

WATER PERMIT NO. 5805-3

Phone: 605-3374

Name of Applicant: Minnehaha Community Water, Corp

Post Office Address: RR 2, Box 26A, Dell Rapids SD 57022

Amount of Water Claimed: 1467 acre-feet Total Acres: NA

Source of Water Supply: groundwater

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

About 3 miles SE of Dell Rapids

PRIORITY Date Received: 2-17-94 Fee: \$500 Remarks: Place to

Beneficial Use water reserved by Future Use Permit No. 4838-3

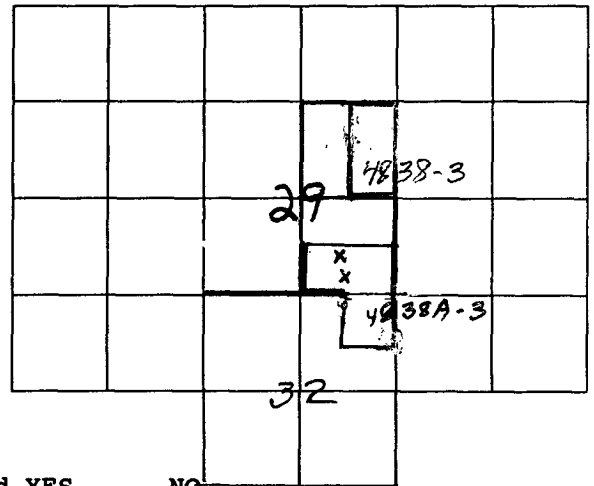
Corrected Application Received: 2-24-94 Period of Annual Use: Jan 1 - Dec 31

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

WI-1 Description same as Application YES NO REMARKS:

Diversion Point: S 1/2 SE 1/4 Sec 29-T104N-R49W

Land to be Irrigated:



Well Log: Driller: Licensed YES NO

Depth of Well: 45 and 43 feet deep REMARKS:

Type of Map: plat PREPARED BY: Fred J. Rittershaus Reviewed and the Number

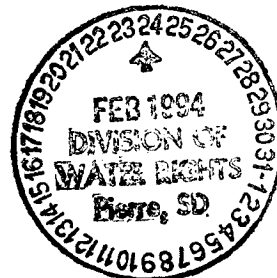
Assigned on: 2-24-94 By: Karen Schlaak

FORM 2: Application for uses other than irrigation

(type or print)

Mail to:
Water Rights Division
Joe Foss Building
523 E Capitol
Pierre SD 57501-3181
605 773-3352

No. 5805-3 Hydrologic Unit 10170203
Basin Big Sioux River
Newspaper Dell Rapids Tribune, Box 99, Dell Rapids
(office use only)



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

Check use of water:

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

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. 4838-3
☐ Amendment/Correction to Permit No. _____

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

- Name of Applicant Minnehaha Community Water, Corp Phone 428-3374
(check one) ☐ Owner ☐ Tenant/lessee
Mailing Address RR 2 Box 26A Dell Rapids State SD 57022
(Street, RR, or Box) (City) (Zip Code)
- Amount of water claimed 2.9 *CFS or 1300 **GPM 1467 ***AF
(*Cubic Feet per Second) (**Gallons per Minute) (***Acre Feet -- storage capacity of dam/dugout or annual use if applicable)
- Source of water supply Big Sioux Aquifer
- Location of point of diversion (example - 3 wells in SW1/4 NE1/4 section 12-T104N-R53W) 2 Wells,
S1/2 SE1/4 Section 29, All in Township T104N - R49W
- County Minnehaha
- County or counties where water will be used Minnehaha, Lincoln, McCook
- Annual period during which water is to be used Jan. 1 thru Dec. 31
- Give a description of the project. When available include any preliminary engineering report or other reports or information that will help explain the project. (Attach sheet if more space is needed)

Construct and put in Use Wells 11 & 12

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)

STATE OF SOUTH DAKOTA)

County of Minnehaha)^{ss}

I, John Buss, MCWC, the applicant, certify that I have read this application, have examined the attached map and that the matters stated are true and that I intend, and am able to complete the necessary construction.

Signed John Buss

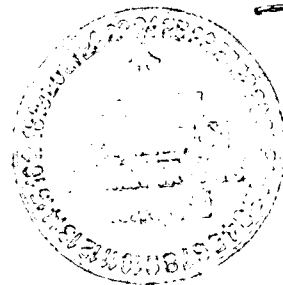
Subscribed and sworn to before me this 22 day of February 19 94

JAN EVANS, Notary Public
My Commission Expires June 30, 1995

Notary Public

Supplemental Information

(type or print in ink)



1. Well Information - Proposed Construction

- a) Drill Hole Diameter 42" Depth 11 - 45', 12 - 43'9"
- b) Casing Type Steel Diameter 12" Thickness .375"
- c) Screen Type Stainless Steel Diameter 26" Thickness .375"
- d) Gravel Pack Thickness 8" Length of Gravel Pack 32'
- e) Depth to Top of Water Bearing Material 14'
- f) Depth to Water (ground surface to water level) 5'
- g) Distance to nearest existing domestic well:

On applicants property _____ On property owned by others 2200'

* See Map

Will Be hooking up to Rural Water

2. Dugout Information

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

3. Water Storage Dams

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

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

b) Freeboard _____

c) Crest Width _____

Crest Length _____

d) Height _____

e) Primary Outlet Capacity _____

If pipe, diameter _____

f) Secondary Spillway Capacity _____

Spillway Width _____

g) X & Y Slope

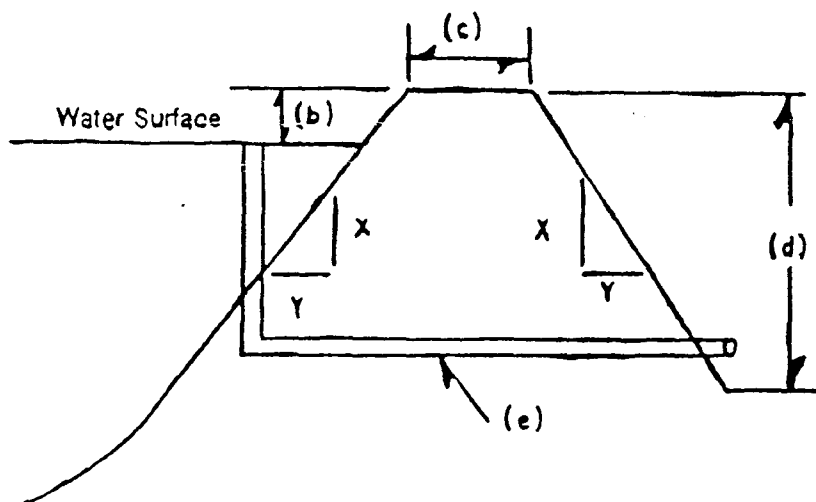
Upstream _____

Downstream _____

h) Surface Area of Impoundment _____

i) Storage _____ Acre Feet

j) Drainage Area Above Dam _____ Acres



**SOUTH DAKOTA
WATER PERMIT NO. 5805-3**

Date of first receipt of application February 17, 1994.

Date of return to applicant for corrections, amendments or changes February 18, 1994.

Date of receipt of corrected application February 24, 1994.

The Water Management Board approved Water Permit Application No. 5805-3 on June 28, 1994 for Minnehaha Community Water Corporation, RR 2, Box 26A, Dell Rapids SD 57022 authorizing the construction of the water use system and the placing of water to beneficial use subject to the following limitations, conditions and qualifications:

1. Water Permit No. 5805-3 authorizes construction and beneficial use of 2.9 cubic feet of water per second (1467 acre-feet annually) reserved for future use by Permit Nos. 4838-3 and 4838A-3. The point of diversion will be from two wells (Sioux Falls Management Unit of the Big Sioux Aquifer) 45 and 44 feet deep located in the S 1/2 SE 1/4 Section 29-T104N-R49W.
2. The water appropriated shall be used for the purpose of supplying water to the Minnehaha Community Water Corporation's system and may not exceed the amount of water needed for beneficial use for rural water system purposes.
3. The water is to be used during the following described annual period: January 1 - December 31.
4. The date from which applicant may claim right is October 19, 1981 (established by Future Use Permit No. 4838-3).
5. One-fifth of the construction is to be completed on or before December 28, 1996.
6. All construction is to be completed on or before June 28, 1999.
7. Water is to be put to beneficial use on or before June 28, 2003.
8. Water rights obtained in compliance with the laws of the State of South Dakota may not be unlawfully impaired by this appropriation.

QUALIFICATION

If development and pumping of Sioux Falls Management Unit of the Big Sioux Aquifer water by Water Permit No. 5803-3 results in adverse impairment of adequate domestic wells or adequate wells having prior rights, reduction of withdrawals or mitigation may be necessary. SDCL 46-1-5(1), in giving preference to domestic use over appropriative rights does so without regard to 1) whether lowered groundwater levels are due to drought, 2) the location of the domestic wells in the aquifer, or 3) the thickness of the water bearing sand and gravel; subject to compliance with minimum requirements for adequate wells as defined by Board Well Construction Standards, Chapter 74:02:04.

WATER MANAGEMENT BOARD

By: 
John Hatch, Chief Engineer
Water Rights Division
Department of Environment and Natural Resources

JUL 25 1994
date



MINNEHAHA COMMUNITY WATER CORP.

RURAL ROUTE 2, BOX 26A
DELL RAPIDS, SOUTH DAKOTA 57022
TELEPHONE (605) 428-3374 or (605) 529-5799
FAX (605) 428-3395

August 5, 1993



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

ATTN: Jim Goodman

Dear Jim:

Please consider this a request to construct two test wells in the Southeast Quarter of Section 29 of Dell Rapids Township, in Minnehaha County, South Dakota. (See enclosed site plan.)

These wells will be constructed according to all state well construction standards, and will be constructed by Layne Western Company, Inc.

Our intentions are to apply for a permit to appropriate this water and convert these wells to production wells if we get sufficient yield from them.

Thank you for your consideration of this request.

Sincerely,


John H. Buss
Manager

JHB/eg

Enclosure



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

August 11, 1993

John H. Buss
Minnehaha Community Water Corp.
RR 2, Box 26A
Dell Rapids, SD 57022

Dear Mr. Buss:

As requested, pursuant to South Dakota Well Construction Standard 74:02:04:21, Minnehaha Community Water Corporation is authorized to construct two test wells in the Sec. 29, T104N-R49W, prior to approval of a water permit. The test wells must be constructed in accordance with the SD Well Construction Standards. Any test holes that are abandoned must be plugged pursuant to the SD Well Construction Standards.

Very truly yours,

JAMES A. GOODMAN, P.E.
Natural Resources Engineer
for JOHN HATCH, Chief Engineer
Water Rights Division
(605) 773-3352



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

February 18, 1994

John Buss
Minnehaha Community Water Corp.
RR 2, Box 26A
Dell Rapids SD 57022

Dear Mr. Buss:

We received the water permit application to place water to beneficial use reserved by Future Use Permit No. 4838-3. The following information needs to be submitted and clarified in order to process the application.

1. The map must be signed by one of the following: Registered Land Surveyor, Registered Professional Engineer or by any other government employee who normally prepares maps as a part of his assigned duties (i.e. local SCS or ASCS office).
2. The application must be signed and notarized.
3. Well locations # 11 & 12 as marked on the map, do not correspond with the locations as described on Item No. 4 of the application. Please make the necessary corrections to the map or the application.

Upon receipt of the above, further processing of the application will continue. If you have any questions, please contact this office.

Sincerely,

Karen Schlaak

Karen Schlaak
Environmental Scientist
605 773-3352

enclosure

1. Contract Minnehaha Community Water Corp Date 10-11-93
2. City and State Dell Rapids, SD. Driller Dave Deaver
3. Well No. 11 at test hole No. 11 Well location (attach map) 1 mile south
of water treatment plant
4. Work completed 10-11-93 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	<u>6.7'</u>	<u>26"OD</u>	<u>.375</u>	<u>SS</u>	<u>WR</u>	<u>100</u>
7. Inner Casing	<u>38.3'</u>	<u>12"</u>	<u>.375</u>	<u>Black</u>	<u>Blank</u>	
8. Outer Casing						

9. 15 tons of gravel used in the well. Size 3/16 x 6 x 8 x 10 Northern Gravel Co.
10. Test of well. Did you use test or permanent pump? Yes Sub. Test Pump
Size of Bowl _____ Stages _____
11. Size of orifice _____ inch by _____ inch. Orifice tube reading _____ inches.
12. Pumping test — measurements from ground level:

TIME	G.P.M.	STATIC	DRAWDOWN	PUMPING LEVEL
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

13. Recovery in 5 minutes _____, in 30 minutes _____
14. Did you seal bottom of well? Yes Thickness .375 inches, material SS Plate
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 _____ feet to _____ feet; from _____ feet to _____ feet; from _____ feet to _____ feet.
17. Depth of well from ground level to top of plug 45' Size of drilled hole 42"
18. Was cement placed around or between any of the casings? Yes
19. If so, state where, how much and method used. 13' to ground level. 5.5 cu. yds. by
tremmie pipe

Well No.....11

45'

27' Gravel Pack

Depth

Bentonite Seal 5'

Cement Grout 13'

4' Casing Extension

42" Drilled Hole

6.7' Screen

Bottom 1' blank

26" Plug SS plate .375

38.3' Casing

Natural Ground Level

JOB NAME Minnesota
 Address New Well Field
 City, State _____

DATE 11-22-93 Job Completion
 Month Day Year

PUMP NO. 113116-2 Oil-Water Lube
 Pump Trouble _____ New-Repair

PUMP SIZE

	DIAMETER	LENGTHS
Discharge	Above Below	X
Column	Screw Flange	
Tubing		
Shaft	Stainless Carbon	

Column setting to bowl 37 ft.

BOWL

Diameter 8" Shaft Diameter _____

Type 8R SMC Stages 1

Cast Iron or Bronze

Suction 0 " Diameter _____ Ft. Long

Special Paint or Coating on: _____ Zinc Sleeves in:

Column _____

Tubing _____

MOTOR OR GEAR DRIVE

Make Franklin HP 25

Speed 3450 Volts 480

Standard
 Or Gear Drive Ratio _____ Combination

Frame Size _____ Non-Reverse — Yes No

Running Amps. 27.5

Running Volts 480

Serial No. 15-0057

WELL

No. 11 Year Drilled 93

Location New Well Field

Diameter 12" Depth 52.10

Measured from top of 12" diameter casing which is

4 feet above ground

Tape to Water 18.6

Air Line Length 11.1 A.L. Material _____

Static Gage _____ Static Level _____

Pumping Gage _____ Pumping Level _____

Discharge Pressure _____ Feet when pumping into
 System

INSTALLER D. C. Brown

Rig Used 27

Foreman Hours to Rig Up _____ To Pull _____

Inspect _____ Repair _____ To Set _____

PUMP REPAIR

CONDITION OF PUMP WHEN PULLED	NEW PARTS INSTALLED
Column _____	Column _____
Tubing _____	Tubing _____
Shafting _____	Shafting _____
Bowl _____	Bowl _____
Suction _____	Suction _____
MACHINE WORK _____	1. DRAIN PORTS OPEN Yes No 2. CHLORINATE WELL Yes No 3. PUMP RUNS _____ 4. ALIGN PUMP HEAD WITH DIAL INDICATOR Yes No 5. GROUTED HEAD-BASE PLATE Yes No



Well # 11

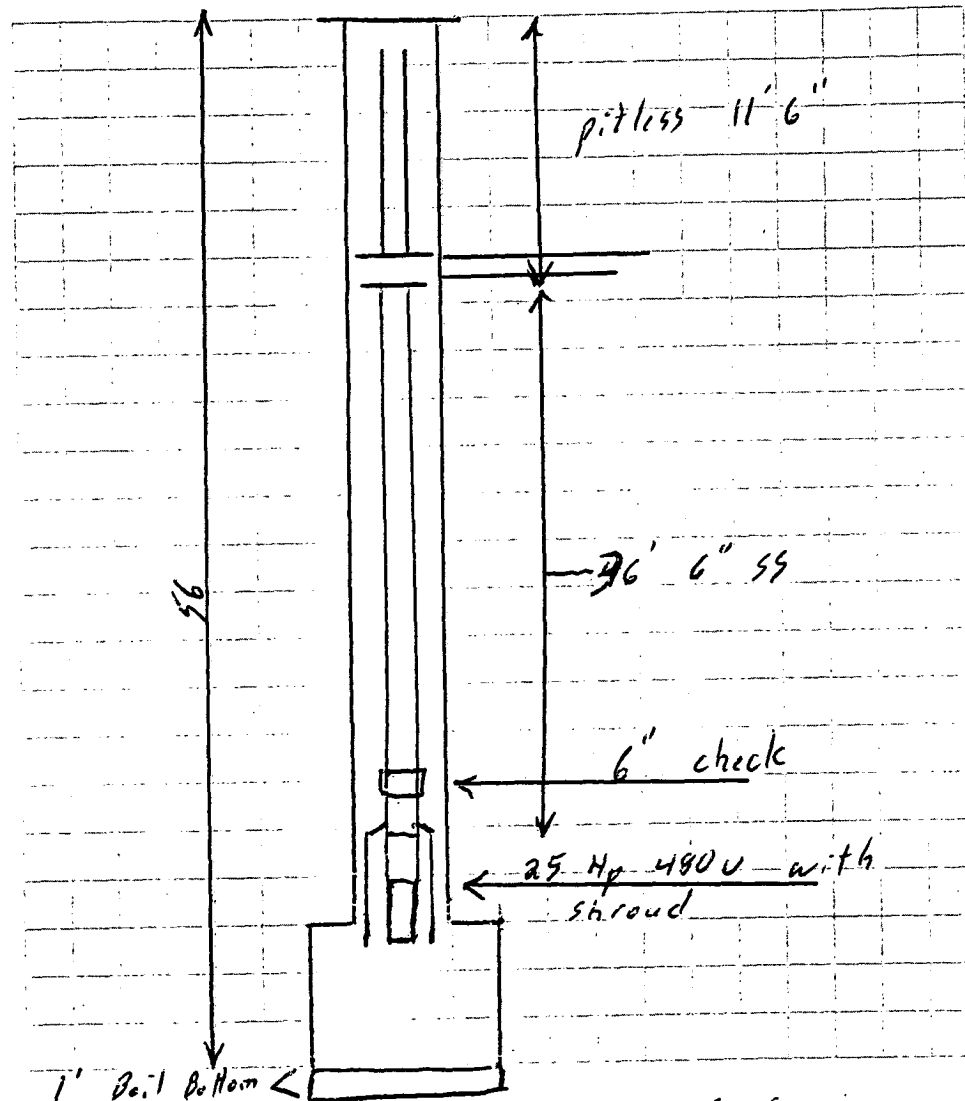
SDWWA

P.O. Box 353

Pierre, South Dakota 57501-0353

- Sponsor of Workshops and Seminars
- Technical and Reference Books Sales
- Annual Conference

SDWWA — "Where Operators Meet"



1995 Annual Conference — Aberdeen
September 20-21-22

RAMKOTA INN

1. Contract Minnehaha Community Water Corp. Date 9-28-93
2. City and State Dell Rapids, SD Driller Dave Deaver
3. Well No. 12 at test hole No. 12 Well location (attach map) 1 mile and 600'
south of water treatment plant.
4. Work completed 9-28-93 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	<u>6.7'</u>	<u>26" OD</u>	<u>.375</u>	<u>SS</u>	<u>WR</u>	<u>.100</u>
7. Inner Casing	<u>37.2</u>	<u>12"</u>	<u>.375</u>	<u>Black</u>	<u>Blank</u>	
8. Outer Casing						
9. 14 tons of gravel used in the well. Size 3/16 x 6 x 8 x 10 Northern Gravel Co.
10. Test of well. Did you use test or permanent pump? Yes Sub test pump _____
Size of Bowl _____ Stages _____
11. Size of orifice _____ inch by _____ inch. Orifice tube reading _____ inches.
12. Pumping test — measurements from ground level:

TIME	G.P.M.	STATIC	DRAWDOWN	PUMPING LEVEL
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

13. Recovery in 5 minutes _____, in 30 minutes _____
14. Did you seal bottom of well? Yes Thickness .375 inches, material SS plate
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 _____ feet to _____ feet; from _____ feet to _____ feet; from _____ feet to _____ feet.
17. Depth of well from ground level to top of plug 43.9 Size of drilled hole 42"
18. Was cement placed around or between any of the casings? Yes
19. If so, state where, how much and method used. 12.9' to ground level. 7.5 cu. yds.
by tremmie pipe.

Well No. 12.

The diagram illustrates a cross-section of a well casing assembly. The total depth from the top of the casing to the bottom of the gravel pack is 43.9 feet. The components are as follows:

- Gravel Pack:** 26' thick, located at the bottom.
- Bentonite Seal:** 5' thick, located above the gravel pack.
- Cement Grout:** 12.9' thick, located above the bentonite seal.
- Casing Extension:** 4' thick, located at the very bottom.

The casing itself is composed of several sections:

- Bottom 1' blank:** A section at the bottom of the casing.
- Screen:** 6.7' long, located below the blank section.
- SS plate .375:** A 26" thick stainless steel plate located below the screen.
- Casing:** 37.2' long, located above the SS plate.

A vertical dimension of 42' is indicated for the "Drilled Hole". The "Natural Ground Level" is shown at the bottom right of the diagram.

Layne-Western Company, Inc.

PUMP INSTALLATION

JOB NAME Minnetonka
 Address New well field
 City, State _____

DATE 11 - 22 - 93 Job Completion
 Month Day Year

PUMP NO. 113116-1 Oil-Water Lube
 Pump Trouble _____ New-Repair

PUMP SIZE

	DIAMETER	LENGTHS
Discharge	Above Below	X
Column	Screw Flange	
Tubing		
Shaft	Stainless Carbon	

Column setting to bowl 37 ft.

BOWL

Diameter 3" Shaft Diameter _____

Type 8B SMC Stages 1

Cast Iron or Bronze

Suction 0 " Diameter _____ Ft. Long

Special Paint or Coating on: _____ Zinc Sleeves in:

Column _____

Tubing _____

MOTOR OR GEAR DRIVE

Make Franklin HP 25

Speed 3450 Volts 480

Or Gear Drive Ratio _____ Standard
 Combination

Frame Size _____ Non-Reverse — Yes No

Running Amps. 37.5

Running Volts 480

Serial No. 150102

WELL

No. 12 Year Drilled 93

Location New well field

Diameter 12" Depth 56.11"

Measured from top of 12" diameter casing which is
4 feet above ground

Tape to Water 18.6"

Air Line Length None A.L. Material _____

Static Gage _____ Static Level _____

Pumping Gage _____ Pumping Level _____

Discharge Pressure _____ Feet when pumping into
 System

INSTALLER D. Cronin

Rig Used 27

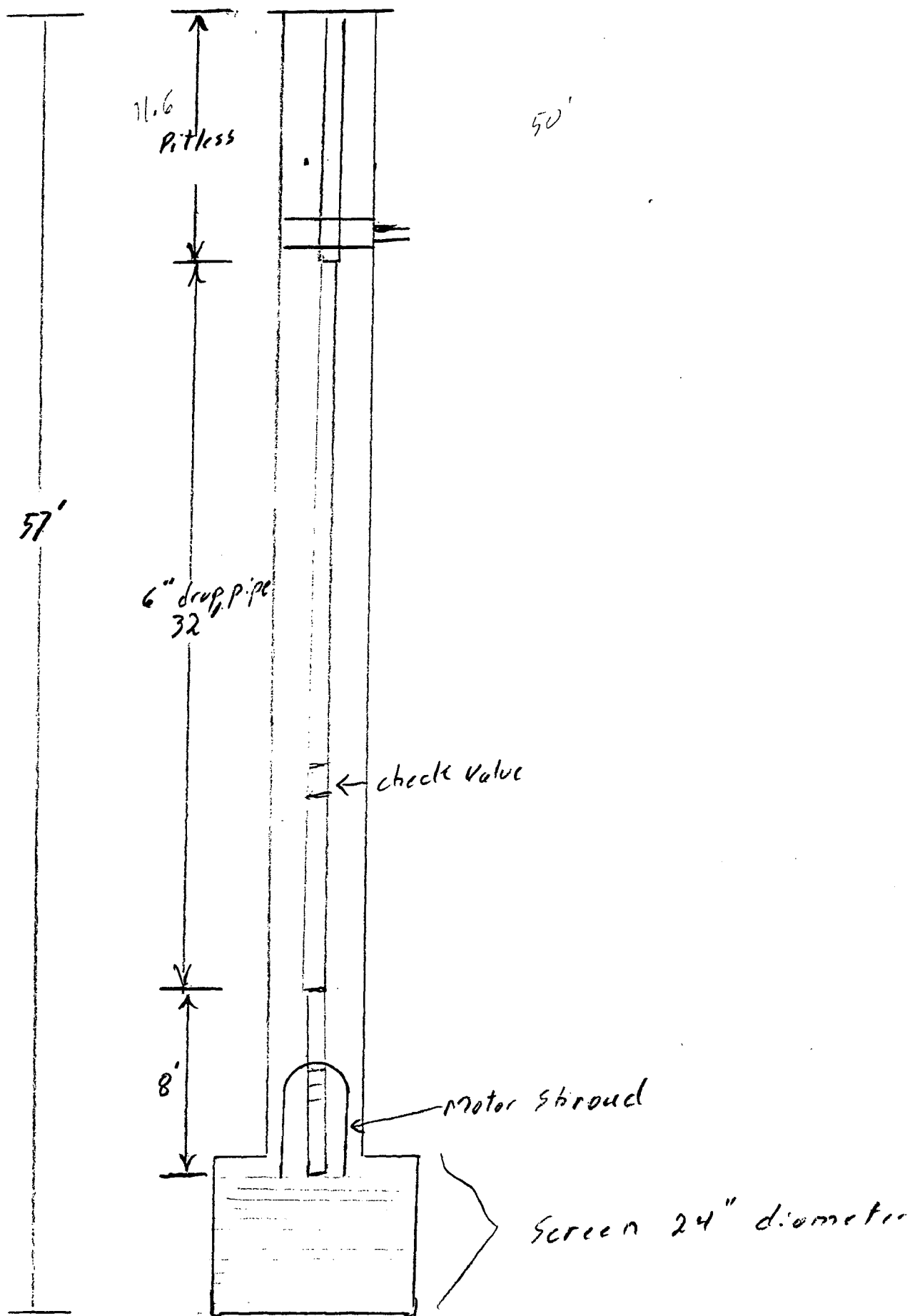
Foreman Hours to Rig Up _____ To Pull _____

Inspect _____ Repair _____ To Set _____

PUMP REPAIR

CONDITION OF PUMP WHEN PULLED	NEW PARTS INSTALLED
Column _____	Column _____
Tubing _____	Tubing _____
Shafting _____	Shafting _____
Bowl _____	Bowl _____
Suction _____	Suction _____
MACHINE WORK _____	1. DRAIN PORTS OPEN Yes No
	2. CHLORINATE WELL Yes No
	3. PUMP RUNS _____
	4. ALIGN PUMP HEAD WITH DIAL INDICATOR Yes No
	5. GROUTED HEAD-BASE PLATE Yes No

Well #12





SDWWA

P.O. Box 353

Pierre, South Dakota 57501-0353

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SDWWA — "Where Operators Meet"

pulled well #11 10-23-96
check valve stuck open
replaced check valve

6' 7"

1995 Annual Conference — Aberdeen
September 20-21-22

RAMKOTA INN

Invoice

In Water Since 1946

LACEY WELL DRILLING

RR 1 - Box 24
Dell Rapids, SD 57022
Telephone (605) 428-5979

7692

Sold To

Minnehaha RWS

DATE

12-17-96

CUSTOMER'S
ORDER NO.

SHIP TO

SOLD BY	CASH	C.O.D.	CHARGE	ON ACCT.	MDSE. RETD.	PAID OUT	
QUANTITY	DESCRIPTION					PRICE	AMOUNT
1	6" Crown Check Valve						325.00
	Motor Shroud						50.00
	Taps - Blue - Min						6.00
	Time - Travel shop						300.00
							731.00
							30.92
	Jim - NEVER ABLE TO USE THE OLD SS						761.92
	WIPPLE BACK ON THIS ONE.						
	Total						
	Thanks						
	Jim						
	Lacy						

All claims and returned goods must be accompanied by this bill.

TERMS: Net Cash 30 Days - 1% Service Charge Per Month on Accounts 30 Days Past Due.

RECEIVED BY

Check value stuck open on
well #12 Replaced 12-17-96

RECEIPT

414046

Division of Water Rights

South Dakota Department of Environment and Natural Resources

Pierre, _____ February 17, 19 94

RECEIVED OF Minnehaha Community Water Corp, RR 2 Box 26A, Dell Rapids, SD 57022

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

Fee for Application for Permit No. <u>5805-3</u> to Appropriate Water, to construct and to put water to beneficial use _____	500	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 _____		

(Any Other Work Provided by Law)	Total	500 00

By John Hatch
Chief Engineer

WATER SUPPLY WELLS #11 AND #12
MINNEHAHA COMMUNITY WATER CORP.
DELL RAPIDS, SOUTH DAKOTA

1. Pump Test Data: Wells Number 11 and 12 each are approximately 45' deep consisting of one foot of bail bottom, five feet of 26" stainless steel screen and approximately 39' of 12" well casing. Each well has a 14" pitless adapter unit on it that is 11'-6" long with 6" stainless steel column piping. Production Well #12 was pumped at an average rate of 520 gpm for 10 hours on October 6, 1993. Drawdown data was monitored and recorded at appropriate time intervals throughout the 10-hour pump test. Recovery data was also monitored and recorded at the appropriate time intervals for 4 hours following the pump test. Production Well #11 was pumped at an average rate of 530 gpm for 8 hours on October 8, 1993. Drawdown data was monitored and recorded at appropriate time intervals throughout the 8-hour pump test. Recovery data was also monitored and recorded at the appropriate time intervals for 2 hours following the pump test. The pump test and recovery data for the both production wells and the observation wells are in Appendix A.

2. Well Construction: The wells were constructed by drilling a 42" diameter hole 45' into the ground. The soils encountered were as follows:

Well #11

0'	to	2'	Topsoil
2'	to	5'	Gumbo
5'	to	14'	Brown Clay
14'	to	25'	Course and fine sand, small gravel
25'	to	35'	Sand, gravel and cobble stone
35'	to	45'	Sand, large gravel and cobble stone (large)

Well #12

0'	to	2'	Topsoil
2'	to	14'	Sticky Brown Clay
14'	to	30'	Sand, gravel and cobble stone
30'	to	43.9'	Sand, large gravel, cobble stone & boulders

Twelve-inch diameter steel casing pipes were installed in each well with a 26" diameter x 5' long stainless steel screen. The screens have a slot size of 0.100" with 417 square inches of opening per foot and were set one foot above the bottom of the water bearing sand (aquifer). The casing pipe was grouted in place to seal and protect the aquifer from ground water contamination. Refer to the drawing attached to the Well Drillers Log for specific measurements and detail on screen and grout placement.

The static water level is approximately 5' below the natural ground. The wells are located approximately 200' from the Big Sioux River in the SE 1/4 of Section 29-T104N-R49W. Both wells were disinfected with a chlorine solution before placing in operation.

The velocity of the water flowing through the screen should not exceed 0.1 ft/sec. Industry experience indicates that wells with a higher screen velocity will encrust with iron deposits quicker than wells where the screen velocity is lower. This encrustation also is dependant on the iron concentrations in the aquifer water. Based on a velocity of 0.1 ft/sec the maximum pumping rate for these wells is 650 gpm.

3. Well Hydraulics:

a. General: The primary purpose of well hydraulic calculations are to determine how much water will move through the aquifer formation and how much water can be removed from the formation by pumping. If these two items can be accurately predicted, then the following items can also be predicted:

- Aquifer drawdown at various distances from the production well.
- Production well drawdown at any time after pumping starts.
- The effects of multiple wells.
- Aquifer drawdown at various pumping rates.
- Well efficiency.

b. Coefficient of Transmissivity (T): The Coefficient of Transmissivity (T) indicates how much water will move through the aquifer formation. The Coefficient of Transmissivity of an aquifer is the rate at which water flows through a vertical strip of aquifer one (1) foot wide and extending through the full saturated thickness under a hydraulic gradient

of 100 percent. If an aquifer has a transmissivity of less than 1,000 gpd/ft, it can supply only enough water for domestic wells or other low-yield uses. When the transmissivity is 10,000 gpd/ft or more, well yields can be adequate for industrial, municipal, or irrigation purposes.

The Coefficient of Transmissivity is calculated from the pumping rate and the slope of the time-drawdown graph. The following formula is used to calculate the Coefficient of transmissivity:

$$T = \frac{264Q}{\Delta S}$$

where T = coefficient of transmissivity in gpd/ft

Q = pumping rate in gpm

ΔS = slope of the time-drawdown graph (over one log cycle)

Time-drawdown graphs were plotted from the data collected for each well that was monitored. These graphs are in Appendix A following the corresponding data sheets. The calculations for the Coefficient of Transmissivity for each well is shown in Table 1. The average Coefficient of Transmissivity for Well #11 is 802,000 gpd/ft based on the pumping data and 757,000 gpd/ft based on recovery data. The average Coefficient of Transmissivity for Well #12 is 374,000 gpd/ft based on the pumping data and 515,000 gpd/ft based on recovery data. The shape of the Cone of Depression is affected by the transmissivity of the aquifer. In a formation with low transmissivity, the cone is deep with steep sides and has small radius. In a formation with high transmissivity, the cone is shallow with flat sides and has a large radius. Greater hydraulic head is required to move water through a less permeable formation than through a more permeable formation causing a steeper cone of depression. A distance-drawdown graph illustrates the cone of depression. The distance-drawdown graphs were plotted for each well and are illustrated in Figure 1 and Figure 2. These plots can be used to predict the water level of the aquifer at various distances from the well. In a confined aquifer this drawdown curve represents the hydrostatic pressure in the aquifer.

TABLE 1
COEFFICIENT OF TRANSMISSIVITY
AND
COEFFICIENT OF STORAGE

Pumping Well #12 at a rate of: 520 GPM		PUMPING DATA				RECOVERY DATA	
MONITORING POINT	S	COEFFICIENT OF TRANSMISSIVITY GPD/FT	t _v Days	r Ft.	COEFFICIENT OF STORAGE	S	COEFFICIENT OF TRANSMISSIVITY GPD/FT
WELL # 12	0.30	457,600	7E-11	1.08	8.17E-06	0.30	457,600
OBSERVATION WELL 11-O	0.23	596,870	9E-06	489.16	6.76E-06	0.25	549,120
OBSERVATION WELL 12-O	0.31	442,839	7E-11	11.65	6.80E-08	0.30	457,600
ORIGINAL TEST WELL	---	---	---	177.57	---	0.23	596,870
AVERAGE		374,327			3.75E-06		515,297

Pumping Well #11 at a rate of: 529 GPM		PUMPING DATA				RECOVERY DATA	
MONITORING POINT	S	COEFFICIENT OF TRANSMISSIVITY GPD/FT	t _v Days	r Ft.	COEFFICIENT OF STORAGE	S	COEFFICIENT OF TRANSMISSIVITY GPD/FT
WELL # 11	0.19	722,526	7E-11	1.08	1.29E-05	0.18	762,667
OBSERVATION WELL 11-O	0.18	762,667	7E-11	16.22	6.04E-08	0.20	686,400
OBSERVATION WELL 12-O	0.17	807,529	1E-05	495.95	1.37E-05	0.23	596,870
ORIGINAL TEST WELL	0.15	915,200	1E-05	470.91	1.29E-05	0.14	980,571
AVERAGE		801,981			9.89E-06		756,627

MCWC Well #11

Drawdown vs Distance

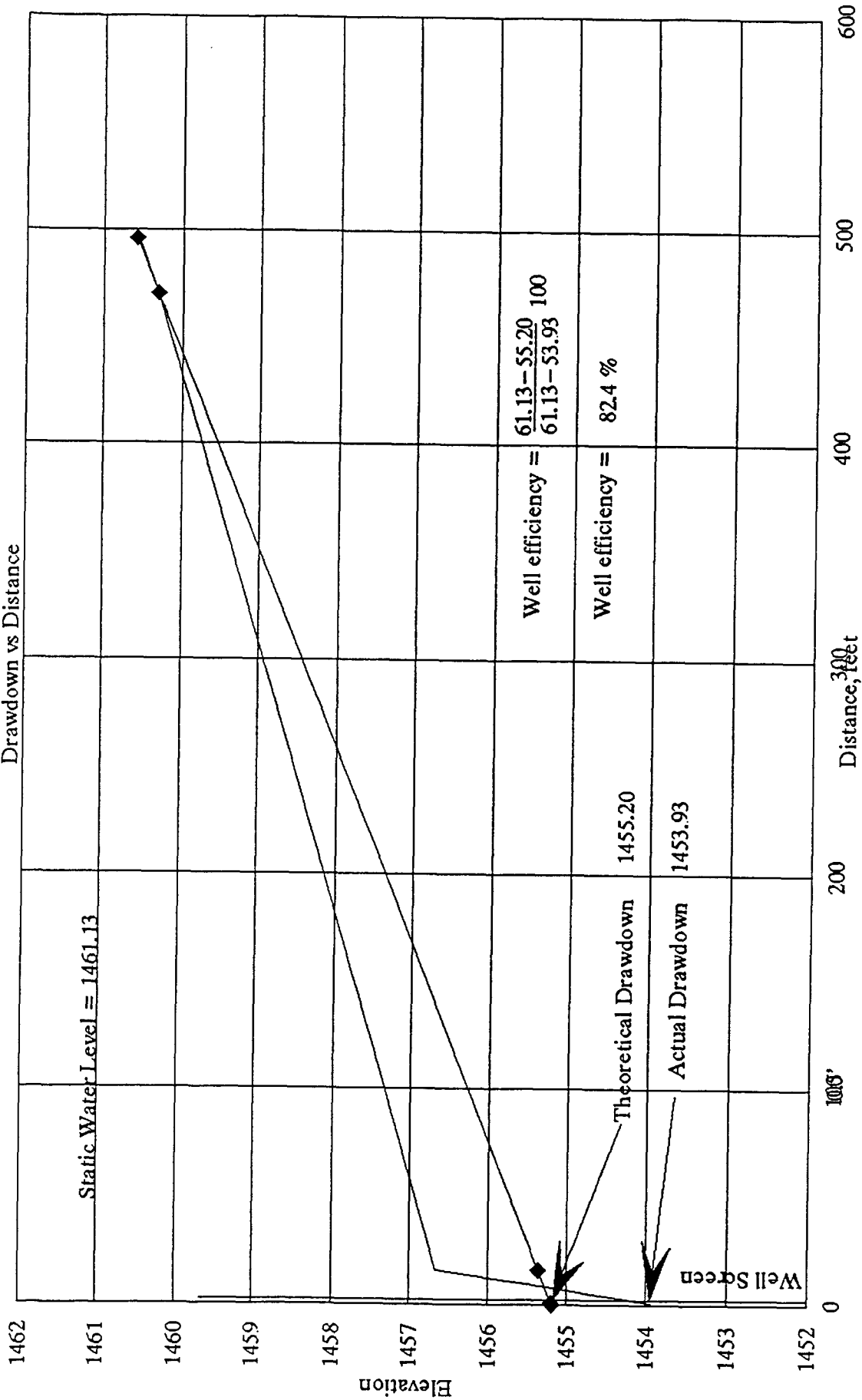


FIGURE 1

MCWC Well #12

Drawdown vs Distance

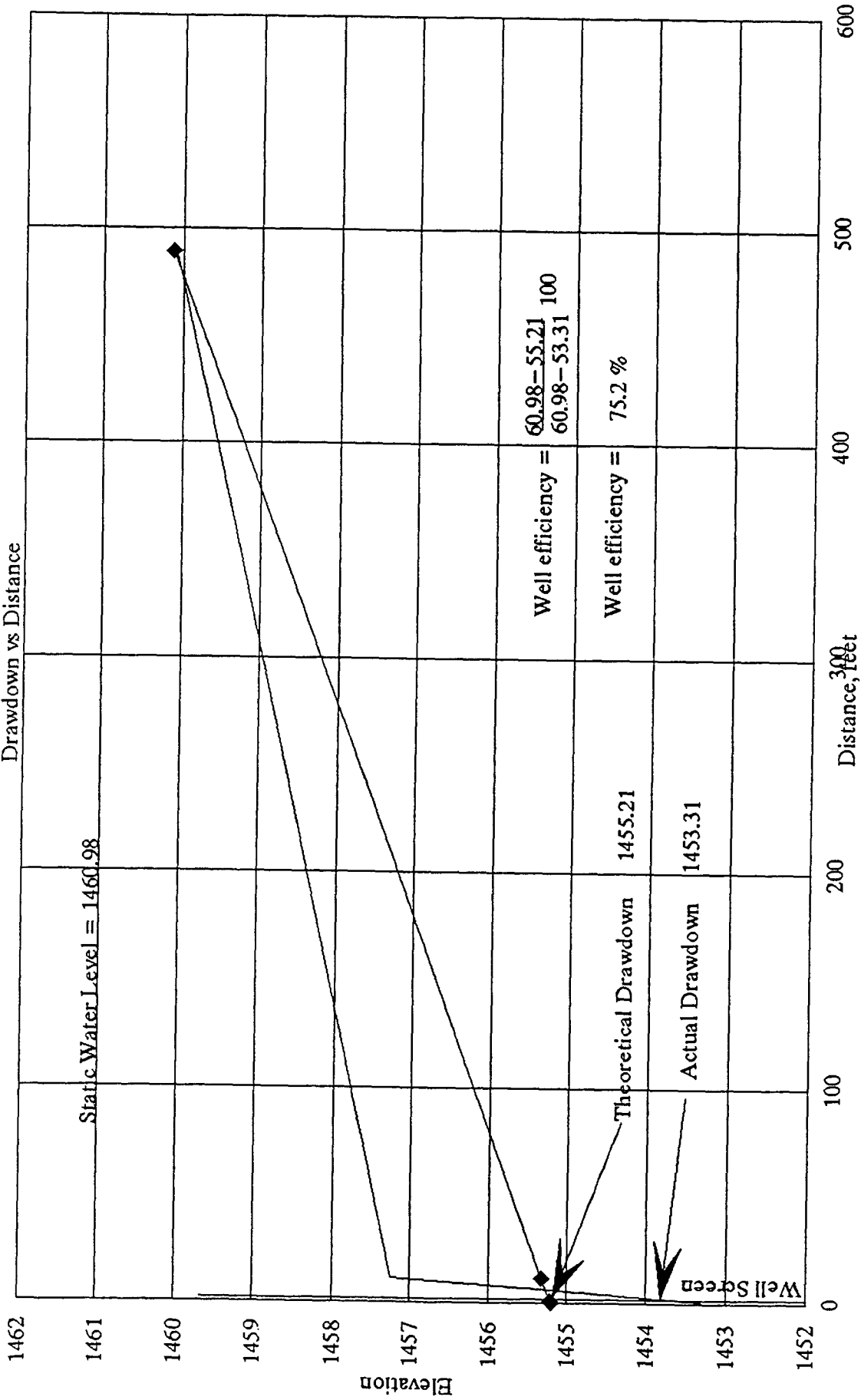


FIGURE 2

The cone of depression will continue to enlarge until one or more of the following conditions is met:

1. It intercepts enough of the flow in the aquifer to equal the pumping rate.
2. It intercepts a body of surface water from which enough additional water will enter the aquifer to equal the pumping rate when combined with all the flow toward the well.
3. Enough vertical recharge from precipitation occurs within the radius of influence to equal the pumping rate.
4. Sufficient leakage occurs through overlying or underlying formations to equal the pumping rate.

c. Coefficient of Storage (S): The Coefficient of Storage (S), determines how much water can be removed from the formation by pumping. The Coefficient of Storage can be further defined as representing the volume of water released from storage per unit of aquifer storage area per unit change in head. In confined aquifers, S is the result of compression of the aquifer and expansion of the confined water when the head (pressure) is reduced during pumping. The Coefficient of Storage is dimensionless.

The Coefficient of Storage is also readily calculated from the time-drawdown graph. The Coefficient of Storage is calculated from the following formula:

$$S = \frac{0.3 T t_0}{r^2}$$

where S = Storage Coefficient

T = Coefficient of Transmissivity in gpd/ft

t_0 = intercept of the straight line at zero drawdown in days

r = distance, in feet, from the pumped well to observation well where the drawdown measurements were made.

The Average Coefficient of Storage (S) for Well #11 is 9.89×10^{-6} . The Average Coefficient of Storage (S) for Well #12 is 3.75×10^{-6} . The Coefficient of Storage Value is one indicator used to determine whether the aquifer is an unconfined aquifer or a confined aquifer. Values of S for unconfined aquifers range from 0.01 to 0.3; values of S for confined aquifers range from 10^{-5} to 10^{-3} . The Coefficient of Storage values calculated for Wells 11 and 12 indicate that the wells are in a confined aquifer.

d. Hydraulic Conductivity and Well Yield: Hydraulic conductivity (K) is the volume of water per unit of time that can flow through 1 square foot of the aquifer. This is usually expressed in gallons per day per square foot. Well yield is the volume of water per unit of time discharged from a well either by pumping or free flow. This is usually expressed in gallons per minute.

$$K = \frac{5280 \log (r_2/r_1)}{b(h_2 - h_1)}$$

where:

- b= aquifer thickness
- r_1 = distance to nearest observation well
- r_2 = distance to farthest observation well
- h_1 = saturated thickness nearest observation well
- h_2 = saturated thickness farthest observation well

Well #11 has a Hydraulic conductivity of 3450 gpd/ft², with a specific capacity of 111 gpm per foot of drawdown. The maximum yield that the well can produce if the water was drawn down to the top of the screen is 2497 gpm.

Well #12 has a Hydraulic conductivity of 5285 gpd/ft², with a specific capacity of 176 gpm per foot of drawdown. The maximum yield that the well can produce if the water was drawn down to the top of the screen is 3566 gpm.

Based on the above information the controlling factor for the well pumping rate is not the aquifer. The controlling factor is the well screen. The maximum pumping rate is 650 gpm.

Based on the above information the controlling factor for the well pumping rate is not the aquifer. The controlling factor is the well screen. The maximum pumping rate is 650 gpm.

e. Well Efficiency: The efficiency of a well is a ratio between theoretical drawdown and actual drawdown of the pumped well. The factors affecting well efficiency are:

- Well screen, slot size and length of screen;
- Gravel pack, size and gradation;
- Well development;
- Placement of well screen.

The theoretical water surface elevation when pumping Well #11 is 1455.20. The actual water surface elevation when pumping Well #11 was 1453.93 at an average pumping rate of 530 gpm. The calculated well efficiency for Well #11 is 82.4%.

The theoretical water surface elevation when pumping Well #12 is 1455.21. The actual water surface elevation when pumping Well #12 was 1453.31 at an average pumping rate of 520 gpm. The calculated well efficiency for Well #12 is 75.2%.

4. Water Quality: Water samples were taken 20 minutes after each pump test was started and 20 minutes before the end of each pump test. The Laboratory results show very little change in the water quality after 10 hours of continuous pumping. Based on the Lab results the water would be classified as very hard with total dissolved solids over the AWWA recommended limit of 500 ppm. The water does not have a measurable concentration of Nitrate and compares very closely to the water quality of the other wells owned by Minnehaha Community Water Corp. except that the water is softer. The water is high in iron and manganese which would cause red water and staining of the laundry if untreated.

Parameter	Standard	Well 11-1	Well 11-2	Well 12-1	Well 12-2	Exist Wells	River Water
Field pH	6.5-8.5	7.4	7.4	7.4	7.4	7.2	8.6
Field temp.	---	10.0	10.0	10.0	10.0	---	6.6
Lab pH	6.5-8.5	7.21	7.24	7.32	7.10	7.26	7.95
Chloride	250 mg/l	24	23	12	18	23	41
Sulfate	250 mg/l	210	200	180	190	199	270
Alkalinity	---	270	270	320	310	316	260
Hardness	---	420	430	440	440	544	500
Calcium	---	300	304	272	---	142	250
Conductivity	---	900	780	810	870	962	1010
TDS	500 mg/l	620	620	530	560	694	710
Iron	0.3 mg/l	1.7	3.1	1.3	2.9	3.37	0.34
Manganese	0.05mg/l	0.87	0.66	0.95	0.69	0.88	0.13
Nitrate	10 mg/l		<0.1		<0.1	0.2	---

Samples 11-1 and 12-1 were taken 20 minutes after the start of each pump test and Samples 11-2 and 12-2 were taken 20 minutes before the end of each pump test.

5. Summary and Conclusions:

1. Well Characteristics and Capacity:

well depths	45'
casing	12"
screen length	5'
screen diameter	26"
screen slot size	0.100"
sq.in. opening/foot	417
pump capacity	650 gpm
motor horsepower	25

2. Aquifer Characteristics:

	<u>Well #11</u>	<u>Well #12</u>
Coefficient of Transmissivity (T)	802,000 gpd/ft	374,000 gpd/ft
Coefficient of Storage (S)	9.89×10^{-6}	3.75×10^{-6}
Hydraulic Conductivity	3450 gpd/ft ₂	5285 gpd/ft ₂
Specific Capacity	111 gpm/ft	176 gpm/ft
Well efficiency	82.4 %	75.2%

3. Water Quality

<u>Parameter</u>	<u>Standard</u>	<u>Well #11</u>	<u>Well #12</u>
Field pH	6.5-8.5	7.4	7.4
Alkalinity	---	270	320
Hardness	---	430	440
Calcium	---	304	272
TDS	500 mg/l	620	530
Iron	0.3 mg/l	3.1	1.3
Manganese	0.05mg/l	0.87	0.95
Nitrate	10 mg/l	<0.1	<0.1

WELL # 11

7576-02

MINNEHAHA COMMUNITY WATER CORP.
DELL RAPIDS, SOUTH DAKOTA
WELL FIELD EXPANSION BAI # 7576-02

PUMP TEST DATA SHEET

Pumping well # 11

READINGS @ WELL NO. 11

DATE: OCTOBER 8, 1993

STATIC READING: 13.6' ELEV. 1460.33

MEASURED BY: JIM RENTSCHLER

Corrected Elev. 1461.13

LAYNE-WESTERN

TIME SINCE PUMP TEST STARTED t Min	OBSERVATION CLOCK TIME	DEPTH TO WATER H	DEPTH TO WATER Corrected H	RESIDUAL DRAWDOWN s ft	DISCHARGE FLOW GPM
PUMP START	07:55 AM	13.60	12.77	0.00	529.0
1 min. 1	07:56 AM	19.70	18.87	-6.10	
2	07:57 AM	20.00	19.17	-6.40	
3	07:58 AM	20.11	19.28	-6.51	
4	07:59 AM	20.19	19.36	-6.59	
5	08:00 AM	20.25	19.42	-6.65	
6	08:01 AM	20.28	19.45	-6.68	
7	08:02 AM	20.30	19.47	-6.70	
8	08:03 AM	20.37	19.54	-6.77	
9	08:04 AM	20.37	19.54	-6.77	
2 min. 10	08:05 AM	20.39	19.56	-6.79	
12	08:07 AM	20.40	19.57	-6.80	
14	08:09 AM	20.41	19.58	-6.81	
16	08:11 AM	20.42	19.59	-6.82	
18	08:13 AM	20.43	19.60	-6.83	
5 min. : 20	08:15 AM	20.44	19.61	-6.84	
25	08:20 AM	20.47	19.64	-6.87	
30	08:25 AM	20.47	19.64	-6.87	
35	08:30 AM	20.48	19.65	-6.88	
40	08:35 AM	20.50	19.67	-6.90	
45	08:40 AM	20.50	19.67	-6.90	
50	08:45 AM	20.51	19.68	-6.91	
55	08:50 AM	20.51	19.68	-6.91	
10 min. 60	08:55 AM	20.52	19.69	-6.92	
70	09:05 AM	20.55	19.72	-6.95	
80	09:15 AM	20.55	19.72	-6.95	
90	09:25 AM	20.57	19.74	-6.97	
20 min. 100	09:35 AM	20.58	19.75	-6.98	
30 min. 120	09:55 AM	20.60	19.77	-7.00	
150	10:25 AM	20.63	19.80	-7.03	
180	10:55 AM	20.66	19.83	-7.06	

MINNEHAHA COMMUNITY WATER CORP.
DELL RAPIDS, SOUTH DAKOTA
WELL FIELD EXPANSION BAI # 7576-02

PUMP TEST DATA SHEET

Pumping well # 11

READINGS @ WELL NO. 11

DATE: OCTOBER 8, 1993

STATIC READING: 13.6' ELEV. 1460.33

MEASURED BY: JIM RENTSCHLER

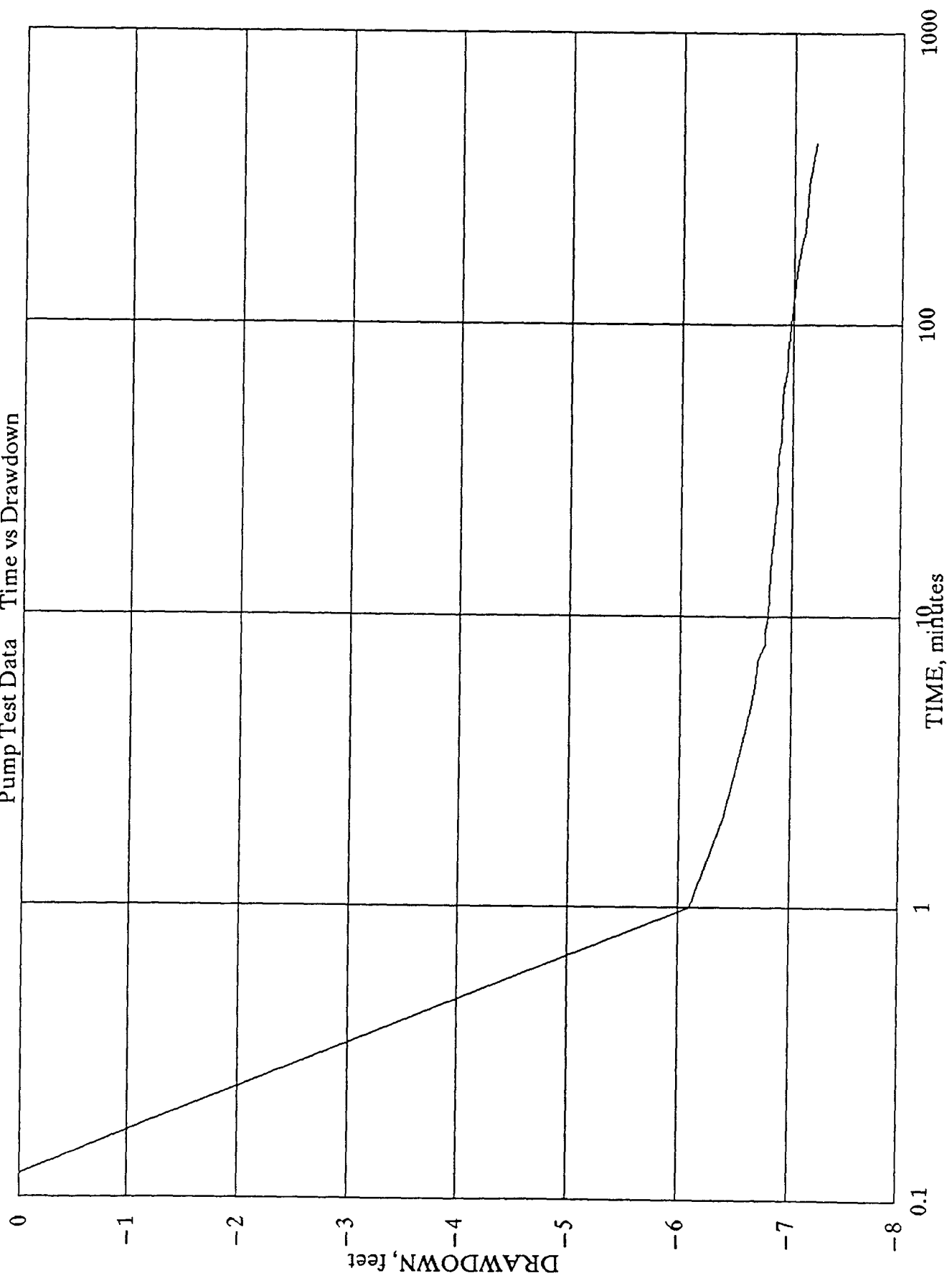
Corrected Elev. 1461.13

LAYNE-WESTERN

TIME SINCE PUMP TEST STARTED t Min	OBSERVATION CLOCK TIME	DEPTH TO WATER H	DEPTH TO WATER Corrected H	RESIDUAL DRAWDOWN s ft	DISCHARGE FLOW GPM
210	11:25 AM	20.70	19.87	-7.10	
60 min. 240	11:55 AM	20.72	19.89	-7.12	
300	12:55 PM	20.74	19.91	-7.14	
360	01:55 PM	20.77	19.94	-7.17	
420	02:55 PM	20.80	19.97	-7.20	
end					

NOTES:

MCWC Well # 11
Pump Test Data Time vs Drawdown



MINNEHAHA COMMUNITY WATER CORP.
DELL RAPIDS, SOUTH DAKOTA
WELL FIELD EXPANSION BAI #7576-02

RECOVERY DATA SHEET

After Pumping Well # 11

READINGS @ WELL NO. 11

DATE: OCTOBER 8, 1993

STATIC READING: 13.6' ELEV. 1460.33

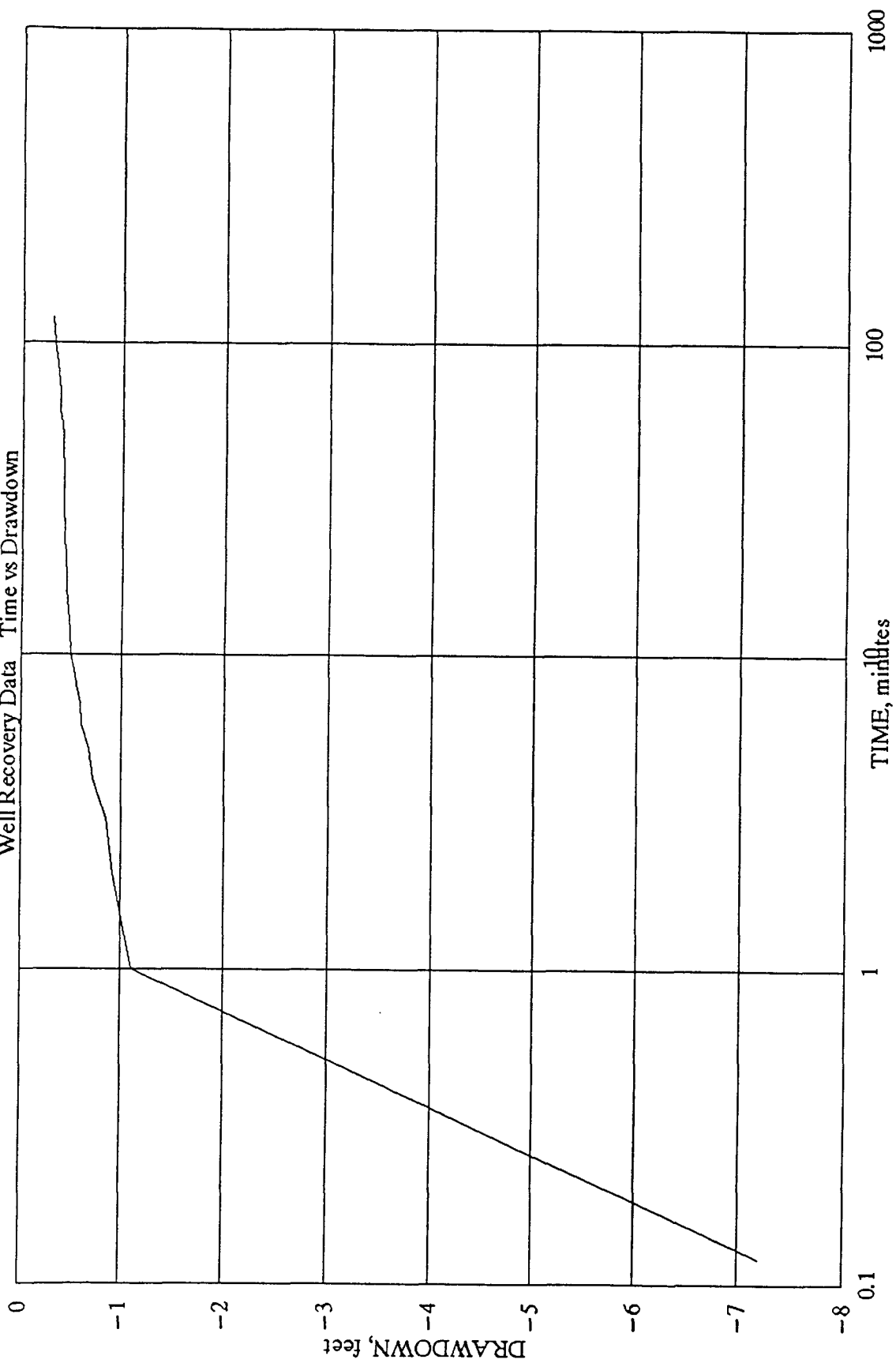
MEASURED BY : JIM RENTSCHLER

Corrected Elev. 1461.13

LAYNE-WESTERN

TIME SINCE PUMP TEST STOPPED t Min	OBSERVATION CLOCK TIME	DEPTH TO WATER H	DEPTH TO WATER Corrected H	RESIDUAL DRAWDOWN s ft
PUMP STOPPED	03:02 PM	20.80	19.97	-7.20
1 min. 1	03:03 PM	14.70	13.87	-1.10
2	03:04 PM	14.52	13.69	-0.92
3	03:05 PM	14.45	13.62	-0.85
4	03:06 PM	14.32	13.49	-0.72
5	03:07 PM	14.28	13.45	-0.68
6	03:08 PM	14.20	13.37	-0.60
7	03:09 PM	14.19	13.36	-0.59
8	03:10 PM	14.15	13.32	-0.55
9	03:11 PM	14.13	13.30	-0.53
2 min. 10	03:12 PM	14.10	13.27	-0.50
12	03:14 PM	14.08	13.25	-0.48
14	03:16 PM	14.06	13.23	-0.46
16	03:18 PM	14.05	13.22	-0.45
18	03:20 PM	14.05	13.22	-0.45
5 min. 20	03:22 PM	14.04	13.21	-0.44
25	03:27 PM	14.03	13.20	-0.43
30	03:32 PM	14.02	13.19	-0.42
35	03:37 PM	14.02	13.19	-0.42
40	03:42 PM	14.02	13.19	-0.42
45	03:47 PM	14.01	13.18	-0.41
50	03:52 PM	14.01	13.18	-0.41
55	03:57 PM	14.00	13.17	-0.40
10 min. 60	04:02 PM	13.98	13.15	-0.38
70	04:12 PM	13.98	13.15	-0.38
80	04:22 PM	13.96	13.13	-0.36
90	04:32 PM	13.94	13.11	-0.34
20 min. 100	04:42 PM	13.92	13.09	-0.32
30 min. 120	05:02 PM	13.90	13.07	-0.30

MCWC Well #11
Well Recovery Data Time vs Drawdown



MINNEHAHA COMMUNITY WATER CORP.
DELL RAPIDS, SOUTH DAKOTA
WELL FIELD EXPANSION BAI # 7576-02

PUMP TEST DATA SHEET

Pumping Well # 11

READINGS @ OBSERVATION WELL 11-O

DATE: October 8, 1993

Obsv. Well is 16.22' from Well #11

STATIC READING: 6.36' Elev. 1461.13

MEASURED BY: DGO

Banner Assoc. Inc.

TIME SINCE PUMP TEST STARTED t Min	OBSERVATION CLOCK TIME	DEPTH TO WATER H	RESIDUAL DRAWDOWN s ft	DISCHARGE FLOW GPM
PUMP START	07:55 AM	6.36	0.00	
1 min. 1	07:56 AM	9.88	-3.52	
2	07:57 AM	10.00	-3.64	
3	07:58 AM	10.14	-3.78	
4	07:59 AM	10.23	-3.87	
5	08:00 AM	10.27	-3.91	
6	08:01 AM	10.31	-3.95	
7	08:02 AM	10.34	-3.98	
8	08:03 AM	10.36	-4.00	
9	08:04 AM	10.37	-4.01	
2 min. 10	08:05 AM	10.40	-4.04	
12	08:07 AM	10.40	-4.04	
14	08:09 AM	10.42	-4.06	
16	08:11 AM	10.42	-4.06	
18	08:13 AM	10.44	-4.08	
5 min. 20	08:15 AM	10.45	-4.09	
25	08:20 AM	10.46	-4.10	
30	08:25 AM	10.47	-4.11	
35	08:30 AM	10.48	-4.12	
40	08:35 AM	10.49	-4.13	
45	08:40 AM	10.50	-4.14	
50	08:45 AM	10.51	-4.15	
55	08:50 AM	10.52	-4.16	
10 min. 60	08:55 AM	10.53	-4.17	
70	09:05 AM	10.54	-4.18	
80	09:15 AM	10.56	-4.20	
90	09:25 AM	10.58	-4.22	
20 min. 100	09:35 AM	10.58	-4.22	
30 min. 120	09:55 AM	10.61	-4.25	
150	10:25 AM	10.63	-4.27	
180	10:55 AM	10.67	-4.31	

MINNEHAHA COMMUNITY WATER CORP.
DELL RAPIDS, SOUTH DAKOTA
WELL FIELD EXPANSION BAI # 7576-02

PUMP TEST DATA SHEET

Pumping Well # 11

READINGS @ OBSERVATION WELL 11-O

DATE: October 8, 1993

Obsv. Well is 16.22' from Well #11

STATIC READING: 6.36' Elev. 1461.13

MEASURED BY: DGO

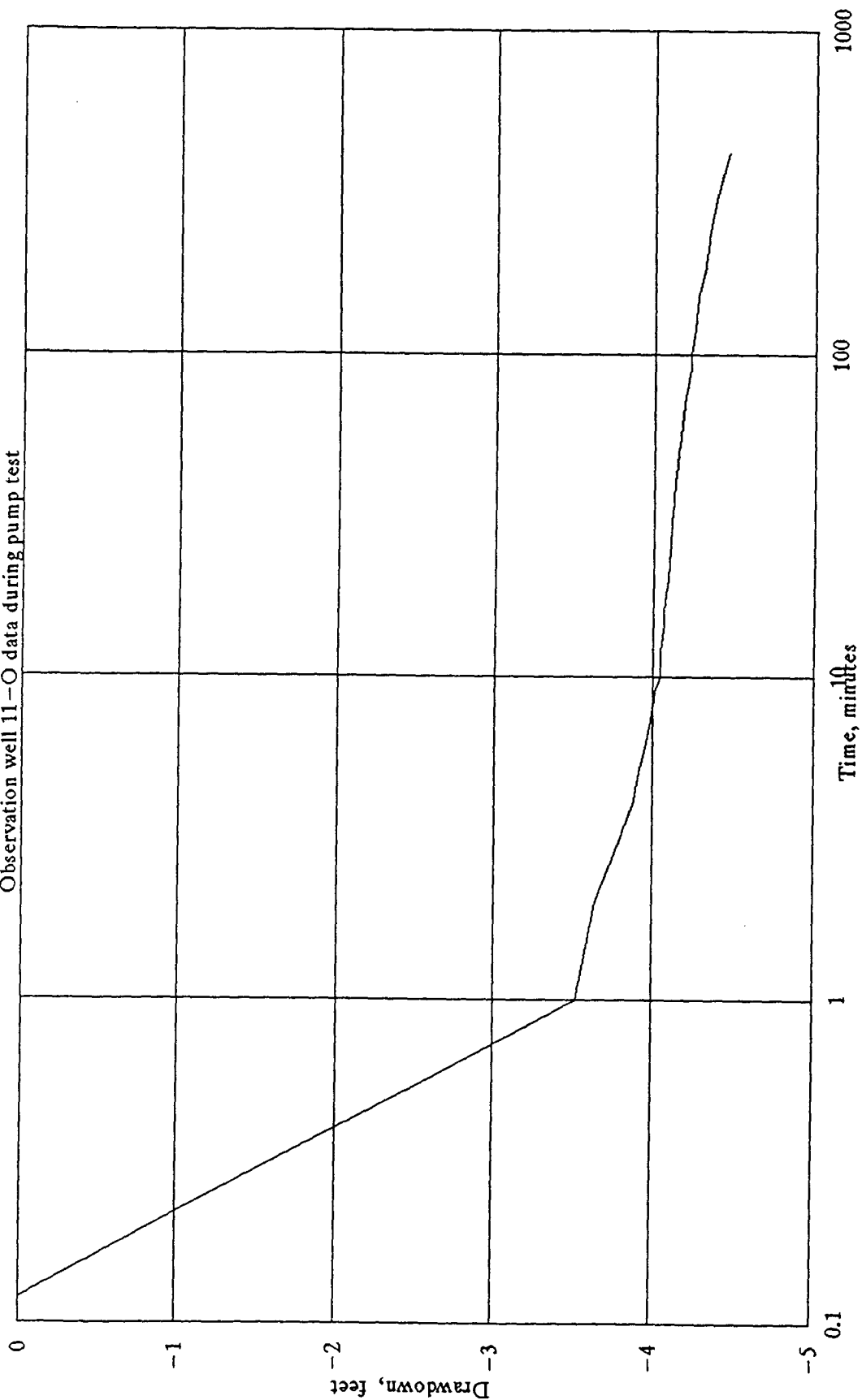
Banner Assoc. Inc.

TIME SINCE PUMP TEST STARTED t Min	OBSERVATION CLOCK TIME	DEPTH TO WATER H	RESIDUAL DRAWDOWN s ft	DISCHARGE FLOW GPM
210	11:25 AM	10.69	-4.33	
60 min. 240	11:55 AM	10.70	-4.34	
300	12:55 PM	10.74	-4.38	
360	01:55 PM	10.78	-4.42	
420	02:55 PM	10.82	-4.46	

NOTES:

PUMPING MCWC WELL #11

Observation well 11 - O data during pump test



MINNEHAHA COMMUNITY WATER CORP.
DELL RAPIDS, SOUTH DAKOTA
WELL FIELD EXPANSION BAI #7576-02

RECOVERY DATA SHEET

After Pumping Well # 11

READINGS @ OBSERVATION WELL 11-O

DATE: October 8, 1993

Observ. Well is 16.22' from Well #11

STATIC READING: 6.36' Elev. 1461.13

MEASURED BY DGO

[illegible]

MINNEHAHA COMMUNITY WATER CORP.
DELL RAPIDS, SOUTH DAKOTA
WELL FIELD EXPANSION BAI #7576-02

RECOVERY DATA SHEET

After Pumping Well # 11

READINGS @ OBSERVATION WELL 11-O

DATE: October 8, 1993

Observ. Well is 16.22' from Well #11

STATIC READING: 6.36' Elev. 1461.13

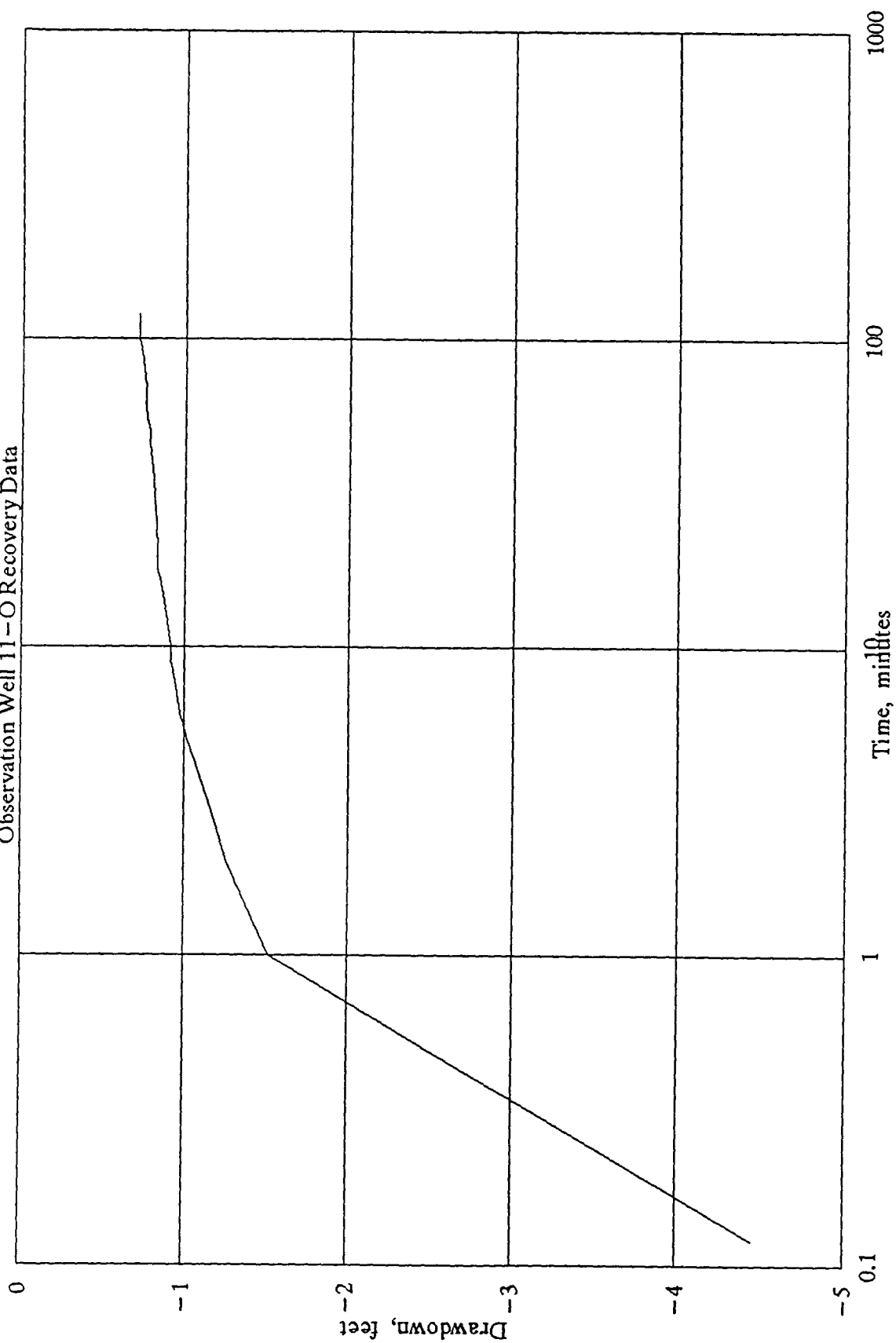
MEASURED BY DGO

TIME SINCE PUMP TEST STOPPED t Min	OBSERVATION CLOCK TIME	DEPTH TO WATER H	RESIDUAL DRAWDOWN s ft

NOTES :

RECOVERY AFTER PUMPING MCWC Well #11

Observation Well 11 - O Recovery Data



MINNEHAHA COMMUNITY WATER CORP.
DELL RAPIDS, SOUTH DAKOTA
WELL FIELD EXPANSION BAI # 7576-02

PUMP TEST DATA SHEET

Pumping Well # 11

READINGS @ OBSERVATION WELL 12-O

DATE: October 8, 1993

Obsv. Well is 495.95' from Well #11

STATIC READING: 9' 4" Elev. 1460.18

MEASURED BY: JIM

Corrected Elev. 1461.18

LAYNE-WESTERN

TIME SINCE PUMP TEST STARTED t Min	OBSERVATION CLOCK TIME	DEPTH TO WATER H	DEPTH TO WATER Corrected H	RESIDUAL DRAWDOWN s ft
PUMP START	07:55 AM	9.33	8.33	0.00
1 min. 1	07:56 AM	9.38	8.38	-0.05
2	07:57 AM	9.40	8.4	-0.07
3	07:58 AM	9.44	8.44	-0.11
4	07:59 AM	9.46	8.46	-0.13
5	08:00 AM	9.50	8.5	-0.17
6	08:01 AM	9.54	8.54	-0.21
7	08:02 AM	9.56	8.56	-0.23
8	08:03 AM	9.58	8.58	-0.25
9	08:04 AM	9.60	8.6	-0.27
2 min. 10	08:05 AM	9.62	8.62	-0.29
12	08:07 AM	9.64	8.64	-0.31
14	08:09 AM	9.69	8.69	-0.36
16	08:11 AM	9.71	8.71	-0.38
18	08:13 AM	9.73	8.73	-0.40
5 min. 20	08:15 AM	9.75	8.75	-0.42
25	08:20 AM	9.77	8.77	-0.44
30	08:25 AM	9.81	8.81	-0.48
35	08:30 AM	9.83	8.83	-0.50
40	08:35 AM	9.85	8.85	-0.52
45	08:40 AM	9.87	8.87	-0.54
50	08:45 AM	9.87	8.87	-0.54
55	08:50 AM	9.85	8.85	-0.52
10 min. 60	08:55 AM	9.83	8.83	-0.50
70	09:05 AM	9.83	8.83	-0.50
80	09:15 AM	9.81	8.81	-0.48
90	09:25 AM	9.79	8.79	-0.46
20 min. 100	09:35 AM	9.79	8.79	-0.46
30 min. 120	09:55 AM	9.79	8.79	-0.46
150	10:25 AM	9.81	8.81	-0.48
180	10:55 AM	9.83	8.83	-0.50

MINNEHAHA COMMUNITY WATER CORP.
DELL RAPIDS, SOUTH DAKOTA
WELL FIELD EXPANSION BAI # 7576-02

PUMP TEST DATA SHEET

Pumping Well # 11

READINGS @ OBSERVATION WELL 12-O

DATE: October 8, 1993

Obsv. Well is 495.95' from Well #11

STATIC READING: 9' 4" Elev. 1460.18

MEASURED BY: JIM

Corrected Elev. 1461.18

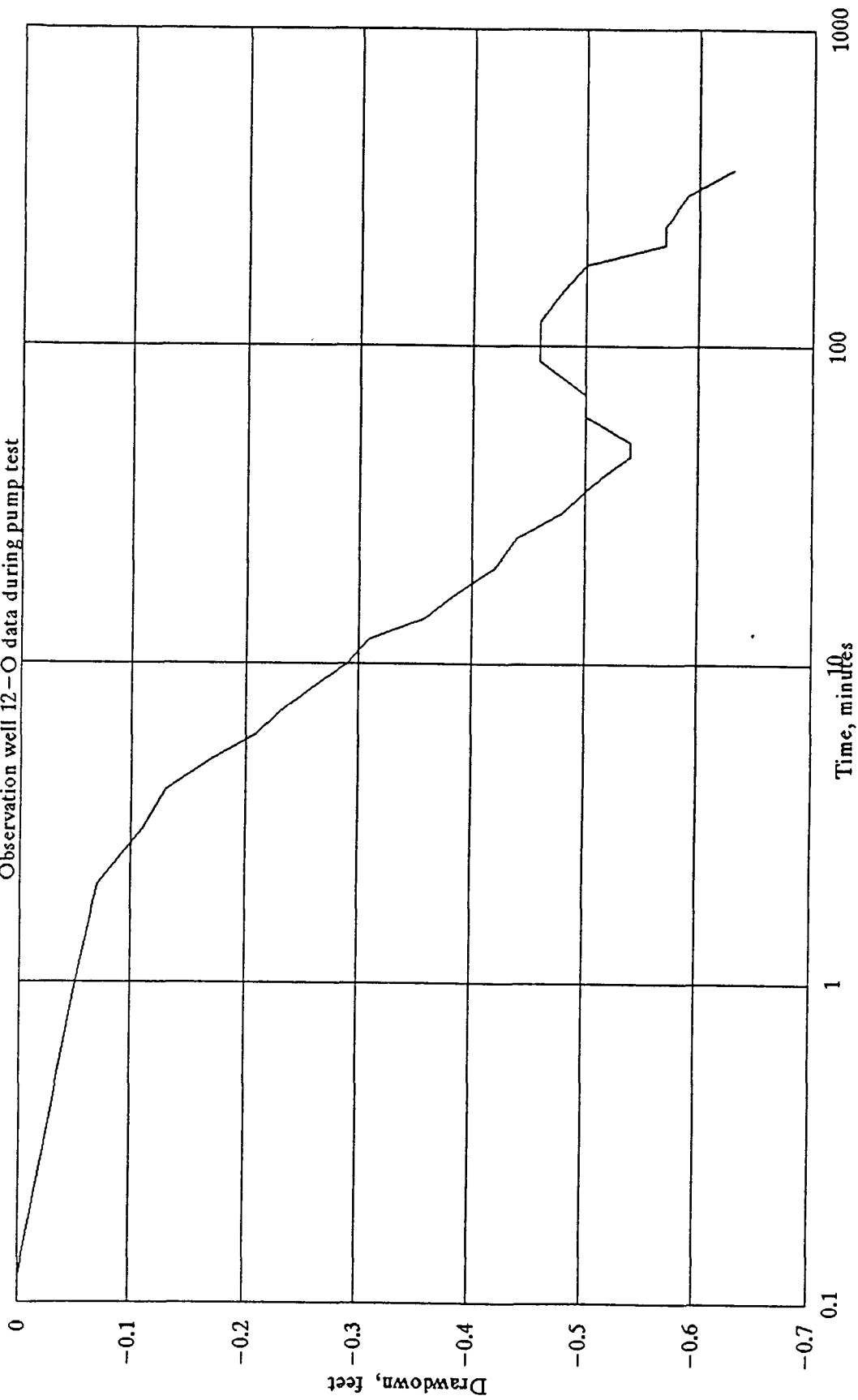
LAYNE-WESTERN

[illegible]

NOTES:

PUMPING MCWC WELL #12

Observation well 12-O data during pump test



MINNEHAHA COMMUNITY WATER CORP.
DELL RAPIDS, SOUTH DAKOTA
WELL FIELD EXPANSION BAI #7576-02

RECOVERY DATA SHEET

After Pumping Well # 11

READINGS @ OBSERVATION WELL 12-O

DATE: October 8, 1993

Observ. Well is 495.95' from Well #11

STATIC READING: 9' 4" Elev. 1460.18

MEASURED BY: JIM

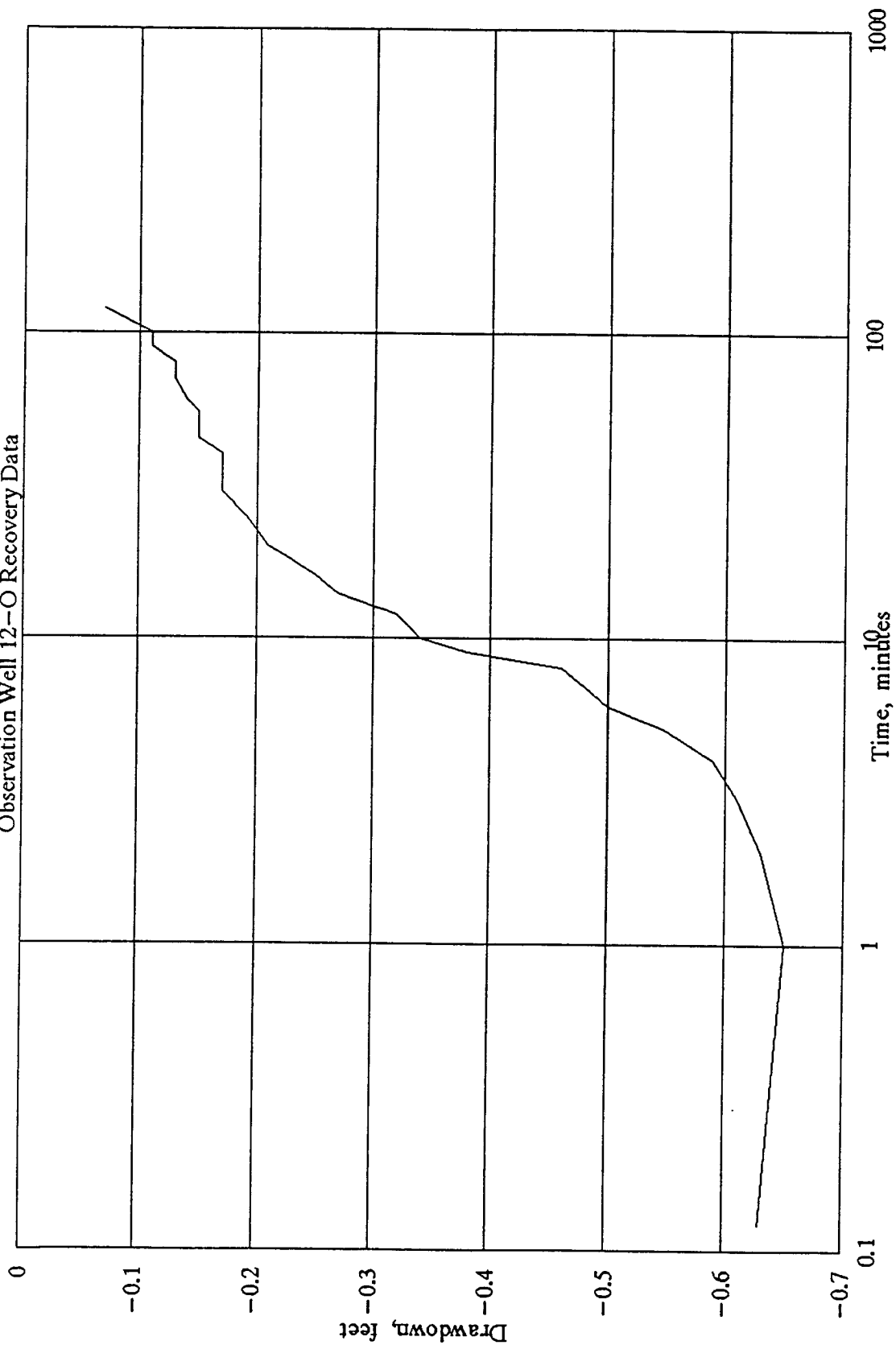
Corrected Elev. 1461.18

LAYNE-WESTERN

TIME SINCE PUMP TEST STOPPED t Min	OBSERVATION CLOCK TIME	DEPTH TO WATER H	DEPTH TO WATER Corrected H	RESIDUAL DRAWDOWN s ft
PUMP STOPPED	03:02 PM	9.96	8.96	-0.63
1 min. 1	03:03 PM	9.98	8.98	-0.65
2	03:04 PM	9.96	8.96	-0.63
3	03:05 PM	9.94	8.94	-0.61
4	03:06 PM	9.92	8.92	-0.59
5	03:07 PM	9.88	8.88	-0.55
6	03:08 PM	9.83	8.83	-0.50
7	03:09 PM	9.81	8.81	-0.48
8	03:10 PM	9.79	8.79	-0.46
9	03:11 PM	9.71	8.71	-0.38
2 min. 10	03:12 PM	9.67	8.67	-0.34
12	03:14 PM	9.65	8.65	-0.32
14	03:16 PM	9.60	8.60	-0.27
16	03:18 PM	9.58	8.58	-0.25
18	03:20 PM	9.56	8.56	-0.23
5 min. 20	03:22 PM	9.54	8.54	-0.21
25	03:27 PM	9.52	8.52	-0.19
30	03:32 PM	9.50	8.50	-0.17
35	03:37 PM	9.50	8.50	-0.17
40	03:42 PM	9.50	8.50	-0.17
45	03:47 PM	9.48	8.48	-0.15
50	03:52 PM	9.48	8.48	-0.15
55	03:57 PM	9.48	8.48	-0.15
10 min. 60	04:02 PM	9.47	8.47	-0.14
70	04:12 PM	9.46	8.46	-0.13
80	04:22 PM	9.46	8.46	-0.13
90	04:32 PM	9.44	8.44	-0.11
20 min. 100	04:42 PM	9.44	8.44	-0.11
30 min. 120	05:02 PM	9.40	8.40	-0.07

RECOVERY AFTER PUMPING MCWVC Well #11

Observation Well 12-O Recovery Data



MINNEHAHA COMMUNITY WATER CORP.
DELL RAPIDS, SOUTH DAKOTA
WELL FIELD EXPANSION BAI # 7576-02

PUMP TEST DATA SHEET

Pumping Well # 11

READINGS @ ORIGINAL TEST HOLE

DATE: October 8, 1993

Test Well is 470.91' from Well #11

STATIC READING: 7.885' Elev. 1461.13

MEASURED BY: JOHN BUSS
MCWC

TIME SINCE PUMP TEST STARTED t Min	OBSERVATION CLOCK TIME	DEPTH TO WATER H	RESIDUAL DRAWDOWN s ft	DISCHARGE FLOW GPM
PUMP START	07:55 AM	7.89	0.00	
1 min. 1	07:56 AM	7.94	-0.05	
2	07:57 AM	8.00	-0.11	
3	07:58 AM	8.10	-0.22	
4	07:59 AM	8.17	-0.28	
5	08:00 AM	8.22	-0.33	
6	08:01 AM	8.27	-0.39	
7	08:02 AM	8.28	-0.39	
8	08:03 AM	8.29	-0.41	
9	08:04 AM	8.30	-0.42	
2 min. 10	08:05 AM	8.30	-0.42	
12	08:07 AM	8.30	-0.42	
14	08:09 AM	8.31	-0.42	
16	08:11 AM	8.31	-0.43	
18	08:13 AM	8.35	-0.46	
5 min. 20	08:15 AM	8.35	-0.47	
25	08:20 AM	8.38	-0.49	
30	08:25 AM	8.39	-0.50	
35	08:30 AM	8.40	-0.51	
40	08:35 AM	8.41	-0.52	
45	08:40 AM	8.42	-0.53	
50	08:45 AM	8.43	-0.54	
55	08:50 AM	8.43	-0.55	
10 min. 60	08:55 AM	8.43	-0.55	
70	09:05 AM	8.44	-0.56	
80	09:15 AM	8.45	-0.56	
90	09:25 AM	8.46	-0.57	
20 min. 100	09:35 AM	8.46	-0.57	
30 min. 120	09:55 AM	8.49	-0.60	
150	10:25 AM	8.51	-0.63	
180	10:55 AM	8.53	-0.65	

MINNEHAHA COMMUNITY WATER CORP.
DELL RAPIDS, SOUTH DAKOTA
WELL FIELD EXPANSION BAI # 7576-02

PUMP TEST DATA SHEET

Pumping Well # 11

READINGS @ ORIGINAL TEST HOLE

DATE: October 8, 1993

Test Well is 470.91' from Well #11

STATIC READING: 7.885' Elev. 1461.13

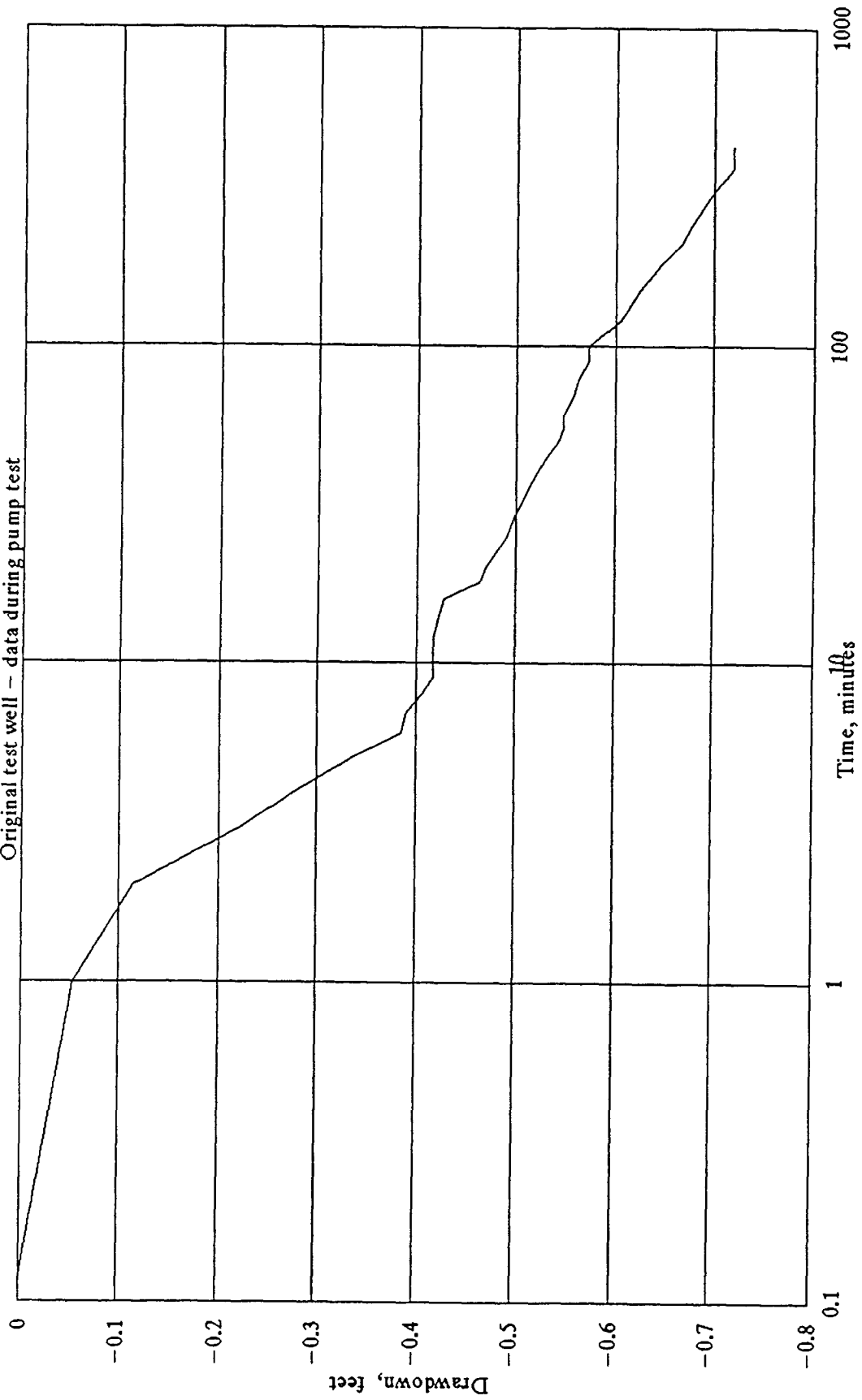
MEASURED BY: JOHN BUSS
MCWC

[illegible]

NOTES:

PUMPING MCWC WELL #11

Original test well - data during pump test



MINNEHAHA COMMUNITY WATER CORP.
DELL RAPIDS, SOUTH DAKOTA
WELL FIELD EXPANSION BAI #7576-02

RECOVERY DATA SHEET

After Pumping Well # 11

READINGS @ ORIGINAL TEST HOLE

DATE: October 8, 1993

Test Well is 470.91' from Well #11

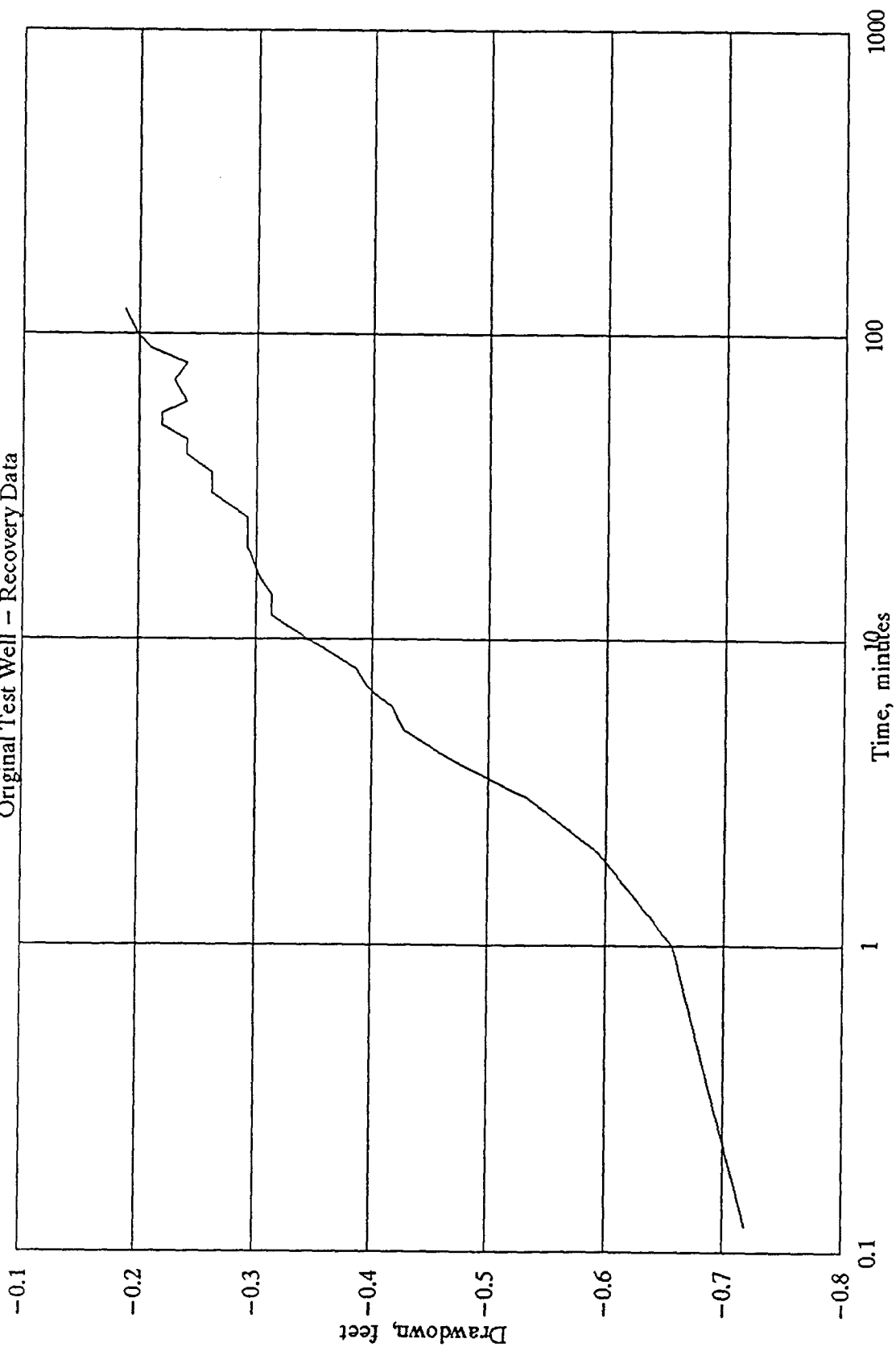
STATIC READING: 7.885' Elev. 1461.13

MEASURED BY: JOHN BUSS
 MCWC

TIME SINCE PUMP TEST STOPPED t Min	OBSERVATION CLOCK TIME	DEPTH TO WATER H	RESIDUAL DRAWDOWN s ft
PUMP STOPPED	03:02 PM	8.60	-0.72
1 min. 1	03:03 PM	8.54	-0.66
2	03:04 PM	8.48	-0.59
3	03:05 PM	8.42	-0.53
4	03:06 PM	8.35	-0.47
5	03:07 PM	8.31	-0.43
6	03:08 PM	8.30	-0.42
7	03:09 PM	8.28	-0.40
8	03:10 PM	8.27	-0.39
9	03:11 PM	8.25	-0.36
2 min. 10	03:12 PM	8.23	-0.34
12	03:14 PM	8.20	-0.31
14	03:16 PM	8.20	-0.31
16	03:18 PM	8.19	-0.30
18	03:20 PM	8.18	-0.30
5 min. 20	03:22 PM	8.18	-0.29
25	03:27 PM	8.18	-0.29
30	03:32 PM	8.15	-0.26
35	03:37 PM	8.15	-0.26
40	03:42 PM	8.13	-0.24
45	03:47 PM	8.13	-0.24
50	03:52 PM	8.10	-0.22
55	03:57 PM	8.10	-0.22
10 min. 60	04:02 PM	8.13	-0.24
70	04:12 PM	8.12	-0.23
80	04:22 PM	8.13	-0.24
90	04:32 PM	8.09	-0.21
20 min. 100	04:42 PM	8.08	-0.20
30 min. 120	05:02 PM	8.07	-0.19

RECOVERY AFTER PUMPING MCWC Well #11

Original Test Well - Recovery Data



WELL # 12

MINNEHAHA COMMUNITY WATER CORP.
DELL RAPIDS, SOUTH DAKOTA
WELL FIELD EXPANSION BAI # 7576-02

PUMP TEST DATA SHEET

Pumping well # 12

READINGS @ WELL NO. 12

DATE: OCTOBER 6, 1993

STATIC READING: 10.92' ELEV. 1460.48

MEASURED BY: JIM RENTSCHLER

corrected elev. 1460.90

LAYNE-WESTERN

TIME SINCE PUMP TEST STARTED t Min	OBSERVATION CLOCK TIME	DEPTH TO WATER H	DEPTH TO WATER corrected H	RESIDUAL DRAWDOWN s ft	DISCHARGE FLOW GPM
PUMP START	07:48 AM	10.92	10.50	0.00	520.0
1 min. 1	07:49 AM	17.20	16.78	-6.28	
2	07:50 AM	17.60	17.18	-6.68	
3	07:51 AM	17.80	17.38	-6.88	
4	07:52 AM	17.90	17.48	-6.98	
5	07:53 AM	17.90	17.48	-6.98	
6	07:54 AM	17.95	17.53	-7.03	
7	07:55 AM	17.95	17.53	-7.03	
8	07:56 AM	17.95	17.53	-7.03	
9	07:57 AM	18.00	17.58	-7.08	
2 min. 10	07:58 AM	18.00	17.58	-7.08	
12	08:00 AM	18.00	17.58	-7.08	
14	08:02 AM	18.05	17.63	-7.13	
16	08:04 AM	18.05	17.63	-7.13	
18	08:06 AM	18.08	17.66	-7.16	
5 min. : 20	08:08 AM	18.10	17.68	-7.18	
25	08:13 AM	18.15	17.73	-7.23	
30	08:18 AM	18.15	17.73	-7.23	
35	08:23 AM	18.15	17.73	-7.23	
40	08:28 AM	18.16	17.74	-7.24	
45	08:33 AM	18.20	17.78	-7.28	
50	08:38 AM	18.22	17.80	-7.30	
55	08:43 AM	18.22	17.80	-7.30	
10 min. 60	08:48 AM	18.23	17.81	-7.31	
70	08:58 AM	18.25	17.83	-7.33	
80	09:08 AM	18.27	17.85	-7.35	
90	09:18 AM	18.29	17.87	-7.37	
20 min. 100	09:28 AM	18.30	17.88	-7.38	
30 min. 120	09:48 AM	18.35	17.93	-7.43	
150	10:18 AM	18.38	17.96	-7.46	
180	10:48 AM	18.39	17.97	-7.47	

**MINNEHAHA COMMUNITY WATER CORP.
DELL RAPIDS, SOUTH DAKOTA
WELL FIELD EXPANSION BAI # 7576-02**

PUMP TEST DATA SHEET

Pumping well # 12

READINGS @ WELL NO. 12

DATE: OCTOBER 6, 1993

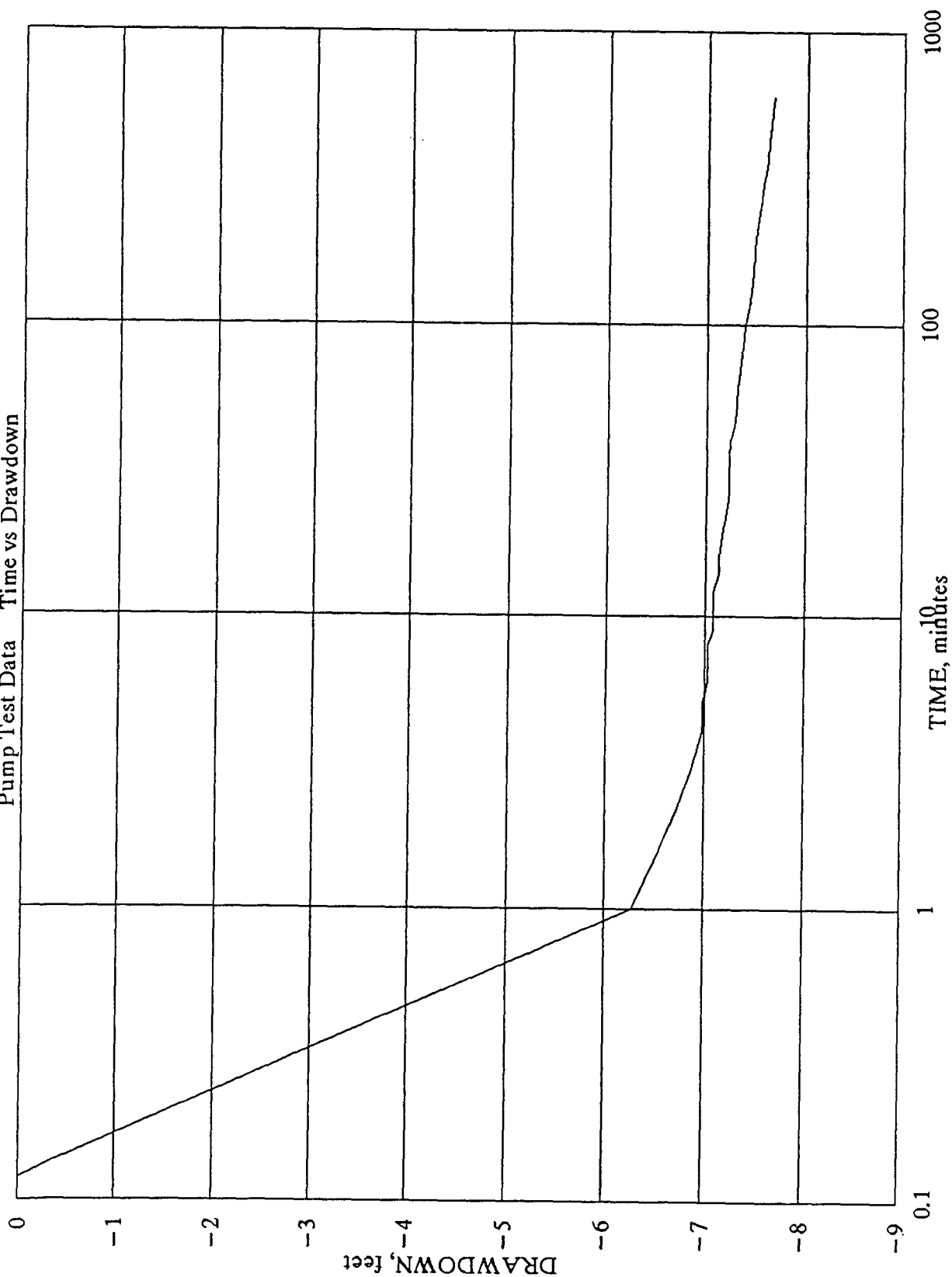
STATIC READING: 10.92' ELEV. 1460.48
corrected elev. 1460.90

MEASURED BY: JIM RENTSCHLER
LAYNE-WESTERN

TIME SINCE PUMP TEST STARTED t Min	OBSERVATION CLOCK TIME	DEPTH TO WATER H	DEPTH TO WATER corrected H	RESIDUAL DRAWDOWN s ft	DISCHARGE FLOW GPM
210	11:18 AM	18.41	17.99	-7.49	
60 min. 240	11:48 AM	18.44	18.02	-7.52	
300	12:48 PM	18.48	18.06	-7.56	
360	01:48 PM	18.52	18.10	-7.60	
420	02:48 PM	18.53	18.11	-7.61	
480	03:48 PM	18.55	18.13	-7.63	
540	04:48 PM	18.57	18.15	-7.65	
600	05:48 PM	18.59	18.17	-7.67	
end					

NOTES:

MCWC Well # 12
Pump Test Data Time vs Drawdown



MINNEHAHA COMMUNITY WATER CORP.
DELL RAPIDS, SOUTH DAKOTA
WELL FIELD EXPANSION BAI #7576-02

RECOVERY DATA SHEET

After Pumping Well # 12

READINGS @ WELL NO. 12

DATE: OCTOBER 6, 1993

STATIC READING: 10.5' ELEV. 1460.90

MEASURED BY: JIM RENTSCHLER
LAYNE-WESTERN

TIME SINCE PUMP TEST STOPPED t Min	OBSERVATION CLOCK TIME	DEPTH TO WATER H	DEPTH TO WATER corrected H	RESIDUAL DRAWDOWN s ft
PUMP STOPPED	05:49 PM	18.59	18.17	-7.67
1 min. 1	05:50 PM	12.13	11.71	-1.21
2	05:51 PM	12.00	11.58	-1.08
3	05:52 PM	11.85	11.43	-0.93
4	05:53 PM	11.77	11.35	-0.85
5	05:54 PM	11.75	11.33	-0.83
6	05:55 PM	11.72	11.30	-0.80
7	05:56 PM	11.67	11.25	-0.75
8	05:57 PM	11.65	11.23	-0.73
9	05:58 PM	11.64	11.22	-0.72
2 min. 10	05:59 PM	11.64	11.22	-0.72
12	06:01 PM	11.60	11.18	-0.68
14	06:03 PM	11.59	11.17	-0.67
16	06:05 PM	11.59	11.17	-0.67
18	06:07 PM	11.58	11.16	-0.66
5 min. 20	06:09 PM	11.56	11.14	-0.64
25	06:14 PM	11.54	11.12	-0.62
30	06:19 PM	11.52	11.10	-0.60
35	06:24 PM	11.50	11.08	-0.58
40	06:29 PM	11.48	11.06	-0.56
45	06:34 PM	11.45	11.03	-0.53
50	06:39 PM	11.44	11.02	-0.52
55	06:44 PM	11.43	11.01	-0.51
10 min. 60	06:49 PM	11.41	10.99	-0.49
70	06:59 PM	11.39	10.97	-0.47
80	07:09 PM	11.37	10.95	-0.45
90	07:19 PM	11.35	10.93	-0.43
20 min. 100	07:29 PM	11.34	10.92	-0.42
30 min. 120	07:49 PM	11.32	10.90	-0.40

MINNEHAHA COMMUNITY WATER CORP.
DELL RAPIDS, SOUTH DAKOTA
WELL FIELD EXPANSION BAI #7576-02

RECOVERY DATA SHEET

After Pumping Well # 12

READINGS @ WELL NO. 12

DATE: OCTOBER 6, 1993

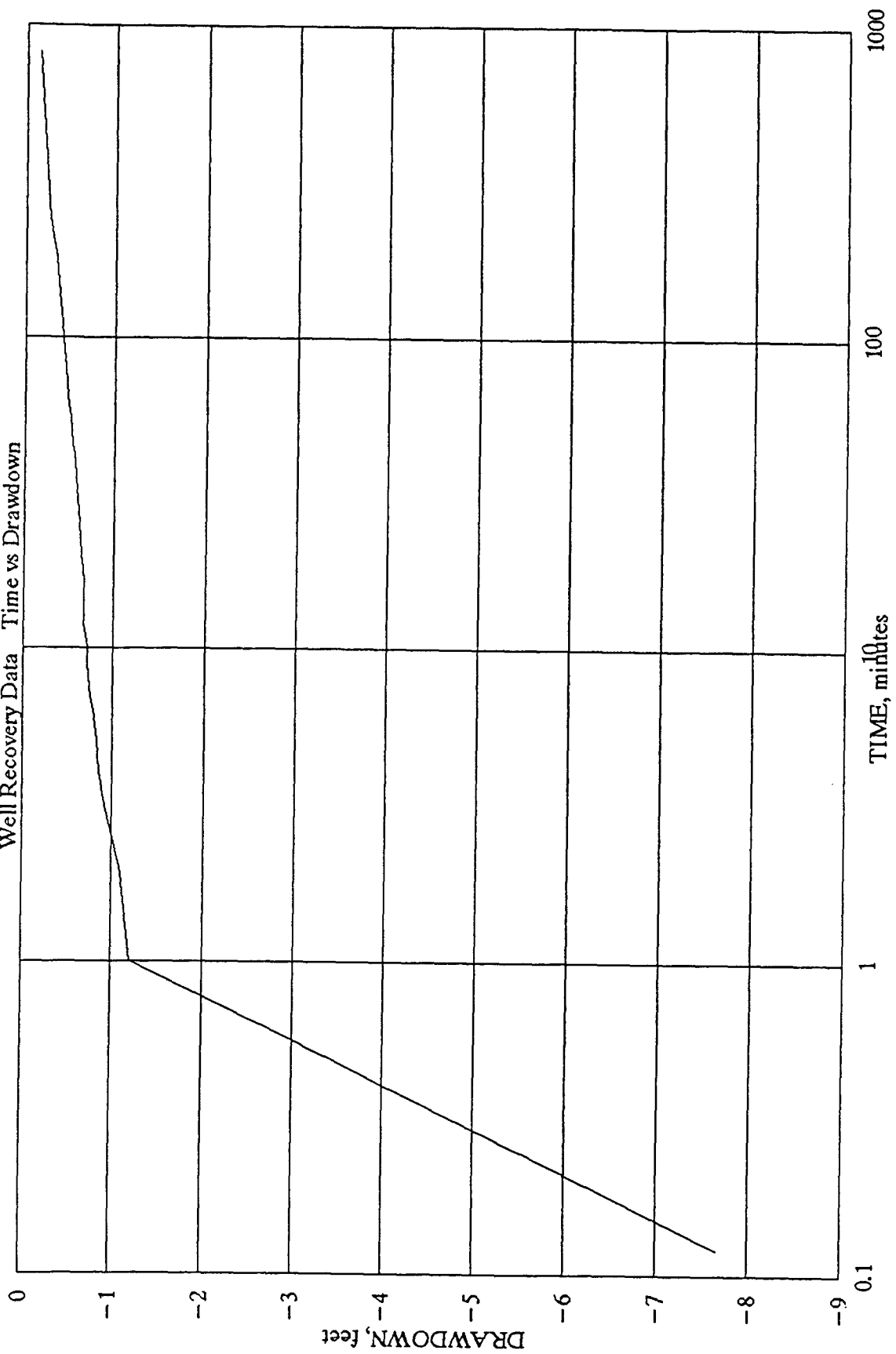
STATIC READING: 10.5' ELEV. 1460.90

MEASURED BY: JIM RENTSCHLER
LAYNE-WESTERN

TIME SINCE PUMP TEST STOPPED t Min	OBSERVATION CLOCK TIME	DEPTH TO WATER H	DEPTH TO WATER corrected H	RESIDUAL DRAWDOWN s ft
150	08:19 PM	11.29	10.87	-0.37
180	08:49 PM	11.26	10.84	-0.34
210	09:19 PM	11.22	10.80	-0.30
60 min. 240	09:49 PM	11.19	10.77	-0.27
821	07:30 AM	11.06	10.64	-0.14

NOTES:

MCWC Well #12
Well Recovery Data Time vs Drawdown



MINNEHAHA COMMUNITY WATER CORP.
DELL RAPIDS, SOUTH DAKOTA
WELL FIELD EXPANSION BAI # 7576-02

PUMP TEST DATA SHEET

Pumping Well # 12

READINGS @ OBSERVATION WELL 12-O

DATE: October 6, 1993

Obsv. Well is 11.65' from Well #12

STATIC READING: 8.61' Elev. 1460.90

MEASURED BY: DGO

Banner Assoc. Inc.

TIME SINCE PUMP TEST STARTED t Min	OBSERVATION CLOCK TIME	DEPTH TO WATER H	RESIDUAL DRAWDOWN s ft	DISCHARGE FLOW GPM
PUMP START	07:48 AM	8.61	0.00	
1 min. 1	07:49 AM	11.09	-2.48	
2	07:50 AM	11.24	-2.63	
3	07:51 AM	11.33	-2.72	
4	07:52 AM	11.42	-2.81	
5	07:53 AM	11.48	-2.87	
6	07:54 AM	11.50	-2.89	
7	07:55 AM	11.53	-2.92	
8	07:56 AM	11.55	-2.94	
9	07:57 AM	11.56	-2.95	
2 min. 10	07:58 AM	11.59	-2.98	
12	08:00 AM	11.61	-3.00	
14	08:02 AM	11.63	-3.02	
16	08:04 AM	11.65	-3.04	
18	08:06 AM	11.66	-3.05	
5 min. 20	08:08 AM	11.68	-3.07	
25	08:13 AM	11.72	-3.11	
30	08:18 AM	11.74	-3.13	
35	08:23 AM	11.76	-3.15	
40	08:28 AM	11.78	-3.17	
45	08:33 AM	11.80	-3.19	
50	08:38 AM	11.80	-3.19	
55	08:43 AM	11.81	-3.20	
10 min. 60	08:48 AM	11.82	-3.21	
70	08:58 AM	11.85	-3.24	
80	09:08 AM	11.87	-3.26	
90	09:18 AM	11.89	-3.28	
20 min. 100	09:28 AM	11.90	-3.29	
30 min. 120	09:48 AM	11.92	-3.31	
150	10:18 AM	11.98	-3.37	
180	10:48 AM	12.02	-3.41	

MINNEHAHA COMMUNITY WATER CORP.
DELL RAPIDS, SOUTH DAKOTA
WELL FIELD EXPANSION BAI # 7576-02

PUMP TEST DATA SHEET

Pumping Well # 12

READINGS @ OBSERVATION WELL 12-O

DATE: October 6, 1993

Obsv. Well is 11.65' from Well #12

STATIC READING: 8.61' Elev. 1460.90

MEASURED BY: DGO

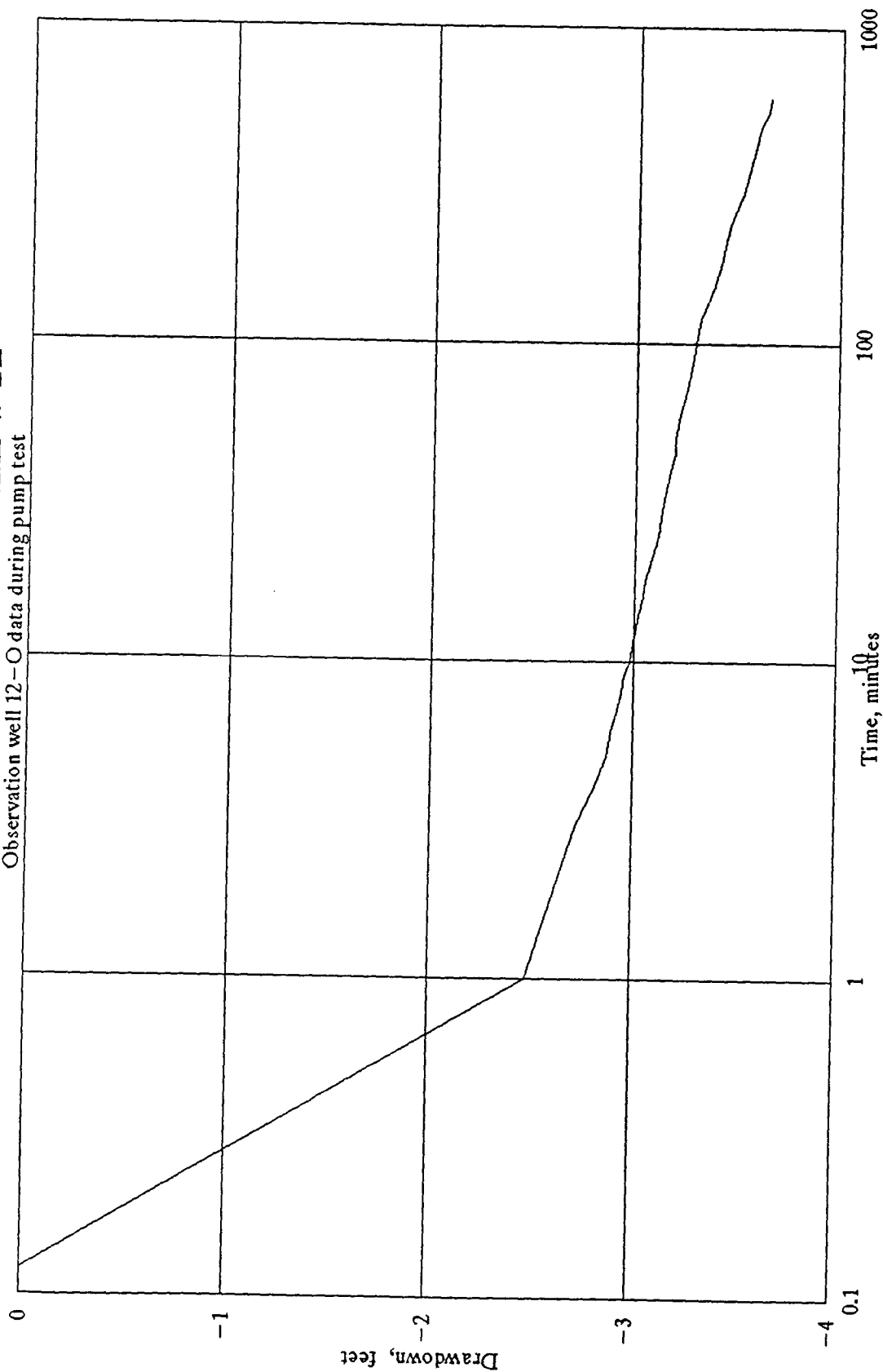
Banner Assoc. Inc.

TIME SINCE PUMP TEST STARTED t Min	OBSERVATION CLOCK TIME	DEPTH TO WATER H	RESIDUAL DRAWDOWN s ft	DISCHARGE FLOW GPM
210	11:18 AM	12.04	-3.43	
60 min. 240	11:48 AM	12.06	-3.45	
300	12:48 PM	12.12	-3.51	
360	01:48 PM	12.15	-3.54	
420	02:48 PM	12.18	-3.57	
480	03:48 PM	12.20	-3.59	
540	04:48 PM	12.24	-3.63	
600	05:48 PM	12.25	-3.64	

NOTES:

PUMPING MCWC WELL #12

Observation well 12 - O data during pump test



MINNEHAHA COMMUNITY WATER CORP.
DELL RAPIDS, SOUTH DAKOTA
WELL FIELD EXPANSION BAI #7576-02

RECOVERY DATA SHEET

After Pumping Well # 12

READINGS @ OBSERVATION WELL 12-O

DATE: October 6, 1993

Observ. Well is 11.65' from Well #12

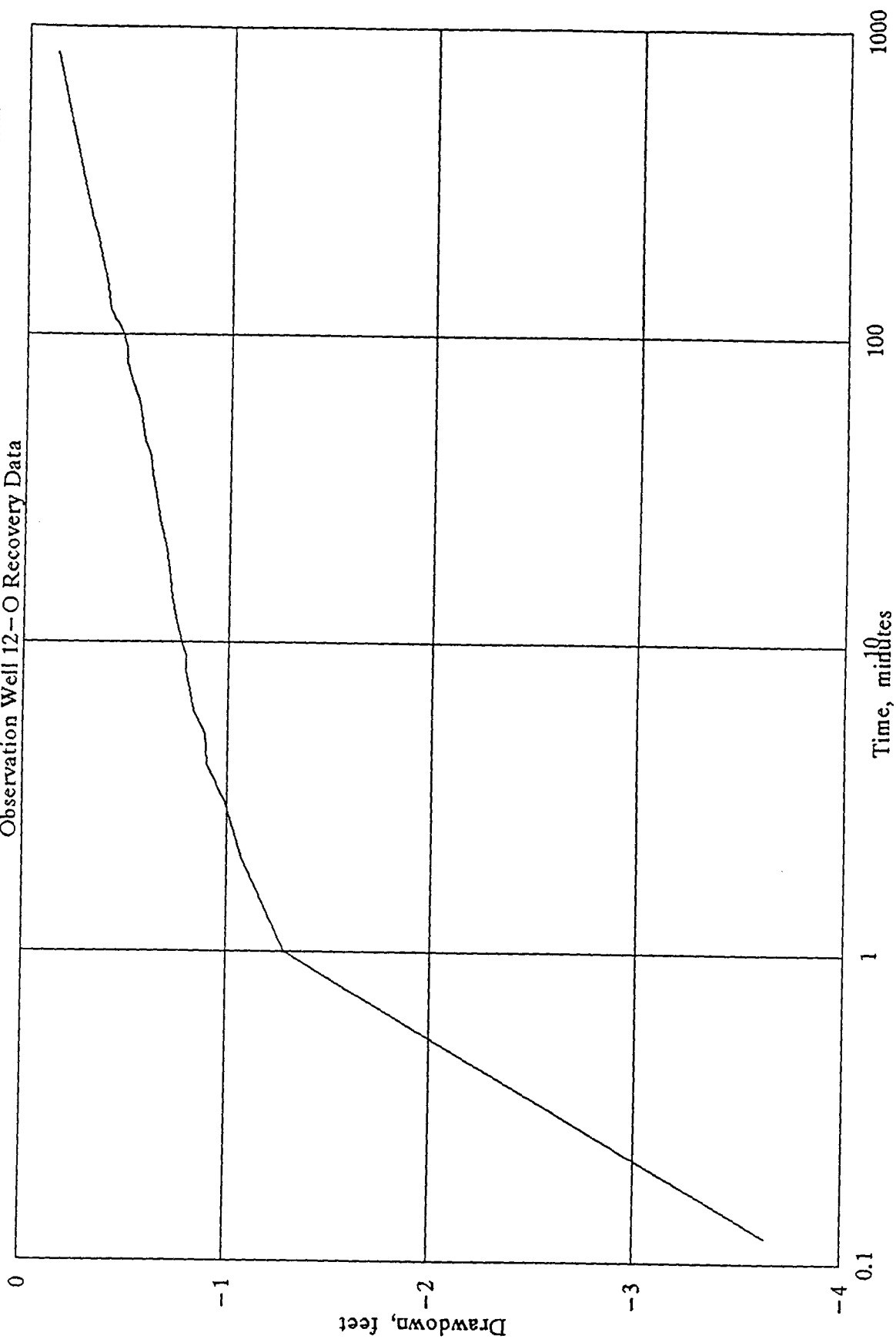
STATIC READING: 8.61' Elev. 1460.90

MEASURED BY DGO

TIME SINCE PUMP TEST STOPPED t Min	OBSERVATION CLOCK TIME	DEPTH TO WATER H	RESIDUAL DRAWDOWN s ft
PUMP STOPPED	05:49 PM	12.25	-3.64
1 min. 1	05:50 PM	9.90	-1.29
2	05:51 PM	9.68	-1.07
3	05:52 PM	9.60	-0.99
4	05:53 PM	9.51	-0.90
5	05:54 PM	9.50	-0.89
6	05:55 PM	9.44	-0.83
7	05:56 PM	9.42	-0.81
8	05:57 PM	9.40	-0.79
9	05:58 PM	9.40	-0.79
2 min. 10	05:59 PM	9.38	-0.77
12	06:01 PM	9.35	-0.74
14	06:03 PM	9.33	-0.72
16	06:05 PM	9.32	-0.71
18	06:07 PM	9.31	-0.70
5 min. 20	06:09 PM	9.30	-0.69
25	06:14 PM	9.27	-0.66
30	06:19 PM	9.25	-0.64
35	06:24 PM	9.23	-0.62
40	06:29 PM	9.22	-0.61
45	06:34 PM	9.19	-0.58
50	06:39 PM	9.18	-0.57
55	06:44 PM	9.17	-0.56
10 min. 60	06:49 PM	9.16	-0.55
70	06:59 PM	9.13	-0.52
80	07:09 PM	9.10	-0.49
90	07:19 PM	9.10	-0.49
20 min. 100	07:29 PM	9.08	-0.47
30 min. 120	07:49 PM	9.02	-0.41
150	08:19 PM	9.00	-0.39
180	08:49 PM	8.97	-0.36
210	09:19 PM	8.95	-0.34
60 min. 240	09:49 PM	8.92	-0.31
821	07:30 AM	8.75	-0.14

RECOVERY AFTER PUMPING MCWC Well #12

Observation Well 12-O Recovery Data



MINNEHAHA COMMUNITY WATER CORP.
DELL RAPIDS, SOUTH DAKOTA
WELL FIELD EXPANSION BAI # 7576-02

PUMP TEST DATA SHEET

Pumping Well # 12

READINGS @ OBSERVATION WELL 11-O

DATE: October 6, 1993

Obsv. Well is 489.16' from Well #12

STATIC READING: 7' Elev. 1460.49

MEASURED BY: DGO

Corrected Elev. 1460.91

TIME SINCE PUMP TEST STARTED t Min	OBSERVATION CLOCK TIME	DEPTH TO WATER H	DEPTH TO WATER Corrected H	RESIDUAL DRAWDOWN s ft	DISCHARGE FLOW GPM
PUMP START	07:48 AM	7.00	6.58	0.00	
1 min. 1	07:49 AM	7.21	6.79	-0.21	
2	07:50 AM	7.29	6.87	-0.29	
3	07:51 AM	7.38	6.96	-0.38	
4	07:52 AM	7.40	6.98	-0.40	
5	07:53 AM	7.42	7.00	-0.42	
6	07:54 AM	7.42	7.00	-0.42	
7	07:55 AM	7.42	7.00	-0.42	
8	07:56 AM	7.42	7.00	-0.42	
9	07:57 AM	7.44	7.02	-0.44	
2 min. 10	07:58 AM	7.44	7.02	-0.44	
12	08:00 AM	7.44	7.02	-0.44	
14	08:02 AM	7.44	7.02	-0.44	
16	08:04 AM	7.46	7.04	-0.46	
18	08:06 AM	7.46	7.04	-0.46	
5 min. 20	08:08 AM	7.46	7.04	-0.46	
25	08:13 AM	7.48	7.06	-0.48	
30	08:18 AM	7.48	7.06	-0.48	
35	08:23 AM	7.48	7.06	-0.48	
40	08:28 AM	7.50	7.08	-0.50	
45	08:33 AM	7.50	7.08	-0.50	
50	08:38 AM	7.50	7.08	-0.50	
55	08:43 AM	7.52	7.10	-0.52	
10 min. 60	08:48 AM	7.52	7.10	-0.52	
70	08:58 AM	7.54	7.12	-0.54	
80	09:08 AM	7.56	7.14	-0.56	
90	09:18 AM	7.56	7.14	-0.56	
20 min. 100	09:28 AM	7.56	7.14	-0.56	
30 min. 120	09:48 AM	7.56	7.14	-0.56	
150	10:18 AM	7.63	7.21	-0.63	
180	10:48 AM	7.65	7.23	-0.65	

MINNEHAHA COMMUNITY WATER CORP.
DELL RAPIDS, SOUTH DAKOTA
WELL FIELD EXPANSION BAI # 7576-02

PUMP TEST DATA SHEET

Pumping Well # 12

READINGS @ OBSERVATION WELL 11-O

DATE: October 6, 1993

Obsv. Well is 489.16' from Well #12

STATIC READING: 7' Elev. 1460.49

MEASURED BY: DGO

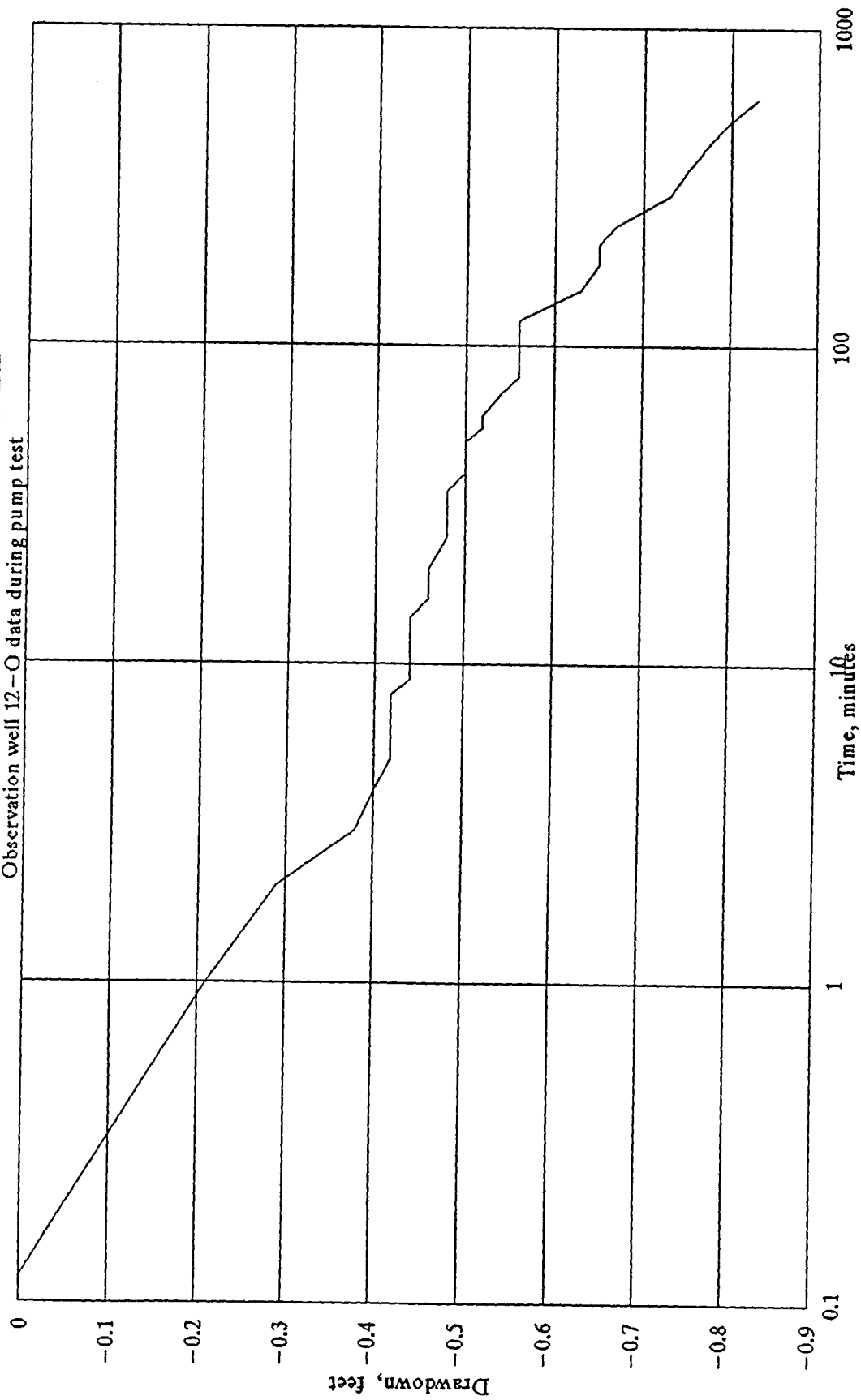
Corrected Elev. 1460.91

[illegible]

NOTES:

PUMPING MCWC WELL #12

Observation well 12-O data during pump test



MINNEHAHA COMMUNITY WATER CORP.
DELL RAPIDS, SOUTH DAKOTA
WELL FIELD EXPANSION BAI #7576-02

RECOVERY DATA SHEET

After Pumping Well # 12

READINGS @ OBSERVATION WELL 11-O

DATE: October 6, 1993

Observ. Well is 489.16' from Well #12

STATIC READING: 7' Elev. 1460.49

MEASURED BY: JIM

Corrected Elev. 1460.91

LAYNE-WESTERN

TIME SINCE PUMP TEST STOPPED t Min	OBSERVATION CLOCK TIME	DEPTH TO WATER H	DEPTH TO WATER Corrected H	RESIDUAL DRAWDOWN s ft
PUMP STOPPED	05:49 PM	7.83	7.41	-0.83
1 min. 1	05:50 PM	7.83	7.41	-0.83
2	05:51 PM	7.71	7.29	-0.71
3	05:52 PM	7.67	7.25	-0.67
4	05:53 PM	7.63	7.21	-0.63
5	05:54 PM	7.58	7.16	-0.58
6	05:55 PM	7.54	7.12	-0.54
7	05:56 PM	7.5	7.08	-0.50
8	05:57 PM	7.48	7.06	-0.48
9	05:58 PM	7.46	7.04	-0.46
2 min. 10	05:59 PM	7.44	7.02	-0.44
12	06:01 PM	7.42	7.00	-0.42
14	06:03 PM	7.4	6.98	-0.40
16	06:05 PM	7.38	6.96	-0.38
18	06:07 PM	7.38	6.96	-0.38
5 min. 20	06:09 PM	7.38	6.96	-0.38
25	06:14 PM	7.35	6.93	-0.35
30	06:19 PM	7.33	6.91	-0.33
35	06:24 PM	7.33	6.91	-0.33
40	06:29 PM	7.29	6.87	-0.29
45	06:34 PM	7.25	6.83	-0.25
50	06:39 PM	7.25	6.83	-0.25
55	06:44 PM	7.23	6.81	-0.23
10 min. 60	06:49 PM	7.23	6.81	-0.23
70	06:59 PM	7.23	6.81	-0.23
80	07:09 PM	7.21	6.79	-0.21
90	07:19 PM	7.19	6.77	-0.19
20 min. 100	07:29 PM	7.19	6.77	-0.19
30 min. 120	07:49 PM	7.17	6.75	-0.17
150	08:19 PM	7.17	6.75	-0.17
180	08:49 PM	7.17	6.75	-0.17
210	09:19 PM	7.17	6.75	-0.17
60 min. 240	09:49 PM	7.17	6.75	-0.17
821	07:30 AM	7.08	6.66	-0.08

MINNEHAHA COMMUNITY WATER CORP.
DELL RAPIDS, SOUTH DAKOTA
WELL FIELD EXPANSION BAI #7576-02

RECOVERY DATA SHEET

After Pumping Well # 12

READINGS @ OBSERVATION WELL 11-O

DATE: October 6, 1993

Observ. Well is 489.16' from Well #12

STATIC READING: 7' Elev. 1460.49

Corrected Elev. 1460.91

MEASURED BY: JIM

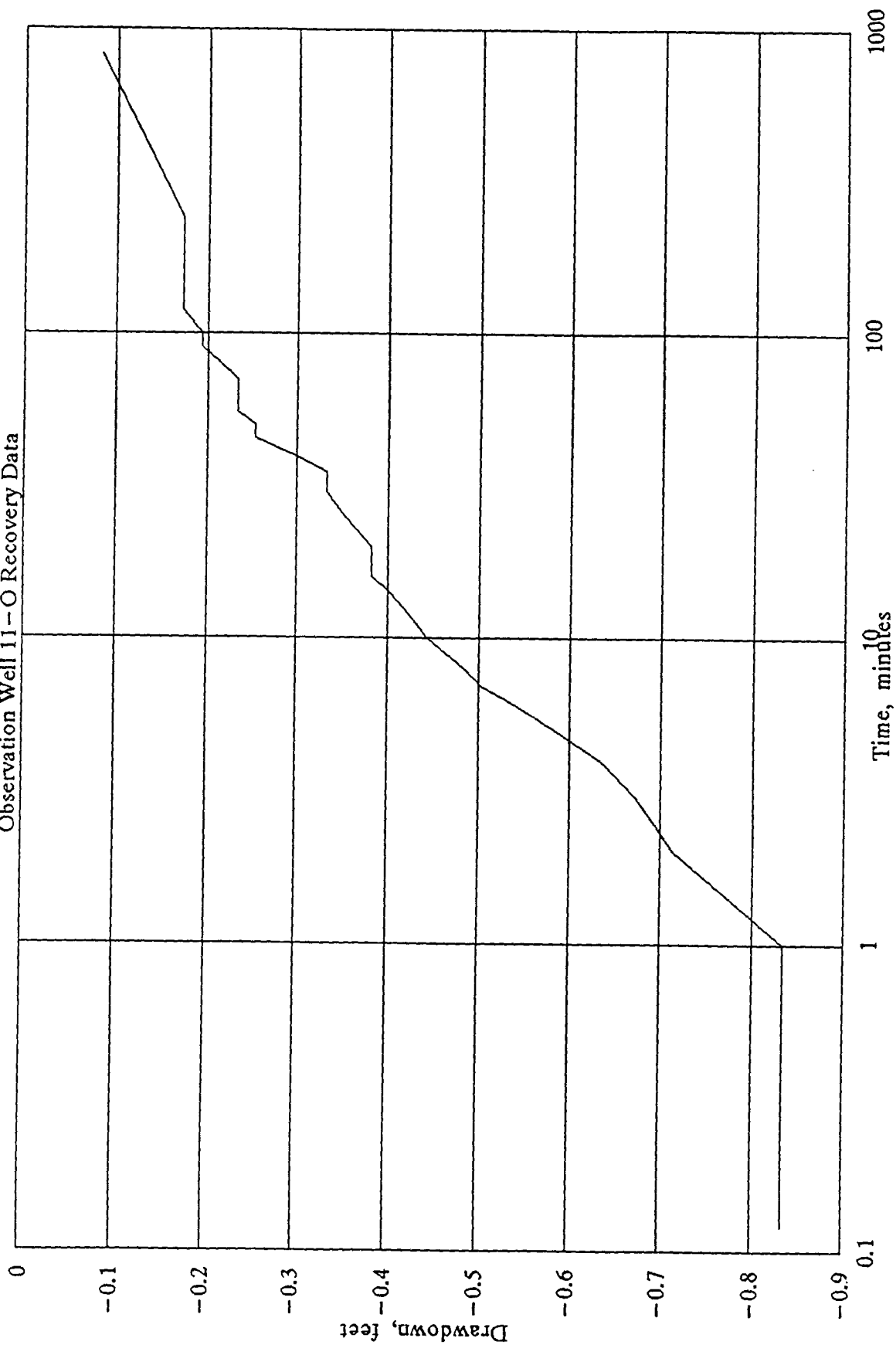
LAYNE-WESTERN

[illegible]

NOTES :

RECOVERY AFTER PUMPING MCWC Well #12

Observation Well 11 - O Recovery Data



MINNEHAHA COMMUNITY WATER CORP.
DELL RAPIDS, SOUTH DAKOTA
WELL FIELD EXPANSION BAI #7576-02

RECOVERY DATA SHEET

After Pumping Well # 12

READINGS @ ORIGINAL TEST HOLE

DATE: October 6, 1993

Test Well is 177.57' from Well #12

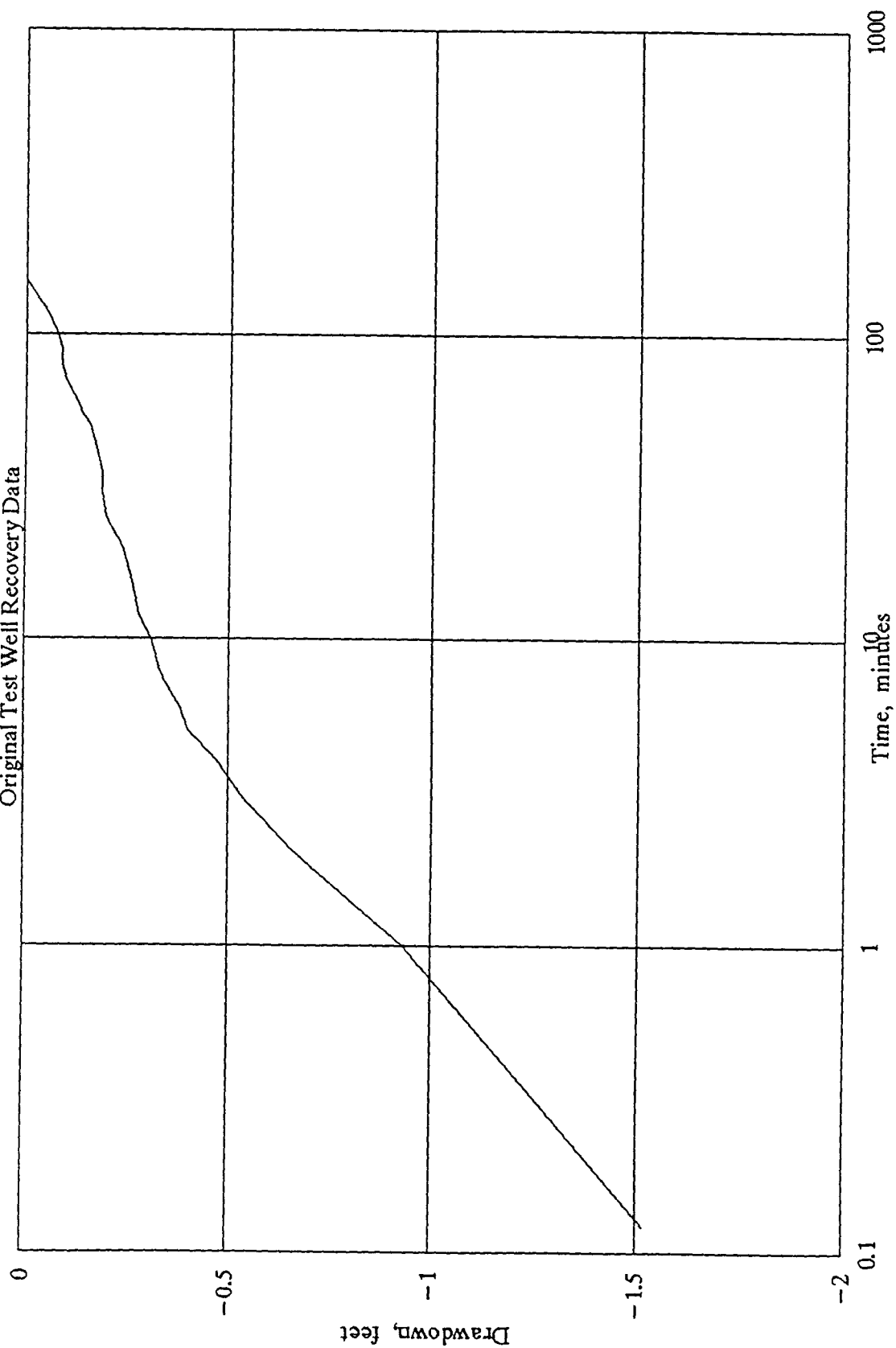
STATIC READING: 8' Elev. 1460.90

MEASURED BY: J.E. & J.Z.
MCWC

[illegible]

RECOVERY AFTER PUMPING MCWC Well #12

Original Test Well Recovery Data



MINNEHAHA COMMUNITY WATER CORP.
DELL RAPIDS, SOUTH DAKOTA
WELL FIELD EXPANSION BAI #7576-02

RECOVERY DATA SHEET

After Pumping Well # 12

READINGS @ ORIGINAL TEST HOLE

DATE: October 6, 1993

Test Well is 177.57' from Well #12

STATIC READING: 8.12' Elev. 1460.90

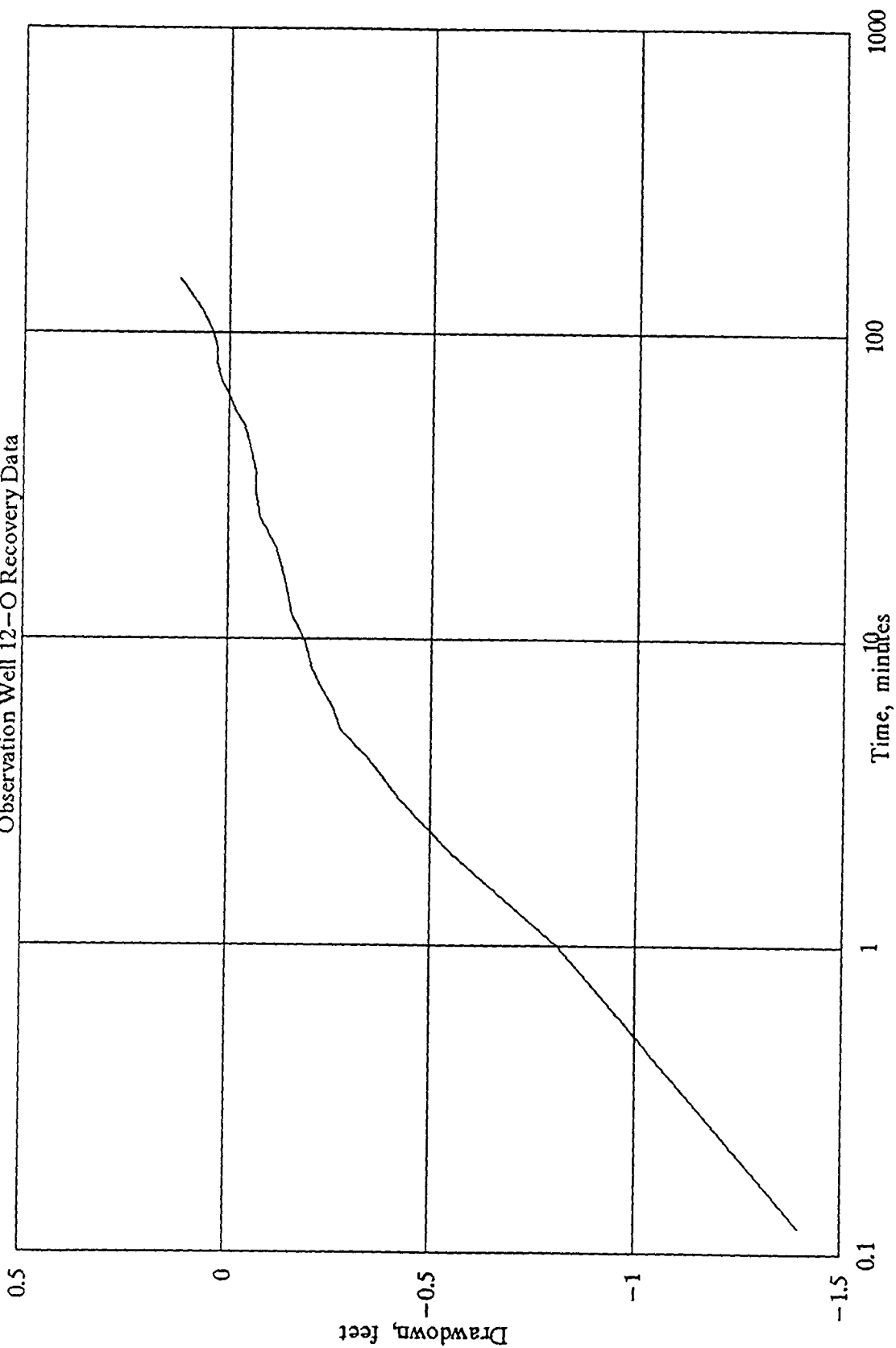
MEASURED BY: J.E. & J.Z.

MCWC

[illegible]

RECOVERY AFTER PUMPING MCWC Well #12

Observation Well 12-O Recovery Data



APPENDIX B

WATER QUALITY DATA

MCWC

WELLS 11 & 12

	WELL 11-1	WELL 11-2	WELL 12-1	WELL 12-2	MCWC RAW WATER (COMP)
FIELD pH	7.4	7.4	7.4	7.4	7.2
FIELD TEMP.	10.0	10.0	10.0	10.0	
LAB pH	7.21	7.24	7.32	7.10	
CHLORIDE	24	23	12	18	
SULFATE	210	200	180	190	
ALKALINITY	270	270	320	310	316
HARDNESS	420	430	440	440	544
CONDUCTIVITY	900	780	810	870	
TDS	620	620	530	560	
IRON	1.7	3.1	1.3	2.9	
MANGANESE	0.87	0.66	0.95	0.69	
NITRATE		<0.1		<0.1	

conductivity - umhos/cm
temp. in C
all other results in mg/l

TABLE #1
WATER ANALYSIS
 6600 93-533
 November 19, 1993
 Big Sioux River

<u>Parameter</u>	<u>94-596</u>	<u>LDL</u>
pH	7.95	—
Chloride	41	0.5
Sulfate	270	2.0
Alkalinity	260	1.0
Hardness	500	1.0
Conductivity, umhos/cm	1010	1.0
Total Dissolved Solids	710	1.0
Iron	0.34	0.03
Manganese	0.13	0.01

LDL - Lower Detectable Limit
 All results are in milligrams per liter

LABORATORY QUALITY CONTROL

<u>ACCURACY DATA</u>				<u>PRECISION DATA</u>	
<u>Parameter</u>	<u>Sample #</u>	<u>Matrix Spike Percent Recovery</u>	<u>Matrix Spike Duplicate Percent Recovery</u>	<u>Standard Percent Recovery</u>	<u>Relative Percent Difference</u>
pH	94-596	—	—	—	0.0%
Alkalinity	94-596	100%	97%	—	0.8%
Hardness	94-635	99%	100%	—	1.7%
Chloride	94-487	100%	100%	—	0.0%
Sulfate	94-475	74%	72%	—	2.4%
Conductivity	94-696	—	—	—	0.0%
Manganese	94-596	92%	90%	—	1.9%
Iron	94-596	101%	100%	—	0.7%
TDS	WP33	—	—	—	0.0%
Sulfate	94-475	74%	72%	—	2.4%
Conductivity	94-696	—	—	—	0.0%

Huntingdon
Consulting Engineers Environmental Scientists

EPA ID# 0432 System Name MINNEHAHA COMMUNITY WATER CORP City BALTIMORE

Sampler- JOHN BUSS
Title- MANAGER
Address- RR 2 BOX 26A
 DELL RAPIDS SD 57022-9424
 Work Phone-605-428-3374

Service Area- Residential area including municipalities, RWS, housing dev., etc
PWS Owner Type- Private Ownership
Water Supply Type- Groundwater Supply

Bact Population- 6600 Chemical Population- 10600 Service Connections- 2640

Summary of Chemical Sampling for MINNEHAHA COMMUNITY WATER CORP

Inorganic Chemical Sampling Date- 02/06/90

Radiological Chemical Sampling Date- 01/14/92 / / / / /

VOC/Unregulated Chemical Sampling Dates- 09/17/91 / / / / /

THM Sampling Dates- 09/13/90 12/27/90 03/25/91 06/26/91

Source(s) for MINNEHAHA COMMUNITY WATER CORP

Source Name/Number	Year Built	Depth	Dia- meter	Availi- bility	Type	Vulner- ability	Treatment
01 #1	1977	50'	10"	P	G	V	I R M DG VA FA CL CS
02 #2	1977	50'	10"	P	G	V	I R M DG VA FA CL CS
03 #3	1977	50'	10"	P	G	V	I R M DG VA FA CL CS
04 #4	1977	45'	10"	P	G	V	I R M DG VA FA CL CS
05 #5	1977	50'	10"	P	G	V	I R M DG VA FA CL CS
06 #6	1981	60'	10"	P	G	V	I R M DG VA FA CL CS
07 #7	1988	50'	10"	P	G	V	I R M DG VA FA CL CS
08 #8	1988	50'	10"	P	G	V	I R M DG VA FA CL CS
09 #9	1988	50'	10"	P	G	V	I R M DG VA FA CL CS
10 TREATMENT PLANT		0'	0"	P	T	V	I R M DG VA FA CL CS

Common Ion Data

Sources	Type	Date	TDS	Conduc- tivity	pH	Alk-M	Alk-P	Sodium	Potas- sium	Calcium	Mag- nesium	Iron	Manga- nese	Chlor- ide	Sulfate	Bicarb- onate	Carb- onate	Hardness	Langlier Index	Nitrate	Fluoride
01 04 05	TC	0 90	308	475	7.77	29	0	32.0	2.9	32.2	17	0.04	0.04	26.1	152	35	0	153	-1.06		1.38
01	R	05/08/90	617	880	7.45	267	0	21.4	2.9	128.0	37.3	5.16	1.06	29.5	175	326	0	473	+0.15	0.1	0.33
01 04 05	RC	05/08/90	587	840	7.32	268	0	15.8	2.7	120.0	38.1	3.69	0.92	25.8	158	327	0	456	0.00	0.1	0.33
02	R	09/08/88	543	792	7.32	298	0	10.2	2.5	117.0	33.8	4.11	0.97	14.4	146	364	0	431	+0.04	0.1	0.31
02 01 03	TC	07/25/85	204	340	8.05	40	0	9.5	2.2	31.3	13.6	0.19	0.21	14.0	102	48	0	135	+0.64	0.1	1.15
03	R	09/08/88	513	759	7.31	297	0	11.0	2.4	110.0	33.7	3.49	0.84	15.8	130	362	0	413	+0.00	0.3	0.30
04	R	05/08/90	694	962	7.26	311	0	17.0	3.3	142.0	45.5	3.37	0.88	23.0	199	379	0	542	+0.07	0.2	0.37
05	R	05/08/90	575	830	7.48	262	0	13.5	2.5	121.0	36.3	3.12	1.00	22.0	157	320	0	452	+0.07	0.1	0.31
05 06 07	TC	05/18/88	270	381	7.34	44	0	10.0	2.6	31.0	20.5	0.15	0.14	14.5	62	54	0	162	-1.31	0.1	1.10
06	R	09/08/88	497	734	7.35	289	0	10.0	2.3	106.0	33.5	3.30	0.78	17.2	123	353	0	403	+0.01	0.2	0.32
07	R	09/08/88	546	770	7.34	265	0	11.6	2.4	110.0	34.7	3.84	0.78	15.0	172	323	0	417	-0.02	1.1	0.30
08	R	09/08/88	509	734	7.31	254	0	11.6	2.4	103.0	33.1	3.80	0.75	18.9	147	310	0	393	-0.10	0.1	0.32
09	R	09/08/88	371	583	7.38	232	0	7.5	1.4	76.0	27.6	2.84	0.45	17.2	69	283	0	303	-0.18	0.1	0.44

APPENDIX C

WELL DRILLERS LOG

Layne-Western Company, Inc.

Well Information

Omaha, Nebraska

1. Contract Minnehaha Community Water Corp Date 10-11-93
 2. City and State Dell Rapids, SD. Driller Dave Deaver
 3. Well No. 11 at test hole No. 11 Well location (attach map) 1 mile south of water treatment plant
 4. Work completed 10-11-93 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 | <u>6.2'</u> | <u>26"OD</u> | <u>.375</u> | <u>SS</u> | <u>WR</u> | <u>100</u> |
| 7. Inner Casing | <u>38.3'</u> | <u>12"</u> | <u>.375</u> | <u>Black</u> | <u>Blank</u> | |
| 8. Outer Casing | | | | | | |
9. 15 tons of gravel used in the well. Size 3/16 x 6 x 8 x 10 Northern Gravel Co.
 10. Test of well. Did you use test or permanent pump? Yes Sub. Test Pump Size of Bowl Stages
 11. Size of orifice inch by inch. Orifice tube reading inches.
 12. Pumping test — measurements from ground level:

TIME	G.P.M.	STATIC	DRAWDOWN	PUMPING LEVEL
.....				
.....				
.....				
.....				
.....				
.....				
.....				

13. Recovery in 5 minutes, in 30 minutes
14. Did you seal bottom of well? Yes Thickness .375 inches, material SS Plate
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 feet to feet; from feet to feet; from feet to feet.
17. Depth of well from ground level to top of plug 45' Size of drilled hole 42"
18. Was cement placed around or between any of the casings? Yes
19. If so, state where, how much and method used. 13' to ground level 5.5 cu. yds. by tremmie pipe

Layne-Western Company, Inc.**Well Information**

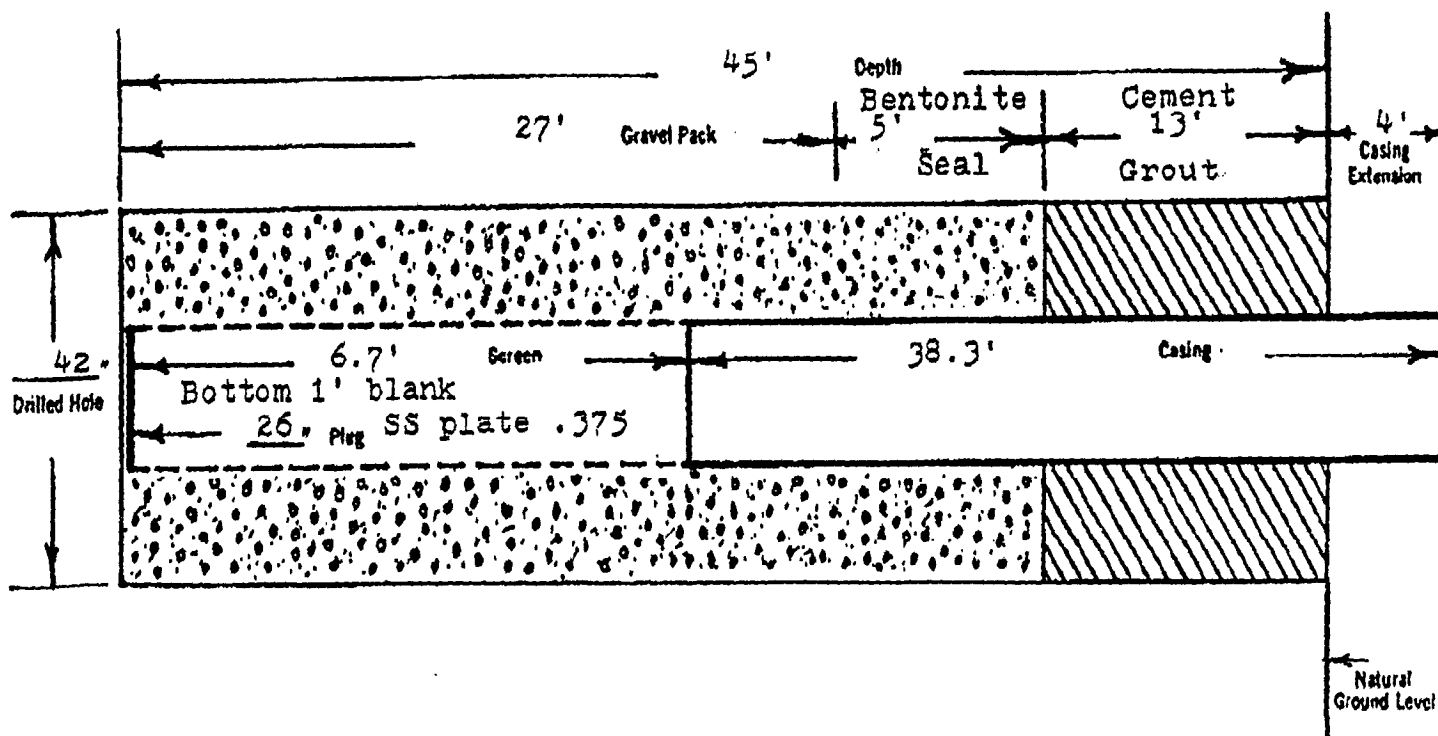
Omaha, Nebraska

Page 1

CONTRACT Minnehaha Community Water Corp. Well No. 11

Log of well from ground level:

Feet	Feet	Formation
0	to 2	Topsoil
2	to 5	Gumbo
5	to 14	Brown Clay
14	to 25	Coarse and fine sand, small gravel
25	to 35	Sand, gravel, cobble stones
35	to 45	Sand, large gravel and cobble stones (large)
	to	
	to	
	to	
	to	
	to	
	to	
	to	
	to	
	to	
	to	
	to	
	to	
	to	



Layne-Western Company, Inc.**Well Information**

Omaha, Nebraska

1. Contract Minnehaha Community Water Corp. Date 9-28-93
2. City and State Dell Rapids, SD Driller Dave Deaver
3. Well No. 12 at test hole No. 12 Well location (attach map) 1 mile and 600'
south of water treatment plant.
4. Work completed 9-28-93 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 | <u>6.7'</u> | <u>26" OD</u> | <u>.375</u> | <u>SS</u> | <u>WR</u> | <u>100</u> |
| 7. Inner Casing | <u>32.2</u> | <u>12"</u> | <u>.375</u> | <u>Black</u> | <u>Blank</u> | |
| 8. Outer Casing | | | | | | |
9. 1.4 tons of gravel used in the well. Size 3/16 x 6 x 8 x 10 Northern Gravel Co.
10. Test of well. Did you use test or permanent pump? Yes Sub test pump
Size of Bowl Stages
11. Size of orifice inch by inch. Orifice tube reading inches.
12. Pumping test — measurements from ground level:

TIME	G.P.M.	STATIC	DRAWDOWN	PUMPING LEVEL
.....				
.....				
.....				
.....				
.....				
.....				
.....				

13. Recovery in 5 minutes , in 30 minutes
14. Did you seal bottom of well? Yes Thickness 37.5 inches, material SS plate
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 feet to feet; from feet to feet; from feet to feet.
17. Depth of well from ground level to top of plug 42.9 Size of drilled hole 42"
18. Was cement placed around or between any of the casings? Yes
19. If so, state where, how much and method used. 12.9' to ground level 7.5 cu. yds.
by tremmie pipe.

Page 2

Omaha, Nebraska

CONTRACT Minnehaha Community Water Corp. Well No. 12

Log of well from ground level:

The diagram illustrates a well casing and gravel pack assembly. The total depth of the casing is 43.9 feet. The casing is composed of several sections: a 4-foot casing extension at the top, followed by a 12.9-foot cement grout section, a 5-foot bentonite seal section, and a 37.2-foot casing section. The casing is surrounded by a gravel pack, which is 26 feet thick. The gravel pack is composed of a 6.7-foot screen section and a 26-foot plug section. The bottom 1 foot of the plug is blank. The casing is labeled with a diameter of 26 inches and a wall thickness of .375 inches. The bottom of the casing is labeled as the natural ground level.

Component	Length (feet)	Material / Notes
Casing Extension	4'	Casing
Cement Grout	12.9'	Cement Grout
Bentonite Seal	5'	Bentonite Seal
Casing	37.2'	Casing
Gravel Pack (Total)	26'	Gravel Pack
Gravel Pack (Screen)	6.7'	Screen
Gravel Pack (Plug)	26"	Plug SS plate .375
Bottom 1' blank	1'	Blank

43.9 Depth

26' Gravel Pack

5' Bentonite Seal

12.9' Cement Grout

4' Casing Extension

42' Drilled Hole

6.7' Screen

37.2' Casing

Bottom 1' blank

26" Plug SS plate .375

Natural Ground Level

REPORT FOR
WATER PERMIT APPLICATION NO. 4838A-3
AND
WATER PERMIT APPLICATION NO. 5805-3
MINNEHAHA COMMUNITY WATER CORPORATION
APRIL 14, 1994

Application No. 4838A-3 proposes to transfer the water remaining reserved for future use by Future Use Permit No. 4838-3 to a new area within the aquifer. Future Use Permit No. 4838-3 currently reserves 1500 acre feet of water annually from the Sioux Falls Management Unit of the Big Sioux Aquifer from wells to be located in the E 1/2 NE 1/4 Section 29, T104N-R49W. This application proposes to transfer the future use area to the NE 1/4 NE 1/4 Sec. 32 and the S 1/2 SE 1/4 Sec. 29; all in T104N-R49W.

Water Permit Application No. 5805-3 proposes to construct and place to beneficial use 2.9 cfs (1467 acre-feet annually) reserved for future use by Permit Nos. 4838-3 and 4838A-3. The point of diversion will be from two wells completed into the Sioux Falls Management Unit of the Big Sioux Aquifer, located in the S 1/2 SE 1/4 Sec. 29, T104N-R49W. The water will be used to supply the Minnehaha Community Water Corporation's system located in Minnehaha County.

AQUIFER: Big Sioux: Sioux Falls (BS:SF)

DISCUSSION:

On November 14, 1991, through a declaratory ruling, the Water Management Board established a limitation on the annual withdrawals due to pumping by Water Permit/Right holders from the Sioux Falls Management Unit of 32,200 acre-feet per year (ac-ft/yr).

Reported withdrawals from the Sioux Falls Management Unit by appropriative users include:

User	1990	1991	1992	1993
City of Sioux Falls	17,788 ₁	10,257 ₂	12,334 ₂	9,956 ₃
MCWC	1,253 ₁	1,400 ₃	1,458 ₃	1,489 ₄
Irrigation	473 ₃	409 ₃	160 ₃	124 ₃
Total	19,514	12,066	13,952	11,569

¹ Report for Water Permit Application No. 5523-3

² Lyle Johnson, Personal Communication Mar. 7, 1994

³ Required reporting per individual permit qualifications

⁴ Personal Communication with Jim Zeck, Feb. 16, 1994

At the current level of development, it is not likely that withdrawals from appropriative users will equal 32,200 acre-feet per year.

However, the development of the water that has been reserved for future use from the management unit could possibly cause pumping to exceed the established annual limitation. When pumping approaches

this limit, water use will be restricted on a priority basis so withdrawals do not exceed 32,200 ac-ft/yr. Therefore, the priority date associated with any development from the Sioux Falls Management unit could be important.

The priority for the future development of up to 11,565 ac-ft/yr from the aquifer has been established through four future use permits. The Future Use Permits include:

Permit No.	Holder	Appropriation	Priority Date
448-3	Sioux Falls	5,265 ac-ft/yr	4/8/57
4838-3	MCWC	1,500 ac-ft/yr	10/19/81
5523-3	Sioux Falls	4,050 ac-ft/yr	3/26/91
5716-3	MCWC	750 ac-ft/yr	8/7/92

In 1991, the Water Management Board approved Future Use Permit No. 5523-3 for an amount considerably less than was originally applied for, and left a "contingency for expansion of use under existing legal rights and a contingency for expansion of present and new systems." The amount of water remaining in this contingency is 1,116 ac-ft/yr, (from report for Water Permit No. 5716-3). The best information available at this time indicates that when this contingency is appropriated, the aquifer will be fully appropriated.

Application No. 4838A-3 proposes to transfer the 1500 ac-ft/yr which remains reserved for future use by Minnehaha Community Water Corporation (MCWC), to a different area by amending Future Use Permit No. 4838-3. The priority date of Future Use Permit No. 4838-3, (October 19, 1981), will be retained for the amended area. The new area to be reserved for future use by this amendment coincides with the area MCWC currently has reserved for future use through Future Use Permit No. 5716-3.

MCWC has developed 10 wells which produced 1,489 acre-feet in 1993, (Zeck, personal communication 1994), it is unlikely that all of the water that remains reserved by Future Use Permit No. 4838-3 can be developed within the limited area (less than 80 acres) originally specified. In fact, in the Report on Ground Water Exploration Minnehaha Community Water Corporation prepared by Schmitz, Kalda & Associates Hoskins-Western-Sonderegger, Inc., 1974, MCWC was advised:

"The results indicate a high transmissibility in the formation. Drawdown in the observation well was low indicating that well spacing will not be critical. Spacing between wells is recommended to be in the order of 300 to 400 feet depending on the capacity of each well. The potential development of 10 to 12 wells each with a minimum capacity of 200 gallons per minute on the approximately 60-acre site west of the railroad right-of-way is indicated", (on file in Water Right No. 2311-3).

Any water reserved by a future use permit which cannot be developed would revert to the public and would be regarded as unappropriated public water.

The Water Management Board has allowed expansion of future use areas with retention of the original priority dates in the past. Therefore, a future use permit may be viewed as a reservation of water from an

aquifer or management unit. Amending Future Use Permit No. 4838-3 to change the future use area will not affect the availability of unappropriated water in the Sioux Falls Management Unit. The new area to be reserved for future use by this amendment coincides with the area MCWC currently has reserved for future use through Future Use Permit No. 5716-3. Approval of this amendment will result in a total reservation for future use of 2,250 ac-ft/yr from the area (approximately 90 acres). The aquifer characteristics delineated through pump tests conducted on Well #11 and Well #12 suggest that this is a viable area within the aquifer. The transmissivity defined by these wells ranged from 374,000 gpd/ft to 802,000 gpd/ft, and the Storage Coefficient ranged from 3.75×10^{-6} to 9.89×10^{-6} . The specific capacities of these wells were 111 gpm/ft and 176 gpm/ft respectively (compared with specific capacities of 16-22 gpm/ft for MCWC Wells #7, #8, #9). It is possible that 2,250 ac-ft/yr can be developed from this new area. Development of the future use area as defined by this amendment should not be detrimental to other users from the Sioux Falls Management Unit.

Water Permit Application No. 5805-3 proposes to place to beneficial use water appropriated and reserved for future use by Future Use Permit No. 4838-3. The availability of unappropriated water is not an issue for Water Permit Application No. 5805-3. Approval of Future Use Permit No. 4838-3 appropriated 1,500 ac-ft/yr from the Sioux Falls Management Unit for future use with a 1981 priority date.

Although water has been appropriated through a future use permit, a permit to place water to beneficial use can only be approved if it will not unlawfully impair existing water rights. Unlawful impairment of groundwater rights may be due to "well interference" which is the overlapping of drawdown cones of depression of two or more wells; or by "cumulative pumping affects" which is the lowering of the water level throughout the entire aquifer, as the result of an extended interim between withdrawal and recharge causing an "overdraft" from storage.

Drawdown caused by individual well pumping is not expected to be significant except in the immediate vicinity of a production well due to the nature of this unconfined aquifer.

The amount of water in storage in an aquifer may be reduced to less than "normal" as the result of below normal recharge, and/or above normal pumping in relation to recharge. It should be understood that water rights within the Sioux Falls Management Unit can potentially be adversely impacted even though substantially less than established annual pumping limitation (32,200 acre-feet per year) is pumped. The Water Management Board adopted a declaratory ruling on November 14, 1991 stating (in part):

"That private domestic wells are being impacted and deprived of reasonable use of water for domestic purposes by appropriative permit holders' withdrawals from the Big Sioux Aquifer: Sioux Falls Management Unit."

The City of Sioux Falls offered a seven point proposal that would

eliminate the problem addressed in the declaratory ruling. Since the problem was addressed and corrected through the proposal, the board did not need to order mitigation.

Following the declaratory ruling, the Board approved a reservation for future use from the Sioux Falls Management Unit (Permit No. 5523-3, City of Sioux Falls). The consequence of the declaratory ruling was the inclusion of the following qualification on Future Use Permit No. 5523-3:

"If development and pumping of Sioux Falls Management Unit of the Big Sioux Aquifer water reserved by Future Use Permit No. 5523-3 results in adverse impairment of adequate domestic wells or adequate wells having prior rights, reduction of withdrawals or mitigation may be necessary. SDCL 46-1-5(1), in giving preference to domestic use over appropriative rights does so without regard to 1) whether lowered groundwater levels are due to drought, 2) the location of the domestic wells in the aquifer, or 3) the thickness of the water bearing sands and gravel; subject to compliance with minimum requirements for adequate wells as defined by Board Well Construction Standards, Chapter 74:02:04."

In 1993, the Water Management Board included a similar qualification to Future Use Permit No. 5716-3 for MCWC.

CONCLUSIONS:

1. Application No. 4838A-3 proposes to transfer the 1500 ac-ft/yr which remains reserved for future use by Minnehaha Community Water Corporation (MCWC), to a different area, through an amendment to Future Use Permit No. 4838-3.
2. The amendment to Future Use Permit No. 4838-3 will not increase the amount of water appropriated from the Sioux Falls Management Unit of the Big Sioux Aquifer.
3. The amendment to Future Use Permit No. 4838-3 will not cause withdrawals to exceed the annual limitation that was established for the management unit by Board's November 14, 1992 declaratory ruling (32,200 acre-feet per year).
4. The transfer of the future use area specified by Future Use Permit No. 4838-3 as proposed by this amendment will not be detrimental to prior water rights.
5. Water Permit Application No. 5805-3 proposes to place to beneficial use 1,467 acre-feet of water per year water which has been reserved for future use by Minnehaha Community Water Corporation.
6. If the future use area is not transferred, the water developed with the two wells proposed by Application No. 5805-3 will have more recent priority dates. The first 750 ac-ft/yr developed

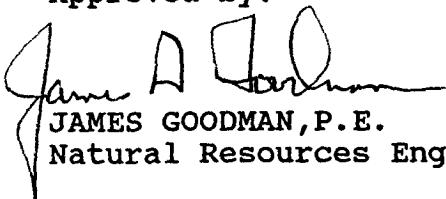
under the permit will have a priority date of 8/7/92 as established by Future Use Permit NO. 5716-3, and the remaining 717 ac-ft/yr will have a 2/24/94 priority date (date of application).

7. Approval of Application No. 4838A-3 and 5805-3 will leave a total of 783 acre-feet per year reserved for future use by Minnehaha Community Water Corporation (33 ac-ft/yr remaining in 4838-3 and 750 ac-ft/yr remaining in 5716-3)
8. If approved Water Permit No. 5805-3 should include the following qualification:
"If development and pumping of Sioux Falls Management Unit of the Big Sioux Aquifer water by Water Permit No. 5805-3 results in adverse impairment of adequate domestic wells or adequate wells having prior rights, reduction of withdrawals or mitigation may be necessary. SDCL 46-1-5(1), in giving preference to domestic use over appropriative rights does so without regard to 1) whether lowered groundwater levels are due to drought, 2) the location of the domestic wells in the aquifer, or 3) the thickness of the water bearing sands and gravel; subject to compliance with minimum requirements for adequate wells as defined by Board Well Construction Standards, Chapter 74:02:04."
9. If this transfer is approved, the City of Sioux Falls may choose to file an application to transfer undeveloped portions of future use reservations within the Sioux Falls Management Unit, to retain earliest possible priority dates.



KEN BUHLER
Natural Resources Engineer

Approved by:



JAMES GOODMAN, P.E.
Natural Resources Engineer

RECOMMENDATION OF CHIEF ENGINEER FOR WATER PERMIT
APPLICATION NO. 5805-3, Minnehaha Community Water Corporation

Pursuant to SDCL 46-2A-2, the following is the recommendation of the Chief Engineer, Water Rights Division, Department of Environment and Natural Resources concerning Water Permit Application No. 5805-3, Minnehaha Community Water Corporation, c/o John Buss, Manager, RR 2 Box 26A, Dell Rapids, SD 57022.

The Chief Engineer is recommending APPROVAL of Application No. 5805-3 because 1) there is reasonable probability that there is unappropriated water available for the applicant's proposed use, 2) the proposed diversion can be developed without unlawful impairment of existing rights, 3) the proposed use is a beneficial use and 4) in the public interest with the following qualification:

If development and pumping of Sioux Falls Management Unit of the Big Sioux Aquifer water by Water Permit No. 5805-3 results in adverse impairment of adequate domestic wells or adequate wells having prior rights, reduction of withdrawals or mitigation may be necessary. SDCL 46-1-5(1), in giving preference to domestic use over appropriative rights does so without regard to 1) whether lowered groundwater levels are due to drought, 2) the location of the domestic wells in the aquifer, or 3) the thickness of the water bearing sands and gravel; subject to compliance with minimum requirements for adequate wells as defined by Board Well Construction Standards, Chapter 74:02:04.

See report on application for additional information.



JOHN HATCH, Chief Engineer
April 20, 1994



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

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

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

May 19, 1994

John Buss, Manager
Minnehaha Community Water Corporation
RR 2 Box 26A
Dell Rapids, SD 57022

Dear Mr. Buss:

Water Permit Application No. 5805-3 for rural water system use, and Application No. 4838A-3 to amend Future Use Permit No. 4838-3 have been examined and found to comply with the South Dakota Water Laws and applicable rules. A notice of hearing has been sent to the Publishers of the Dell Rapids Tribune printed at Dell Rapids, SD (Ph # 428-5441), Salem Special printed at Salem, SD (Ph # 425-2361), and Sioux Valley News printed at Canton, SD (Ph # 987-2631). For your information, a copy of the notice, the recommendations of the Chief Engineer and a report on the applications are enclosed. Please review the notice prior to publication and notify this office, if you have any corrections or questions.

Be sure to contact the above newspapers to authorize publication of your Notice of Hearing and to arrange for payment. Early contact with the papers can eliminate delays. The publishers have been instructed to publish your notice once each week for two consecutive weeks with the last publication to occur twenty days before the board meeting. The newspapers have been instructed to send us the Proof of Publication. We must receive Proof of Publication before action can be taken on the applications.

Sincerely,

Eric Gronlund
Natural Resources Engineer
605 773-3352

enclosures

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

c: Gary Hanson, Commissioner, City of Sioux Falls, 224 W 9th St, Sioux Falls, SD 57102
Lyle Johnson, Water Superintendent, City of Sioux Falls, 224 W 9th St, Sioux Falls, SD 57102
William Siemonsma, Box 37, Lyons, SD 57041



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

May 19, 1994

Dell Rapids Tribune
Box 99
Dell Rapids, SD 57022

ATTENTION: Legal Department

Enclosed is a Notice of Hearing on Application No. 5805-3, and Application No. 4838A-3 to Amend Future Use Water Permit No. 4838-3 to be published twice. Please publish the first notice on May 25, 1994, with the second publication 7 days later.

The APPLICANT MUST VERIFY TO YOU THAT THE NOTICE IS TO BE PUBLISHED, before you make the first publication. Please BILL the APPLICANT for the cost of publication. The APPLICANT is Minnehaha Community Water Corporation, c/o John Buss, Manager, RR 2 Box 26A, Dell Rapids, SD 57022 (Ph # 428-3374).

A copy of BOTH publications must be SENT to the WATER RIGHTS DIVISION. IMMEDIATELY return the FIRST publication with the FIRST Transmittal form on the bottom of this page. The first copy is needed to check the publication for errors so any corrections can be made in the second publication. Publication errors can invalidate the public notice and cause the applicant costly delays.

Please be sure the SECOND publication is returned IMMEDIATELY with the enclosed Proof of Publication form. DO NOT WAIT until the end of the month or the billing cycle. No action may be taken on the permit application until proof of publication has been received.

Sincerely,

Eric Gronlund
Natural Resources Engineer
605 773-3352

enclosures

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

FIRST TRANSMITTAL NOTICE

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

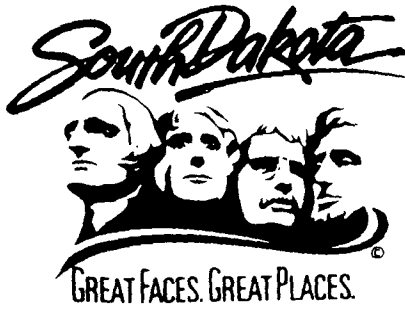
No. _____

Date _____

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

Name

Newspaper



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

May 19, 1994

Salem Special
PO Box 220
Salem, SD 57058-0220

ATTENTION: Legal Department

Enclosed is a Notice of Hearing on Application No. 5805-3, and Application No. 4838A-3 to Amend Future Use Water Permit No. 4838-3 to be published twice. Please publish the first notice on May 26, 1994, with the second publication 7 days later.

The APPLICANT MUST VERIFY TO YOU THAT THE NOTICE IS TO BE PUBLISHED, before you make the first publication. Please BILL the APPLICANT for the cost of publication. The APPLICANT is Minnehaha Community Water Corporation, c/o John Buss, Manager, RR 2 Box 26A, Dell Rapids, SD 57022 (Ph # 428-3374).

A copy of BOTH publications must be SENT to the WATER RIGHTS DIVISION. IMMEDIATELY return the FIRST publication with the FIRST Transmittal form on the bottom of this page. The first copy is needed to check the publication for errors so any corrections can be made in the second publication. Publication errors can invalidate the public notice and cause the applicant costly delays.

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Sincerely,

Eric Gronlund
Natural Resources Engineer
605 773-3352

enclosures

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

FIRST TRANSMITTAL NOTICE

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

No. _____

Date _____

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

Name

Newspaper



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

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

May 19, 1994

Sioux Valley News
Box 255
Canton, SD 57013

ATTENTION: Legal Department

Enclosed is a Notice of Hearing on Application No. 5805-3, and Application No. 4838A-3 to Amend Future Use Water Permit No. 4838-3 to be published twice. Please publish the first notice on May 26, 1994, with the second publication 7 days later.

The APPLICANT MUST VERIFY TO YOU THAT THE NOTICE IS TO BE PUBLISHED, before you make the first publication. Please BILL the APPLICANT for the cost of publication. The APPLICANT is Minnehaha Community Water Corporation, c/o John Buss, Manager, RR 2 Box 26A, Dell Rapids, SD 57022 (Ph # 428-3374).

A copy of BOTH publications must be SENT to the WATER RIGHTS DIVISION. IMMEDIATELY return the FIRST publication with the FIRST Transmittal form on the bottom of this page. The first copy is needed to check the publication for errors so any corrections can be made in the second publication. Publication errors can invalidate the public notice and cause the applicant costly delays.

Please be sure the SECOND publication is returned IMMEDIATELY with the enclosed Proof of Publication form. DO NOT WAIT until the end of the month or the billing cycle. No action may be taken on the permit application until proof of publication has been received.

Sincerely,

Eric Gronlund
Eric Gronlund
Natural Resources Engineer
605 773-3352

enclosures

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

FIRST TRANSMITTAL NOTICE

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

No. _____

Date _____

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

Name

Newspaper

126

Instruction to Newspaper - Publish first Notice on May 25, 1994, with the second publication 7 days later. The applicant is responsible for payment.

NOTICE OF HEARING on Application No. 5805-3, and Application No. 4838A-3
to Amend Future Use Water Permit No. 4838-3

Notice is given that the Minnehaha Community Water Corporation 47381 248th St, Dell Rapids, SD 57022-5305 has filed applications for two water permits.

Water Permit Application No. 4838A-3 proposes to amend Future Use Permit No. 4838-3 by transferring the water remaining in reserve by Future Use Permit No. 4838-3 to a new area within the aquifer. Future Use Permit No. 4838-3 currently reserves 1500 acre-feet of water annually from the Sioux Falls Management Unit of the Big Sioux Aquifer from wells to be located in the E 1/2 NE 1/4 Section 29-T104N-R49W. This application proposes to transfer the future use area to the NE 1/4 NE 1/4 Section 32 and the S 1/2 SE 1/4 Section 29; all in T104N-R49W. This application, if approved, will transfer the future use area and retain the October 19, 1981, priority date established by Future Use Permit No. 4838-3.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 4838A-3 because 1) the future use area can be transferred without unlawful impairment of existing rights, 2) the proposed use will be a beneficial use of water, and 3) it is in the public interest.

Water Permit Application No. 5805-3 is to construct and place to beneficial use 2.9 cfs (1467 acre-feet annually) reserved for future use by Permit Nos. 4838-3 and 4838A-3. The point of diversion will be from two wells (Sioux Falls Management Unit of the Big Sioux Aquifer) 45 and 44 feet deep located in the S 1/2 SE 1/4 Section 29-T104N-R49W. The water will be used to supply the Minnehaha Community Water Corporation's system located in Minnehaha County.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 5805-3 because 1) existing rights will not be unlawfully impaired, 2) it is a beneficial use of water, and 3) it is in the public interest.

Any person interested in opposing or supporting the applications must file a written petition with BOTH the applicant and Chief Engineer. The applicant must also file a petition if opposed to the Chief Engineer's recommendations. The Chief Engineer's address is "Water Rights Division, Foss Building, 523 E Capitol, Pierre SD 57501 (605 773-3352)" and the applicant's mailing address is given above. A petition filed by either an interested person or the applicant must be filed by June 20, 1994. The petition may be informal, but must include a statement describing the petitioner's interest in the applications, the petitioner's reasons for opposing or supporting the applications, and the signature and mailing address of the petitioner or the petitioner's legal counsel, if legal counsel is obtained.

The Water Management Board will consider the applications at 10:00 a.m., June 28, 1994, Gallery D, Ramkota Inn Best Western, 920 West Sioux, Pierre, SD. The Chief Engineer's recommendations are not final or binding upon the Board. The Board is authorized to 1) approve, 2) approve with qualifications, 3) defer, or 4) deny the applications based on the facts presented at the public hearing. The June 28, 1994, hearing date will be automatically delayed for at least 20 days upon written request to the Chief Engineer from the applicant or any interested person opposing the applications. The request for an automatic delay must be filed by June 20, 1994.

Any hearing will be an adversary proceeding. Any person filing a petition and/or the applicant have the right to be represented by a lawyer and may present evidence or cross-examine witnesses according to SDCL 1-26. These and other due process rights will be forfeited if not exercised. Decisions of the Board may be appealed to the Circuit Court and State Supreme Court as provided by law. Contact Eric Gronlund by June 20, 1994, at the above Water Rights Division address to request copies of information pertaining to the applications, to assure access to the hearing by the handicapped or to obtain an interpreter for the hearing impaired.

These applications are made pursuant to SDCL 46-1-1 thru 46-1-9, 46-1-12 thru 46-1-16; 46-2-3.1, 46-2-9, 46-2-11, 46-2-13, 46-2-17; 46-2A-1 thru 46-2A-10, 46-2A-12, 46-2A-14, 46-2A-15, 46-2A-20, 46-2A-21; 46-5-1 thru 46-5-11, 46-5-13 thru 46-5-15, 46-5-24, 46-5-25, 46-5-30.2, 46-5-30.4, 46-5-31; 46-6-3, 46-6-3.1, 46-6-6.1, 46-6-10, 46-6-13, 46-6-14, 46-6-26; 46-5-38 thru 46-5-40; and Board Rules ARSD 74:02:01:01 thru 74:02:01:15; 74:02:01:24 thru 74:02:01:25. Russell L. Stone, Acting Secretary, Department of Environment and Natural Resources.

PROOF OF PUBLICATION

STATE OF SOUTH DAKOTA)
) SS
 County of Minnehaha)

1. Brenda Phelps

certify that the attached printed Notice was

taken from the Deer Rapids
Tribune

printed and published in Deer Rapids

County of Minnehaha and State of

South Dakota. The notice was published in
 the newspaper on the following two dates:

May 25, 1994
June 1, 1994

Cost of Printing: 71.83

Brenda Phelps
 (Signature)

Legal Clerk
 (Title)

May 25, 1994
 (Date Signed)

Notice

NOTICE OF HEARING on
Application No. 5805-3, and
Application No. 4838A-3 to
Amend future use Water Permit
No. 4838-3

Notice is given that the Minnehaha Community Water Corporation 47381 248th St, Dell Rapids, SD 57022-5305 has filed applications for two water permits.

Water Permit Application No. 4838A-3 proposes to amend Future Use Permit No. 4838-3 by transferring the water remaining in reserve by Future Use Permit No. 4838-3 to a new area within the aquifer. Future Use Permit No. 4838-3 currently reserves 1500 acre-feet of water annually from the Sioux Falls Management Unit of the Big Sioux Aquifer from wells to be located in the E 1/2 NE 1/4 Section 29-T104N-R49W. This application proposes to transfer the future use area to the NE 1/4 NE 1/4 Section 32 and the S 1/2 SE 1/4 Section 29; all in T104N-R49W. This application, if approved, will transfer the future use area and retain the October 19, 1981, priority date established by Future Use Permit No. 4838-3.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 4838A-3 because 1) the future use area can be transferred without unlawful impairment of existing rights, 2) the proposed use will be a beneficial use of water, and 3) it is in the public interest.

Water Permit Application No. 5805-3 is to construct and place to beneficial use 2.9 cfs (1467 acre-feet annually) reserved for future use by Permit Nos. 4838-3 and 4838A-3. The point of diversion will be from two wells (Sioux Falls Management Unit of the Big Sioux Aquifer) 45 and 44 feet deep located in the S 1/2 SE 1/4 Section 29-T104N-R49W. The water will be used to supply the Minnehaha Community Water Corporation's system located in Minnehaha County. Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of application No. 5805-3 because 1) existing rights will not be unlawfully impaired, 2) it is a beneficial use of water, and 3) it is in the public interest.

Any person interested in opposing or supporting the applications must file a written petition with BOTH the applicant and Chief Engineer. The applicant must also file a petition if opposed to the Chief Engineer's recommendations. The Chief Engineer's address is "Water Rights Division, Foss Building, 523 E Capitol, Pierre SD 57501 (605-773-3352)" and the applicant's mailing address is given above. A petition filed by either an interested person or the applicant must be filed by June 20, 1994. The petition may be informal, but must include a statement describing the petitioner's interest in the applications, the petitioner's reasons for opposing or supporting the applications, and the signature and mailing address of the petitioner or the petitioner's legal counsel, if legal counsel is obtained.

The Water Management Board will consider the applications at 10:00 a.m., June 28, 1994, Gallery D, Hamkota Inn Best Western, 950 West Sioux, Pierre, SD. The Chief Engineer's recommendations are not final or binding upon the Board. The Board is authorized to 1) approve, 2) approve with qualifications, 3) defer, or 4) deny the applications based on the facts presented at the public hearing. The June 28, 1994, hearing date will be automatically delayed for at least 20 days upon written request to the Chief Engineer from the applicant or any interested person opposing the applications. The request for an automatic delay must be filed by June 20, 1994. Any hearing will be an

adversary proceeding. Any person filing a petition and/or the applicant have the right to be represented by a lawyer and may present evidence or cross-examine witnesses according to SDCL 1-26. These and other due process rights will be forfeited if not exercised. Decisions of the Board may be appealed to the Circuit Court and State Supreme Court as provided by law. Contact Eric Gronlund by June 20, 1994, at the above Water Rights Division address to request copies of information pertaining to the applications, to assure access to the hearing impaired.

These applications are made pursuant to SDCL 46-1-1 thru 46-1-9, 46-1-12 thru 46-1-16; 46-2-3.1, 46-2-9, 46-2-11, 46-2-13, 46-2-17; 46-2A-1 thru 46-2A-10, 46-2A-12, 46-2A-14, 46-2A-15, 46-2A-20, 46-2A-21; 46-5-1 thru 46-5-11, 46-5-13 thru 46-5-15, 46-5-24, 46-5-25, 46-5-30.2, 46-5-30.4, 46-5-31; 46-6-3, 46-6-3.1, 46-6-6.1, 46-6-10, 46-6-13, 46-6-14, 46-6-26; 46-5-38 thru 46-5-40; and Board Rules ARSD 74:02:01:01 thru 74:02:01:15; 74:02:01:24 thru 74:02:01:25. Russell L. Stone, Acting Secretary, Department of Environment and Natural Resources.

T-May 25, June 1



PROOF OF PUBLICATION

STATE OF SOUTH DAKOTA)
 County of _____) ss



I, Connie Renti

certify that the attached printed Notice was

taken from the Sioux Valley News

printed and published in Canton

County of Lincoln and State of

South Dakota. The notice was published in
 the newspaper on the following two dates:

May 26, 1994

June 2, 1994

Cost of Printing: \$64.66

Connie Renti
 (Signature)

Bookkeeper
 (Title)

June 2, 1994
 (Date Signed)

SANDRA
 MY C
 EXPIR

date will be automatically delayed for at least 20 days upon written request to the Chief Engineer from the applicant or any interested person opposing the applications. The request for an automatic delay must be filed by June 20, 1994.

Any hearing will be an adversary proceeding. Any person filing a petition and/or the applicant have the right to be represented by a lawyer and may present evidence or cross-examine witnesses according to SDCL 1-26. These and other due process rights will be forfeited if not exercised. Decisions of the Board may be appealed to the Circuit Court and State Supreme Court as provided by law. Contact Eric Gronlund by June 20, 1994, at the above Water Rights Division address to request copies of information pertaining to the applications, to assure access to the hearing by the handicapped or to obtain an interpreter for the hearing impaired.

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 (5-26; 6-2)

NOTICE OF HEARING
 on Application No. 5805-3,
 and Application No. 4838A-3
 to Amend Future Use
 Water Permit No. 4838-3

Notice is given that the Minnehaha Community Water Corporation 47381 248th St, Dell Rapids, SD 57022-5305 has filed applications for two water permits.

Water Permit Application No. 4838A-3 proposes to amend Future Use Permit No. 4838-3 by transferring the water remaining in reserve by Future Use Permit No. 4838-3 to a new area within the aquifer. Future Use Permit No. 4838-3 currently reserves 1500 acre-feet of water annually from the Sioux Falls Management Unit of the Big Sioux Aquifer from wells to be located in the E 1/2 NE 1/4 Section 29-T104N-R49W. This application proposes to transfer the future use area to the NE 1/4 NE 1/4 Section 32 and the S 1/2 SE 1/4 Section 29, all in T104N-R49W. This application, if approved, will transfer the future use area and retain the October 19, 1981, priority date established by Future Use Permit No. 4838-3.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 4838A-3 because 1) the future use area can be transferred without unlawful impairment of existing rights, 2) the proposed use will be a beneficial use of water, and 3) it is in the public interest.

Water Permit Application No. 5805-3 is to construct and place to beneficial use 2.9 cfs (1467 acre-feet annually) reserved for future use by Permit Nos. 4838-3 and 4838A-3. The point of diversion will be from two wells (Sioux Falls Management Unit of the Big Sioux Aquifer) 45 and 44 feet deep located in the S 1/2 SE 1/4 Section 29-T104N-R49W. The water will be used to supply the Minnehaha Community Water Corporation's system located in Minnehaha County.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 5805-3 because 1) existing rights will not be unlawfully impaired, 2) it is a beneficial use of water, and 3) it is in the public interest.

Any person interested in opposing or supporting the applications must file a written petition with BOTH the applicant and Chief Engineer. The applicant must also file a petition if opposed to the Chief Engineer's recommendations. The Chief Engineer's address is "Water Rights Division, Foss Building, 523 E. Capitol, Pierre SD 57501 (605 773-3352)" and the applicant's mailing address is given above. A petition filed by either an interested person or the applicant must be filed by June 20, 1994. The petition may be informal, but must include a statement describing the petitioner's interest in the applications, the petitioner's reasons for opposing or supporting the applications, and the signature and mailing address of the petitioner or the petitioner's legal counsel, if legal counsel is obtained.

The Water Management Board will consider the applications at 10:00 a.m., June 28, 1994, Gallery D, Ramkota Inn Best Western, 920 West Sioux, Pierre, SD. The Chief Engineer's recommendations are not final or binding upon the Board. The Board is authorized to 1) approve, 2) approve with qualifications, 3) defer, or 4) deny the applications based on the facts presented at the public hearing. The June 28, 1994, hearing

PROOF OF PUBLICATION

STATE OF SOUTH DAKOTA)
 County of McCook) ss

I, Troy Schwans

certify that the attached printed Notice was

taken from the Salem Special

printed and published in Salem

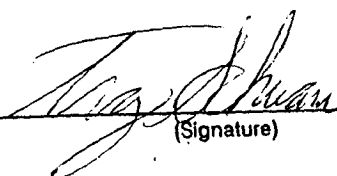
County of McCook and State of

South Dakota. The notice was published in
 the newspaper on the following two dates:

May 26, 1994

June 2, 1994

Cost of Printing: 72.03



(Signature)

Editor

(Title)

6/2/94

(Date Signed)



Public Notice

NOTICE OF HEARING ON
 APPLICATION NO. 5805-3,
 AND APPLICATION NO. 4838A-3
 TO AMEND FUTURE USE
 WATER PERMIT NO. 4838-3

Notice is given that the Minnehaha Community Water Corporation 47381 248th St., Dell Rapids, SD 57022-5305 has filed applications for two water permits.

Water Permit Application No. 4838A-3 proposes to amend Future Use Permit No. 4838-3 by transferring the water remaining in reserve by Future Use Permit No. 4838-3 to a new area within the aquifer. Future Use Permit No. 4838-3 currently reserves 1500 acre-feet of water annually from the Sioux Falls

Management Unit of the Big Sioux Aquifer from wells to be located in the E 1/2 NE 1/4 Section 29-T104N-R49W. This application proposes to transfer the future use area to the NE 1/4 NE 1/4 Section 32 and the S 1/2 SE 1/4 Section 29; all in T104N-R49W. This application, if approved, will transfer the future use area and retain the October 19, 1981, priority date established by Future Use Permit No. 4838-3.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 4838A-3 because 1) the future use area can be transferred without unlawful impairment of existing rights, 2) the proposed use will be a beneficial use of water, and 3) it is in the public interest.

Water Permit Application No. 5805-3 is to construct and place to beneficial use 2.9 cfs (1467 acre-feet annually) reserved for future use by Permit Nos. 4838-3 and 4838A-3. The point of diversion will be from two wells (Sioux Falls Management Unit of the Big Sioux Aquifer) 45 and 44 feet deep located in the S 1/2 SE 1/4 Section 29-T104N-R49W. The water will be used to supply the Minnehaha Community Water Corporation's system located in Minnehaha County.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 5805-3 because 1) existing rights will not be unlawfully impaired, 2) it is a beneficial use of water, and 3) it is in the public interest.

Any person interested in opposing or supporting the applications must file a written petition with BOTH the applicant and Chief Engineer. The applicant must also file a petition if opposed to the Chief Engineer's recommendations. The Chief Engineer's address is "Water Rights Division, Foss Building, 523 E Capitol, Pierre SD 57501 (605 773-3352)" and the applicant's mailing address is given above. A petition filed by either an interested person or the applicant must be filed by June 20, 1994. The petition may be informal, but must include a statement describing the petitioner's interest in the applications, the petitioner's reasons for opposing or supporting the applications, and the signature and mailing address of the petitioner or the petitioner's legal counsel, if legal counsel is obtained.

The Water Management Board will consider the applications at 10:00 a.m., June 28, 1994, Gallery D, Ramkota Inn Best Western, 920 West Sioux, Pierre, SD. The Chief Engineer's recommendations are not final or binding upon the Board. The Board is authorized

7772

to 1) approve, 2) approve with qualifications, 3) defer, or 4) deny the applications based on the facts presented at the public hearing. The June 28, 1994, hearing date will be automatically delayed for at least 20 days upon written request to the Chief Engineer from the applicant or any interested person opposing the applications. The request for an automatic delay must be filed by June 20, 1994.

Any hearing will be an adversary proceeding. Any person filing a petition and/or the applicant have the right to be represented by a lawyer and may present evidence, or cross-examine witnesses according to SDCL 1-26. These and other due process rights will be forfeited if not exercised. Decisions of the Board may be appealed to the Circuit Court and State Supreme Court as provided by law. Contact Eric Gronlund by June 20, 1994, at the above Water Rights Division address to request copies of information pertaining to the applications, to assure access to the hearing by the handicapped or to obtain an interpreter for the hearing impaired.

These applications are made pursuant to SDCL 46-1-1 thru 46-1-9, 46-1-12 thru 46-1-16; 46-2-3.1, 46-2-9, 46-2-11, 46-2-13, 46-2-17; 46-2A-1 thru 46-2A-10, 46-2A-12, 46-2A-14, 46-2A-15, 46-2A-20, 46-2A-21; 46-5-1 thru 46-5-11; 46-5-13 thru 46-5-15, 46-5-24, 46-5-25, 46-5-30.2, 46-5-30.4, 46-5-31; 46-6-3, 46-6-3.1, 46-6-6.1, 46-6-10, 46-6-13, 46-6-14, 46-6-26; 46-5-38 thru 46-5-40; and Board Rules ARSD 74:02:01:01 thru 74:02:01:15; 74:02:01:24 thru 74:02:01:25. Russell L. Stone, Acting Secretary, Department of Environment and Natural Resources.

5/26, 6/2



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

JUL 25 1994

John Buss, Manager
Minnehaha Community Water Corp.
47381 248th Street
Dell Rapids, SD 57022-3374

Dear Mr. Buss:

Enclosed are Water Permit Nos. 4838A-3 & 5805-3 authorizing construction of your water diversion systems and beneficial use of the water, not exceeding the limits as specified in the Water Permits.

Also enclosed are two Form 10's, 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 systems and/or have put the water to beneficial use. An inspection can then be scheduled so that the Water Licenses may be issued, thus completing your acquisition of a Water Right.

Very truly yours,

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

enclosures

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

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

**NOTICE OF COMPLETION OF WORKS AND
APPLICATION OF WATER TO BENEFICIAL USE**Date August 2, 1994

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

FROM: Minnehaha Comm. Water 47381 248th Street
(name) (address)

Dell Rapids SD 57022-5305 (605) 428-3374
(city) (state) (zip) (phone)

I have completed the construction of the water diversion system and I have put the water to beneficial use to the maximum extent it is going to be used. I have not exceeded the amounts specified in Water Permit No. 5805-3.

Water Permit No. 5805-3 states that the diversion system is to be constructed by June 28, 1999, and that the water is put to beneficial use by June 28, 2003.
(date) (date)

The diversion system was completed on April 30, 1994.
(date)

Applying the water to beneficial use was completed on July 27, 1994.
(date)

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

(signature) John Buss, Mgr. MCWC

To: Dave Odens
Fr: Jim Auen
Re: MCWC Influent

Prepared 10/28/98

MCWC Plant Influent

In Gallons

	1997	1998	1999
January	46,397,000	47,488,000	50,235,000
February	42,742,000	44,546,000	44,592,000
March	46,738,000	46,183,000	49,713,000
April	45,002,000	46,087,000	51,022,000
May	50,618,000	63,142,000	56,294,000
June	64,997,000	64,113,000	60,588,000
July	59,708,000	64,838,000	70,374,000
August	59,612,000	58,106,000	76,098,000
September	51,174,000	62,231,000	60,345,000
October	48,871,000	47,953,000	54,312,000*
November	43,427,000	45,800,000	44,613,000*
December	46,802,000	50,671,000	48,736,000*
Total Influent	606,088,000	641,158,000	666,922,000*

*Estimated



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3181
www.state.sd.us/denr

April 6, 2000

5805-3

Minnehaha Community Water Corp.
%John Buss, Manager
47381 248th St.
Dell Rapids, SD 57022

Dear Mr. Buss:

The investigation of your water use system 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 No. 5805-3. Your final water right document, the Water License, can now be issued.

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

**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 number. This will insure proper handling of the fee.

RECEIPT

Water Rights Program

South Dakota Department of Environment and Natural Resources

N2 416466

April 6, 2000

Pierre, _____, _____

RECEIVED OF Craig & Debbie Kukuchka, RR 1 Box 217, Belle Fourche, SD 57717
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. 1632-1 _____

50.00

Fee for Filing Transfer Form _____

Fee for Filing Extension Request _____

Fee for _____

(Any Other Work Provided by Law)

Total

50.00

By

Chief Engineer

Garland Erbele

[Signature]

Permit No. 5805-3
Sioux 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 Minnehaha Community Water Corporation of 47381 248th Street, Dell Rapids, SD, 57022-5305 holder of Permit No. **5805-3**, bearing the priority of **October 19, 1981** authorizing the diversion of **2.90** cu. ft. per second from the Sioux Falls Management Unit of the Big Sioux aquifer for rural water system use purposes, in Minnehaha County.

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

A. Works used to divert the water:

Two nearly identical wells , #11 and #12, 45 feet and 43.9 feet deep respectively, each equipped with Layne submersible pumps powered by 25 horsepower Franklin electric motors and capable of each diverting 650 gpm.

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

There is a sixteen inch raw water line from the wells to the treatment plant located in northeast of the northeast of section 29, T104N R49W.

C. Works used to apply water to beneficial use:

Distribution system from the water treatment plant to rural and municipal customers.

The system is in the following condition, excellent. The points of diversion are located 1135 feet north and 1970 feet west of the southeast corner of section 29 (#11) and 672 feet north and 1870 feet west of the southeast corner of section 29 (#12) , both in T104N R49W in Minnehaha County . The works are capable of diverting and conveying to the place of use 2.90 cu. ft. per second of water for rural water system use. Water has been put to beneficial use to the maximum extent as follows:

The license should be issued for 2.90 cfs .

Applicable permit qualifications have been complied with: Yes ☒ No ☐

Exceptions to compliance are: none Date report completed: November 17, 1999


James A Goodman
Natural Resources Engineer
DENR, Water Rights Program

FIELD INVESTIGATION REPORT FOR PERMIT NO. 5805-3

DATE OF INVESTIGATION:	November 9, 1999
NAME & ADDRESS OF INVESTIGATION CONTACT/ RELATIONSHIP TO PERMIT HOLDER, IF APPLICABLE	John Buss, Manager and Jim Auen
NAME & ADDRESS OF PERMIT HOLDER	Minnehaha Community Water Corporation 47381 248th Street Dell Rapids, SD 57022-5305
DIVERSION POINT LEGAL LOCATION	Two wells, #11 located 1135 feet north and 1970 feet west of the southeast corner of section 29, and #12 located 672 feet north and 1870 feet west of the southeast corner of section 29, both in T104N R49W of Minnehaha County.

Other permit(s) associated with the project: from Future Use 4838-3

WELL INFORMATION:

- 1) Well Drilling Firm: Layne-Western Company, Inc.
- 2) No. of Wells 2, #11 and #12
- 3) Depth(s) #11 (45 feet), #12 (43.9 feet) feet
- 4) Well log is available (Y)N
- 5) Comment: special construction, see well construction diagram

Casing:

- 1) Diameter #11 and #12 (12 inch) inches
- 2) Length #11 (38.3 feet) and #12 (37.2 feet) feet
- 3) Type Black steel, .375 wall

Screen:

- 1) Type #11 and #12 (stainless steel, 26 inch, wirewrap, 100 slot screen)
- 2) Length #11 and #12 (6.7 feet) feet
- 3) Static water level 13 feet

Pump:

PERMIT NO. 5805-3

- 1) Make #11 and #12 same pump , Layne
- 2) Model 8RSHC , #11 SN 113116-2 and #12 SN 113116-1
- 3) Size 8 inch
- 4) Capacity 650 GPM

Motor:

- 1) Make Franklin
- 2) Model No. #11 SN 15-0057, #12 SN 15-0102
- 3) Horsepower rating 25 hp

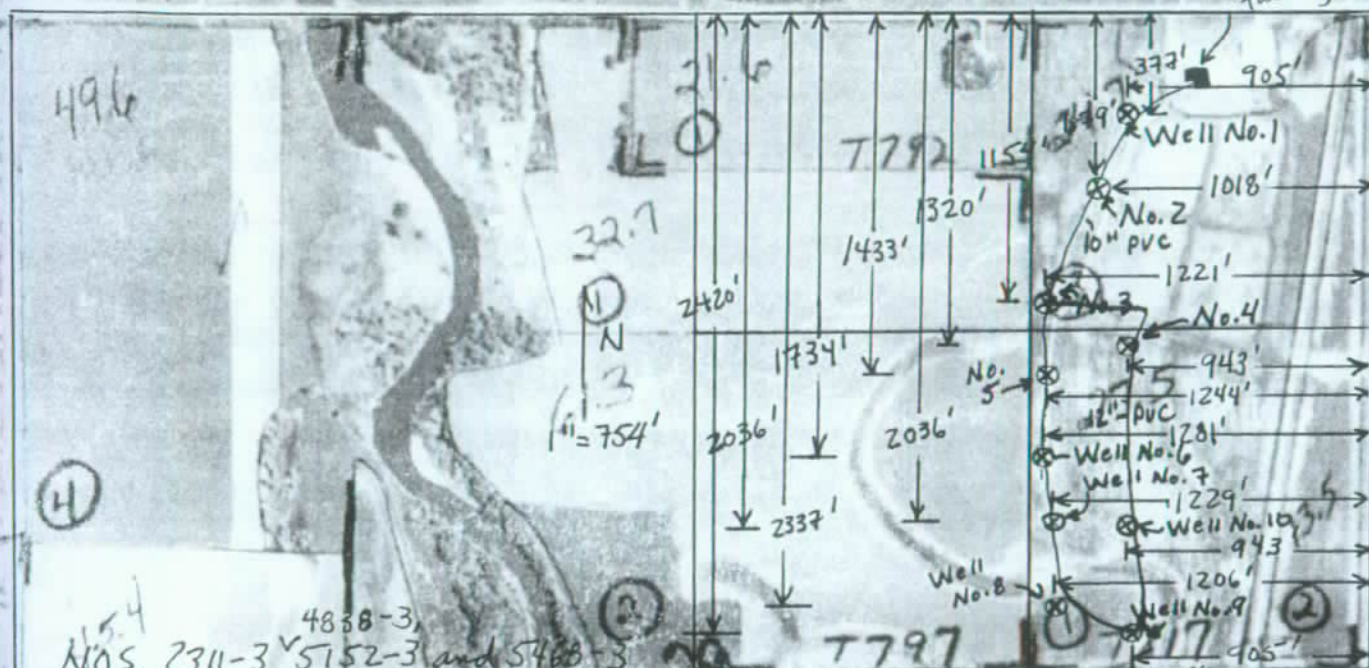
PERMIT QUALIFICATIONS:

- 1) Special qualifications to permit being abided by Y/N
- 2) All structures, wells and lands on map Y/N
- 3) Irrigation Questionnaires checked to determine if permit owner started irrigation by the end of construction period Y/N

NOT TO SCALE

93-R

Treatment Facility + Office



496
4838-3,
Nos. 2311-3, 5152-3 and 5468-3

MINNEHAHA COMMUNITY
WATER CORPORATION

Drawn by: Gregory C. Johnston

Gregory C. Johnston
Professional Resources Engineer II

Water Rights Division

DENR

12/30/92

38.8

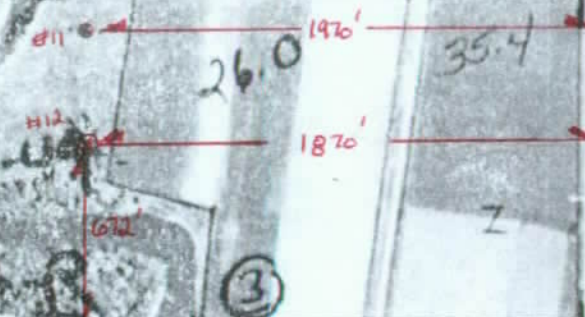
T899

Wells No. 1 to 5 - 2311-3

Well No. 6 - 4838-3

Wells No. 7 to 9 - 5152-3

Well 10 - 5468-3



DRAWN BY JAMES A GOODMAN 11/16/99

BASED UPON FIELD MEASUREMENTS AND MAP

FOR WATER RIGHT NOS 2311-3, 4838-3, 5152-3, 5468-3

PREPARED BY GREGORY JOHNSON

STATE OF SOUTH DAKOTA

WATER LICENSE NO. 5805-3

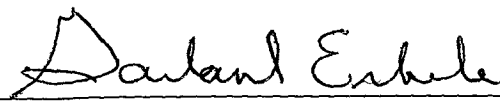
(1) Minnehaha Community Water Corporation, 47381 248th St., Dell Rapids SD 57022 made Application No. 5805-3, February 17, 1994 for a water permit to divert 2.90 cubic feet of water per second (cfs), with up to 1467 acre-feet annually from groundwater (Wells #11 and #12), Minnehaha County, South Dakota for rural water system purposes. Permit No. 5805-3, with a priority date of October 19, 1981 (established by Future Use Permit No. 4838A-3) was approved June 28, 1994 and issued to the applicant for diversion of water with construction of the described water supply system to be completed on or before June 28, 1999 and for the application to beneficial use of said water on or before June 28, 2003.

The permit holder submitted a *Notice of Completion of Works and Application of Water to Beneficial Use* on August 5, 1994. The *Notice* stated the diversion system was completed on April 30, 1994 and the water placed to beneficial use on July 27, 1994.

(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 2.90 cubic feet of water per second for beneficial use. The location of the diversion points are as follows: Well #11 – 1,135 feet north and 1,970 feet west; and Well #12 – 672 feet north and 1,870 feet west; both from the southeast corner of Section 29-T104N-R49W (SW ¼ SE ¼).

(3) The permit holder has complied with the provisions of South Dakota State Law relating to the application of water to beneficial use. In addition to rural water system users, communities served by the system are Dell Rapids, Baltic, Crooks, Hartford, Humboldt, Lyons, Renner, Rowena and Sherman.

(4) Pursuant to South Dakota Water Law 46-5-30.1 Minnehaha Community Water Corp., 47381 248th St, Dell Rapids SD 57022 the holder and/or owner of Water Right No. 5805-3 is issued a license to appropriate water, the right to use 2.90 cubic feet of water per second, with up to 1,467 acre-feet annually from groundwater (Wells #11 and #12) with a priority date of October 19, 1981 (established by Future Use Permit No. 4838A-3) from the location specified in (2) of this license for the purpose of rural water system use. This license is subject to any limitations or qualifications listed in Water Right No. 5805-3 and subject to South Dakota State Law.


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

MAY 08 2000

date





**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3181
www.state.sd.us/denr

MAY 08 2000

5805-3

Minnehaha Community Water Corp.
%John Buss, Manager
47381 248th St.
Dell Rapids, SD 57022

Dear Mr. Buss:

Enclosed is Water License No. 5805-3 and Receipt No. 416470 for \$50.00 which was assessed for an investigation and issuance of the license. Water License No. 5805-3 is the final document which completes the process of obtaining a water right.

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

Sincerely,

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

ks
enclosures



5805-3
**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

APR 01 2005

6164-3 &
6455-3

Minnehaha Community Water Corporation
47381 248th ST
Dell Rapids SD 57022

Dear Sir:

Enclosed are Water License Nos. 6164-3 & 6455-3. This is the final water right document completing your process of obtaining a Water Right.

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

Sincerely,

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

NOTE: The applicable portions of Nos. 2311-3, 5468-3 and 5805-3 are incorporated into Water License No. 6164-3.

enclosures