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to ENGINEER. Progress payments on account of Unit Price Work will be based on the number of units completed.

Application for Progress Payment:

14.2. At least twenty days before each progress payment is scheduled (but not more often than once a month), CONTRACTOR shall submit to ENGINEER for review an Application for Payment filled out and signed by CONTRACTOR covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice or other documentation warranting that OWNER has received the materials and equipment free and clear of all liens, charges, security interests and encumbrances (which are hereinafter in these General Conditions referred to as "Liens") and evidence that the materials and equipment are covered by appropriate property insurance and other arrangements to protect OWNER's interest therein, all of which will be satisfactory to OWNER. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

CONTRACTOR's Warranty of Title:

14.3. CONTRACTOR warrants and guarantees that title to all Work, materials and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to OWNER no later than the time of payment free and clear of all Liens.

Review of Applications for Progress Payment:

14.4. ENGINEER will, within ten days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to OWNER, or return the Application to CONTRACTOR indicating in writing ENGINEER's reasons for refusing to recommend payment. In the latter case, CONTRACTOR may make the necessary corrections and resubmit the Application. Ten days after presentation of the Application for Payment with ENGINEER's recommendation, the amount recommended will (subject to the provisions of the last sentence of paragraph 14.7) become due and when due will be paid by OWNER to CONTRACTOR.

14.5. ENGINEER's recommendation of any payment requested in an Application for Payment will constitute a

representation by ENGINEER to OWNER, based on ENGINEER's on-site observations of the Work in progress as an experienced and qualified design professional and on ENGINEER's review of the Application for Payment and the accompanying data and schedules that the Work has progressed to the point indicated; that, to the best of ENGINEER's knowledge, information and belief, the quality of the Work is in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, to the results of any subsequent tests called for in the Contract Documents, to a final determination of quantities and classifications for Unit Price Work under paragraph 9.10, and to any other qualifications stated in the recommendation); and that CONTRACTOR is entitled to payment of the amount recommended. However, by recommending any such payment ENGINEER will not thereby be deemed to have represented that exhaustive or continuous on-site inspections have been made to check the quality or the quantity of the Work beyond the responsibilities specifically assigned to ENGINEER in the Contract Documents or that there may not be other matters or issues between the parties that might entitle CONTRACTOR to be paid additionally by OWNER or OWNER to withhold payment to CONTRACTOR.

14.6. ENGINEER's recommendation of final payment will constitute an additional representation by ENGINEER to OWNER that the conditions precedent to CONTRACTOR's being entitled to final payment as set forth in paragraph 14.13 have been fulfilled.

14.7. ENGINEER may refuse to recommend the whole or any part of any payment if, in ENGINEER's opinion, it would be incorrect to make such representations to OWNER. ENGINEER may also refuse to recommend any such payment, or, because of subsequently discovered evidence or the results of subsequent inspections or tests, nullify any such payment previously recommended, to such extent as may be necessary in ENGINEER's opinion to protect OWNER from loss because:

14.7.1. the Work is *defective*, or completed Work has been damaged requiring correction or replacement,

14.7.2. the Contract Price has been reduced by Written Amendment or Change Order,

14.7.3. OWNER has been required to correct *defective* Work or complete Work in accordance with paragraph 13.14, or

14.7.4. of ENGINEER's actual knowledge of the occurrence of any of the events enumerated in paragraphs 15.2.1 through 15.2.9 inclusive.

OWNER may refuse to make payment of the full amount recommended by ENGINEER because claims have been made against OWNER on account of CONTRACTOR's performance or furnishing of the Work or Liens have been filed in connection with the Work or there are other items entitling OWNER to a set-off against the amount recommended, but OWNER must give CONTRACTOR immediate written notice (with a copy to ENGINEER) stating the reasons for such action.

Substantial Completion:

14.8. When CONTRACTOR considers the entire Work ready for its intended use CONTRACTOR shall notify OWNER and ENGINEER in writing that the entire Work is substantially complete (except for items specifically listed by CONTRACTOR as incomplete) and request that ENGINEER issue a certificate of Substantial Completion. Within a reasonable time thereafter, OWNER, CONTRACTOR and ENGINEER shall make an inspection of the Work to determine the status of completion. If ENGINEER does not consider the Work substantially complete, ENGINEER will notify CONTRACTOR in writing giving the reasons therefor. If ENGINEER considers the Work substantially complete, ENGINEER will prepare and deliver to OWNER a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. OWNER shall have seven days after receipt of the tentative certificate during which to make written objection to ENGINEER as to any provisions of the certificate or attached list. If, after considering such objections, ENGINEER concludes that the Work is not substantially complete, ENGINEER will within fourteen days after submission of the tentative certificate to OWNER notify CONTRACTOR in writing, stating the reasons therefor. If, after consideration of OWNER's objections, ENGINEER considers the Work substantially complete, ENGINEER will within said fourteen days execute and deliver to OWNER and CONTRACTOR a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as ENGINEER believes justified after consideration of any objections from OWNER. At the time of delivery of the tentative certificate of Substantial Completion ENGINEER will deliver to OWNER and CONTRACTOR a written recommendation as to division of responsibilities pending final payment between OWNER and CONTRACTOR with respect to security, operation, safety, maintenance, heat, utilities, insurance and warranties. Unless OWNER and CONTRACTOR agree otherwise in writing and so inform ENGINEER prior to ENGINEER's issuing the definitive certificate of Substantial Completion, ENGINEER's aforesaid recommendation will be binding on OWNER and CONTRACTOR until final payment.

14.9. OWNER shall have the right to exclude CONTRACTOR from the Work after the date of Substantial Completion, but OWNER shall allow CONTRACTOR reasonable access to complete or correct items on the tentative list.

Partial Utilization:

14.10. Use by OWNER of any finished part of the Work, which has specifically been identified in the Contract Docu-

ments, or which OWNER, ENGINEER and CONTRACTOR agree constitutes a separately functioning and useable part of the Work that can be used by OWNER without significant interference with CONTRACTOR's performance of the remainder of the Work, may be accomplished prior to Substantial Completion of all the Work subject to the following:

14.10.1. OWNER at any time may request CONTRACTOR in writing to permit OWNER to use any such part of the Work which OWNER believes to be ready for its intended use and substantially complete. If CONTRACTOR agrees, CONTRACTOR will certify to OWNER and ENGINEER that said part of the Work is substantially complete and request ENGINEER to issue a certificate of Substantial Completion for that part of the Work. CONTRACTOR at any time may notify OWNER and ENGINEER in writing that CONTRACTOR considers any such part of the Work ready for its intended use and substantially complete and request ENGINEER to issue a certificate of Substantial Completion for that part of the Work. Within a reasonable time after either such request, OWNER, CONTRACTOR and ENGINEER shall make an inspection of that part of the Work to determine its status of completion. If ENGINEER does not consider that part of the Work to be substantially complete, ENGINEER will notify OWNER and CONTRACTOR in writing giving the reasons therefor. If ENGINEER considers that part of the Work to be substantially complete, the provisions of paragraphs 14.8 and 14.9 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

14.10.2. OWNER may at any time request CONTRACTOR in writing to permit OWNER to take over operation of any such part of the Work although it is not substantially complete. A copy of such request will be sent to ENGINEER and within a reasonable time thereafter OWNER, CONTRACTOR and ENGINEER shall make an inspection of that part of the Work to determine its status of completion and will prepare a list of the items remaining to be completed or corrected thereon before final payment. If CONTRACTOR does not object in writing to OWNER and ENGINEER that such part of the Work is not ready for separate operation by OWNER, ENGINEER will finalize the list of items to be completed or corrected and will deliver such list to OWNER and CONTRACTOR together with a written recommendation as to the division of responsibilities pending final payment between OWNER and CONTRACTOR with respect to security, operation, safety, maintenance, utilities, insurance, warranties and guarantees for that part of the Work which will become binding upon OWNER and CONTRACTOR at the time when OWNER takes over such operation (unless they shall have otherwise agreed in writing and so informed ENGINEER). During such operation and prior to Substantial Completion of such part of the Work, OWNER shall allow CONTRACTOR reasonable access to complete or correct items on said list and to complete other related Work.

14.10.3. No occupancy or separate operation of part of the Work will be accomplished prior to compliance with the requirements of paragraph 5.15 in respect of property insurance.

Final Inspection:

14.11. Upon written notice from CONTRACTOR that the entire Work or an agreed portion thereof is complete, ENGINEER will make a final inspection with OWNER and CONTRACTOR and will notify CONTRACTOR in writing of all particulars in which this inspection reveals that the Work is incomplete or *defective*. CONTRACTOR shall immediately take such measures as are necessary to remedy such deficiencies.

Final Application for Payment:

14.12. After CONTRACTOR has completed all such corrections to the satisfaction of ENGINEER and delivered all maintenance and operating instructions, schedules, guarantees, Bonds, certificates of inspection, marked-up record documents (as provided in paragraph 6.19) and other documents—all as required by the Contract Documents, and after ENGINEER has indicated that the Work is acceptable (subject to the provisions of paragraph 14.16), CONTRACTOR may make application for final payment following the procedure for progress payments. The final Application for Payment shall be accompanied by all documentation called for in the Contract Documents, together with complete and legally effective releases or waivers (satisfactory to OWNER) of all Liens arising out of or filed in connection with the Work. In lieu thereof and as approved by OWNER, CONTRACTOR may furnish receipts or releases in full; an affidavit of CONTRACTOR that the releases and receipts include all labor, services, material and equipment for which a Lien could be filed, and that all payrolls, material and equipment bills, and other indebtedness connected with the Work for which OWNER or OWNER's property might in any way be responsible, have been paid or otherwise satisfied; and consent of the surety, if any, to final payment. If any Subcontractor or Supplier fails to furnish a release or receipt in full, CONTRACTOR may furnish a Bond or other collateral satisfactory to OWNER to indemnify OWNER against any Lien.

Final Payment and Acceptance:

14.13. If, on the basis of ENGINEER's observation of the Work during construction and final inspection, and ENGINEER's review of the final Application for Payment and accompanying documentation—all as required by the Contract Documents, ENGINEER is satisfied that the Work has been completed and CONTRACTOR's other obligations under the Contract Documents have been fulfilled, ENGINEER will, within ten days after receipt of the final Application for Payment, indicate in writing ENGINEER's recommendation of payment and present the Application to OWNER for payment. Thereupon ENGINEER will give written notice to OWNER and CONTRACTOR that the Work is acceptable subject to the provisions of paragraph 14.16.

Otherwise, ENGINEER will return the Application to CONTRACTOR, indicating in writing the reasons for refusing to recommend final payment, in which case CONTRACTOR shall make the necessary corrections and resubmit the Application. Thirty days after presentation to OWNER of the Application and accompanying documentation, in appropriate form and substance, and with ENGINEER's recommendation and notice of acceptability, the amount recommended by ENGINEER will become due and will be paid by OWNER to CONTRACTOR.

14.14. If, through no fault of CONTRACTOR, final completion of the Work is significantly delayed and if ENGINEER so confirms, OWNER shall, upon receipt of CONTRACTOR's final Application for Payment and recommendation of ENGINEER, and without terminating the Agreement, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by OWNER for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if Bonds have been furnished as required in paragraph 5.1, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by CONTRACTOR to ENGINEER with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

Contractor's Continuing Obligation:

14.15. CONTRACTOR's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. Neither recommendation of any progress or final payment by ENGINEER, nor the issuance of a certificate of Substantial Completion, nor any payment by OWNER to CONTRACTOR under the Contract Documents, nor any use or occupancy of the Work or any part thereof by OWNER, nor any act of acceptance by OWNER nor any failure to do so, nor any review and approval of a Shop Drawing or sample submission, nor the issuance of a notice of acceptability by ENGINEER pursuant to paragraph 14.13, nor any correction of *defective* Work by OWNER will constitute an acceptance of Work not in accordance with the Contract Documents or a release of CONTRACTOR's obligation to perform the Work in accordance with the Contract Documents (except as provided in paragraph 14.16).

Waiver of Claims:

14.16. The making and acceptance of final payment will constitute:

14.16.1. a waiver of all claims by OWNER against CONTRACTOR, except claims arising from unsettled Liens, from *defective* Work appearing after final inspection pursuant to paragraph 14.11 or from failure to comply with the Contract Documents or the terms of any special guarantees specified therein; however, it will not constitute a waiver by OWNER of any rights in respect of CONTRACTOR's continuing obligations under the Contract Documents; and

14.16.2. a waiver of all claims by CONTRACTOR against OWNER other than those previously made in writing and still unsettled.

ARTICLE 15—SUSPENSION OF WORK AND TERMINATION

Owner May Suspend Work:

15.1. OWNER may, at any time and without cause, suspend the Work or any portion thereof for a period of not more than ninety days by notice in writing to CONTRACTOR and ENGINEER which will fix the date on which Work will be resumed. CONTRACTOR shall resume the Work on the date so fixed. CONTRACTOR shall be allowed an increase in the Contract Price or an extension of the Contract Time, or both, directly attributable to any suspension if CONTRACTOR makes an approved claim therefor as provided in Articles 11 and 12.

Owner May Terminate:

15.2. Upon the occurrence of any one or more of the following events:

15.2.1. if CONTRACTOR commences a voluntary case under any chapter of the Bankruptcy Code (Title 11, United States Code), as now or hereafter in effect, or if CONTRACTOR takes any equivalent or similar action by filing a petition or otherwise under any other federal or state law in effect at such time relating to the bankruptcy or insolvency;

15.2.2. if a petition is filed against CONTRACTOR under any chapter of the Bankruptcy Code as now or hereafter in effect at the time of filing, or if a petition is filed seeking any such equivalent or similar relief against CONTRACTOR under any other federal or state law in effect at the time relating to bankruptcy or insolvency;

15.2.3. if CONTRACTOR makes a general assignment for the benefit of creditors;

15.2.4. if a trustee, receiver, custodian or agent of CONTRACTOR is appointed under applicable law or under contract, whose appointment or authority to take charge of property of CONTRACTOR is for the purpose of enforcing a Lien against such property or for the purpose of general administration of such property for the benefit of CONTRACTOR's creditors;

15.2.5. if CONTRACTOR admits in writing an inability to pay its debts generally as they become due;

15.2.6. if CONTRACTOR persistently fails to perform the Work in accordance with the Contract Documents

(including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the progress schedule established under paragraph 2.9 as revised from time to time);

15.2.7. if CONTRACTOR disregards Laws or Regulations of any public body having jurisdiction;

15.2.8. if CONTRACTOR disregards the authority of ENGINEER; or

15.2.9. if CONTRACTOR otherwise violates in any substantial way any provisions of the Contract Documents;

OWNER may, after giving CONTRACTOR (and the surety, if there be one) seven days' written notice and to the extent permitted by Laws and Regulations, terminate the services of CONTRACTOR, exclude CONTRACTOR from the site and take possession of the Work and of all CONTRACTOR's tools, appliances, construction equipment and machinery at the site and use the same to the full extent they could be used by CONTRACTOR (without liability to CONTRACTOR for trespass or conversion), incorporate in the Work all materials and equipment stored at the site or for which OWNER has paid CONTRACTOR but which are stored elsewhere, and finish the Work as OWNER may deem expedient. In such case CONTRACTOR shall not be entitled to receive any further payment until the Work is finished. If the unpaid balance of the Contract Price exceeds the direct, indirect and consequential costs of completing the Work (including but not limited to fees and charges of engineers, architects, attorneys and other professionals and court and arbitration costs) such excess will be paid to CONTRACTOR. If such costs exceed such unpaid balance, CONTRACTOR shall pay the difference to OWNER. Such costs incurred by OWNER will be approved as to reasonableness by ENGINEER and incorporated in a Change Order, but when exercising any rights or remedies under this paragraph OWNER shall not be required to obtain the lowest price for the Work performed.

15.3. Where CONTRACTOR's services have been so terminated by OWNER, the termination will not affect any rights or remedies of OWNER against CONTRACTOR then existing or which may thereafter accrue. Any retention or payment of moneys due CONTRACTOR by OWNER will not release CONTRACTOR from liability.

15.4. Upon seven days' written notice to CONTRACTOR and ENGINEER, OWNER may, without cause and without prejudice to any other right or remedy, elect to abandon the Work and terminate the Agreement. In such case, CONTRACTOR shall be paid for all Work executed and any expense sustained plus reasonable termination expenses, which will include, but not be limited to, direct, indirect and consequential costs (including, but not limited to, fees and charges of engineers, architects, attorneys and other professionals and court and arbitration costs).

Contractor May Stop Work or Terminate:

15.5. If, through no act or fault of CONTRACTOR, the Work is suspended for a period of more than ninety days by OWNER or under an order of court or other public authority, or ENGINEER fails to act on any Application for Payment within thirty days after it is submitted, or OWNER fails for thirty days to pay CONTRACTOR any sum finally determined to be due, then CONTRACTOR may, upon seven days' written notice to OWNER and ENGINEER, terminate the Agreement and recover from OWNER payment for all Work executed and any expense sustained plus reasonable termination expenses. In addition and in lieu of terminating the Agreement, if ENGINEER has failed to act on an Application for Payment or OWNER has failed to make any payment as aforesaid, CONTRACTOR may upon seven days' written notice to OWNER and ENGINEER stop the Work until payment of all amounts then due. The provisions of this paragraph shall not relieve CONTRACTOR of the obligations under paragraph 6.29 to carry on the Work in accordance with the progress schedule and without delay during disputes and disagreements with OWNER.

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ARTICLE 16 ARBITRATION

16.1. All claims, disputes and other matters in question between OWNER and CONTRACTOR arising out of, or relating to the Contract Documents or the breach thereof (except for claims which have been waived by the making or acceptance of final payment as provided by paragraph 14.16) will be decided by arbitration in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association then obtaining subject to the limitations of this Article 16. This agreement so to arbitrate and any other agreement or consent to arbitrate entered into in accordance herewith as provided in this Article 16 will be specifically enforceable under the prevailing law of any court having jurisdiction.

16.2. No demand for arbitration of any claim, dispute or other matter that is required to be referred to ENGINEER initially for decision in accordance with paragraph 9.11 will be made until the earlier of (a) the date on which ENGINEER has rendered a decision or (b) the tenth day after the parties have presented their evidence to ENGINEER if a written decision has not been rendered by ENGINEER before that date. No demand for arbitration of any such claim, dispute or other matter will be made later than thirty days after the date on which ENGINEER has rendered a written decision in respect thereof in accordance with paragraph 9.11; and the failure to demand arbitration within said thirty days' period shall result in ENGINEER's decision being final and binding upon OWNER and CONTRACTOR. If ENGINEER renders a decision after arbitration proceedings have been initiated, such decision may be entered as evidence but will not supersede the arbitration proceedings except where the decision is acceptable to the parties concerned. No demand for arbitration of any written decision of ENGINEER rendered in accordance with paragraph 9.10 will be made later than ten days after the party making such demand has delivered written notice of intention to appeal as provided in paragraph 9.10.

16.3. Notice of the demand for arbitration will be filed in writing with the other party to the Agreement and with the American Arbitration Association, and a copy will be sent to ENGINEER for information. The demand for arbitration will be made within the thirty-day or ten-day period specified in paragraph 16.2 as applicable, and in all other cases within a reasonable time after the claim, dispute or other matter in question has arisen, and in no event shall any such demand be made after the date when institution of legal or equitable proceedings based on such claim, dispute or other matter in question would be barred by the applicable statute of limitations.

16.4. No arbitration arising out of or relating to the Contract Documents shall include by consolidation, joinder or in any other manner any other person or entity (including ENGINEER, ENGINEER's agents, employees or consultants) who is not a party to this contract unless:

16.4.1. the inclusion of such other person or entity is necessary if complete relief is to be afforded among those who are already parties to the arbitration,

16.4.2. such other person or entity is substantially involved in a question of law or fact which is common to those who are already parties to the arbitration and which will arise in such proceedings, and

16.4.3. the written consent of the other person or entity sought to be included and of OWNER and CONTRACTOR has been obtained for such inclusion, which consent shall make specific reference to this paragraph; but no such consent shall constitute consent to arbitration of any dispute not specifically described in such consent or to arbitration with any party not specifically identified in such consent.

16.5. The award rendered by the arbitrators will be final, judgment may be entered upon it in any court having jurisdiction thereof, and will not be subject to modification or appeal except to the extent permitted by Sections 10 and 11 of the Federal Arbitration Act (9 U.S.C. §§10,11).

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ARTICLE 17—MISCELLANEOUS

Giving Notice:

17.1. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or if delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

Computation of Time:

17.2.1. When any period of time is referred to in the Contract Documents by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

17.2.2. A calendar day of twenty-four hours measured from midnight to the next midnight shall constitute a day.

General:

17.3. Should OWNER or CONTRACTOR suffer injury or damage to person or property because of any error, omission or act of the other party or of any of the other party's employees or agents or others for whose acts the other party is legally liable, claim will be made in writing to the other party within a reasonable time of the first observance of such injury or damage. The provisions of this paragraph 17.3 shall not be construed as a substitute for or a waiver of the provisions of any applicable statute of limitations or repose.

17.4. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto, and, in particular but without limitation, the warranties, guarantees and obligations imposed upon CONTRACTOR by paragraphs 6.30, 13.1, 13.12, 13.14, 14.3 and 15.2 and all of the rights and remedies available to OWNER and ENGINEER thereunder, are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee or by other provisions of the Contract Documents, and the provisions of this paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right and remedy to which they apply. All representations, warranties and guarantees made in the Contract Documents will survive final payment and termination or completion of the Agreement.

SUPPLEMENTARY CONDITIONS

SUPPLEMENTARY CONDITIONS

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract (No. 1910-8, 1983 Edition) and other provisions of the Contract Documents as indicated below. All conditions which are not so amended or supplemented remain in full force and effect.

SC-1. The terms used in these Supplementary Conditions which are defined in the General Conditions have the meanings assigned to them in the General Conditions, except as modified herein.

SC-2.7 Delete Paragraph 2.7 of the General Conditions in its entirety and insert the following:

> Before any Work at the site is started, Contractor shall deliver to Owner, with a copy to Engineer, certificates of insurance which Contractor is required to purchase and maintain in accordance with paragraphs 5.3, 5.4 and 5.6.

SC-4.2 In the preparation of the Contract Documents, the Engineer has relied upon logs of a test hole and a production well previously completed at the site. Such logs are reproduced in the Appendix and are not a part of the Contract Documents.

Because the Owner and Engineer have no control over the methods used for obtaining, evaluating or recording subsurface information, because the areas sampled by previous subsurface investigation are small in comparison to the project area, and for other reasons, the Owner and Engineer shall not be responsible for the accuracy or completeness of this information, or for any interpretation of such information by the Contractor. The logs are not necessarily indicative of conditions prevailing or to be encountered in the work to be constructed hereunder. The Contractor shall satisfy himself regarding all local conditions affecting his work by personal investigation.

SC-4.3 Delete Paragraph 4.3.1.2 of the General Conditions in its entirety and insert the following in its place:

> SC-4.3.1.2 The location of underground facilities is not shown on the Drawings. CONTRACTOR shall have full responsibility for locating all existing Underground Facilities affected by construction, for coordination of the Work with the Owners of such Underground Facilities during construction, for the safety and protection thereof as provided in paragraph 6.20 and repairing any damage thereto resulting from the Work, the cost of all of which will be considered as having been included in the Contract Price.

SC-5.3 The limits of liability for the insurance required by paragraph 5.3 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:

5.3.1 and 5.3.2 Workers' Compensation, etc. under paragraph 5.3.1 and 5.3.2 of the General Conditions:

(1) State: Statutory
(2) Applicable Federal (e.g. Longshoreman's): Statutory

5.3.3, 5.3.4, 5.3.5 and 5.3.6 Comprehensive General Liability (under Paragraphs 5.3.3 through 5.3.6 of the General Conditions):

(1) Bodily Injury or Death (including completed operations and products liability):

$ 300,000 Per Person
$ 600,000 Each Occurrence

Property Damage:

$ 300,000 Each Occurrence
$ 600,000 Annual Aggregate

(2) Property Damage liability insurance shall provide Explosion, Collapse and Underground coverages.

(3) Personal Injury, with employment exclusion deleted $ 600,000 Annual Aggregate

5.3.7 Comprehensive Automobile Liability:

(1) Bodily Injury or Death:

$ 300,000 Per Person
$ 600,000 Each Occurrence

(2) Property Damage:

$ 600,000 Each Occurrence

5.3.8 The Contractor may obtain "umbrella" liability coverage which is applicable to the above described hazards as a portion of the specified minimums of coverage.

SC-5.5 Delete Paragraph 5.5 of the General Conditions in its entirety and substitute the following:

SC-5.5 "The Contractor shall purchase and maintain the insurance required in paragraph 5.3 of the General

Conditions including the interests of Owner, by listing Owner, Engineer and each of their employees, officers or agents as an insured or additional insured parties."

SC-5.6 Delete Paragraph 5.6 of the General Conditions in its entirety and insert the following in its place:

SC-5.6 CONTRACTOR shall purchase and maintain until final payment property insurance upon the Work at the site to the full insurable value thereof. This insurance shall include the interests of OWNER, CONTRACTOR, Subcontractors and ENGINEER in the Work (all of whom shall be listed as insureds or additional insured parties), shall insure against the perils of fire and extended coverage, shall include "all-risk" insurance for physical loss and damage including theft, vandalism and malicious mischief, collapse, wind, hail and water damage, and shall include damages, losses and expenses arising out of or resulting from any insured loss or incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers, architects, attorneys and other professionals). If not covered under the "all-risk" insurance CONTRACTOR shall purchase and maintain similar property insurance on portions of the Work stored on and off the site or in transit when such portions of the Work are to be included in an Application for Payment.

SC-5.7 Delete Paragraph 5.7 of the General Conditions in its entirety.

SC-5.8 Delete Paragraph 5.8 of the General Conditions in its entirety and insert the following:

The notification of cancellation or change provisions of General Conditions paragraph 5.3 shall apply to insurance by the Contractor under paragraph SC-5.6.

SC-5.9 Delete Paragraph 5.9 of the General Conditions in its entirety.

SC-5.10 Delete Paragraph 5.10 of the General Conditions in its entirety.

SC-5.12 Delete Paragraph 5.12 of the General Conditions and insert the following:

Any insured loss under the policies of insurance required by Paragraph SC-5.6 will be adjusted with Contractor. Contractor shall deposit in a separate account any money so received, and shall distribute it or apply it to reconstruction of the Work in accordance with such agreement as the insured parties described under paragraph 5.6 may reach.

SC-5.13 Delete paragraph 5.13 of the General Conditions and insert the following:

> An insured loss during construction shall not relieve Contractor of any obligation to complete the Work in accordance with the Contract Documents. If Contractor believes a Change Order is required, Contractor shall request same in accordance with the Contract Documents prior to final adjustment of insurance.

SC-5.14 Delete paragraph 5.14 of the General Conditions in its entirety and insert the following:

> If Owner has any objection to the coverage afforded by or other provisions of the insurance required to be purchased and maintained by Contractor in accordance with paragraph 5.3, 5.4 and 5.6 on the basis of its not complying with the Contract Documents, Owner shall notify Contractor in writing thereof within 10 days of the date of delivery of such certificates to Owner in accordance with paragraph 2.7. Failure by Owner to give any such notice of objection within the time provided shall constitute acceptance of such insurance purchased by the other as complying with the Contract Documents.

SC-11.9.3 Delete Paragraph 11.9.3 of the General Conditions in its entirety.

SC-14.2 Delete paragraph 14.2 of the General Conditions in its entirety.

SC-16 Delete Article 16 - Arbitration from the General Conditions in its entirety.

* * * END OF SECTION * * *

TECHNICAL SPECIFICATIONS

DIVISION 1 - GENERAL REQUIREMENTS

SECTION 01010

SUMMARY OF WORK

PART 1 - GENERAL

1.01 SCOPE:

A. The GENERAL, SUPPLEMENTAL and other CONDITIONS of the Contract are hereby made part of this Section.

B. This Section presents a summary of the intended Work and the Contractor's duties and use of premises.

1.02 CONSTRUCTION SEQUENCE:

A. Construction will be scheduled in the following sequence:

1. The pilot hole will be completed and the formation samples analyzed.

2. If the pilot hole results indicate the location is satisfactory for completion of a production well, the well will be constructed and test pumped.

3. After test pumping data are analyzed, water sample test results are received and it is determined that the replacement well will be satisfactory, the pitless adapter and pump and motor at existing Well No. 3 will be reinstalled in the replacement well and the underground piping will be completed.

4. Existing Well No. 3 will be abandoned.

B. If the Contractor schedules his work in a sequence other than that detailed above without the written permission of the Owner, it will be at his own risk and he will be responsible for making any required changes at his own expense.

PART 2 - CONTRACTS

2.01 CONSTRUCTION OF WELL NO. 3 REPLACEMENT (This Contract):

A. One pilot hole, approximately 180 feet deep.

B. One production well, approximately 180 feet deep.

C. Removal of pitless adapter and pump and motor from existing Well No. 3 and reinstallation in replacement well.

1. Extension of drop pipe and motor cable as required and replacement of air line and chemical application line.

2. Relocation of protective well railing.

3. Installation of new pump and motor if Alternative Bid Item selected by the Owner.

D. Installation of underground piping.

E. Abandonment of existing Well No. 3.

2.02 WORK BY OTHERS:

A. Electrical and control work.

PART 3 - CONTRACTOR-OWNER RESPONSIBILITIES

3.01 CONTRACTORS' DUTIES:

A. Except as specifically noted, provide and pay:

1. Labor, materials and equipment.

2. Tools, construction equipment and machinery.

3. Water, heat and utilities required for construction.

4. Other facilities and services necessary for proper execution and completion of work.

B. Secure and pay for, as necessary for proper execution and completion of Work, and as applicable at time of receipt of bids:

1. Permits.

2. Government fees.

3. Licenses.

C. Give required notices.

D. Comply with codes, ordinances, rules, regulations, orders and other legal requirements of public authorities which relate to performance of Work.

1. Promptly submit written notice to Engineer of observed variance of Contract Documents from legal requirements.

2. Assume responsibility for Work known to be contrary to legal requirements if notice is not submitted.

3. Necessary changes to the Contract Documents will be accomplished by Change Order if the Contract price or completion time are affected.

E. Enforce strict discipline and good order among employees. Do not employ on Work:

1. Unfit persons.

2. Persons not skilled in assigned task.

3.02 CONTRACTOR USE OF PREMISES:

A. Confine operations at site to areas permitted by:

1. Law.

2. Ordinances.

3. Permits.

4. Contract Documents.

B. Do not unreasonably encumber site with materials or equipment.

C. Do not load any structures with weight that will endanger structure.

D. Assume full responsibility for protection and safekeeping of products stored on premises.

E. Move any stored products which interfere with operations of Owner or other Contractor.

F. Obtain and pay for use of additional storage or work areas needed for operations.

3.03 OWNER FURNISHED PRODUCTS:

A. Pitless adapter, submersible pump and motor, drop pipe, and appurtenant materials and equipment installed in existing Well No. 3; to be removed and reinstalled in the replacement well by the Contractor.

B. Following is a list of the major equipment components to be removed and reinstalled.

1. Baker-Monitor pitless adapter with 8-feet bury depth, 14-inch upper case size for butt welding to 12-inch casing, 6-inch drop pipe and 6-inch discharge connections, and two check valves.

2. Layne 8 PRHC 2-stage pump with 6" discharge check valve.

3. Submersible motor, 6", 30 horsepower, with cable.

4. Approximately 123 feet of 6-inch steel drop pipe with threaded joints.

C. Under the Alternative Bid Item, the Contractor will furnish and install a new pump and motor. The existing pump and motor will remain the property of the Owner.

* * * END OF SECTION * * *

SECTION 01050

COORDINATION

PART 1 - GENERAL

1.01 SCOPE:

A. The GENERAL, SUPPLEMENTAL and other CONDITIONS of the Contract are hereby made part of this Section.

B. This Section describes the necessary coordination between Contractors.

C. Related requirements specified elsewhere.

1. Summary of Work: Section 01010.

1.02 PAYMENT:

A. Coordination is considered incidental to the Work with no separate measurement or payment to be made.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION

3.01 GENERAL:

A. Any Contractor or subcontractor working on a specific portion of the project shall so schedule and conduct his work as not to impede unnecessarily any work being done by others on or adjacent to his work.

3.02 COORDINATION REQUIREMENTS:

A. Because the Owner relies on existing Well No. 3 for system water supply, the relocation of the pitless unit and pump and motor to the replacement well shall be scheduled with the Owner at least 7 days in advance of the work. The Contractor shall complete the relocation work, including the piping connection, and the replacement well shall be operational within 48 hours from the time existing Well No. 3 is removed from service.

B. The Contractor shall coordinate his work with the electrical contractor to permit the installation of the buried electrical cable and conduit at the well site.

C. The Contractor shall coordinate startup and performance testing of the submersible pump and motor with the electrical contractor.

* * * END OF SECTION * * *

SECTION 01080

APPLICABLE CODES

PART 1 - GENERAL

1.01 CODES AND STANDARDS:

A. Design and workmanship of installation and material shall be judged by tests and requirements set forth in the latest revisions of the following codes and standards:

1. American Society for Testing Materials (ASTM).
2. American National Standards Institute (ANSI).
3. American Institute of Steel Construction (AISC).
4. American Concrete Institute (ACI).
5. American Welding Society (AWS).
6. National Electrical Manufacturer's Association (NEMA).
7. National Electrical Code (NEC).
8. American Association of State Highway Transportation Officials (AASHTO).
9. American Water Works Association (AWWA).
10. Uniform Building Code (UBC).
11. South Dakota Well Construction Standards.

* * * END OF SECTION * * *

SECTION 01090

PERMITS, LAWS AND ORDINANCES

PART 1 - GENERAL

1.01 SCOPE:

A. The GENERAL, SUPPLEMENTAL and other CONDITIONS of the Contract are hereby made part of this Section.

B. This Section describes the Contractor's responsibilities pertaining to permits, laws and ordinances.

1.02 PAYMENT:

A. The requirements of this Section are considered incidental Work with no separate measurement and payment to be made.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION

3.01 GENERAL:

A. The Contractor shall comply with all Federal, State, County and local laws, ordinances and rules and regulations relating to the performance of the Work.

3.02 PERMITS:

A. The Contractor shall, at his expense, procure all permits, certificates, and licenses required of him by law for the execution of his Work.

* * * END OF SECTION * * *

SECTION 01095

EXISTING UTILITIES AND UNDERGROUND OBSTRUCTIONS

PART 1 - GENERAL

1.01 SCOPE:

A. The GENERAL, SUPPLEMENTAL and other CONDITIONS of the Contract and the GENERAL REQUIREMENTS (Division 1) are hereby made part of this Section.

B. This Section describes, but is not limited to, the contact to be made with existing utilities and the Work associated with location, adjustment and repair of underground utilities and obstructions.

C. The location of underground facilities is not shown on the Drawings.

1.02 PAYMENT:

A. Repair by the Contractor of any utilities, drain tiles and other underground obstructions damaged by the Contractor's activities is considered incidental Work with no separate measurement and payment to be made.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION

3.01 GENERAL:

A. The Contractor shall take all necessary precautions to locate, protect and repair existing utilities, underground obstructions and structures.

B. The Contractor shall have full responsibility for locating all existing underground facilities affected by construction, for contact with owners of affected underground facilities, for repair or replacement of any underground facilities damaged by the Contractor, and for such other requirements as may be included in the specifications, the cost of all of which will be considered incidental to the Contract Unit Prices or Lump Prices.

3.02 UTILITY CONTACT:

A. Prior to Work in a specific area affecting underground utilities, all utilities with underground lines in the area shall be contacted by the Contractor.

3.03 UTILITY REPAIR:

A. When a utility line or cable is exposed or damaged, the Contractor shall comply with the repair requirements of the affected utility.

B. When a utility cable is exposed, the Contractor shall compact the backfill beneath the exposed cable before completion of the backfill operation.

* * * END OF SECTION * * *

SECTION 01340

SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

PART 1 - GENERAL

1.01 SCOPE:

A. The GENERAL, SUPPLEMENTAL and other CONDITIONS of the Contract are hereby made part of this Section.

B. This Section covers the submission, review and distribution requirements of shop drawings, project data and samples.

1.02 PAYMENT:

A. Shop drawings, project data and samples are considered incidental Work with no separate measurement and payment to be made.

PART 2 - PRODUCTS

2.01 SHOP DRAWINGS: Original drawings, prepared by Contractor, subcontractor, supplier or distributor, which illustrate some portion of the Work; showing fabrication, layout, setting or erection details.

A. Prepared by a qualified detailer.

B. Identify details by reference to specification section or detail number from the Drawings.

C. Minimum Sheet Size: 8-1/2" x 11".

2.02 PRODUCT DATA:

A. Manufacturer's standard schematic drawings:

1. Modify drawings to delete information which is not applicable to the Work.

2. Supplement standard information to provide additional information applicable to the Work.

B. Manufacturer's catalog sheets, brochures, diagrams, schedules, performance charts, illustrations and other standard descriptive data.

1. Clearly mark each copy to identify pertinent materials, products or models.

2. Show dimensions and clearances required.

3. Show performance characteristics and capacities.

4. Show wiring diagrams and controls.

PART 3 - EXECUTION

3.01 CONTRACTOR RESPONSIBILITIES:

A. Review Shop Drawings, Project Data and Samples prior to submission to Engineer for review.

B. Verify:

1. Performance criteria.

2. Field measurements.

3. Field construction criteria.

4. Catalog numbers and similar data.

C. Coordinate the timing of each submittal with requirements of the Work.

D. Contractor's responsibility for errors and omissions in submittals is not relieved by Engineer's review of submittals.

E. Contractor's responsibility for deviations in submittals from requirements of Contract Documents is not relieved by Engineer's review of submittals, unless Engineer gives written acceptance of specific deviations.

F. Notify Engineer, in writing at time of submission, of deviations in submittals from requirements of Contract Documents.

G. Begin no work which requires submittals until return of submittals with Engineer's stamp and initials or signature indicating review.

H. After Engineer's review, distribute copies.

3.02 SUBMISSION REQUIREMENTS:

A. Schedule submissions at least ten (14) days before date reviewed submittals will be needed.

B. Submit five (5) copies of Shop Drawings, Project Data and Samples for review. Three (3) copies will be returned. Should more than three (3) copies be required by the Contractor, additional copies should be submitted.

1. The Contractor may provide a presubmittal for review and comment.

C. Accompany submittals with transmittal letter, in duplicate, containing:

1. Date.

2. Project title and number.

3. Contractor's name and address.

4. The number of each Shop Drawing, Project Data and Sample submitted.

5. Notification of deviations from Contract Documents.

6. Other pertinent data.

D. Submittals shall include:

1. Date and revision dates.

2. The names of:

a. Subcontractor.

b. Supplier.

c. Manufacturer.

d. Separate detailer when pertinent.

3. Identification of product or material.

4. Relation to adjacent structure or materials.

5. Field dimensions, clearly identified as such.

6. Specification section number.

7. Applicable standards, such as ASTM number or Federal Specification.

8. A statement signed by the Contractor that the submittal has been reviewed and meets the requirements except as noted.

3.03 ENGINEER'S DUTIES:

A. Review and return submittals within ten (10) days of receipt.

B. Review of separate item does not constitute review of an assembly in which item functions.

C. Affix stamp and initials or signature certifying review of submittal noting one of the following:

1. No exception taken.

2. Make corrections noted.

3. Revise and resubmit.

4. Submit specified item.

5. Rejected.

D. Return submittals to Contractor.

3.04 RESUBMISSION REQUIREMENTS:

A. Shop Drawings:

1. Revise initial drawings as required and resubmit as specified for initial submittal.

2. Indicate on drawings any changes which have been made other than those requested by Engineer.

* * * END OF SECTION * * *

SECTION 01345

MATERIAL SAMPLES AND RECORDS

PART 1 - GENERAL

1.01 SCOPE:

A. The GENERAL, SUPPLEMENTAL and other CONDITIONS of the Contract and the GENERAL REQUIREMENTS (Division 1) are hereby made part of this Section.

B. This Section covers the general requirements for sampling and record keeping to be performed by the Contractor.

C. Related requirements specified elsewhere:

1. Test Drilling/Observation Wells: Section 02671.

2. Production Wells: Section 02672.

3. Test for Yield and Drawdown: Section 02674.

1.02 PAYMENT:

A. The collection and submittal of samples and the production and submittal of records are made part of identified unit price bid items and are not included as separate measurement and payment items.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION

3.01 SCOPE:

A. This section covers the type and method of material sampling.

1. Drilled geologic formations.

2. Pumped water samples.

B. This section covers the type, form and number of records to be produced as a result of the Work.

1. Drilling logs and daily reports.

2. Construction details and as-built drawings.

3. Well test observation records.

3.02 SAMPLES REQUIRED AND METHODS:

A. Drilled Material:

1. Method employed shall produce representative, samples of the formation(s) encountered.

2. Shall accurately reflect the nature and state of formations encountered.

B. Water Samples:

1. Shall be representative of the water located in the aquifer in which the well is to be finished. Samples shall be clear, with no visible suspended solids.

2. Shall be collected with the approved methods and in the proper containers consistent with the analysis to be conducted.

3.03 NUMBER OF SAMPLES:

A. Material Samples: Two (2) each from each formation encountered and two (2) each at 5 foot intervals in the water bearing formation.

B. Water Samples:

1. Two 1/2-gallon samples from each observation well.

2. Four 1/2-gallon samples during each well test as follows: two (2) 1/2-gallon samples after three hours of pumping, and two (2) 1/2-gallon samples just prior to well shutdown.

C. Additional volumes as directed during the test(s).

3.04 SAMPLING AND CONSTRUCTION RECORDS:

A. General records required (minimum).

1. Well or test hole log.

2. Sample analysis reports.

3. Detailed map of test hole locations.

4. Pumping test observations.

5. Daily progress report.

6. Well construction as-built drawings.

B. Specific requirements:

1. Well and test hole logs.

a. Well identification number and location description.

b. Reference point for all depth measurement.

c. Depth at which each change of formation occurs.

d. Depth at which water was first encountered.

e. Identification of the material of which each stratum is composed.

f. Sieve analyses of samples taken in the water bearing formation.

g. Nominal hole diameter of the well bore.

h. Total depth of the completed hole.

i. Depth or location of any lost drilling fluids, drilling materials or tools.

j. Depth and description of the well casing.

k. Description of well screens including diameter, length, material, slot sizes, amount of open area, and location.

l. Static water level at completion of well development.

m. Name of contracting company and job foreman.

n. Date(s) work completed.

2. Location map of exploratory area.

a. North arrow.

b. Scale.

c. Well identification numbers.

d. Identification of known reference joints, such as road centerlines, fence lines, bridges, river channels, etc.

3. Pumping test records. See Section 02674.

4. Well construction as-built drawings.

5. Other pertinent data as requested by the Engineer.

* * * END OF SECTION * * *

SECTION 01350

OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.01 SCOPE:

A. The GENERAL, SUPPLEMENTAL and other CONDITIONS of the Contract are hereby made part of this Section.

B. This Section describes the Contractor's responsibilities regarding the completion of an operation and maintenance manual.

C. Related requirements specified elsewhere:

1. Shop Drawings, Project Data and Samples: Section 01340.

1.02 PAYMENT:

A. Operation and maintenance data requirements will be considered as incidental Work with no separate measurement or payment to be made.

PART 2 - PRODUCTS - NOT USED.

PART 3 - EXECUTION

3.01 GENERAL:

A. The Contractor shall prepare and furnish three (3) manuals of all equipment specified.

B. The Manual shall cover the installation, operation and maintenance of all equipment and material including:

1. Complete catalog data.

2. Manufacturer's literature.

3. Parts list.

4. Maintenance instructions.

5. Approved shop drawings.

6. Supplier's name, address and telephone number.

C. All such literature shall be bound under hard cover and submitted to the Engineer for review and transmittal to the Owner.

1. Should modification be required, the bound literature will be returned to the Contractor for modification and resubmittal to the Engineer.

* * * END OF SECTION * * *

SECTION 01500

TEMPORARY FACILITIES

PART 1 - GENERAL

1.01 SCOPE:

A. The GENERAL, SUPPLEMENTAL and other Conditions of the Contract are hereby made part of this Section.

B. This Section describes the temporary facilities to be provided by the Contractor during the Work.

1.02 PAYMENT:

A. Temporary facilities are considered incidental to the Work with no separate measurement and payment to be made.

PART 2 - PRODUCTS - NOT USED.

PART 3 - EXECUTION

3.01 TEMPORARY WATER:

A. Water which is required for construction, flushing, testing, disinfection and other purposes shall be obtained by the Contractor at no cost to the Owner.

3.02 TEMPORARY ELECTRICAL:

A. It will be the Contractor's responsibility to provide, obtain and pay for temporary power for construction, test pumping or other purposes as required to perform the Work.

* * * END OF SECTION * * *

SECTION 01710

PROTECTION AND CLEANING

PART 1 - GENERAL

1.01 SCOPE:

A. The GENERAL, SUPPLEMENTAL and other CONDITIONS of the Contract are hereby made part of this Section.

B. This Section describes the Contractor's responsibilities relative to protection and cleanup of the site during initial construction.

1.02 PAYMENT:

A. Protection and cleaning of the site is considered incidental to the Work with no separate measurement and payment to be made.

PART 2 - PRODUCTS - NOT USED.

PART 3 - EXECUTION

3.01 GENERAL:

A. Except as otherwise provided herein, the Contractor shall protect all structures, pipelines, trees, power lines, shrubbery, lawns and agricultural crops during the progress of this work; shall remove from the site all cuttings, drillings, debris, and unused materials.

B. Water pumped or released during construction, test pumping, development, or other operations shall be conducted by temporary pipe lines or wood or metal flumes away from the work area to natural drainageways. Flushing or drainage shall not be conducted in such a manner as to cause erosion or flooding of land not owned or controlled by the Owner, except by special permission in writing by the Owner and affected land owner.

C. The Contractor shall assure that water discharged to any location during construction does not damage the natural environment or wildlife. The Contractor shall be responsible for any environmental damage which results from this activities.

D. At all times keep premises free from accumulations of waste material and rubbish.

E. At the end of each day's work leave construction area in such a condition so as to permit unencumbered access to all private properties in the vicinity.

F. Upon completion of the work, the site shall be restored as nearly as possible to its original condition, including the replacement, at the Contractor's sole expense, of any facility or landscaping which has been damaged beyond restoration to its original condition or which has been destroyed.

* * * END OF SECTION * * *

SECTION 01760

MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.01 GENERAL:

A. The GENERAL, SUPPLEMENTAL and other CONDITIONS of the Contract are hereby made part of this Section.

B. This Section describes the measurement and payment to be made for completed Work. The Contractor shall accept the compensation, as herein provided, in full payment for:

1. Furnishing all materials, labor, tools and equipment necessary to the completed Work.

2. Performing all Work contemplated and embraced under the contract.

3. Completing the Work in accordance with the Contract Documents.

1.02 SUBMITTALS:

A. The Contractor shall furnish a pay request monthly on forms provided by the Engineer.

PART 2 - PRODUCTS - NOT USED.

PART 3 - EXECUTION

3.01 MEASUREMENT:

A. The determination of final quantities of Work performed under the Contract will be made by the Engineer, based upon the lines, grades, and cross sections given or measurements made by him or his assistants.

1. All items will be computed in the units of the Bid Schedule.

3.02 PAYMENT:

A. All Work required to complete construction shall be deemed to be included in the unit price or lump sum price items listed in the Contractor's Bid Schedule.

3.03 PAYMENT ITEMS:

A. Test drilling, observation and production well construction, test pumping, well completion, and appurtenant work:

1. Mobilization.

a. Measurement: The completed work.

b. Payment: Contract lump sum price.

2. Pilot hole drilling, including sampling and records.

a. Measurement: From ground surface to bottom of hole.

b. Payment: Contract unit price.

3. 18" drill hole, including samples and records.

a. Measurement: From ground surface to bottom of hole.

b. Payment: Contract unit price.

4. 12" steel casing.

a. Measurement: The installed length.

b. Payment: Contract unit price.

5. 12" stainless steel screen.

a. Measurement: The installed length.

b. Payment: Contract unit price.

6. Gravel pack.

a. Measurement: The installed length.

b. Payment: Contract unit price.

7. Grout seal.

a. Measurement: The installed length.

b. Payment: Contract unit price.

8. Well development.

   a. Measurement: Duration of development.

   b. Payment: Contract unit price.

9. Installation and removal of test pump and equipment.

   a. Measurement: The completed work.

   b. Payment: Contract lump sum price.

10. Installation and removal of temporary discharge piping.

   a. Measurement: The installed length.

   b. Payment: Contract unit price.

11. Test pumping, observations and records for maximum 24-hour test.

   a. Measurement: Duration of test.

   b. Payment: Contract unit price.

12. Recovery observations and records.

   a. Measurement: Duration of observations.

   b. Payment: Contract unit price.

13. Collection of water samples, disinfection and cap.

   a. Measurement: The completed work.

   b. Payment: Contract lump sum price.

14. Abandonment of existing Well No. 3.

   a. Measurement: The completed work.

   b. Payment: Contract lump sum price.

15. Remove pitless adapter and pump and motor from existing Well No. 3 and reinstall in new well.

   a. Measurement: The completed work.

   b. Payment: Contract lump sum price.

16. Increase pump setting depth.

    a. Measurement: The length of the motor cable and drop pipe extension.

    b. Payment: Contract unit price.

17. Furnish and install underground piping connection from new well to existing discharge line.

    a. Measurement: The completed work.

    b. Payment: Contract lump sum price.

18. Furnish and install new pump and motor in new well.

    a. Measurement: The completed work.

    b. Payment: Contract lump sum price.

B. Incidental Work: All work for which measurement and payment is not detailed above is considered incidental with no separate measurement or payment to be made.

* * * END OF SECTION * * *

DIVISION 2 - SITE WORK

SECTION 02221

TRENCHING, BACKFILLING AND COMPACTING

PART 1 - GENERAL

1.01 SCOPE:

A. The GENERAL, SUPPLEMENTAL and other CONDITIONS of the Contract and the GENERAL REQUIREMENTS (Division 1) are hereby made part of this Section.

B. Work included in this Section involves the trenching, laying of pipe, backfilling, compacting, and disposition of excess excavated material.

C. Related requirements specified elsewhere:

1. Existing Utilities and Underground Obstructions: Section 01095.

1.02 QUALITY ASSURANCE

A. When requested by the Engineer, the Contractor shall excavate and expose the pipe previously laid at any point.

1.03 PAYMENT:

A. The requirements of this Section are considered incidental Work with no separate measurement and payment to be made.

PART 2 - PRODUCTS

2.01 TRENCHING METHODS:

A. Open trenching shall be done in a manner avoiding unusually wide excavations. Trenching work shall include the removal, handling, and disposal of all materials so removed and shall further include:

1. Stripping of the trench and other areas, including trees, stumps, brush, debris, and roots within the construction limits.

2. Removal of all pavement as specified.

3. Removal of debris and structures, or portions thereof.

4. Sheeting, shoring, bracing, and protection of adjacent property, trees and structures.

5. Protection or repair/replacement (if required) of existing pipelines, electric lines, buried telephone cables, drains, field drain tiles, conduits, culverts, sewers, poles, road signs, overhead utilities, fences, etc.

6. Removal of rocks encountered greater than twelve (12) inches in diameter.

7. Preparation of subgrades, pipe embedments, backfilling, and disposal of excess excavation and other materials.

PART 3 - EXECUTION

3.01 TRENCHING:

A. Open Trenching:

1. Place excavated material suitable for backfilling in an orderly manner sufficiently away from banks of excavation to avoid overloading and prevent slides or cave-ins.

a. Keep banks as nearly vertical as practicable while complying with all safety requirements.

b. Assure that all shoring and sheeting required complies with applicable local, state, and federal regulations.

2. Trenches shall be of sufficient width to provide ample room for workmen engaged in the handling of pipe and making the joints.

3. Minimum pipe cover shall be:

a. Seventy-two (72) inches for all pipe as measured from finished ground level to nearest surface of pipe.

4. Accurately grade trench bottom to provide uniform bearing and support for each pipe section.

a. Backfill unauthorized overdepth excavation to the proper grade with tamped backfill.

b. Protect trench bottom from frost and freezing.

5. The Contractor shall excavate under existing utilities as required to maintain or exceed minimum cover.

3.02 LAYING OF PIPE - OPEN TRENCH:

A. General:

1. Only competent and experienced individuals at laying pipe shall be employed on this phase of work. Any incompetent individuals or unacceptable work shall be released/removed at the Engineer's request.

2. Perform dewatering operations as required to maintain a dry work area.

3. Remove all unsuitable bedding material.

4. All material including pipe, fittings, valves, etc., shall be placed with care. Under no circumstances shall material be dumped or dropped into the trench.

5. Pipe shall be thoroughly cleaned of all foreign material before lowering into the trench and shall be kept clean during all laying operations.

6. Pipe shall lay on suitable soil at every point along its length.

B. Installation:

1. See appropriate pipe section of specifications.

3.03 BACKFILLING AND COMPACTING - OPEN TRENCH:

A. General:

1. All backfilling shall be carefully done in a manner that will not harm the pipe.

B. Initial Backfilling of Pipe:

1. Placing of initial backfill shall be done by hand or a mechanical method.

a. The method selected and approved shall be such that material is not dropped from the top of the trench.

b. Deposit selected earth or sand at the sides of the pipe and to a depth of not less then twelve (12) inches above the top of the pipe.

2. Backfill material to be utilized for mechanical methods shall contain no stones which may damage the pipe and shall be free from large clods and frozen material.

C. Final Backfill of Trenches:

1. Backfilling and compacting shall be completed per the following:

a. Backfill shall be free from rock of over twelve (12) inches in any dimenson, frozen clods, large roots, excessive sod or other vegetation.

b. Do not disturb joint alignment or grade of pipe during backfill operation.

c. Continue backfill and compaction process in twelve (12) inch lifts to the existing ground surface.

d. Compactive effort shall be such that no settlement will occur.

2. Where backfill material is not available, the required material shall be obtained from a borrow area arranged for by the Contractor. No topsoil shall be stripped from the adjacent area of the trench.

3. No more of the trench than necessary shall be left open at any one time.

a. Open trenches shall be properly marked and/or attended.

b. Trenches shall be closed at the end of each day.

4. Wherever trenches have not been properly filled or when settlement occurs, they shall be refilled and compacted so that no further settlement will occur. Any damage done to topsoiled and seeded areas shall be repaired.

3.04 EXCESS EXCAVATED MATERIAL:

A. General:

1. Excess excavated material, not required for backfill or grading, shall be removed from the site by and at the expense of the Contractor.

2. Rocks or boulders excavated and too large to be used in the backfill provisions of these specifications shall be hauled from the site by and at the expense of the Contractor.

3. The Contractor shall be responsible for obtaining suitable disposal sites.

3.05 CLEAN-UP:

A. The accomplishment of clean-up by the Contractor shall be made as soon as possible and shall be considered as a factor of prime importance in the completion of the project.

* * * END OF SECTION * * *

SECTION 02671

TEST DRILLING (PILOT HOLE)

PART 1 - GENERAL

1.01 SCOPE:

A. The GENERAL, SUPPLEMENTAL and other CONDITIONS of the Contract and the GENERAL REQUIREMENTS (Division 1) are hereby made part of this Section.

B. The Contractor shall furnish and install all equipment, materials, labor, and appurtenances required and necessary for test drilling within the project area.

C. The quantities detailed in the Bid Schedule are estimates.

1. The number, location and depth of test holes shall be determined by the Engineer as the project progresses.

2. Changes to the Bid Schedule quantities will be made by Change Order after the final quantities are known.

D. Related requirements specified elsewhere:

1. Material Samples and Records: Section 01345.

2. Disinfection and Abandonment: Section 02675.

1.02 SUBMITTALS:

A. Material samples and records per Section 01345.

B. Submit to state agencies required reports and samples.

1.03 LOCATION:

A. The area of test drilling and well construction is as shown on the Drawings.

B. The location for test holes will be staked by the Engineer.

1.04 COMPETENT WORKMEN:

A. The Contractor shall employ only competent workmen for the execution of his work and all such work shall be performed under the direct supervision of experienced personnel satisfactory to the Engineer.

1.05 PAYMENT:

A. Payment shall be at the Contract unit prices and lump sum prices as shown on the Bid Schedule.

PART 2 - PRODUCTS

2.01 GENERAL REQUIREMENTS:

A. Test Holes:

1. Minimum 5-inch diameter test holes shall be drilled as field located and to the depth directed by the Engineer.

PART 3 - EXECUTION

3.01 SCOPE:

A. The Contractor shall furnish and install all labor, tools, equipment and material required to drill each test hole.

3.02 DRILLING AND SAMPLING PROCEDURE:

A. Exploratory Test Holes:

1. Accurate material samples shall be collected from each succeeding formation encountered and at every five (5) ft. interval in the water bearing formations.

2. Two complete sets of samples are to be collected. Sieve analyses shall be performed on one set of samples and the second set shall be retained by the Contractor for a period of at least sixty (60) days. The Contractor shall dispose of the second set of samples in accordance with instructions from the Engineer.

3. The Contractor shall keep a written log of the formations, giving accurate descriptions of the materials and whether or not they are water-bearing.

4. All drilling fluid loss shall be accurately tabulated during the drilling operation.

* * * END OF SECTION * * *

SECTION 02672

PRODUCTION WELLS

PART 1 - GENERAL

1.01 SCOPE:

A. The GENERAL, SUPPLEMENTAL and other CONDITIONS of the Contract and the GENERAL REQUIREMENTS (Division 1) are hereby made part of this Section.

B. The Contractor shall furnish and install all equipment, materials, labor, and appurtenances required and necessary for the complete construction of the production wells.

C. The quantities detailed in the Bid Schedule are based on well logs of record completed at the site. Logs of a previous test hole and existing Well No. 3 are included in the Appendix.

1. Changes to the Bid Schedule quantities will be made by Change Order after the final quantities are known.

D. Related requirements specified elsewhere:

1. Material Samples and Records: Section 01345.

2. Well Testing for Yield and Drawdown: Section 02674.

3. Disinfection and Abandonment: Section 02675.

1.02 SUBMITTALS:

A. Shop drawings of screen and casing.

B. Material samples and records per Section 01345.

C. Submit to state agencies required reports and samples.

1.03 LOCATION:

A. The area of test drilling and well construction is as shown on the Drawings.

1.04 COMPETENT WORKMEN:

A. The Contractor shall employ only competent workmen for the execution of his work and all such work shall be performed under the direct supervision of experienced personnel satisfactory to the Engineer.

1.05 PRODUCT DELIVERY, STORAGE AND HANDLING:

A. During loading, transporting and unloading exercise care to prevent damage to materials.

B. The gravel pack shall be delivered to the well site on approval by the Engineer.

1. The material may be delivered in bags or in bulk.

2. Materials delivered in bags shall be protected from weather until installed.

3. Materials delivered in bulk shall be stored on a surface covered with a 2-mil plastic sheet.

4. Material for the gravel pack that comes in contact with the ground shall not be used, and all material shall be protected from contamination until installed.

1.06 TESTING:

A. The Contractor shall notify the Engineer of delivery of the gravel pack materials to the site and shall make the materials available for sampling.

B. Samples may be collected and tested by the Engineer in accordance with AWWA B100, Section 5.

1. Initial sampling and testing shall be done at the Owner's expense.

2. Subsequent sampling and testing required by the failure of initial samples to meet these specifications shall be done at the Contractor's expense.

1.07 PAYMENT:

A. Payment shall be at the Contract unit prices and lump sum prices as shown on the Bid Schedule.

PART 2 - PRODUCTS

2.01 SCREEN AND FITTINGS:

A. Reference Standard: AISI Type No. 304, 18-8 stainless steel.

B. Minimum Wall Thickness: 7 gauge (3/16 inch).

C. Johnson wire-wound, continuous-slot type stainless steel screen.

1. Pipe size for gravel pack well.

D. Bottom Plate: A 3/16 inch thick, 18-8 stainless steel plate shall be securely welded to the bottom of the screen for sealing the bottom of the well.

E. All sections and connections shall be welded together with full circumferential joints.

F. Screen Slot Size: To be determined by the Contractor, but in general shall be sized to retain approximately ninety-five percent (95%) of the particle size of the select gravel packing media.

2.02 STANDARD STEEL CASING PIPE:

A. Material: New black steel pipe, ASTM Specification A53-84a, plain end.

B. Minimum wall thickness and weight shall be as follows:

Nominal Casing Diameter	Wall Thickness in Inches	Weight in Pounds per Foot
4	0.237	10.79
5	0.250	14.62
6	0.250	18.97
8	0.322	28.55
10	0.365	40.48
12	0.375	49.56

2.03 GRAVEL PACKING MEDIA:

A. Gravel pack material shall consist basically of washed gravel, 90% to 95% quartz grains. Approved sources are Northern Gravel Co., Muscatine, Iowa and Eau Claire Sand & Gravel Co., Eau Claire, Wisconsin.

B. Specific Gravity:

1. Average specific gravity of not less than 2.5.

2. Not more than 1 percent, by weight, of the material shall have a specific gravity of 2.25 or less.

C. Nonround Pieces: Thin, flat or elongated pieces, the maximum dimension of which exceeds three times the minimum, shall not be in excess of 2 percent, by weight.

D. Acid Solubles: Not more than 5 percent of the gravel shall be soluble in hydrochloric acid.

E. Washed Material: The material shall be washed and free of shale, mica, clay, dirt, loam, and organic impurities of any kind.

F. Iron and Manganese: The material shall contain no iron or manganese in a form or quantity that will adversely affect the well-water supply.

G. Gradation: To be determined by the Contractor, but in general shall be sized as follows:

1. Gravel-pack gradation shall be determined by taking the 50th percentile of the finest aquifer material to be filtered.

2. Gravel pack to formation-sand ratio at the 50th percentile point shall fall within the range of 6:1 to 4:1.

3. Tests for gradation of gravel-pack material shall be in accordance with the method of testing as specified in ASTM C136.

H. Uniformity Coefficient: Shall not exceed 2.5.

I. Distribution Curve: Shall parallel the main part of the formation-sand distribution curve for formation sands having a uniformity coefficient less than 2.5.

2.04 NEAT CEMENT GROUT:

A. Shall consist of a mixture in the proportion of one (1) bag (94 pounds) of Portland cement (ASTM C150-84a) to not more than 6 gallons of clean water. The cement shall be sulfate resistant, Type III or better.

B. Type II cement may be used provided two pounds of bentonite are added per sack of cement.

PART 3 - EXECUTION

3.01 GENERAL:

A. Construct production wells of the diameter as shown on the Drawings. Depth shall be sufficient to complete the well to the bottom of the water bearing formation as approved by the Engineer.

3.02 WELL DRILLING METHOD:

A. The production well shall be drilled by use of either straight or reverse rotary.

3.03 SCREEN AND CASING INSTALLATION:

A. The screen shall be installed concentrically in the drill hole, at the bottom of the well.

B. Steel casing pipe and stainless steel screen shall be rigidly installed and fastened by full circumferential welded joints in accordance with AWWA C206. Butt joints shall be doubled-welded and shall be full-penetration butt welds.

1. Use AWS-ASTM E309 electrodes for welding Type 304 stainless steel to mild steel.

2. Use E 308-15 or E 308-16 electrodes for welding Type 304 stainless steel to Type 304 stainless steel.

C. All of the described screen and casing shall be centered in the drill hole with suitable centering guides. Centering guide materials shall be the same as the screen or casing they are attached to .

D. Centering guides shall not be welded directly to the wire wound portion of the screen.

3.04 GRAVEL PACKING:

A. Following the setting of the casing and attached screen, the annular spaces between the screen and outer casing shall be filled with gravel pack.

B. The gravel shall be installed through a tremie pipe of 2 inch diameter and raised in lifts no greater than 10 feet at one time. The gravel pack material shall be installed from the bottom of the well continuously upward.

C. Carefully withdraw the outer casing as gravel pack is added so there will be no mixing of the gravel pack with the natural formation.

D. Calcium hypochlorite, HTH or equal, shall be added and mixed with the gravel packing material at the rate of 0.50 pound per cubic yard of material at the time the material is placed in the well.

E. Install to the dimensions shown on the Drawings.

3.05 GROUTING:

A. Install grout under pressure by means of a grout pump from the bottom of annular opening upward in one continuous operation.

B. Shall be commenced without delay upon completion of drilling the well.

C. Neat cement grout or concrete grout shall be allowed to set a minimum of 12 hours when hi-early cement is used (with steel casings only) or a minimum of 48 hours when regular cement is used, before drilling operations or other work is resumed or test pumping is performed.

D. Install to the dimensions shown on the Drawings.

3.06 DEVELOPMENT OF WELL:

A. The Contractor's plan for well development, including a description of equipment, methods and procedures to be used, and an estimate of time required, shall be submitted to the Engineer for review prior to development.

B. Acceptable Development Methods:

1. High velocity jetting:

a. Horizontal water jetting with simultaneous air pumping.

b. Minimum horizontal jet water velocity 150 ft./sec.

c. Jet nozzle shall be no more than 1 inch from inside screen surface.

d. Jet tool shall rotate at 1 rpm.

e. Jetting shall be at one level not less than 2 minutes, then proceed to the next level not more than 6 inches vertically, from the bottom of the screen to the top. Continuous vertical lift, if used, shall be at the rate of 5 to 15 minutes per foot of screen.

f. Simultaneous pumping shall be with the intake no more than 5 feet above the jetting tool and at a flow rate of 10 to 20 percent above jetflow rate.

g. Jet feed water shall be lean, potable, turbidity free water.

2. Surging and pumping or bailing:

a. Provide a valved or solid surge block.

b. Begin at the bottom screen section and proceed upward.

c. Pumping simultaneously with surging may be used.

d. Bail sand from the well whenever the sand depth reaches 10 percent of screen length.

3. Interrupted overpumping (rawhiding):

a. Provide a pump capable of pumping rates up to 2 times design capacity.

b. Conduct development in not less than 5 increments of pumping rates, i.e. 0.25, 0.5, 1, 1.5 and 2 times design capacity.

c. No check valve or foot valve shall be used on the pump.

d. Pumping shall be in 5 minute cycles.

C. The Contractor shall furnish all necessary pumps, compressors, high pressure jets, bailers, or other needed equipment and shall develop the well by such approved methods as shall be necessary to give the maximum yield of water per foot of drawdown and extract from the water bearing formation in the well the maximum practical quantities of sand as may, during the life of the well, be drawn through the screen when the well is pumped under maximum conditions of drawdown, on either a continuous or intermittent basis.

D. In the event that chemical additives, such as polyphosphates, are required to aid in development of the well through dissolving drilling muds, silts or clays which may have sealed or partially sealed the outer surfaces of the bore hole in the water bearing portion of the aquifer, the Contractor shall furnish and apply same at no additional cost to the Owner.

E. Well development shall continue until the sand content is less than or equal to 1.0 ppm, which shall be considered a sand-free condition. The sand content shall be determined by averaging the results of 5 samples collected at the following times during the

final pumping test: (1) 15 minutes after start of the test; (2) after 1/4th of the total planned test time has elapsed; (3) after 1/2 of the time has elapsed; (4) after 3/4ths of the time has elapsed; and (5) near the end of the pumping test. The method of sampling and testing for sand content shall be approved by the Engineer.

F. Payment for developing shall be on a per hour basis, for only those hours when developing equipment is being operated. No payment will be made in excess of 40 hours.

G. The completed well shall have an actual efficiency of not less than 70 percent of the theoretical efficiency, based on the pumping test specified in Section 02674. The efficiency shall be calculated by the Engineer using non-equilibrium methods and making due allowance for the actual penetration of the aquifer with the amount of screen installed.

H. Failure by the Contractor to construct a well with an efficiency of 70 percent or higher, or to construct a sand-free well, as defined above, will be considered negligence on the part of the Contractor and will result in refusal to accept the well and the associated pumping test by the Owner.

3.07 TESTING FOR PLUMBNESS AND ALIGNMENT:

A. The Contractor shall furnish all labor, material, equipment and tools required to test the well for plumbness and alignment.

B. The hole shall be constructed and all casing and liners set round, plumb and true to line as defined herein. To demonstrate the compliance of his work with this requirement the Contractor shall make the tests described herein in the manner prescribed by, and to the satisfaction of, the Engineer.

C. Tests for alignment and plumbness must be made after the complete construction of the well and before acceptance. Additional tests, however, may be made by the Contractor during the performance of the Work.

D. Description of Test:

1. Plumbness and alignment shall be tested by lowering into each well to the top of the screen a section of pipe 20 feet long or a dummy of the same length. The outer diameter of the plumb shall not be more than 1/2 inch smaller than the diameter of that part of the casing or hole being tested.

2. If a dummy is used it shall consist of a rigid spindle with three rings, each ring being 12 inches long. The rings shall be truly cylindrical and shall be spaced one at each end of the dummy and one ring in the center thereof. The central member of the dummy shall be rigid to that it will maintain the alignment of the axes of the rings.

E. Requirements for Plumbness and Alignment:

1. The plumbness and alignment of the well shall be corrected by the Contractor at his own expense if:

a. The pipe or dummy fails to move freely throughout the length of the casing or hole to the top of the screen. (Requirement for alignment).

b. The well varies from the vertical in excess of two-thirds the inside diameter of that part of the well being testing per 100 feet of depth, or beyond limitations of this test. (Requirement for plumbness).

2. Should the Contractor fail to correct such faulty alignment of plumbness, the Owner may refuse to accept the well.

3. The Owner may waive the requirements of this paragraph for plumbness if all of the following apply:

a. The Contractor has exercised all possible care in constructing the well and the defect is due to circumstances beyond his control.

b. The utility of the completed well will not be materially affected.

c. The cost of remedial measures will be excessive.

4. In no event will be provisions of this paragraph with respect to alignment be waived.

3.08 PROTECTION OF QUALITY OF WATER:

A. The Contractor shall take such precautions as are necessary or as may be required permanently to prevent contaminated water or water having undesirable physical or chemical characteristics from entering, through the opening made by the Contractor in drilling the well, the stratum from which the well is to draw its supply.

B. The Contractor shall also take all necessary precautions during the construction period to prevent contaminated water, gasoline, etc., from entering the well either through the opening or by seepage through the ground surface.

3.09 CORRECTIVE WORK:

A. In the event that the well becomes contaminated or that water having undesirable physical or chemical characteristics does enter the well due to the neglect of the Contractor, he shall, at his own expense, perform such work or supply such casing, seals, sterilizing agents or other material as may be necessary to eliminate the contamination or stop the flow of the undesirable water.

3.10 PROTECTION OF WELL AND TEMPORARY CAPPING:

A. At all times during the progress of the work, the Contractor shall protect the well in such manner as effective to prevent either tampering with the well or the entrance of foreign matter into it.

B. The well casing shall extend a minimum of 12 inches above existing grade, or such increased height as necessary to prevent the entrance of surface water.

C. Upon suspension of the work for any reason, the Contractor shall provide and set a substantial screwed, flanged or welded cap satisfactory to the Engineer on the well which shall remain in place until the permanent equipment and structure is completed or the well is abandoned.

* * * END OF SECTION * * *

SECTION 02674

TEST FOR YIELD AND DRAWDOWN

PART 1 - GENERAL

1.01 SCOPE:

A. The GENERAL, SUPPLEMENTAL and other CONDITIONS of the Contract and the GENERAL REQUIREMENTS (Division 1) are hereby made part of this Section.

B. This section describes the materials, equipment and methods to be used in conducting well pumping tests for yield and drawdown.

1.02 PAYMENT:

A. Payment shall be at the Contract unit prices and lump sum prices as shown on the Bid Schedule.

PART 2 - PRODUCTS - NOT USED.

PART 3 - EXECUTION

3.01 SCOPE:

A. The Contractor shall furnish all labor, materials, equipment and appurtenant items required to conduct and complete the pumping test described herein for each production well.

3.02 GENERAL:

A. The pumping test on each production well will consist of a maximum 24-hour drawdown test followed by a maximum 12-hour recovery observation period, with drawdown observations made in accordance with the schedule set out herein.

B. The Contractor shall notify the Engineer after the well has been completely constructed, developed and cleaned out and the depth of the well accurately measured, and shall make the necessary arrangements for conducting the pumping test.

C. In addition to this test the Engineer may order the Contractor to make additional pumping tests if the test pump fails within the test period or the Contractor neglects to perform proper observations. No payment will be made for the failed test.

D. All tests shall be run with similar equipment and in a like manner to that hereinafter described. Tests shall be made at least 3 days apart. Additional tests requested by the Engineer because of pump failure during the test period, or due to Contractor negligence, will be at the Contractor's expense.

E. If conditions are encountered during the test period which indicate that additional data are required, the Engineer may direct that the test pumping continue for a longer period than initially indicated, however the Contractor shall not be required to repeat the test if the pump fails or for other good cause must be shut down after the initially indicated period. A corresponding addition to recovery reading time may also be made. Such extensions of the test pumping and recovery periods shall be made with no change in the unit hourly cost.

3.03 TEST PUMP:

A. The Contractor shall furnish and install necessary pumping equipment required for pumping of the well.

B. The pump shall be capable of pumping to the required point of discharge at least 600 gallons per minute, but with satisfactory throttling devices so that the discharge may be reduced to 400 gallons per minute if so directed by the Engineer. The pumping rate(s) shall be determined by the Engineer prior to calibrating the test equipment.

C. The pumping unit shall be complete with prime mover of ample power, controls and appurtenances including all drives, gears and universal shafts and shall be capable of being operated without interruption and at a uniform rate throughout the test.

3.04 AUXILIARY EQUIPMENT:

A. Temporary discharge piping to a point of discharge as approved by the Owner.

1. Furnish and install pipe of sufficient size for the pumping rate used.

2. Discharged water shall not be allowed to pond on or near the site of the well.

B. Furnish and install flow measuring devices approved by the Engineer for accurately measuring the flow of water.

1. Orifice.

2. Calibrated, properly sized water meter.

3. Weir box.

C. Furnish and install flow control devices.

1. Throttling valve(s) capable of maintaining a constant flow rate.

2. Variation on power source rpm is not approved.

D. Water level measurement:

1. Contractor shall furnish two (2) water level sounding devices capable of indicating drawdown to the nearest 1/8 inch or 0.01 foot in the production well and observation wells.

2. Air lines shall not be used to determine water levels.

3.05 CONSTANT-RATE PUMPING AND RECOVERY TESTS:

A. The Contractor shall calibrate his test pump so that he knows precisely the rate of flow to be expected throughout the duration of the pumping test. This flow rate shall be held absolutely constant throughout the entire test pumping period.

B. The Contractor shall furnish sufficient competent personnel to make the necessary observations. The water level in the well and the designated observation wells shall be recorded immediately prior to the start of the pumping test. The schedule of observations shall be as shown below:

(During Pumping and Recovery Period)

Each 1 minute for first 10 minutes.
Each 2 minutes for next 10 minutes.
Each 5 minutes for next 40 minutes.
Each 30 minutes for next 4 hours.
Each 60 minutes for next 19 hours.
Each 6 hours for remainder of test or as directed by the Engineer.

C. Upon completion of the pumping period the test pump will be stopped and drawdown recovery shall be recorded according to the above schedule.

D. Each observer shall initial and record the time of each observation, drawdown at said time, and the flow rate on an approved log sheet. In addition to drawdown and recovery readings, the Contractor shall also record the following regarding the test:

1. Type of pump used in the test.

2. Rated horsepower and capacity.

3. Dimensional data as to pump setting, and location of intake with respect to ground level.

4. Distance from well to observation wells.

The original copy of each log sheet shall be delivered to the Engineer upon completion of each test. Copies shall be retained by the Contractor.

3.06 REMOVAL OF TEST EQUIPMENT:

A. Upon instructions received from the Engineer that the pumping test has been satisfactorily completed, the Contractor shall immediately proceed to remove any and all equipment furnished by him for the pumping test.

B. The Contractor shall remove by bailing, pumping, or other approved methods any sand, stones, or foreign material that may have become deposited in the well.

* * * END OF SECTION * * *

SECTION 02675

DISINFECTION AND ABANDONMENT

PART 1 - GENERAL

1.01 SCOPE:

A. The GENERAL, SUPPLEMENTAL and other CONDITIONS of the Contract and the GENERAL REQUIREMENTS (Division 1) are hereby made part of this Section.

B. This Section includes all labor, materials, tools, equipment and related services necessary to disinfect and or abandon observation wells and production wells.

C. Related requirements specified elsewhere:

1. Production Wells: Section 02672.

1.02 PAYMENT:

A. Payment shall be at the Contract unit prices and lump sum prices as shown on the Bid Schedule.

PART 2 - PRODUCTS

A. Disinfecting Agents:

1. Calcium Hypochlorite- 70 percent chlorine.

2. Liquid Sodium Hypochlorite - 12 percent chlorine.

3. Purex, Clorox, etc. - 5.25 percent chlorine.

PART 3 - EXECUTION

3.01 TIME OF DISINFECTION:

A. After each observation and production well has been completely constructed, it shall be thoroughly cleaned of all foreign substances, including tools, timbers, rope, debris of any kind, cement, oil, grease, joint dope and scum.

B. The casing pipe shall be thoroughly swabbed, using alkalies if necessary, to remove oil, grease, or joint dope.

C. The well shall then be disinfected with a chlorine solution.

D. Disinfection procedures are to be conducted for both the observation wells and the production wells.

3.02 CHLORINE SOLUTION:

A. The chlorine solution used for disinfecting the well shall be of such volume and strength and shall be so applied that a concentration of at least 200 ppm of chlorine shall be obtained in all parts of the well.

1. Chlorine Compound Required to Dose 100 Feet of Water-Filled Well at 200 ppm

		Chlorine Compounds	
Nominal Casing diameter (inches)	Approx. Volume 100 ft. (gals)	70% HTH Perchloron, etc. (dry weight)*	5.25% Purex Clorox, etc. (liquid measure)
2	16	1 oz	8 ozs
4	65	4 ozs	2-1/4 pts
6	146	8 ozs	5 pts
8	261	12 ozs	8-1/2 pts
10	408	1 lb	1-3/4 gals
12	587	1-1/2 lbs	2-1/2 gals
16	1,044	2-1/2 lbs	4 gals
20	1,632	4 lbs	6-2/3 gals
24	2,350	6 lbs	9-1/3 gals

Note: Liquid sodium hypochlorite in a 12 percent solution is often sold for water and wastewater treatment plant use, as a commercial bleach, or for use with swimming pools. Utilizing a solution of this nature would call for a liquid measure equal to one-half the volumes for 5.25% Purex, Clorox, etc.

*Where a dry chemical is used, it shall be mixed with water to form a chlorine solution prior to placing it into the well, especially when introduced into PVC casings.

B. Chlorine solution shall be prepared and applied in accordance with the directions of, and to the satisfaction of, the Engineer, and shall remain in the production well for a minimum of 24 hours prior to removal by pumping. The chlorine solution need not be removed from observation wells.

C. After the above specified chlorination the Contractor shall obtain bacteriological samples from the production wells for analysis. If satisfactory results are not obtained the Contractor will immediately re-chlorinate the well at his own expense and obtain additional bacteriological tests until satisfactory results are obtained.

3.03 REQUIREMENTS FOR DISINFECTION OF PUMPING EQUIPMENT:

A. In the event that the test pump is to be installed after the well has been disinfected, all interior and exterior parts of the pump and discharge piping coming in contact with the water shall be thoroughly washed with a 10 percent chlorine solution using methods to be approved by the Engineer.

3.04 WELL ABANDONMENT:

A. In the event that the Contractor fails to sink the well to the depth specified or to such depth as ordered by the Engineer, or should he abandon the well because of loss of tools, negligence, or for any other cause, he shall, if required and as directed by the Owner, and at his own expense, fill the abandoned hole and remove any casing and materials installed therein. Salvaged material furnished by the Contractor shall remain his property.

3.05 PERMANENT ABANDONMENT OF WELLS:

A. A well that is to be permanently abandoned shall be filled to prevent contaminating materials from entering the water-bearing ground formations. Concrete or cement grout shall be used for sealing material; however, if the well is so large that the use of these materials is not practical, the filling materials should be selected so as to restore natural conditions as nearly as possible. Sand and heavy drilling fluid with 0.50 lb. of calcium hypochlorite per cubic yard may be used in sand and gravel sections of wells.

B. All materials, debris and obstructions that may interfere with sealing operations shall be removed from the well. Liner pipe shall be removed or perforated when necessary to assure placement of an effective seal. The State agency which regulates well

construction will be consulted for instruction in case of abandonment of a contaminated well or where there is a question of proper procedure.

C. All casing and screen may be salvaged except casing that has been cemented in place. The well shall be filled with appropriate sealing materials.

D. The top of the hole shall be filled with 10 feet of concrete grout to within 2 feet of the land surface. Casing remaining in the hole shall be cut off at least 2 feet below land surface. The remaining top 2 feet of hole shall be filled with native top soil.

E. An abandoned well shall be filled and sealed by one of the following methods in accordance with the materials penetrated, in such a manner as to prevent it from acting as a channel for pollution:

1. A well in unconsolidated deposits shall be filled with clean sand and puddled clay or concrete grout to provide a permeability no greater than the natural condition. In screened sections of the well, 0.50 lb. of calcium hypochlorite per cubic yard of fill material shall be applied.

2. The section of a well in a cavernous or creviced rock (such as cavernous limestone or basalt lava crack, creviced granite, etc.) shall be filled with concrete grout or alternate layers of concrete grout, gravel or stone aggregate. The filling shall be completed at the top by a layer of cement grout extending at least ten feet (10 ft.) into the above overlying formation.

3. When concrete grout, puddled clay or heavy drilling fluid is used for sealing an abandoned well, it shall be inserted in the well through a grout pipe from the bottom of the well upward to the surface under pressure and in one continuous operation.

4. Test wells shall be sealed to prevent the well from being a channel for the vertical movement of water and a source of contamination to the groundwater supply.

F. The construction details of existing Well No. 3, which is to be abandoned, are indicated on the well log in the Appendix.

3.06 CLEANUP:

A. The Contractor shall fill and level the mud pits and shall remove all debris and leave the site in a clean condition satisfactory to the Owner.

B. Upon completion of the Work, the site shall be restored as nearly as possible to its original condition, including the replacement, at the Contractor's sole expense, of any facility or landscaping which has been damaged beyond restoration.

* * * END OF SECTION * * *

DIVISION 11 - EQUIPMENT

SECTION 11932

SUBMERSIBLE TURBINE PUMPS AND MOTORS

PART 1 - GENERAL

1.01 SCOPE:

A. The GENERAL, SUPPLEMENTAL and other CONDITIONS of the Contract and the GENERAL REQUIREMENTS (Division 1) are hereby made part of this Section.

B. This Section includes all labor, materials, tools, equipment and related services necessary to furnish and install the submersible turbine pumps and motors as specified herein and as shown on the Drawings.

1.02 SUBMITTALS:

A. Substitutes to named manufacturer:

1. Submit complete substitute information, including dimensions, descriptive data, and performance data, to Engineer at least ten (10) days prior to bid letting for approval.

2. Contractor shall assume overall undivided responsibility for the functioning of the substitute equipment, including the cost of any changes in connections, appurtenances or structures necessitated by the substitution.

B. Shop Drawings:

1. Dimensions.

2. Descriptive data.

3. Performance data.

4. Installation instructions.

1.03 PRODUCT DELIVERY, STORAGE AND HANDLING:

A. Deliver equipment in manufacturer's original, unopened packaging.

B. Cover and store equipment indoors to prevent damage.

C. Handle so as to prevent damage during storage and installation.

1.04 PAYMENT:

A. Payment shall be at the Contract unit prices and lump sum prices as shown on the Bid Schedule.

PART 2 - PRODUCTS

2.01 GENERAL REQUIREMENTS:

A. Pump specified or noted as submersible turbine shall be vertical, centrifugal, multiple stage turbine type with submersible electric motors.

1. Pump shall be furnished and installed with all accessories necessary for a complete, operating unit.

2. Pump motor shall be furnished and installed with the pump.

3. Driving motor shall be mounted below the pump bowl assembly.

B. Each unit shall have manufacturer's name, address and catalog or model number permanently marked and readily visible.

2.02 PUMP AND MOTOR CONSTRUCTION FEATURES:

A. Conventional Pump Construction:

1. Pump Bowls:

a. Close grained cast iron, ASTM A48, Class 30.

b. Porcelain enamel coated.

c. Threaded or bolted connections.

d. Replaceable bronze wear rings.

2. Impellers:

a. Enclosed type.

b. Bronze, ASTM B584, alloy 836.

c. Accurately cast, machined, balanced and filed for optimum performance and minimum vibration.

d. Securely fastened to shaft with stainless steel taper collets or lock bushings.

3. Shaft:

a. Pump shaft.

(1) High chrome stainless steel.

(2) Rigidly support impellers between bowl bearings.

(3) Diameter sufficient to transmit maximum pump horsepower with liberal safety factor.

b. Pump shaft bearings:

(1) SAE 660 bronze, above and below each impeller.

(2) Suction bearing and top discharge case bearing shall be permanently grease packed.

4. Pump Suction:

a. Net inlet area minimum of five times the impeller inlet area.

b. Screened for maximum opening not more than 75 percent of the minimum opening of the passages through the bowl and impellers opening.

B. Motor Construction:

1. Vertical submersible, squirrel cage motor, designed for continuous operation.

a. Copper windings.

b. 1.15 service factor.

c. Power characteristics as specified and shown on the Drawings.

2. Normal starting torque and low starting current for across-the-line starting.

3. The motor shall not be loaded in excess of nameplate rating at any condition of operation from zero flow to maximum pump capacity.

a. See pump schedule for maximum horsepower requirements.

4. Water filled with seal to restrict foreign matter from motor.

5. Thrust bearing as integral part of motor.

   a. Adequate capacity to carry the weight of all rotating parts plus the hydraulic thrust under all flow conditions from zero flow to maximum capacity.

6. Jacketed submersible cable:

   a. Provide synthetic rubber or plastic insulation suitable for continuous immersion in water around each conductor with a full synthetic rubber or plastic jacket around all three conductors.

   b. Conductor shall be copper, No. 6 AWG.

   c. Protect cable with a steel guard plate where cable passes pump bowls.

   d. Fasten cable to pump column with stainless steel straps not more than 5 feet apart. Use rubber cable protectors at each strap.

C. A PVC flow inducer sleeve shall be provided on the existing pump and motor (on the new pump and motor under the Alternative Bid Item) to assure proper motor cooling. Use stainless steel mounting hardware.

D. Accessories:

1. Motor Coupling:

   a. Coupling connecting the motor to the pump bowl assembly shall be of sufficient size and strength to withstand maximum torque generated by the motor plus added safety factor.

   b. Coupling shall be of 410 stainless steel and keyed to the pump shaft.

   c. There shall be incorporated in the pumping unit a positive protection for momentary upthrust.

2. Drop Pipe:

   a. Furnish in random lengths connected by threaded sleeve couplings. Maximum section lengths shall not exceed twenty (20) feet.

b. The weight of the pipe shall be no less than stated in ASA Specification B58.1, Section B416.

c. ASA standard tapered pipe threads.

d. 6-inch diameter.

3. Air Line:

a. Furnish and install new 1/4 inch diameter polyethylene air line from altitude gauge on pitless adapter to top of pump intake.

b. Securely fasten air line to drop pipe with stainless steel clamps not more than 10 feet on center.

c. Protect line with a suitable guard plate where line passes pump bowls.

4. Chemical Application/Water Level Stilling Tube:

a. Furnish and install new 1-inch diameter polyethylene line from pitless adapter vent to top of pump intake to accomplish periodic chemical treatment and/or water level measurement with an electronic sensing device. Line shall be installed without bends or fittings which would restrict passage of the sensing line.

b. Securely fasten stilling tube to drop pipe with stainless steel clamps not more than 5 feet on center.

c. Protect stilling tube with a suitable guard plate where tube passes pump bowls.

2.03 PUMP CHARACTERISTICS:

A. Specified pump performance characteristics have been selected to match pumps to all anticipated conditions of flow.

1. Pumps shall meet all specified primary and secondary performance requirements.

2. Pumps shall be capable of continuous operation without damage at all specified primary and secondary flow rates.

3. Performance specified is catalog performance at the pump bowl.

a. Flow rate is specified in units of U.S. gallons per minute (gpm).

b. Total dynamic head (head) is specified in units of feet of water (ft.), specific gravity 1.0.

c. Efficiency is pump bowl catalog efficiency, corrected for the impeller trim and number of stages.

B. Performance Characteristics and Dimensions:

1. Pump:

		Flow Rate, gpm	Head, ft.	Minimum Acceptable Efficiency
a.	Primary	400	192	78
b.	Secondary	450	172	76

c. Maximum acceptable shut-off head 260 feet.

d. Maximum operating speed 3,500 rpm.

e. Franklin submersible motor, 30 horsepower.

f. Motor electrical power - 3/60/480.

g. Well casing diameter - 12-inch.

h. Drop pipe diameter - 6-inch.

i. Intake setting depth will be adjusted as necessary after the replacement well is completed.

j. Acceptable manufacturers:

(1) Layne 8PRHC, 2 stage.

PART 3 - EXECUTION

3.01 INSTALLATION:

A. Install as shown on the Drawings and as per manufacturer's instructions.

B. Check pitless adapter spool and piping for alignment.

3.02 TEST AND ADJUST:

A. The Contractor shall furnish the services of a qualified manufacturer's representative to check equipment, supervise initial operation, observe equipment testing, and instruct Owner in operation and maintenance.

B. The Resident Project Representative or Engineer will test equipment to verify operation within the specified performance characteristics.

1. The Contractor shall repair or replace equipment which does not meet performance specifications.

* * * END OF SECTION * * *

DIVISION 15 - MECHANICAL

SECTION 15042

TESTING AND DISINFECTION

PART 1 - GENERAL

1.01 SCOPE:

A. The GENERAL, SUPPLEMENTAL and other CONDITIONS of the Contract and the GENERAL REQUIREMENTS (Division 1) are hereby made part of this Section.

B. This Section includes all labor, materials, equipment and related services necessary to complete filling, flushing, pressure testing and disinfecting of the installed pipe, fittings, appurtenances, and equipment.

1.02 SUBMITTALS:

A. Prior to filling, flushing, testing and disinfecting the system, the proposed procedures shall be submitted for review and acceptance by the Engineer.

B. Copies of all bacteriological test reports shall be furnished to the Engineer.

1.03 PAYMENT:

A. The requirements of this Section are considered incidental to the Work with no separate measurement or payment to be made.

PART 2 - PRODUCTS

2.01 MATERIALS:

A. The Contractor shall furnish all materials and apparatus required to conduct:

1. Filling and flushing:

2. Pressure testing.

3. Disinfecting.

PART 3 - EXECUTION

3.01 FILLING AND FLUSHING:

A. The Contractor's responsibility includes flushing to the extent that all deleterious materials are removed.

1. Pipe interior, fittings, valves and equipment shall be protected against contamination during delivery, storage and installation.

2. New lines and equipment shall be flushed thoroughly prior to disinfection until all traces of construction materials and soil or other foreign matter have been removed.

B. Damages caused by water-carried deleterious materials to other facilities shall be the responsibility of the Contractor.

3.02 TESTING:

A. All pressure pipelines shall be tested with water and proven watertight under a hydrostatic pressure of 150 psi for two (2) hours.

B. All gravity lines (less than 20 psi maximum operating pressure) shall be tested with water and proven watertight under a hydrostatic pressure of 50 psi for two (2) hours.

C. No loss of pressure during the test period, after isolation of the test section, will be allowed.

D. Any pipe section not meeting these test requirements shall be repaired and retested until the test requirements are met.

E. Backfill buried pipe and provide temporary thrust blocking prior to testing if necessary to prevent separation of joints.

F. Isolate control panel and other equipment which may be damaged by test pressure prior to the test.

G. Install test caps (Clow F-1175), plugs, or other fittings as appropriate on open-ended lines as required to pressure test each line.

3.03 DISINFECTION:

A. Flush thoroughly after pressure testing and, if applicable, backfilling.

B. Disinfect by injecting a solution of chlorinated lime and water at a slow rate.

1. Conform to AWWA C601.

2. Retain solution in lines for 24 hours.

3. Minimum residual after 24 hours shall be 20 parts per million.

C. Thoroughly flush all lines until residual chlorine at any point is not over one (1) part per million.

D. After final flushing, and before the piping system is placed in service, a sample shall be collected from the end of the line and tested for bacteriologic quality and shall show the absence of coliform organisms.

1. Testing laboratory shall be State approved for performing such tests.

2. Sample collection shall be in a manner as prescribed by and shall use sample bottles provided by the testing laboratory.

3. Submit laboratory results to Engineer and Owner.

E. If the initial disinfection fails to produce satisfactory samples, disinfection shall be repeated until satisfactory samples have been obtained.

* * * END OF SECTION * * *

SECTION 15064

PVC PIPE

PART 1 - GENERAL

1.01 SCOPE:

A. The GENERAL, SUPPLEMENTAL and other CONDITIONS of the Contract and the GENERAL REQUIREMENTS (Division 1) are hereby made part of this Section.

B. This Section includes all labor, materials, equipment and related services necessary to complete installation of PVC (polyvinyl chloride) pipe.

C. Related requirements specified elsewhere:

1. Testing and Disinfection: Section 15042.

1.02 SUBMITTALS:

A. Provide manufacturer's certificate that materials meet or exceed requirements as specified.

B. Manufacturer's installation recommendations.

C. Manufacturer's gasket lubricant recommendations.

1.03 PRODUCT DELIVERY, STORAGE AND HANDLING:

A. Exercise care in transporting and handling to avoid damage to pipe and fittings.

1. Pipe ends shall be covered during delivery from the manufacturer to the job site.

2. Do not drop pipe or fittings.

3. Do not store materials directly on the ground.

B. Assure that materials are kept clean and dry.

1. Keep inside of pipes and fittings free of dirt and debris.

1.04 PAYMENT:

A. The requirements of this Section are considered incidental to the Work with no separate measurement and payment to be made.

PART 2 - PRODUCTS

2.01 PIPE:

A. General:

1. The pipe shall be precision extruded from new polyvinyl chloride material and shall be homogeneous throughout and free from cracks, holes, foreign inclusions or other defects. The pipe shall be extruded in strict accordance with the raw material manufacturer's recommendations and specifications.

2. Pipe shall be marked to indicate nominal pipe size, material code designation, standard dimension ratio, pressure rating, manufacturer's name or trademark, National Sanitation Foundation seal and appropriate ASTM or AWWA designation numbers.

3. The PVC pipe shall be supplied in standard laying lengths of 20 feet.

4. Rubber gasketing shall conform to ASTM D1869.

B. Standard dimension ratio (SDR) PVC:

1. Conform to the latest revisions of ASTM D2241.

2. Rubber gasketing shall conform to ASTM 1869.

3. Fittings shall conform to the requirements of ASTM D2241.

4. Joints shall conform to the requirements of ASTM D2564, D2672, D3036 or D3139.

2.02 JOINTS:

A. Use gasket joints:

1. Joints shall be Johns-Manville's Ring Tile, or equal.

2. Joints shall have a minimum pressure rating equal to that of the pipe, and the integral bell shall be at least as strong as the pipe wall.

3. All bells shall have a seating depth of at least six (6) inches.

4. The male ends of the pipe shall be beveled at the factory for ease of entry into the bell and shall have a ring painted around the end in such a manner as to allow field checking of the setting depth of pipe in the socket.

PART 3 - EXECUTION

3.01 INSPECTION:

A. Examine areas to receive piping for:

1. Defects that adversely affect execution and quality of work.

2. Deviations beyond allowable tolerances for piping clearances.

B. Start work only when conditions are corrected satisfactorily.

3.02 INSTALLATION:

A. Workmanship:

1. Examine pipe and fittings before installation and assure no defective materials are incorporated.

2. Keep inside of pipes and fittings free of dirt and debris.

3. Cut pipe in a neat workmanlike manner without damage to pipe.

a. Ends shall be beveled using a beveling tool approved by the pipe manufacturer.

b. Use a factory-finished beveled end as a guide.

B. Placement:

1. Placement and joint installation in accordance with manufacturer's recommendations.

2. The pipe shall not be dragged in such a manner as to scratch the pipe surface; an excessive amount of scratching or any deep scratches shall be cause for rejection of the pipe.

3. The bottom of the trench shall be free from rocks, clods, or other sharp-edged objects.

4. Each section of pipe in the trench shall rest upon the pipe bed for the full length of its barrel.

5. The subgrade upon which the pipe is placed shall consist of materials suitable for supporting the pipe without excessive settlement or stress development.

6. Lay pipe with minimum earth cover as specified.

7. At times when pipe laying is not in progress, the open ends of the pipe shall be closed by a watertight plug or other suitable means to prevent the entry of foreign materials.

   a. This stipulation shall apply during noon hour as well as overnight.

   b. If water is in the trench, the seal shall remain in place until the trench is pumped dry.

8. All valves and necessary fittings shall be installed with the pipe in a continuous operation.

* * * END OF SECTION * * *

SECTION 15090

THRUST BLOCKS

PART 1 - GENERAL

1.01 SCOPE:

A. The GENERAL, SUPPLEMENTAL and other CONDITIONS of the Contract and the GENERAL REQUIREMENTS (Division 1) are hereby made part of this Section.

B. Work under this Section includes furnishing and installing thrust blocks at all points where the pipe changes direction including but not limited to the following:

1. Tees.

2. Elbows.

3. Valves.

4. Hydrants.

5. Cleanouts.

6. Deadends.

C. Related requirements specified elsewhere:

1. Anchors: Section 15091.

2. Standard Drawings.

1.02 PAYMENT:

A. Thrust blocks are considered incidental Work with no separate measurement and payment to be made.

PART 2 - PRODUCTS

2.01 PRODUCTS:

A. Cast-in-place concrete composed of one part cement, two parts washed sand, and five parts gravel.

PART 3 - EXECUTION

3.01 INSTALLATION:

A. The thrust blocks shall be placed so that the bearing surface is in direct line with the major force created by the pipe or fitting.

1. The earth bearing surface shall be undisturbed.

2. If the character of the soil is such that adequate bearing may not be obtained, thrust restraint rods shall be used.

B. Cast-in-place thrust blocking shall consist of pouring concrete between the fitting and the trench wall using simple forms.

C. With high bearing strength soil use minimum bearing area of cast-in-place thrust blocks shown in standard drawings, against undisturbed or thoroughly compacted trench wall. Additional blocking or over excavation and backfill with compacted granular materials may be required in soil of low bearing strength.

* * * END OF SECTION * * *

SECTION 15091

ANCHORS

PART 1 - GENERAL

1.01 SCOPE:

A. The GENERAL, SUPPLEMENTAL and other CONDITIONS of the Contract and the GENERAL REQUIREMENTS (Division 1) are hereby made part of this Section.

B. Work under this Section includes furnishing and installing anchors where necessary.

C. Related requirements specified elsewhere:

1. Thrust Blocks: Section 15090.

1.02 PAYMENT:

A. Anchors are considered incidental Work with no separate measurement and payment to be made.

PART 2 - PRODUCTS

2.01 ANCHORS:

A. As supplied by:

1. DIP - Star National Products or approved equal.

2. PVC - UNI Flange Corporation or approved equal.

B. Size shall be per manufacturer's recommendations.

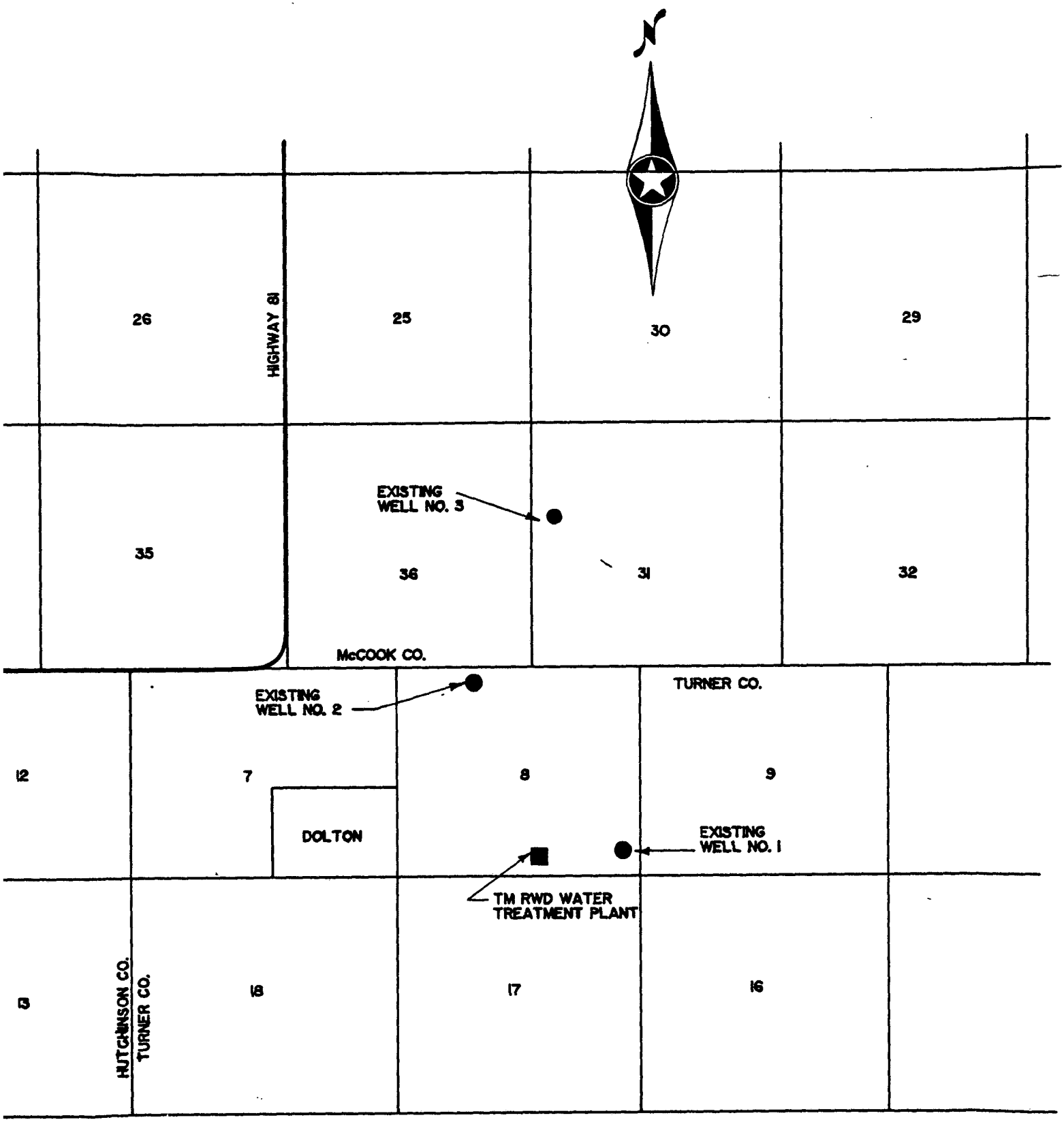
PART 3 - EXECUTION

3.01 INSTALLATION:

A. Where necessary or as shown on the Drawings, anchors shall be installed per the manufacturer's recommendations.

* * * END OF SECTION * * *

DRAWINGS



PROJECT LOCATION

SHEET NO. 1

DGR

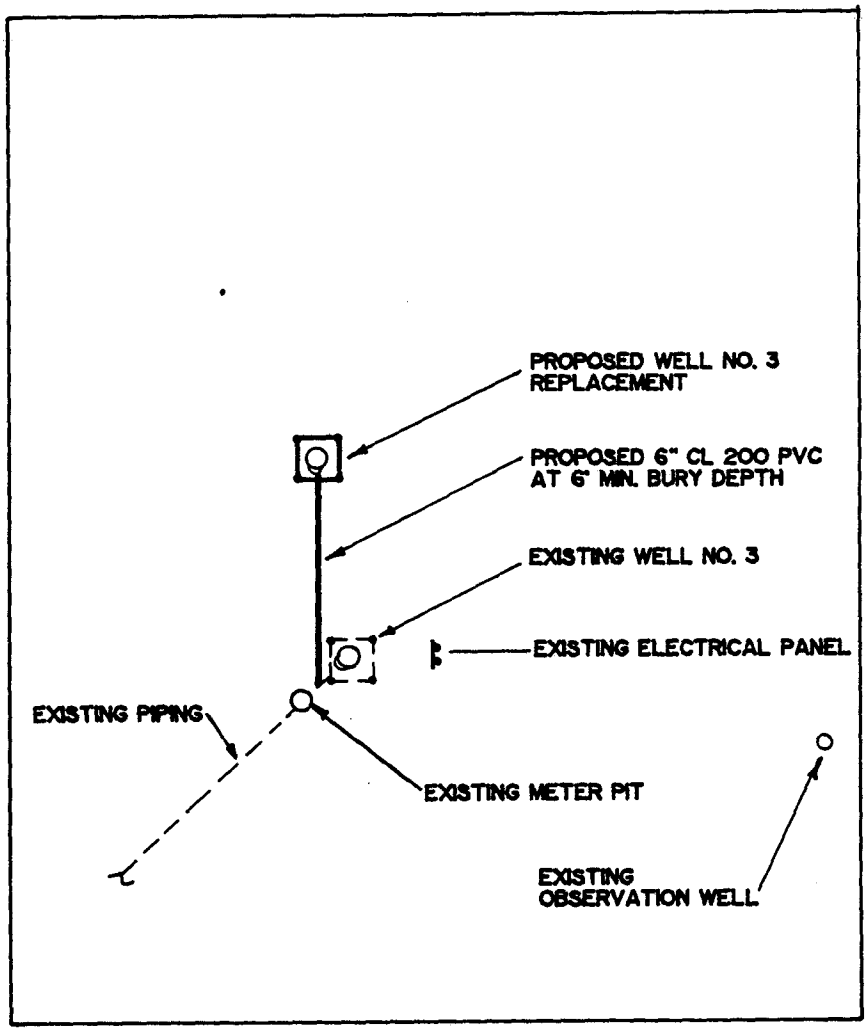
DeWild Grant Reckert & Associates Co.
Rock Rapids, Iowa
Sioux Falls, South Dakota

Date 9/88
Drawn By DC
Approved GJP
Revised

PROJ. NO. 36219

WELL NO. 3 REPLACEMENT

TM RURAL WATER DISTRICT



SCALE:
1" = 40'

NOTE:

CONTRACTOR SHALL CONNECT TO EXISTING 4" D.I.P. OUTSIDE METER PIT, INCREASE TO 6" CL 200 PVC, INSTALL 6" 45° BEND AND INSTALL APPROXIMATELY 50 FT. OF 6" CL 200 PVC TO RELOCATED PITLESS ADAPTER AT THE REPLACEMENT WELL. FURNISH AND INSTALL ALL PIPING, FITTINGS, AND ADAPTERS REQUIRED TO CONNECT THE REOCATED PITLESS ADAPTER TO THE METER PIT.

SITE PLAN

SHEET NO. 2

DeWild Grant Reckert & Associates Co.
Rock Rapids, Iowa
Sioux Falls, South Dakota

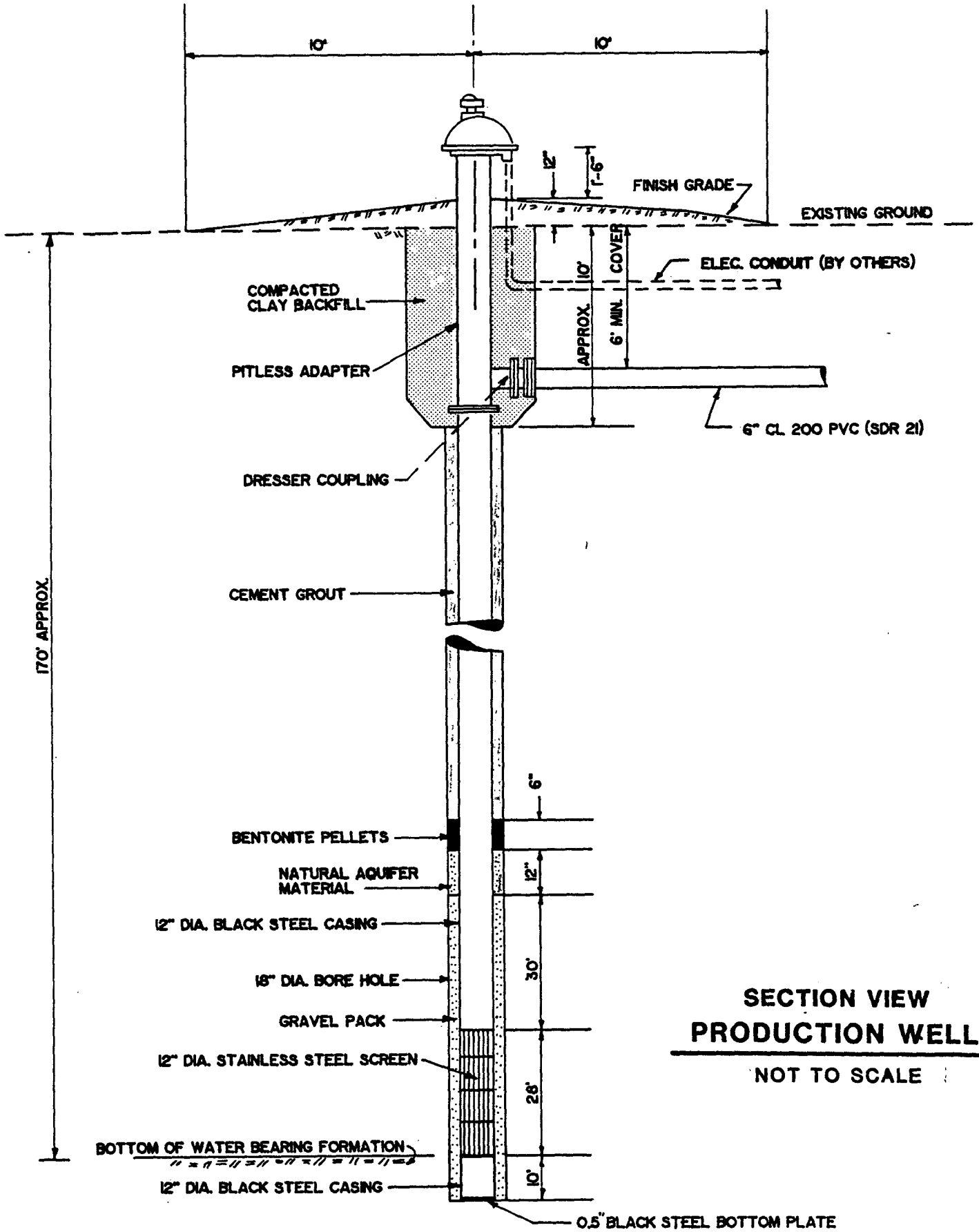
Date 9/88
Drawn By DC
Approved GJP
Revised

PROJ. NO. 36219

WELL NO. 3 REPLACEMENT

TM RURAL WATER DISTRICT

513126



SECTION VIEW
PRODUCTION WELL

NOT TO SCALE

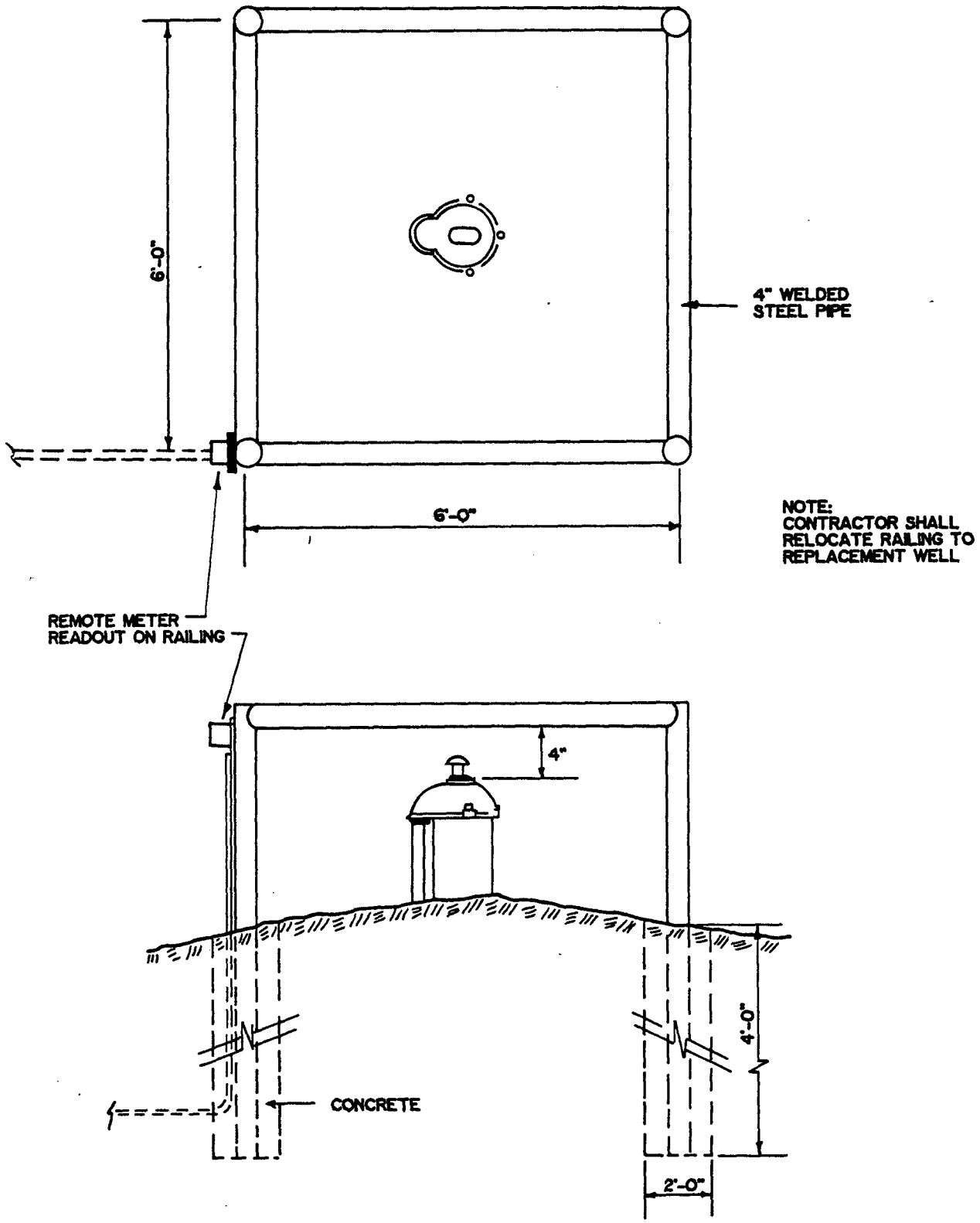
SHEET NO. 3

DeWild Grant Reckert & Associates Co.
Rock Rapids, Iowa
Sioux Falls, South Dakota

Date 9/88
Drawn By DC
Approved GJP
Revised
PROJ. NO. 36219

WELL NO. 3 REPLACEMENT

TM RURAL WATER DISTRICT



EXISTING PROTECTIVE WELL RAILING

SHEET NO. 4

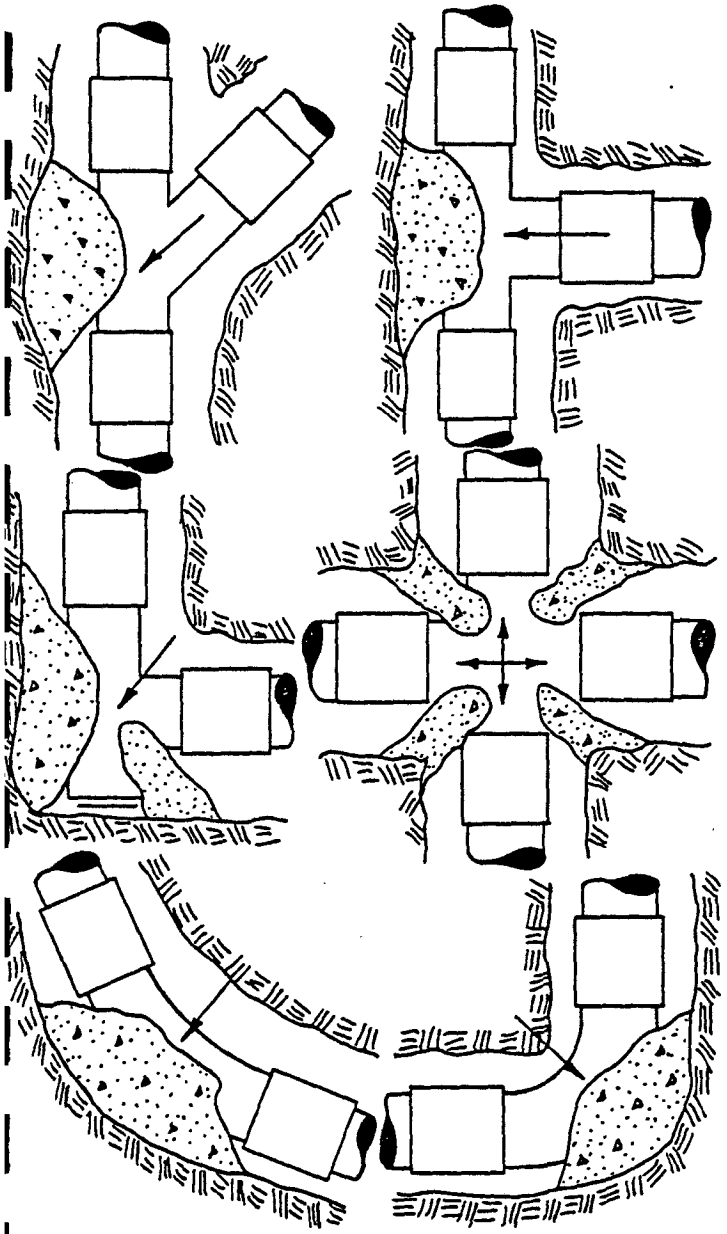
DeWild Grant Reckert & Associates Co.
Rock Rapids, Iowa
Sioux Falls, South Dakota

Date 9/88
Drawn By DC
Approved GJP
Revised

PROJ. NO. 36219

WELL NO. 3 REPLACEMENT

TM RURAL WATER DISTRICT



NOTES:

1. THRUST BLOCKING TO BE CAST-IN-PLACE OR PRECAST CONCRETE OF MINIMUM STRENGTH 2000 PSI.

2. LOCATE AS SHOWN IN DRAWINGS AT LEFT WITH A MINIMUM BEARING AREA AGAINST UNDISTURBED SOIL AS SHOWN IN TABLE BELOW.

MINIMUM AREA AGAINST UNDISTURBED SOIL				
PIPE SIZE	DEAD END OR TEE	90° ELBOW	45° ELBOW	22-1/2° ELBOW
2"	1	2	1	1
2-1/2"	2	2	1	1
3"	2	3	2	1
3-1/2"	3	4	2	1
4"	4	5	3	2
5"	5	7	4	2
6"	7	10	6	3
8"	12	17	10	5
10"	19	27	14	8
12"	27	38	21	11
	← IN SQUARE FEET →			

THRUST BLOCK DETAIL

NOT TO SCALE

SHEET NO. 5

DeWild Grant Reckert & Associates Co.
Denver, Colorado
Rock Rapids, Iowa
Sioux City, Iowa
Sioux Falls, South Dakota

Date 9/88
Drawn By
Approved GJP
Revised

PROJ. NO. 36219

WELL NO. 3 REPLACEMENT

TM RURAL WATER DISTRICT

APPENDIX

HURON DRILLING INC. DRILLERS LOG

PAGE NO.

rner-McCook Rural Water	NW¼-31-101-54-McCook Co.	7-3-84	12	Raymond Kuehl
JOB NAME	LOCATION	DATE	RIG NO.	FOREMAN

DEPTH	TIME	HOLE # 3-6	REMARKS 6" Drag Bit OBSERVATION HOLE
20		0-2	Topsoil
		2-14	Yellow Clay
		14-20	Blue Clay
40		20-40	Blue Clay
60		40-60	Blue Clay
80		60-80	Blue Clay, Gravel Streaks
100		80-100	Blue Clay, Gravel Streaks
120		100-120	Blue Clay, Gravel Streaks
140		120-136	Blue Clay, Gravel Streaks
		136-140	Sand
160		140-155	Good Sand
		155-160	Sand with some Clay
170		160-170	Good Sand

Cased Hole #3-4 to 170 feet with 5" Class 200, SDR-21 PVC Casing
30 feet 5" Plastic Slotted Class 200
140 feet 5" Plastic Blank Class 200
Gravel Packed with Bentonite Sealing Mixture
Static Water Level -69.3feet

OBSERV. TION HOLE
Hole #3-6
TH Rural Water
OWNER

WELL REPORT

McCook County
NW¼-31-101-54
DESCRIPTION

HURON DRILLING CO.
Huron, S. D.

July 3, 1984
DATE

CASING LOG

Depth 170 ft.
Flows gpm
Pumps 45-50 gpm
Head 69.3 ft.
30 ft. 5" PVC Slotted
Perforations @Bottom

170 ft. 5" Plastic Class 200 pipe to 170 ft.
ft. pipe to ft.
ft. pipe to ft.
ft. pipe to ft.
ft. pipe to ft.

Pressure
1 Day
Drilling Time
Rig No. 12
Jack Kuehk
Foreman

140-170 REMARKS
2,000 lbs. Gravel
6" Drag Bit

HURON DRILLING INC. DRILLERS LOG

PAGE NO.

Turner-McCook Rural Water JOB NAME	4-31-101-54- McCook Co. LOCATION	7-9-84 DATE	23 RIG NO.	Raymond Kuehl FOREMAN

REMARKS 22" HOLE - PRODUCTION WELL (No. 3)

Jt No.	DEPTH	TIME		
			Hole # 3-5	
1	20		0-10	Yellow Clay
			10-20	Yellow Clay
2	40		20-40	Blue Clay
3	60		40-50	Clay
			50-60	Gravel, Tuff to stand up
4	80		60-80	Mostly Clay
5	100		80-100	Mostly Clay
6	120		100-120	Mostly Clay
7	140		120-130	Mostly Clay
			130-140	Sand, Clay Mixed
8	160		140-146	Sand
			146-149	Clay
			149-160	Sand Medium
9	170		160-170	Sand

Cased Hole 3-5 to 170 feet with 12" Steel Casing .375 Wall, P.E.

142 feet 12" Steel Pipe, .375 Wall

28 feet 12" [illegible] 304, Stainless Steel Well Screen, No. 80 Slot with Stainless Steel Plate Bottom.

Well Gravel Packed using - Luther Maddox Gravel, Double AA

Cement Grouted Casing in Place, using 175 Bags Cement on 6 to 1 Mix.

Casing Record Log

14 feet - 12" [illegible], .304 Wall Stainless Steel Well Screen

14 feet - 12" [illegible], .304 Wall Stainless Steel Well Screen

26 feet - 12" P.E., .375 Wall Steel Casing

26 feet - 12" P.E., .375 Wall Steel Casing

26 feet - 12" P.E., .375 Wall Steel Casing

26 feet - 12" P.E., .375 Wall Steel Casing

26 feet - 12" P.E., .375 Wall Steel Casing

12 feet - 12" P.E., .375 Wall Steel Casing

PRODUCTION WELL

Hole #3-5

Turner-McCook Rural Water
OWNER

WELL REPORT

McCook County
4-31-101-54
DESCRIPTION

HURON DRILLING CO.
Huron, S. D.

July 9, 1984
DATE

CASING LOG

Depth	170 ft.	142	ft.	12".375 Blk.	pipe to	142	ft.
Flows	gpm	28	ft.	12".304 SS screen, 80 Slot	pipe to	170	ft.
Pumps	gpm		ft.		pipe to		ft.
Head	69.5 ft.		ft.		pipe to		ft.
28 ft. 12" [illegible] Screen, 80 Slot Bottom.	**Perforations**		ft.		pipe to		ft.

Pressure

4 Days
Drilling Time

Rig No. 23

Jack Kuehl
Foreman

142-170 **REMARKS**

175 Bags Cement - 6 to 1 Mix

10,000 lbs. Gravel

TM Rural Water District

P.O. Box 445, Parker, South Dakota 57053 • Phone (605) 297-3334

AUG 1991
DIVISION OF
WATER RIGHTS
Pierre, SD

8/23/91

Gale Selken
Department of Environment & Natural Resources
Division of Water Rights
523 East Capitol
Pierre, SD 57501

Dear Mr. Selken,

TM completed a 4" test well in the SW1/4SW1/4SW1/4SW1/4 Sec.25,T101N-R55W. The water quality is not great but it appears that we can blend it with our existing supply and still meet the current drinking water standards.

Based on the drilling logs and water quality we have decided to proceed in developing this source. We are prepared to advertise for bids for the construction and pumping of a 12" test well. This well will be located as shown on the enclosed plan.

A 72 hour test pumping is planned. We will notify SDGS of the date that is scheduled.

A copy of the specifications has been sent to the Department addressed to Ray Birchem.

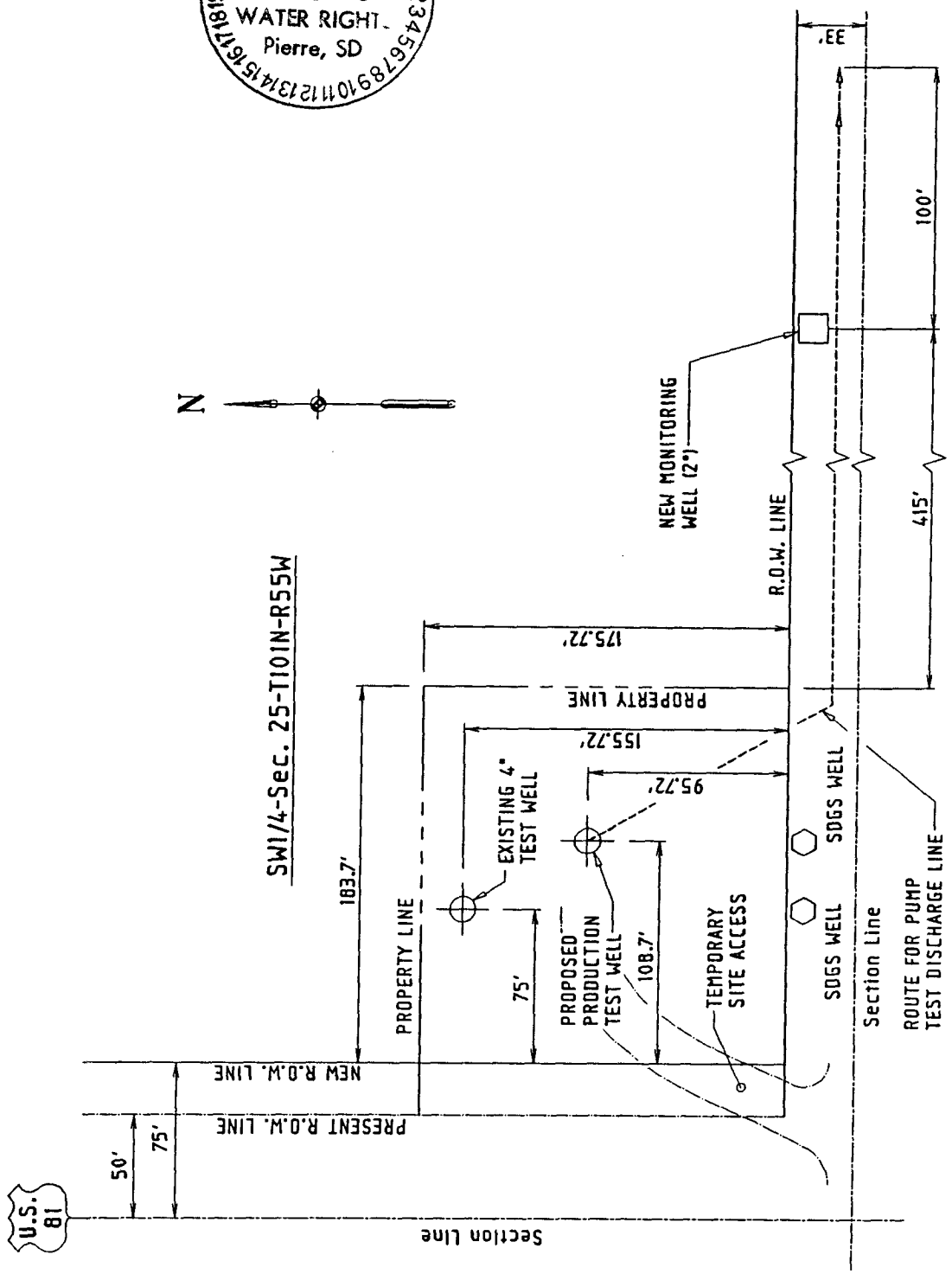
If you have any questions or need more information please contact me.

Sincerely,

Ken Pedersen
Manager

SELKEN.WPS

AUG 1991
DIVISION O:
WATER RIGHT
Pierre, SD



BANNER

BANNER ASSOCIATES, INC. • CONSULTING ENGINEERS & ARCHITECTS
409 22nd AVE. S. • P.O. BOX 298 - BROOKINGS, SD 57006-0298 • (605) 692-6342

SITE PLAN

FIGURE: C

Schlaak, Karen

From: Gronlund, Eric
Sent: Wednesday, May 14, 2003 10:51 AM
To: Erbele, Garland; Selken, Gale
Cc: Schlaak, Karen
Subject: TM Rural Water

I had a long discussion with Ken Pederson, Manager of the system. They currently have Banner & Associates doing a long term needs assessment. Ken inquired about our position on new appropriations from the Dolton Aquifer based on the fact that Hanson RWS's water rights were abandoned and cancelled since Hanson is now served by B-Y. They also have a water right and future use permit from another source but say that it is inferior quality to the Dolton. I said I was uncertain and I knew there was alot of past conflict surrounding the Dolton Aquifer. I know there were some unique conditions and a requirement for TM to look for alternate water sources back in the 1980's. I indicated that I'd like to sit down with Garland & Gale regarding this issue so we can give them some direction.

In the past, Hatch was hesistant (at best) to do anything with TM for fear it would stir the pot. We have not conducted the 7-year reviews of their future use permits and have another future use application on deferred status. With Hanson now not diverting from the Dolton they would like to know if there may be an opportunity for them to secure future use permits to meet increasing demand. Gale was the lead on this back in the 1980's as Jim had a conflict because his father-in-law serves on TM's Board.

They will also be filing for a request to construct a replacement well for a Dolton well that is failing. They plan to construct the new well approximately 25 feet from the old well. Karen, we can expect to see such a request in the next few days.

Also, TM serves the town of Davis. Ken wants to get Davis to agree to having the old town well plugged. I said we'd support that.

Mr. Pederson will be on vacation until June 10th. I said sometime in the interim we'd try to sit down and discuss this.

TM Rural Water District

Box 445, Parker, South Dakota 57053 • Phone (605) 297-3334 • Fax (605) 297-3310

RECEIVED
MAY 19 2003
WATER RIGHTS
PROGRAM

May 16, 2003

Water Rights Program
Joe Foss Building
523 E. Capitol
Pierre, SD 57501-3181

Dear Sirs:

This letter is to provide some information in addition to the permit application. The present well #2 of TM Rural Water District recently lost production and a replacement well is needed.

The existing well is about 19 years old and recently it was noted that the production rate was lower than it should be. The pump was pulled and the well was found to have filled with sand. An attempt to redevelop the well failed to reduce the sand production and failed to increase the production. The District's engineers, Dave Odens and Dennis Odens of Banner Associates of Brookings, have reviewed the situation; and the recommendations of the Thein Well Company and Banner have been reviewed, along with the needs of the District. From this, a decision was made to replace this well with a new one as soon as possible.

The new well is planned to be about 25' south of the existing well. Thein Well Company is planning to drill a test hole next week so the screen can be designed and ordered. Then as soon as the screen is delivered work will begin on the well. Once the new well is in place and the pump moved from the old to the new well, the old well would be plugged and abandoned.

The District's need for a dependable water source going into the peak periods of the year make it imperative that this project proceeds as quickly as possible.

If you have questions or need additional information, please contact Dave or Dennis Odens at Banner, or call my office.

Sincerely,

Ken Pedersen
Manager

SD EForm - 1585 V1
FORM 2: Application for uses other than irrigation
(type or print)

Mail to:	(office use only)
Water Rights Program Joe Foss Building 523 E. Capitol Pierre, SD 57501-3181 (605) 773-3352	No. _____ Hydrologic Unit _____ Basin _____ Newspaper _____

RECEIVED
MAY 19 2003
WATER RIGHTS PROGRAM

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

Check use(s) of water:

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

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

Description of amendment/correction: (i.e. change diversion point(s), add diversion point(s), change use, etc.)
Replacement well #2 Dolton aquifer well under permit #4988-3
No change is anticiapated in the withdrawal rate from aquifer due to this well replacement project

1. Name of Applicant TM Rural Water District Phone (605) 297-3334
(check one) ☑ Owner ☐ Tenant/lessee
Mailing Address Box 445 Parker State SD 57053
(Street, RR, or Box and City) (Zip Code)

2. Amount of water claimed _____ *CFS or _____ **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 Dolton aquifer

4. Location of point of diversion (example - 3 wells in SW1/4 NE1/4 section 12-T104N-R53W) County _____
Well #2 in in NE1/4 Section 8, T100N-R55W

5. County or counties where water will be used Turner, McCook, Minnehaha

6. Annual period during which water is to be used _____

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)
Install new well about 25 ft south of existing well, plug existing well

STATE OF SOUTH DAKOTA) SS
County of Turner)

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

I, Ken Pedersen, Manager TMRD, the applicant, certify that I have read this application, have examined the attached map and that the matters stated are true and that I intend, and am able to complete the necessary construction.

Applicant's signature Ken Pedersen

Subscribed and sworn to before me this 16 day of May 20 03

GAIL L. SCHOFFELMAN NOTARY PUBLIC SOUTH DAKOTA SEAL

Gail L. Schoffelman
Notary Public signature

4-2000

Form 2A **Supplemental Information**
(Complete applicable portions only)

(type or print in ink)

1. Well Information - Proposed Construction

a) Drill Hole Diameter 22" Depth 175'

b) Casing Type steel Diameter 16" Thickness 0.375"

c) Screen Type SS Diameter 16" Thickness 0.375"

d) Gravel Pack yes Length of Gravel Pack 35'

e) Depth to Top of Water Bearing Material ~140'

f) Depth to Water (ground surface to water level) ~97'

g) Distance to nearest existing domestic well:

On applicants property 25' On property owned by others

2. Wastewater Disposal System Information

a) Type of System (i.e. septic tank, drain field)

b) System Capacity (gallons) Year Constructed

c) Connected to the City of Sanitary System

3. Dugout Information

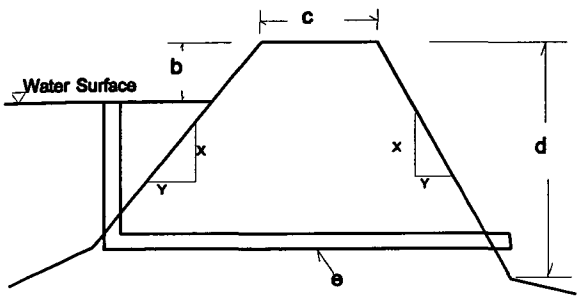
a) Surface Dimensions Depth

b) Depth to water (ground surface to water level)

4. Water Storage Dams

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

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



b) Freeboard

c) Crest Width

Crest Length

d) Height

e) Primary Outlet Capacity

If pipe, diameter

f) Secondary Spillway Capacity

Spillway Width

g) X & Y Slope

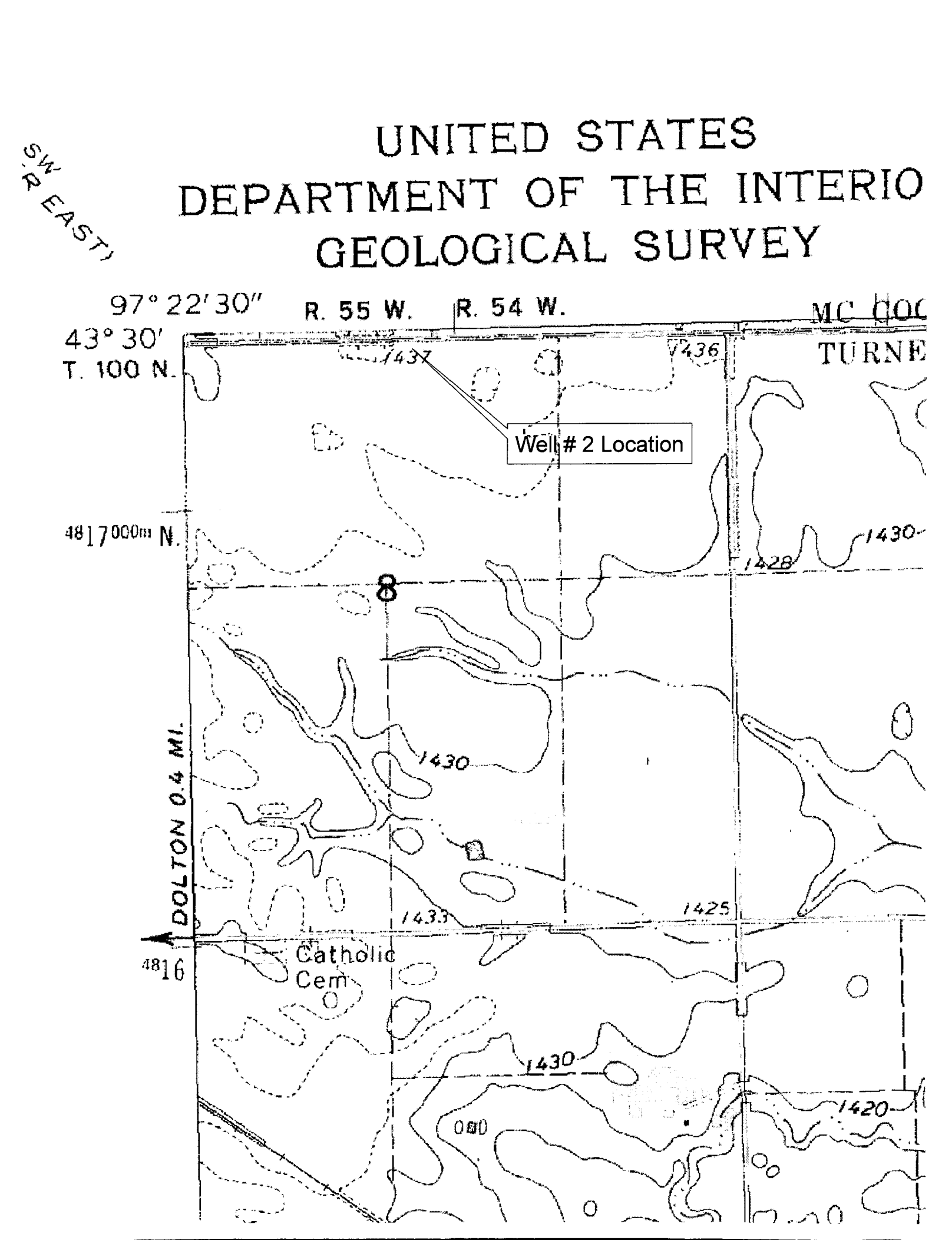
Upstream

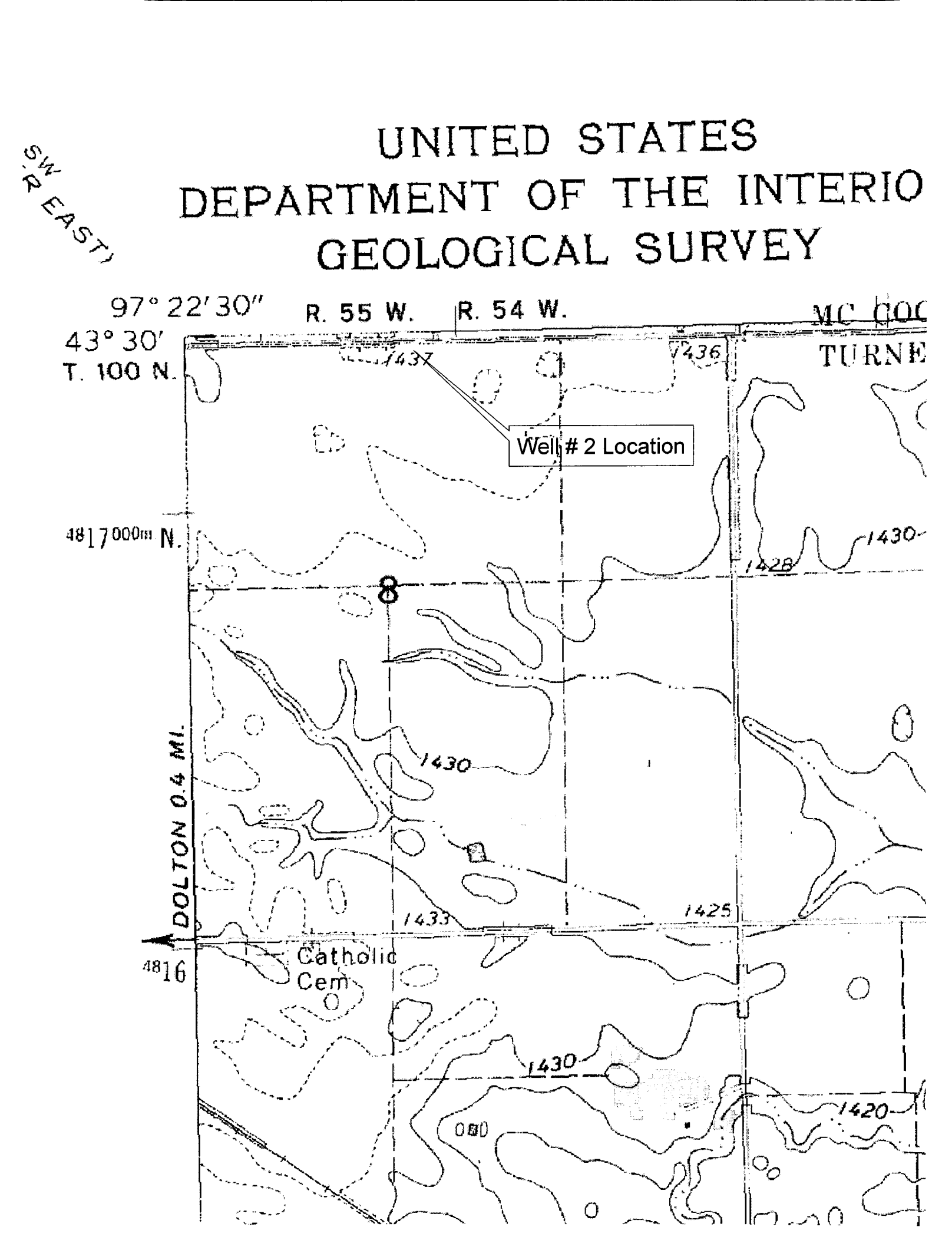
Downstream

h) Surface Area of Impoundment

i) Storage Acre Feet

j) Drainage Area Above Dam Acres


UNITED STATES
DEPARTMENT OF THE INTERIO
GEOLOGICAL SURVEY
S.W. R EAST)
97° 22' 30"
R. 55 W.
R. 54 W.
MC COO
TURNE
43° 30'
T. 100 N.
1437
1436
Well # 2 Location
4817000m N.
1430
1428
8
1430
DOLTON 0.4 MI.
1433
1425
4816
Catholic
Cem
1430
1420


UNITED STATES
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Well # 2 Location
4817000m N.
1430
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8
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DOLTON 0.4 MI.
1433
1425
4816
Catholic
Cem
1430
1420
080

SD EForm - 1585 V1
FORM 2: Application for uses other than irrigation
(type or print)

RECEIVED
MAY 19 2003
WATER RIGHTS PROGRAM

Mail to:	(office use only)
Water Rights Program Joe Foss Building 523 E. Capitol Pierre, SD 57501-3181 (605) 773-3352	No. _____ Hydrologic Unit _____ Basin _____ Newspaper _____

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

Check use(s) of water:

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

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

Description of amendment/correction: (i.e. change diversion point(s), add diversion point(s), change use, etc.)
Replacement well #2 Dolton aquifer well under permit #4988-3
No change is anticiapated in the withdrawal rate from aquifer due to this well replacement project

1. Name of Applicant TM Rural Water District Phone (605) 297-3334
(check one) ☑ Owner ☐ Tenant/lessee
Mailing Address Box 445 (Street, RR, or Box and City) Parker State SD 57053 (Zip Code)

2. Amount of water claimed _____ *CFS or _____ **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 Dolton aquifer

4. Location of point of diversion (example - 3 wells in SW1/4 NE1/4 section 12-T104N-R53W) County _____
Well #2 in in NE1/4 Section 8, T100N-R55W

5. County or counties where water will be used Turner, McCook, Minnehaha

6. Annual period during which water is to be used _____

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)
Install new well about 25 ft south of existing well, plug existing well

STATE OF SOUTH DAKOTA) SS
County of Turner)

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

I, Ken Pedersen, Manager TMRD, the applicant, certify that I have read this application, have examined the attached map and that the matters stated are true and that I intend, and am able to complete the necessary construction.

Applicant's signature Ken Pedersen

Subscribed and sworn to before me this 16 day of May 20 03

GAIL L SCHOFFELMAN NOTARY PUBLIC SOUTH DAKOTA SEAL

Gail L Schoffelman
Notary Public signature

4-2000

Form 2A **Supplemental Information**
(Complete applicable portions only)

(type or print in ink)

1. Well Information - Proposed Construction

a) Drill Hole Diameter 22" Depth 175'

b) Casing Type steel Diameter 16" Thickness 0.375"

c) Screen Type SS Diameter 16" Thickness 0.375"

d) Gravel Pack yes Length of Gravel Pack 35'

e) Depth to Top of Water Bearing Material ~140'

f) Depth to Water (ground surface to water level) ~97'

g) Distance to nearest existing domestic well:

On applicants property 25' On property owned by others _____

2. Wastewater Disposal System Information

a) Type of System (i.e. septic tank, drain field) _____

b) System Capacity (gallons) _____ Year Constructed _____

c) Connected to the City of _____ Sanitary System

3. Dugout Information

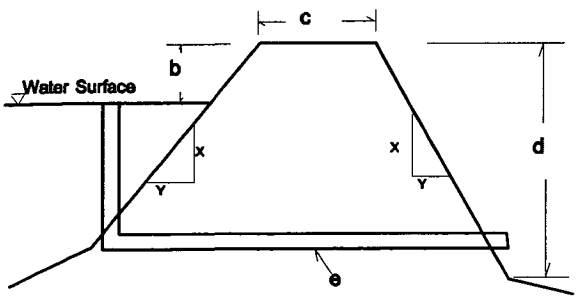
a) Surface Dimensions _____ Depth _____

b) Depth to water (ground surface to water level) _____

4. Water Storage Dams

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

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



b) Freeboard _____

c) Crest Width _____

Crest Length _____

d) Height _____

e) Primary Outlet Capacity _____

If pipe, diameter _____

f) Secondary Spillway Capacity _____

Spillway Width _____

g) X & Y Slope _____

Upstream _____

Downstream _____

h) Surface Area of Impoundment _____

i) Storage _____ Acre Feet

j) Drainage Area Above Dam _____ Acres

File No. 4988-3

Change of Diversion Point

NAME: TM Rural Water District

ADDRESS: Box 445, Parker SD 57053

DATE: December May 22, 2003 **COUNTY:** Turner/McCook Counties

BACKGROUND:

TM Rural Water District holds Water Right No. 4988-3 appropriating 3.34 cubic feet of water per second from three wells (Dolton Aquifer) located in the SE ¼ SE ¼ (well No. 1), NW ¼ NE ¼ (well No. 2) of Section 8, T100N, R55W and the SW ¼ NW ¼ (well No. 3) of Section 31, T101N, R54W.

The District has submitted a request for replacement of Well No. 2 due to the sand in the well and that an attempt to redevelop the well failed to reduce the sand production and failed to increase the production in the well.

The replacement well will be located approximately 25 feet south of the existing well No. 2 in the NW ¼ NE ¼ of Section 8, T100N, R55W. The old Well No. 2 is to be abandoned and plugged.

AUTHORITY:

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

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

  The well authorized under Water Right No. 4988-3 is constructed into the Dolton at a depth of 175 feet. The proposed replacement well is constructed into the same aquifer.

  No additional appropriation of water is requested. The water right appropriates 3.34 cfs. This request for a change of diversion point is only to replace a well that has reduced in production. The replacement well is intended to work in conjunction with well Nos. 1 and 3 to bring production up to the permitted amount of 3.34 cfs.

- **Review of Existing Diversions**
  This is a request solely for a replacement well located approximately 25 feet away from old Well No. 2 and no effect to other wells is anticipated. A review of the Water Rights well log database found a few domestic well logs in neighboring sections and no existing water rights in the neighboring sections except those rights held by the District. A detailed review of other wells in the area is not warranted because this is a replacement well located right next

to the old well No. 2. The old well will need to be plugged in accordance with well construction standards.

CONCLUSION

- This replacement well does not appropriate additional water.
- The replacement well is to be constructed into the Dolton Aquifer which is the same water source as the original well authorized by Water Right No. 4988-3.
- Existing domestic wells will not be adversely impacted by authorizing this replacement well.
- There has been no record of any complaint on Volga's diversion of water adversely impacting neighboring wells.
- The original well No 2 shall be plugged in accordance with well construction standards.

RECOMMENDED ACTION

Based on the above criteria, it is recommended that the replacement diversion point be authorized by Water Right No. 4988-3.

Eric Gronlund
Water Rights Program

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

This replacement well will not increase the potential for adverse effects to existing diversions.

Garland Erbele, Chief Engineer
Water Rights Program

DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES
PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

May 23, 2003

Ken Pederson, Manager
TM Rural Water District
Box 445
Parker SD 57053

Dear Mr. Pederson:

I am writing in regard to TM Rural Water District's May 16th request to authorize the replacement of well No. 2 held under Water Right No. 4988-3. This water right appropriates 3.34 cubic feet of water per second (cfs) from three wells (Dolton Aquifer) located in the SE ¼ SE ¼ (well No. 1), NW ¼ NE ¼ (well No. 2) of Section 8, T100N, R55W and the SW ¼ NW ¼ (well No. 3) of Section 31, T101N, R54W.

Upon review of the request and pursuant to SDCL 46-5-13.1, TM Rural Water District is authorized to construct a replacement well to well No. 2 into the Dolton Aquifer without application or publication of a notice of hearing pursuant to SDCL 46-2A-4. This authorization does not grant an increase in the 3.34 cfs diversion rate from the three wells as appropriated by Water Right No. 4988-3.

The abandoned well No. 2 shall be plugged in accordance with well construction standards.

This request has been authorized under SDCL 46-5-13.1 for which there is no application filing fee.

If you have any questions, please feel free to contact Eric Gronlund at (605) 773-3352.

Sincerely,

Garland Erbele

Garland Erbele, Chief Engineer
Water Rights Program

STATE OF SOUTH DAKOTA

WATER LICENSE NO. 4988-3

(1) TM Rural Water District, PO Box 445, Parker SD 57053 made Application No. 4988-3, December 19, 1983 for a water permit to divert 3.34 cubic feet of water per second from groundwater (four wells), McCook and Turner Counties, South Dakota for rural water system use purposes. Permit No. 4988-3, with a priority date of September 28, 1983 (established by Future Use Permit No. 4979-3) was approved February 15, 1984 and issued to the applicant for diversion of water with construction of the described water supply system to be completed on or before February 15, 1989 and for the application to beneficial use of said water on or before February 15, 1993.

(2) It is certified that the permit holder 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 3.34 cubic feet of water per second for beneficial use. The location of the diversion points are:

Well #1 - 120 feet north and 106 feet west of the southeast corner **(SE ¼ SE ¼) Sec 8-T100N-R55W**
Well #2 - 260 feet west and 107 feet south of the southeast corner Sec 36-T101N-R55W
(NW ¼ NE ¼ Sec 8-T100N-R55W)
Well #3 - 100 feet east and 118 feet north of the west quarter corner **(SW ¼ NW ¼) Sec 31-T101N-R54W**

(3) The permit holder has complied with the provisions of South Dakota State Law relating to the application of water to beneficial use to supply water in Hutchinson, McCook, Miner, Turner and Minnehaha Counties.

(4) Pursuant to South Dakota Water Law 46-5-30.1 TM Rural Water District, PO Box 445, Parker SD 57053 the holder and/or owner of Water Right No. 4988-3 is issued a license to appropriate water, the right to use 3.34 cubic feet of water per second from groundwater (three wells) with a priority date of September 28, 1983 (established by Future Use Permit No. 4979-3) from the location specified in (2) of this license for rural water system use. This license is subject to any limitations or qualifications listed in Water Right No. 4988-3 and subject to South Dakota State Law.

Garland Erbele

GARLAND ERBELE, Chief Engineer
Water Rights Program
Department of Environment and Natural Resources

APR 1 0 2000
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

May 23, 2003

Ken Pederson, Manager
TM Rural Water District
Box 445
Parker SD 57053

Dear Mr. Pederson:

I am writing in regard to TM Rural Water District's May 16th request to authorize the replacement of well No. 2 held under Water Right No. 4988-3. This water right appropriates 3.34 cubic feet of water per second (cfs) from three wells (Dolton Aquifer) located in the SE ¼ SE ¼ (well No. 1), NW ¼ NE ¼ (well No. 2) of Section 8, T100N, R55W and the SW ¼ NW ¼ (well No. 3) of Section 31, T101N, R54W.

Upon review of the request and pursuant to SDCL 46-5-13.1, TM Rural Water District is authorized to construct a replacement well to well No. 2 into the Dolton Aquifer without application or publication of a notice of hearing pursuant to SDCL 46-2A-4. This authorization does not grant an increase in the 3.34 cfs diversion rate from the three wells as appropriated by Water Right No. 4988-3.

The abandoned well No. 2 shall be plugged in accordance with well construction standards.

This request has been authorized under SDCL 46-5-13.1 for which there is no application filing fee.

If you have any questions, please feel free to contact Eric Gronlund at (605) 773-3352.

Sincerely,

Garland Erbele

Garland Erbele, Chief Engineer
Water Rights Program

File No. 4988-3

Change of Diversion Point

NAME: TM Rural Water District

ADDRESS: Box 445, Parker SD 57053

DATE: December May 22, 2003 **COUNTY:** Turner/McCook Counties

BACKGROUND:

TM Rural Water District holds Water Right No. 4988-3 appropriating 3.34 cubic feet of water per second from three wells (Dolton Aquifer) located in the SE ¼ SE ¼ (well No. 1), NW ¼ NE ¼ (well No. 2) of Section 8, T100N, R55W and the SW ¼ NW ¼ (well No. 3) of Section 31, T101N, R54W.

The District has submitted a request for replacement of Well No. 2 due to the sand in the well and that an attempt to redevelop the well failed to reduce the sand production and failed to increase the production in the well.

The replacement well will be located approximately 25 feet south of the existing well No. 2 in the NW ¼ NE ¼ of Section 8, T100N, R55W. The old Well No. 2 is to be abandoned and plugged.

AUTHORITY:

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

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

  The well authorized under Water Right No. 4988-3 is constructed into the Dolton at a depth of 175 feet. The proposed replacement well is constructed into the same aquifer.

  No additional appropriation of water is requested. The water right appropriates 3.34 cfs. This request for a change of diversion point is only to replace a well that has reduced in production. The replacement well is intended to work in conjunction with well Nos. 1 and 3 to bring production up to the permitted amount of 3.34 cfs.

- **Review of Existing Diversions**
  This is a request solely for a replacement well located approximately 25 feet away from old Well No. 2 and no effect to other wells is anticipated. A review of the Water Rights well log database found a few domestic well logs in neighboring sections and no existing water rights in the neighboring sections except those rights held by the District. A detailed review of other wells in the area is not warranted because this is a replacement well located right next

to the old well No. 2. The old well will need to be plugged in accordance with well construction standards.

CONCLUSION

- This replacement well does not appropriate additional water.
- The replacement well is to be constructed into the Dolton Aquifer which is the same water source as the original well authorized by Water Right No. 4988-3.
- Existing domestic wells will not be adversely impacted by authorizing this replacement well.
- There has been no record of any complaint on Volga's diversion of water adversely impacting neighboring wells.
- The original well No 2 shall be plugged in accordance with well construction standards.

RECOMMENDED ACTION

Based on the above criteria, it is recommended that the replacement diversion point be authorized by Water Right No. 4988-3.

Eric Gronlund
Water Rights Program

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

This replacement well will not increase the potential for adverse effects to existing diversions.

Garland Erbele, Chief Engineer
Water Rights Program

TM Rural Water District
Box 445, Parker, South Dakota 57053 • Phone (605) 297-3334 • Fax (605) 297-3310

RECEIVED
MAY 19 2003
WATER RIGHTS
PROGRAM

May 16, 2003

Water Rights Program
Joe Foss Building
523 E. Capitol
Pierre, SD 57501-3181

Dear Sirs:

This letter is to provide some information in addition to the permit application. The present well #2 of TM Rural Water District recently lost production and a replacement well is needed.

The existing well is about 19 years old and recently it was noted that the production rate was lower than it should be. The pump was pulled and the well was found to have filled with sand. An attempt to redevelop the well failed to reduce the sand production and failed to increase the production. The District's engineers, Dave Odens and Dennis Odens of Banner Associates of Brookings, have reviewed the situation; and the recommendations of the Thein Well Company and Banner have been reviewed, along with the needs of the District. From this, a decision was made to replace this well with a new one as soon as possible.

The new well is planned to be about 25' south of the existing well. Thein Well Company is planning to drill a test hole next week so the screen can be designed and ordered. Then as soon as the screen is delivered work will begin on the well. Once the new well is in place and the pump moved from the old to the new well, the old well would be plugged and abandoned.

The District's need for a dependable water source going into the peak periods of the year make it imperative that this project proceeds as quickly as possible.

If you have questions or need additional information, please contact Dave or Dennis Odens at Banner, or call my office.

Sincerely,

Ken Pedersen
Manager

SD EForm - 1585 V1
FORM 2: Application for uses other than irrigation
(type or print)

Mail to:	(office use only) No. _____ Hydrologic Unit _____
Water Rights Program Joe Foss Building 523 E. Capitol Pierre, SD 57501-3181 (605) 773-3352	Basin _____ Newspaper _____

RECEIVED
MAY 19 2003
WATER RIGHTS PROGRAM

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

Check use(s) of water:

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

Type of Application: (check one)

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

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

Replacement well #2 Dolton aquifer well under permit #4988-3
No change is anticiapated in the withdrawal rate from aquifer due to this well replacement project

1. Name of Applicant TM Rural Water District Phone (605) 297-3334
   (check one) ☑ Owner ☐ Tenant/lessee
   Mailing Address Box 445 Parker State SD 57053
   (Street, RR, or Box and City) (Zip Code)
2. Amount of water claimed _____ *CFS or _____ **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 Dolton aquifer
4. Location of point of diversion (example - 3 wells in SW1/4 NE1/4 section 12-T104N-R53W) County _____
   Well #2 in in NE1/4 Section 8, T100N-R55W
5. County or counties where water will be used Turner, McCook, Minnehaha
6. Annual period during which water is to be used _____
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)
   Install new well about 25 ft south of existing well, plug existing well

STATE OF SOUTH DAKOTA) SS
County of Turner)

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

I, Ken Pedersen, Manager TMRD, the applicant, certify that I have read this application, have examined the attached map and that the matters stated are true and that I intend, and am able to complete the necessary construction.

Applicant's signature Ken Pedersen

GAIL L SCHOFFELMAN NOTARY PUBLIC SOUTH DAKOTA SEAL

Subscribed and sworn to before me this 16 day of May 20 03

Gail L. Schoffelman
Notary Public signature

4-2000

Form 2A **Supplemental Information**
(Complete applicable portions only)

(type or print in ink)

1. Well Information - Proposed Construction

a) Drill Hole Diameter 22" Depth 175'

b) Casing Type steel Diameter 16" Thickness 0.375"

c) Screen Type SS Diameter 16" Thickness 0.375"

d) Gravel Pack yes Length of Gravel Pack 35'

e) Depth to Top of Water Bearing Material ~140'

f) Depth to Water (ground surface to water level) ~97'

g) Distance to nearest existing domestic well:

On applicants property 25' On property owned by others _____

2. Wastewater Disposal System Information

a) Type of System (i.e. septic tank, drain field) _____

b) System Capacity (gallons) _____ Year Constructed _____

c) Connected to the City of _____ Sanitary System

3. Dugout Information

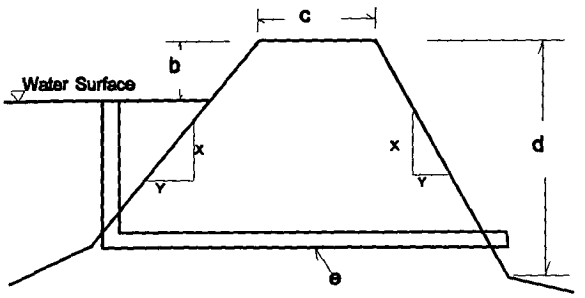
a) Surface Dimensions _____ Depth _____

b) Depth to water (ground surface to water level) _____

4. Water Storage Dams

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

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



b) Freeboard _____

c) Crest Width _____

Crest Length _____

d) Height _____

e) Primary Outlet Capacity _____

If pipe, diameter _____

f) Secondary Spillway Capacity _____

Spillway Width _____

g) X & Y Slope _____

Upstream _____

Downstream _____

h) Surface Area of Impoundment _____

i) Storage _____ Acre Feet

j) Drainage Area Above Dam _____ Acres

Schlaak, Karen

From: Gronlund, Eric
Sent: Wednesday, May 14, 2003 10:51 AM
To: Erbele, Garland; Selken, Gale
Cc: Schlaak, Karen
Subject: TM Rural Water

I had a long discussion with Ken Pederson, Manager of the system. They currently have Banner & Associates doing a long term needs assessment. Ken inquired about our position on new appropriations from the Dolton Aquifer based on the fact that Hanson RWS's water rights were abandoned and cancelled since Hanson is now served by B-Y. They also have a water right and future use permit from another source but say that it is inferior quality to the Dolton. I said I was uncertain and I knew there was alot of past conflict surrounding the Dolton Aquifer. I know there were some unique conditions and a requirement for TM to look for alternate water sources back in the 1980's. I indicated that I'd like to sit down with Garland & Gale regarding this issue so we can give them some direction.

In the past, Hatch was hesistant (at best) to do anything with TM for fear it would stir the pot. We have not conducted the 7-year reviews of their future use permits and have another future use application on deferred status. With Hanson now not diverting from the Dolton they would like to know if there may be an opportunity for them to secure future use permits to meet increasing demand. Gale was the lead on this back in the 1980's as Jim had a conflict because his father-in-law serves on TM's Board.

They will also be filing for a request to construct a replacement well for a Dolton well that is failing. They plan to construct the new well approximately 25 feet from the old well. Karen, we can expect to see such a request in the next few days.

Also, TM serves the town of Davis. Ken wants to get Davis to agree to having the old town well plugged. I said we'd support that.

Mr. Pederson will be on vacation until June 10th. I said sometime in the interim we'd try to sit down and discuss this.

STATE OF SOUTH DAKOTA

WATER LICENSE NO. 4988-3

(1) TM Rural Water District, PO Box 445, Parker SD 57053 made Application No. 4988-3, December 19, 1983 for a water permit to divert 3.34 cubic feet of water per second from groundwater (four wells), McCook and Turner Counties, South Dakota for rural water system use purposes. Permit No. 4988-3, with a priority date of September 28, 1983 (established by Future Use Permit No. 4979-3) was approved February 15, 1984 and issued to the applicant for diversion of water with construction of the described water supply system to be completed on or before February 15, 1989 and for the application to beneficial use of said water on or before February 15, 1993.

(2) It is certified that the permit holder 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 3.34 cubic feet of water per second for beneficial use. The location of the diversion points are:

Well #1 - 120 feet north and 106 feet west of the southeast corner **(SE ¼ SE ¼) Sec 8-T100N-R55W**
Well #2 - 260 feet west and 107 feet south of the southeast corner Sec 36-T101N-R55W
(NW ¼ NE ¼ Sec 8-T100N-R55W)
Well #3 - 100 feet east and 118 feet north of the west quarter corner **(SW ¼ NW ¼) Sec 31-T101N-R54W**

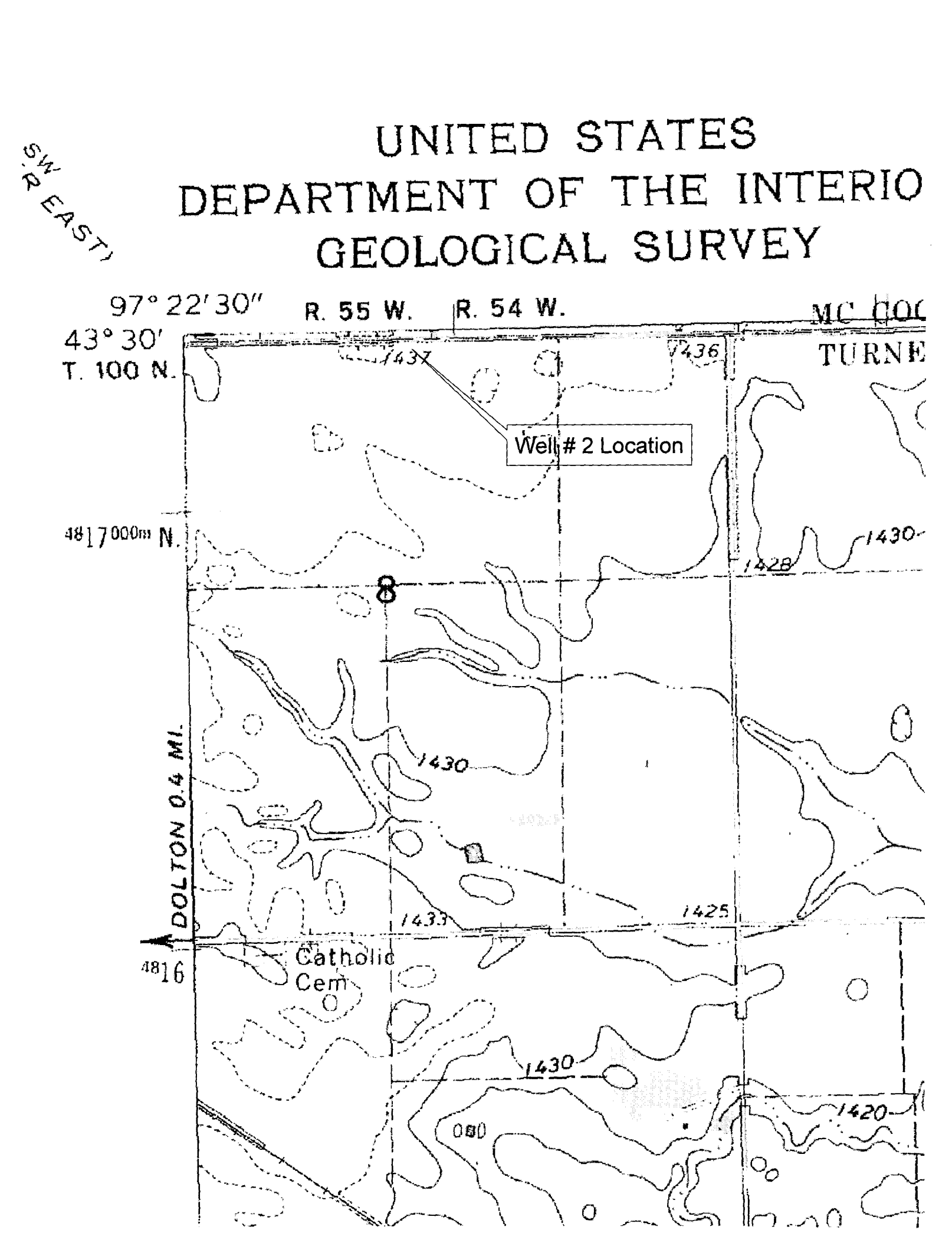
(3) The permit holder has complied with the provisions of South Dakota State Law relating to the application of water to beneficial use to supply water in Hutchinson, McCook, Miner, Turner and Minnehaha Counties.

(4) Pursuant to South Dakota Water Law 46-5-30.1 TM Rural Water District, PO Box 445, Parker SD 57053 the holder and/or owner of Water Right No. 4988-3 is issued a license to appropriate water, the right to use 3.34 cubic feet of water per second from groundwater (three wells) with a priority date of September 28, 1983 (established by Future Use Permit No. 4979-3) from the location specified in (2) of this license for rural water system use. This license is subject to any limitations or qualifications listed in Water Right No. 4988-3 and subject to South Dakota State Law.

Garland Erbele

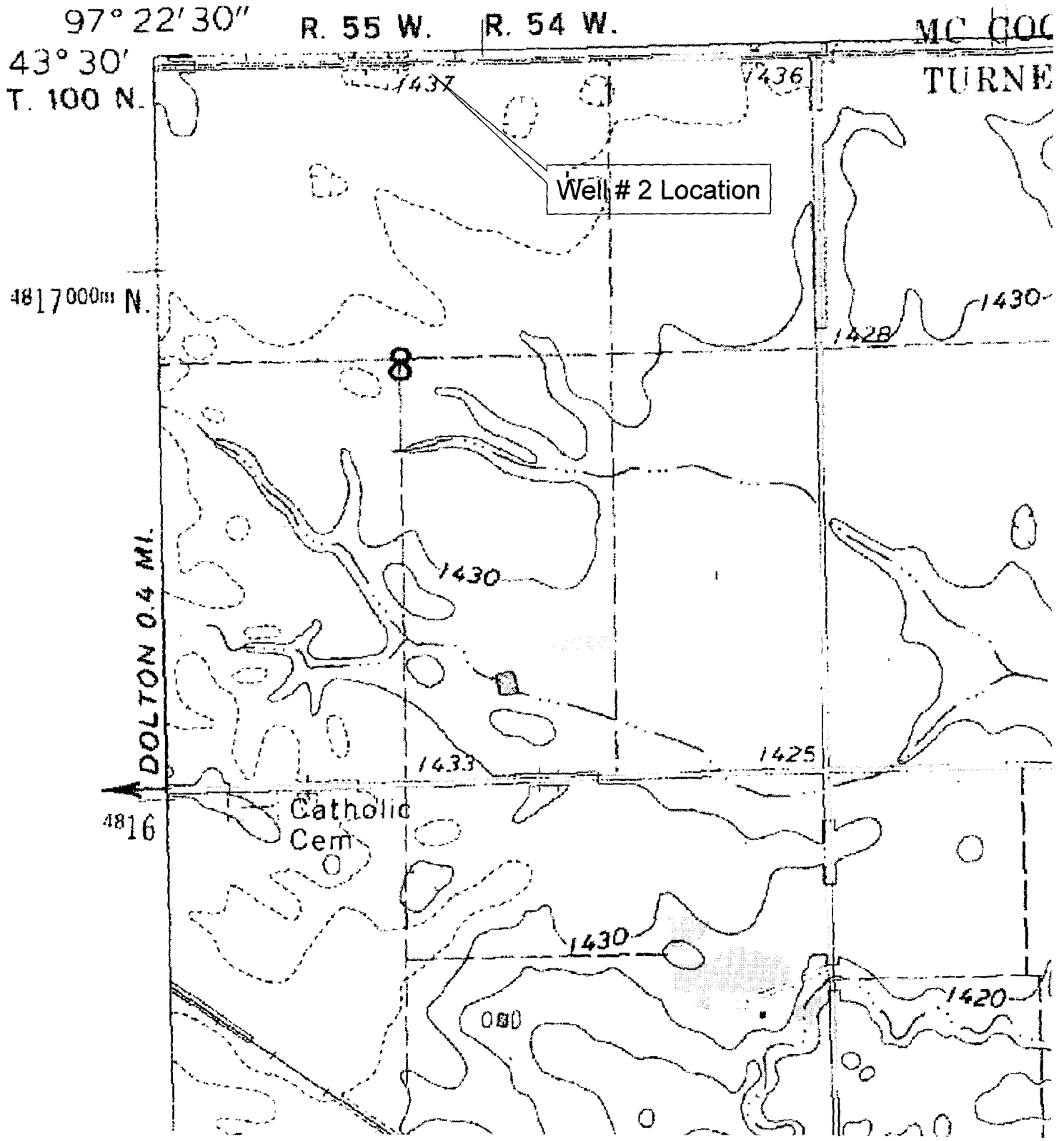
GARLAND ERBELE, Chief Engineer
Water Rights Program
Department of Environment and Natural Resources

APR 1 0 2000
date


S.W. R EAST)
UNITED STATES
DEPARTMENT OF THE INTERIO
GEOLOGICAL SURVEY
97° 22' 30"
R. 55 W.
R. 54 W.
MC COO
43° 30'
T. 100 N.
TURNE
1437
1436
Well # 2 Location
4817000m N.
1430
1428
8
1430
DOLTON 0.4 MI.
1433
1425
4816
Catholic
Cem
1430
1420
080

S.W. EAST)

UNITED STATES
DEPARTMENT OF THE INTERIO
GEOLOGICAL SURVEY



SD EForm - 1585 V1
FORM 2: Application for uses other than irrigation
(type or print)

RECEIVED
MAY 19 2003
WATER RIGHTS PROGRAM

Mail to:	(office use only)
Water Rights Program Joe Foss Building 523 E. Capitol Pierre, SD 57501-3181 (605) 773-3352	No. _____ Hydrologic Unit _____ Basin _____ Newspaper _____

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

Check use(s) of water:

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

Type of Application: (check one)

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

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

Replacement well #2 Dolton aquifer well under permit #4988-3
No change is anticiapated in the withdrawal rate from aquifer due to this well replacement project

1. Name of Applicant TM Rural Water District Phone (605) 297-3334
   (check one) ☑ Owner ☐ Tenant/lessee
   Mailing Address Box 445 Parker State SD 57053
   (Street, RR, or Box and City) (Zip Code)
2. Amount of water claimed _____ *CFS or _____ **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 Dolton aquifer
4. Location of point of diversion (example - 3 wells in SW1/4 NE1/4 section 12-T104N-R53W) County _____
   Well #2 in in NE1/4 Section 8, T100N-R55W
5. County or counties where water will be used Turner, McCook, Minnehaha
6. Annual period during which water is to be used _____
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)
   Install new well about 25 ft south of existing well, plug existing well

STATE OF SOUTH DAKOTA) SS
County of Turner)

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

I, Ken Pedersen, Manager TMRD, the applicant, certify that I have read this application, have examined the attached map and that the matters stated are true and that I intend, and am able to complete the necessary construction.

Applicant's signature Ken Pedersen

Subscribed and sworn before me this 16 day of May 20 03

GAIL L SCHOFFELMAN NOTARY PUBLIC SOUTH DAKOTA SEAL

Gail L Schoffelman
Notary Public signature

4-2000

4988-3

RECEIVED
AUG 11 2003
WATER RIGHTS
PROGRAM

TM Rural Water District

Box 445, Parker, South Dakota 57053 • Phone (605) 297-3334 • Fax (605) 297-3310

August 8, 2003

Water Rights Program
Joe Foss Building
523 E. Capitol
Pierre, SD 57501-3181

Dear Sirs:

This letter is to provide some information in addition to the permit application. The present well #3 of TM Rural Water District has lost production and a replacement well is needed.

The existing well is about 14 years old and recently it was noted that the production rate was lower than it should be. An attempt to redevelop the well failed to restore the production.

The new well is planned to be within the existing one-acre site that the District owns. I expect that we will be about 50' from the existing well. The job specifications will require a test hole be drilled to determine the aquifer composition so the screen can be designed and ordered. Once the new well is in place and the pump moved from the old to the new well, the old well will be plugged and abandoned.

The District is beginning the bid process and has hired Banner Associates of Brookings to assist in the project.

If you have questions or need additional information, please call me.

Sincerely,

Ken Pedersen
Manager

SD EForm - 1585 V1
FORM 2: Application for uses other than irrigation
(type or print)

Mail to:	(office use only)
Water Rights Program Joe Foss Building 523 E. Capitol Pierre, SD 57501-3181 (605) 773-3352	No. _____ Hydrologic Unit _____ Basin _____ Newspaper _____

RECEIVED
AUG 11 2003
WATER RIGHTS PROGRAM

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

Check use(s) of water:

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

Type of Application: (check one)

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

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

Replacement Well #3. Dolton aquifer under Permit #4988-3
No change in withdrawal rate is anticipated due to this well replacement project

1. Name of Applicant TM RURAL WATER DISTRICT Phone (605) 297-3334
   (check one) ☑ Owner ☐ Tenant/lessee
   Mailing Address BOX 445 PARKER State SD 57053
   (Street, RR, or Box and City) (Zip Code)
2. Amount of water claimed _____ *CFS or _____ **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 Dolton aquifer
4. Location of point of diversion (example - 3 wells in SW1/4 NE1/4 section 12-T104N-R53W) County ~~McCook~~
   Well #3 in SW1/4NW1/4 Section 31 T101N R54W
5. County or counties where water will be used Turner, McCook, Minnehaha
6. Annual period during which water is to be used _____
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)

   Install new well about 50ft from existing well in one-acre site owned by District
   Plug and abandon existing well

STATE OF SOUTH DAKOTA) SS
County of Turner)

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

I, Ken Pedersen, Manager TMRD, the applicant, certify that I have read this application, have examined the attached map and that the matters stated are true and that I intend, and am able to complete the necessary construction.

Applicant's signature Ken Pedersen, Manager TMRWD

Subscribed and sworn to before me this 8th day of August 20 03

Trudy De Konda
Notary Public signature

4-2000

Form 2A **Supplemental Information**
(Complete applicable portions only)

(type or print in ink)

1. Well Information - Proposed Construction

a) Drill Hole Diameter 24" Depth ~175'

b) Casing Type steel Diameter 12" Thickness 0.375

c) Screen Type SS Diameter 12" Thickness 0.375

d) Gravel Pack Yes Length of Gravel Pack 5' more than screen length

e) Depth to Top of Water Bearing Material ~135'

f) Depth to Water (ground surface to water level) ~95'

g) Distance to nearest existing domestic well:

On applicants property 50' On property owned by others

2. Wastewater Disposal System Information

a) Type of System (i.e. septic tank, drain field)

b) System Capacity (gallons) Year Constructed

c) Connected to the City of Sanitary System

3. Dugout Information

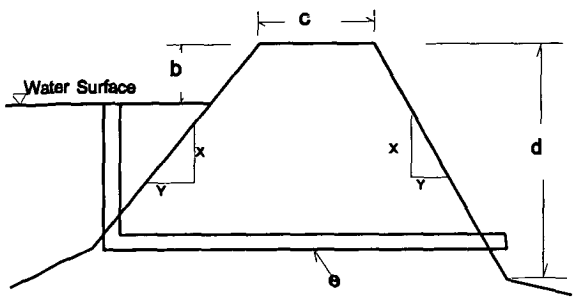
a) Surface Dimensions Depth

b) Depth to water (ground surface to water level)

4. Water Storage Dams

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

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



b) Freeboard

c) Crest Width

Crest Length

d) Height

e) Primary Outlet Capacity

If pipe, diameter

f) Secondary Spillway Capacity

Spillway Width

g) X & Y Slope

Upstream

Downstream

h) Surface Area of Impoundment

i) Storage Acre Feet

j) Drainage Area Above Dam Acres

SD EForm - 1585 V1
FORM 2: Application for uses other than irrigation
(type or print)

Mail to:	(office use only)
Water Rights Program Joe Foss Building 523 E. Capitol Pierre, SD 57501-3181 (605) 773-3352	No. _____ Hydrologic Unit _____ Basin _____ Newspaper _____

RECEIVED
AUG 11 2003
WATER RIGHTS PROGRAM

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

Check use(s) of water:

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

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

Description of amendment/correction: (i.e. change diversion point(s), add diversion point(s), change use, etc.)
Replacement Well #3. Dolton aquifer under Permit #4988-3
No change in withdrawal rate is anticipated due to this well replacement project

1. Name of Applicant TM RURAL WATER DISTRICT Phone (605) 297-3334
(check one) ☑ Owner ☐ Tenant/lessee
Mailing Address BOX 445 PARKER State SD 57053
(Street, RR, or Box and City) (Zip Code)

2. Amount of water claimed _____ *CFS or _____ **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 Dolton aquifer

4. ~~Location of point of diversion (example - 3 wells in SW1/4 NE1/4 section 12-T104N-R53W)~~ ~~County~~ McCook
Well #3 in SW1/4NW1/4 Section 31 T101N R54W

5. County or counties where water will be used Turner, McCook, Minnehaha

6. Annual period during which water is to be used _____

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)
Install new well about 50ft from existing well in one-acre site owned by District
Plug and abandon existing well

STATE OF SOUTH DAKOTA) SS
County of Turner)

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

I, Ken Pedersen, Manager TMRD, the applicant, certify that I have read this application, have examined the attached map and that the matters stated are true and that I intend, and am able to complete the necessary construction.

Applicant's signature Ken Pedersen Manager TMRWD

Subscribed and sworn to before me this 8th day of August 2003

Notary Public signature

4-2000

Form 2A **Supplemental Information**
(Complete applicable portions only)

(type or print in ink)

1. Well Information - Proposed Construction

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a) Type of System (i.e. septic tank, drain field)

b) System Capacity (gallons) Year Constructed

c) Connected to the City of Sanitary System

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a) Surface Dimensions Depth

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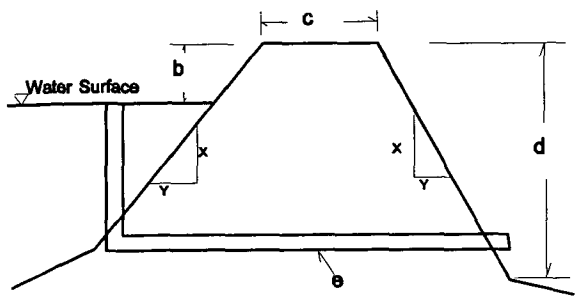


b) Freeboard

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

File No. 4988-3

Change of Diversion Point

NAME: TM Rural Water District

ADDRESS: Box 445, Parker SD 57053

DATE: August 15, 2003 **COUNTY:** Turner/McCook Counties

BACKGROUND:

TM Rural Water District holds Water Right No. 4988-3 appropriating 3.34 cubic feet of water per second from three wells (Dolton Aquifer) located in the SE ¼ SE ¼ (well No. 1), NW ¼ NE ¼ (well No. 2) of Section 8, T100N, R55W and the SW ¼ NW ¼ (well No. 3) of Section 31, T101N, R54W.

The District has submitted a request for replacement of Well No. 3 due to the sand in the well and that an attempt to redevelop the well failed to restore production in the well

The replacement well will be located approximately 50 feet from existing well No. 3 in the SW ¼ NW ¼ of Section 31, T101N, R54W. The old Well No. 3 is to be abandoned and plugged.

The District went through a similar process last May to replace Well No. 2.

AUTHORITY:

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

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

  The well authorized under Water Right No. 4988-3 is constructed into the Dolton at a depth of approximately 175 feet. The proposed replacement well is constructed into the same aquifer.

  No additional appropriation of water is requested. The water right appropriates 3.34 cfs. This request for a change of diversion point is only to replace a well that has reduced in production. The replacement well is intended to work in conjunction with well Nos. 1 and 2 to bring production up to the permitted amount of 3.34 cfs.

- **Review of Existing Diversions**
  This is a request solely for a replacement well located approximately 50 feet away from old Well No. 3 and no effect to other wells is anticipated. A review of the Water Rights well log database found a few domestic well logs in neighboring sections and no existing water rights in the neighboring sections except those rights held by the District. A detailed review of

other wells in the area is not warranted because this is a replacement well located in very close proximity to the old well No. 3. The old well will need to be plugged in accordance with well construction standards.

CONCLUSION

- This replacement well does not appropriate additional water.
- The replacement well is to be constructed into the Dolton Aquifer which is the same water source as the original well authorized by Water Right No. 4988-3.
- Existing domestic wells will not be adversely impacted by authorizing this replacement well.
- There has been no record of any complaint of the District's diversion of water adversely impacting neighboring wells.
- The original well No 3 shall be plugged in accordance with well construction standards.

RECOMMENDED ACTION

Based on the above criteria, it is recommended that the replacement diversion point (well No. 3) be authorized by Water Right No. 4988-3.

Eric Gronlund
Water Rights Program

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

This replacement well will not increase the potential for adverse effects to existing diversions.

Garland Erbele, Chief Engineer
Water Rights Program

DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES
PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

August 18, 2003

Ken Pederson, Manager
TM Rural Water District
Box 445
Parker SD 57053

Dear Mr. Pederson:

I am writing in regard to TM Rural Water District's August 8th request to authorize the replacement of well No. 3 held under Water Right No. 4988-3. This water right appropriates 3.34 cubic feet of water per second (cfs) from three wells (Dolton Aquifer) located in the SE ¼ SE ¼ (well No. 1), NW ¼ NE ¼ (well No. 2) of Section 8, T100N, R55W and the SW ¼ NW ¼ (well No. 3) of Section 31, T101N, R54W.

Upon review of the request and pursuant to SDCL 46-5-13.1, TM Rural Water District is authorized to construct a replacement well to well No. 2 into the Dolton Aquifer without application or publication of a notice of hearing pursuant to SDCL 46-2A-4. This authorization does not grant an increase in the 3.34 cfs diversion rate from the three wells as appropriated by Water Right No. 4988-3.

The abandoned well No. 2 shall be plugged in accordance with well construction standards.

This request has been authorized under SDCL 46-5-13.1 for which there is no application filing fee.

If you have any questions, please feel free to contact Eric Gronlund at (605) 773-3352.

Sincerely,

Garland Erbele

Garland Erbele, Chief Engineer
Water Rights Program

SOUTH DAKOTA WATER WELL COMPLETION REPORT

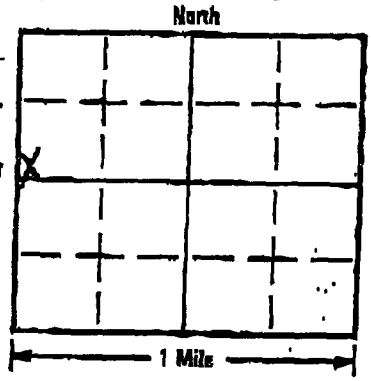
4988-3

07-92

Location SW ¼ NW ¼ Sec 31 Twp 101N Rg 54W

County Turner

Please mark well location with an "X"



Well Completion Date

12-4-03

Well Owner:

Business Name: TM Rural Water District

Address: P.O. Box 445

Parker, SD 57053-0445

WELL LOG:

FORMATION	DEPTH FROM	DEPTH TO
Sticky clay	0	20
Grey clay	20	50
Sandy Grey clay	50	80
Silty clay, some sand	80	130
Fine sand	130	140
Silty clay, some sand	140	143
Fine brown sand	143	155
Fine to medium brown sand	155	180
Sandy grey clay	180	185

LOCATION:

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

PROPOSED USE:

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

METHOD OF DRILLING:

Reverse Rotary

CASING DATA: ☑ Steel ☐ Plastic ☐ Other

If other describe ____

PIPEWEIGHT	DIAMETER	FROM	TO	HOLE DIAMETER
49.56 LB/FT	12 IN	6 FT	142 FT	24 IN
____ LB/FT	____ IN	____ FT	____ FT	____ IN
____ LB/FT	____ IN	____ FT	____ FT	____ IN

GROUTING DATA

Grout Type	No. of Sacks	Grout Weight	From	To
Neat Cement	196	16.48 lb./gal	4 ft.	40 ft.
____	____	____ lb./gal	____ ft.	____ ft.

Describe grouting procedure ____

SCREEN: ☐ Perforated pipe ☑ Manufactured

Diameter 12 IN Length ____ FEET

Material Stainless Steel

Slot Size .035 Set From 142 Feet to 182 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? ____

Laboratory sent to for water quality analysis

Sioux Falls Water Purification Plant Laboratory

STATIC WATER LEVEL 93.25 Feet

If flowing: closed in pressure ____ PSI

GPM flow ____ through ____ inch pipe

Controlled by ☐ Valve ☐ Reducers ☐ Other ____

Reduced Flowrate ____ GPM

Can well be completely shut in? ____

WELL TEST DATA:

☑ Pumped ☐ Bailed ☐ Other

Describe: Step test and a Constant rate test

Pumping Level Below Land Surface

116.9' ft. After 6 Hrs. pumped 425 GPM

____ ft. After ____ Hrs. pumped ____ GPM

If pump installed, pump rate ____ GPM

REMARKS

This well was drilled under license # 513

And this report is true and accurate.

Drilling firm LAYNE-WESTERN

Signature of Licensee Representative: [signature]

Signature of Well Owner or Equitable Property Holder: ____

STATE OF SOUTH DAKOTA

BEFORE THE WATER MANAGEMENT BOARD

IN THE MATTER OF THE AMENDMENT OF WATER PERMIT NO. 4988-3, TM RURAL WATER DISTRICT.	))))	FINDINGS OF FACT, CONCLUSIONS OF LAW AND FINAL DECISION

FINDINGS OF FACT

1. TM Rural Water District presently holds Water Right No. 4988-3. TM does not have any cap on its water use except that it may use the full amount of the 3.34 cfs available to it at a constant rate.

2. The priority date of TM is junior to that of Hanson Rural Water System which does have a cap on its volume of water use.

3. Both TM and Hanson draw water from the Dolton Aquifer.

4. The Dolton Aquifer is under artesian head pressure. The hydrographic evidence indicates that the rate of decline in head pressure in the Dolton Aquifer is increasing although the rate of water use is not increasing.

5. The explanation for this decline is unknown. It is, however, necessary to determine the reason for the decline.

6. It is also necessary to protect the Aquifer so that withdrawal do not exceed the average annual recharge.

7. All of the water withdrawn from the Aquifer affects the head pressure and is not dewatering the Aquifer; therefore, the withdrawal is not exceeding the average annual recharge.

8. TM Rural Water District has demonstrated a willingness to seek out new and alternate water systems and to accept a reasonable cap on its water use.

9. The existence of a cap on the increase in its annual water use will allow the hydrologist to better study the Aquifer to determine if there is danger of exceeding the average annual recharge to the Aquifer in the future.

10. The projected use by TM Rural Water System in 1989 is approximately 603 acre-feet.

11. TM has demonstrated reasonable probability that its water needs will increase in the future.

CONCLUSIONS OF LAW

1. The Board has jurisdiction of this matter.

2. The Board specifically finds it has jurisdiction to limit the withdrawals of water under a permit already granted at least in a case in which the permit holder is not actually using the water at issue. It is not necessary at this time, and the Board does not determine other conditions under which the Board may cut back on water use.

3. It is desirable to place a cap upon the use of water by TM so as to allow better study of the Dolton Aquifer. It is, moreover, necessary to study the Dolton Aquifer to determine whether, within a matter of several years the withdrawal of water from the Aquifer will exceed the average annual recharge. The Board has jurisdiction to limit water use for such purposes.

4. It is in the public interest to place a cap upon the amount of water used by TM.

FINAL DECISION

Permit No. 4988-3 is amended as follows:

1. Application No. 4988-3 is approved for a withdrawal of 610 acre-feet per year in 1989 with an increase of up to 6% per year.

2. TM Rural Water District shall report to the chief engineer annually the amount of water withdrawn each year from the Dolton Aquifer by it.

3. This permit will be reviewed annually by the Water Management Board. The Board may annually determine not to allow the additional 6% increase in water use provided for by paragraph 1, above, if it determines that the allowance of such increase is not in the public interest.

4. TM Rural Water District shall diligently seek a new supplemental or alternative source of water and report upon its findings annually to the Board.

By the Board:

Marian B. Sanderson

1-4-90

4988-3

TM Rural Water District

Box 445, Parker, South Dakota 57053 • Phone (605) 297-3334 • Fax (605) 297-3310

January 26, 2004

RECEIVED
JAN 29 2004
WATER RIGHTS
PROGRAM

DENR
Water Rights Program
Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501-3181

Attention: Eric Gronlund

RE: Permits 4988-3, 4979-3, and 5072-3

Dear Mr. Gronlund:

I discussed our water rights permits with the Board of Directors at their regular Board meeting. The Board approved pursuit of keeping/applying for water rights, which I will summarize here.

We want to keep the Permit 4988-3 for 815 acre-feet of water and the Future Use Permit 4979-3 for 287 acre-feet of water. Additionally, we want to apply for 463 acre-feet of water in the deferred Future Use Permit 5072-3.

The total of this request in the future use permits is 750 acre-feet of water. We used about 600 acre-feet from the Dolton aquifer this year, but expect to use 750 acre-feet or more of water per year once we have installed a new filter plant. Our existing plant is limited on production and is near the end of its useful life. A new plant is being designed and is presently in one stage of the environmental review.

Also, I would mention that we have an engineering study that considers future water needs. In that study and with the new filter, we could be looking at a total need of about 1600 acre-feet of water by the year 2020. Some of this demand would be met with purchased water and water from the UVM (basal) aquifer, but the main source would still be the Dolton aquifer.

Please advise what we must do next for the review and consideration of these permits.

Do we need to review/update other items in regards to the permits, like cities served, once this process is opened?

Sincerely,

Ken Pedersen
Manager

DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

July 6, 2004

Ken Pederson, Manager
TM Rural Water District
PO Box 445
Parker SD 57053

Dear Mr. Pederson:

I had an opportunity to review TM's water rights and formulate a plan for bringing matters that need action before the Water Management Board at their October 6 – 7, 2004 meeting in Pierre. My thoughts are very similar to what I outlined in my letter last December and you responded to in January.

Water Right No. 4988-3

This water right is for the existing three wells that divert water from the Dolton Aquifer. There is a condition on this water right dating back to the 1980's which provided 610 acre feet of water annually from the Dolton Aquifer with a 6% increase in pumping for five years. By my calculation, the current annual volume limit from the Dolton Aquifer is 815 acre feet of water annually. I intend to schedule amending this condition to quantify the water right to allow an annual volume of 815 acre feet of water annually for the October meeting.

Future Use Permit No. 4979-3

This future use permit reserved 287 acre feet of water from the Dolton Aquifer. Based on your letter, I intend to schedule the 7 year review of this future use permit for the October meeting. This will need to be public noticed in each county served by TM. My records indicate the counties with TM service hook-ups are: Turner, McCook, Minnehaha, Miner and Hutchinson. Are there other counties?

Deferred Future Use Permit No. 5072-3

This application proposed to appropriate and reserve 3.34 cfs from the Dolton Aquifer for future use. The application was deferred in 1985. I plan to give this application to Gale Selken for him to prepare a report, then present to the Chief Engineer for him to revise his recommendation. Assuming, the Chief Engineer revises his recommendation for approval, I anticipate scheduling this for Board consideration also at the October meeting.

Based on your January letter, am I correct in assuming that you want Future Use Permit No. 5072-3 approved for 463 acre feet of water? It is my understanding that this 463 acre feet of water combined with the 287 acre feet of water held under Future Use Permit No. 4979-3 will provide for 750 acre feet of water in reserve.

Please keep in mind that the future use permit reserves water for future development. At such time that TM wants to construct and place water to beneficial use, a water permit application will need to be filed.

Finally, based on pumping records, what is TM's current annual volume of water diverted?

I hope this outlines what is necessary to get TM's water rights in order. Please let me know if I have misinterpreted the water rights and TM's intentions.

Sincerely,

Eric Gronlund

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

RECEIVED
JUL - 9 2004
WATER RIGHTS
PROGRAM

TM Rural Water District

Box 445, Parker, South Dakota 57053 • Phone (605) 297-3334 • Fax (605) 297-3310

July 7, 2004

DENR
Water Rights Program
Attention: Eric Gronlund
Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501-3181

Dear Mr. Gronlund:

This letter is in response to your letter requesting some additional information.

First, the counties where we have connections are as you listed; Turner, McCook, Minnehaha, one hookup each in Miner and Hutchinson County.

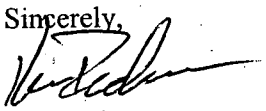
Our 2003 usage from the Dolton aquifer was about 195.2 million gallons or, if I calculate it right, about 600 acre feet. Additionally, we used some 5.6 million (17.2 acre feet) from the basal aquifer, and 92 million gallons (282 acre feet) from BY Water District. This year, as of the end of June, we have used about 123.5 million gallons or 379 acre feet from the Dolton aquifer, and a total of all sources of 143 MG or 439 acre feet.

Last year our Dolton aquifer usage was down due to some well troubles. This year's usage is higher due to the wells' return to service. If the trend continues this year, which I expect it will, we should be using some 700-800 acre feet from the Dolton aquifer. Would this justify asking for more reserve?

I believe you have a good understanding of my (January) request for 750 acre feet of water in reserve from the Dolton aquifer. We would, of course, like to have additional water in reserve also, but as I understand the "rules" the 750 is about as high as we could go at the time I wrote in January. Would the higher Dolton aquifer usage this year make it permissible to go for a higher reserve?

I hope I have answered your questions, and I do appreciate your input on the best ways to handle our water rights issues.

Sincerely,



Ken Pedersen
Manager
tmrwd@iw.net

DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

August 20, 2004

NOTICE

TO: Ken Pedersen
TM Rural Water District
Box 445
Parker SD 57053

FROM: Garland Erbele, Chief Engineer
Water Rights Program

SUBJECT: Amendment to Conditions on Water Permit No. 4988-3 and Consideration of Deferred Future Use Permit Application No. 5072-3, TM Rural Water District

Water Right No. 4988-3 appropriates 3.34 cubic feet of water per second from three wells completed in the Dolton Aquifer. The Water Management Board in 1989 added conditions to the water right limiting the annual withdrawal to 610 acre feet of water with an increase of up 6% per year. The Water Rights Programs interpretation was that this increase was for a five year period while alternate sources were investigated. The District was further required to report annual water use. The permit was also subject to annual review and the District was to diligently seek an alternate source of water. A copy of the Board 1989 decision is attached.

Based on a 6% increase over a five year period, the annual volume of water now authorized increased to 816 acre feet of water. I am recommending that the conditions to Water Right No. 4988-3 be amended to reflect an annual withdrawal limitation of 816 acre feet of water. A copy of the proposed amended conditions is attached.

Future Use Permit Application No. 5072-3 proposed to reserve 3.34 cfs from the Dolton Aquifer for future use. The Water Management Board deferred this application in 1985 based on the need for additional aquifer information. Enclosed is the staff report and Chief Engineer's recommendation prepared in order to bring this application for reconsideration before the Board.

The Water Management Board will consider amendment to the conditions on Water Right No. 4988-3 and reconsider deferred Future Use Permit Application No. 5072-3 at 1:30 PM on October 6, 2004 in the Floyd Matthew Training Center, Joe Foss Building, 523 E. Capitol Avenue, Pierre SD. The agenda time is an estimate. The Chief Engineer's recommendation is not final or binding upon the Board. The Board is authorized to 1) amend the conditions, 2) defer, or 3) or take no action based on the facts presented at the public hearing.

These hearings will be held in conjunction with the seven year review of Future Use Permit No. 4979-3. Separate notification will be provided to the District on the review of Future Use Permit No. 4979-3.

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

enclosure

c: Diane Best, Assistant Attorney General

RECOMMENDED AMENDMENT TO CONDITIONS TO WATER RIGHT NO. 4988-3
TM RURAL WATER DISTRICT

1. Water Right No. 4988-3 authorizes a total annual diversion of 816 acre feet of water from the Dolton Aquifer.

2. TM Rural Water District shall report to the Chief Engineer annually the amount of water withdrawn from the Dolton Aquifer.

CERTIFICATION

I hereby certify that on August 20, 2004, I personally deposited with the United States mail at Pierre, South Dakota, first class postage, prepaid envelopes containing a Notice dated August 20, 2004, regarding amendment to conditions on Water Permit No. 4988-3 and reconsideration of deferred Future Use Permit Application No. 5072-3, TM Rural Water District addressed as stated below.

Ken Pedersen
TM Rural Water District
Box 445
Parker SD 57053

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

Diane Best, Assistant Attorney General

Eric Gronlund
Natural Resource Engineer
Water Rights Program

STATE OF SOUTH DAKOTA)
) SS
COUNTY OF HUGHES)

Sworn to, before me, this 23rd day of August, 2004.

Karen Schlaak
Notary Public
My Commission expires April 1, 2007

SEAL KAREN SCHLAAK NOTARY PUBLIC State of South Dakota SEAL

REISSUED
STATE OF SOUTH DAKOTA
WATER LICENSE NO. 4988-3

(1) TM Rural Water District, PO Box 445, Parker SD 57053 was issued Water License No. 4988-3, April 10, 2000 for a water right to divert 3.34 cubic feet of water per second from groundwater (three wells), McCook and Turner Counties, South Dakota for rural water system use. Water Right No. 4988-3, has a priority date of September 28, 1983 (established by Future Use Permit No. 4979-3).

Based on action taken by the Water Management Board on October 6, 2004, Water License No. 4988-3 is being reissued to quantify the water right for a specific annual volume of water.

(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. 4988-3 is reissued a license, bearing a priority date of September 28, 1983 (established by Future Use Permit No. 4979-3) to appropriate 3.34 cubic feet of water per second (816 acre-feet annually) of water from groundwater (three wells) for rural water system use. The diversion points are located as follows:

Well # 1 – 120 feet north and 106 feet west of the southeast corner **(SE ¼ SE ¼) Sec 8-T100N-R55W**
Well # 2 – 260 feet west and 107 feet south of the southeast corner Sec 36-T101N-R55W
(NW ¼ NE ¼) Sec 8-T100N-R55W
Well # 3 – 100 feet east and 118 feet north of the west quarter corner **(SW ¼ NW ¼) Sec 31-T101N-R54W**

(3) This license is subject to South Dakota Water Law, any limitations or conditions listed in Water Permit No. 4988-3 including the following now applicable qualifications:

- Water Right No. 4988-3 authorizes a total annual diversion of 816 acre feet of water from the Dolton Aquifer.
- TM Rural Water District shall report to the Chief Engineer annually the amount of water withdrawn from the Dolton Aquifer.

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

OCT 14 2004
date

DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

OCT 14 2004

Ken Pedersen, Manager
TM Rural Water District
PO Box 445
Parker SD 57053

Dear Mr. Pedersen:

Enclosed is Reissued Water License 4988-3. Based on action taken by the Water Management Board on October 6, 2004, Water License No. 4988-3 is being reissued to quantify the water right for a specific annual volume of water.

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

Please contact Eric Gronlund, staff engineer, if you have any questions.

Sincerely,

Garland Erbele

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

enclosure