

Considered: \_\_\_\_\_

WATER PERMIT NO. 5556-3

Phone: 339-7060

Name of Applicant: Elmwood Golf Course - City of Sioux Falls SD

Post Office Address: 6000 E 7th St. Sioux Falls SD 57102

Amount of Water Claimed: 1.42 add'l Total Acres: 240

Source of Water Supply: groundwater

Water to be used for: irrigation County: Minnehaha

About \_\_\_\_\_ miles \_\_\_\_\_ of Sioux Falls

PROOF OF PUBLICATION: Received \_\_\_\_\_ Not Received \_\_\_\_\_

APPLICATION: Approved \_\_\_\_\_ Subject to \_\_\_\_\_

F.F. & C/.L. Adopted \_\_\_\_\_ Not Approved \_\_\_\_\_ Deferred \_\_\_\_\_

PRIORITY \_\_\_\_\_ Date Received: 3-21-91 Fee: \$275 Remarks \_\_\_\_\_

Corrected Application Received 3-29-91 Period of Annual Use April 1- October 31

WATER QUALITY APPROVAL RECEIVED 4-22-91 APPROVED/CONDITIONAL (Circle one)

WI-1 Description same as Application YES X NO \_\_\_\_\_ REMARKS \_\_\_\_\_

Diversion Point: Well #1-NE 1/4 NW 1/4;

Well #2-NW 1/4 NE 1/4; Well #3- SE 1/4 NE 1/4

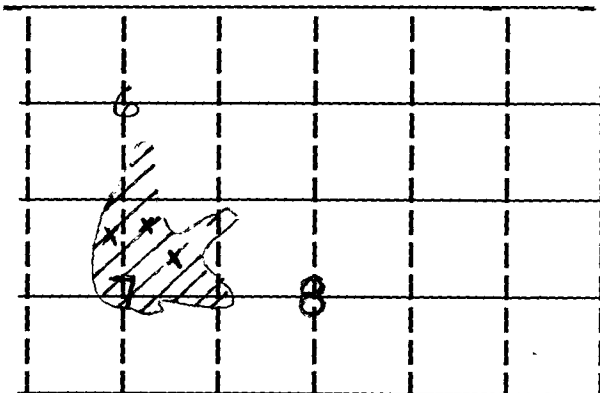
Sec 7-101-49

Land to be Irrigated: E 1/2 NW 1/4, NE 1/4 SW 1/4,

NE 1/4, N 1/2 SE 1/4 Sec 7; SW 1/4 SE 1/4, SE 1/4

SW 1/4 Sec 6; W 1/2 NW 1/4, NW 1/4 SW 1/4 Sec 8;

all in T101N-R49W



Well Log: Driller: Sioux Well Drilling Licensed YES X NO \_\_\_\_\_

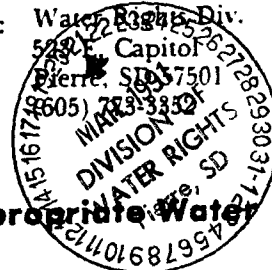
Depth of Well: 45', 42' REMARKS \_\_\_\_\_

Type of Map: plat PREPARED BY: Richard Bandy Reviewed and the Number

assigned on 6-1-91 By Karen Schlaak

(See instructions)

No. 5556-3 Hydrologic Unit 10170203  
Basin Big Sioux River  
Newspaper Argus Leader, PO Box 5034



57117-5034

# Application For Soil/Water Compatibility Permit and Permit To Appropriative Water

- Type of Application: ☒ New ☐ Vested Right ☐ Amend Permit No. \_\_\_\_\_  
☐ Change Acreage ☐ Change diversion point(s) ☒ Add diversion point(s)  
☒ Add Acreage ☒ Increase diversion rate ☐ Other see 4232-3
- Elmwood Golf Course-City of Sioux Falls - Park Dept. Phone No. 339-7060
1. Name of Applicant \_\_\_\_\_
- Post Office Address 600 E. 7th St., Sioux Falls State S. D. 57102  
(Street, RR or Box) (City) Zip Code
2. Amount of water claimed (c.f.s) 1.42 add'l Total acres irrigated 240
3. Source of Water supply Ground water from two existing wells
4. Location of point of diversion #1 Well is NE 1/4 NW 1/4, Sec. 7, T101N, R49W  
#2 Well is NW 1/4 NE 1/4, Sec. 7, T101N, R49W  
#3 well: SE 1/4 NE 1/4 Sec 7-T101N-R49W County Minnehaha
5. Counties where water will be used Minnehaha
6. Annual period during which water is to be used April to October 31
7. List below each forty acre subdivision, or lot, or fraction thereof and show number of acres to be irrigated in each.

| Land Description            | No. Acres Irr.   |
|-----------------------------|------------------|
| NE 1/4 NW 1/4 Sec. 7-101-49 | <del>23</del> 23 |
| SE 1/4 NW 1/4 Sec. 7        | 28               |
| NE 1/4 SW 1/4 Sec. 7        | 2                |
| NW 1/4 NE 1/4 Sec. 7        | <del>23</del> 39 |

| Land Description     | No. Acres Irr.   |
|----------------------|------------------|
| SW 1/4 NE 1/4 Sec. 7 | 38               |
| NW 1/4 SE 1/4 Sec. 6 | <del>5</del> 5   |
| SW 1/4 SE 1/4 Sec. 6 | <del>32</del> 32 |
| SE 1/4 SW 1/4 Sec. 6 | 6                |

also see attachment

Attach sheet if more space is needed

8. Type of Irrigation: Gravity: \_\_\_\_\_ Towline: \_\_\_\_\_ Center Pivot: \_\_\_\_\_ Gun: \_\_\_\_\_ (Specify) Automatic  
Other: Popup
9. Crops to be Irrigated: Golf Course Turf
10. Give a description of proposed project. (Attach sheet if more space is needed)  
This permit application is for 2 old existing wells that apparently were constructed many years ago with no permit obtained. Each well was updated and improved in 1981. These two wells, along with a 3rd well, provide water to irrigate Elmwood Golf Course. The irrigation system is a commercial underground system with electric and hydraulic popup heads. This application is for an additional 1.42 cfs from well Nos. 7 & 2, combined, with no increase in the 0.71 cfs authorized by Permit No. 4232-3 for well No. 3.

Attachments: Attach Form 2A if diversion from a well or dugout, or if storage of water, is proposed. Attach maps, soils information and any other technical information.

STATE OF SOUTH DAKOTA)  
County of Minnehaha)<sup>ss</sup>

I, LOWEN SCHUETT, the applicant, certify that I have read this application and examined the attached maps, that the water sample, if needed, has been taken by the required procedures and has not been adulterated or tampered with and is truly representative of the water to be used, and that the matters stated in this application are true and correct.

Signed Lowen Schuett

Subscribed and sworn to before me this 20th day of March 19 91

ROBERTA ENGEL, Notary Public  
My Commission Expires March 28, 1998

Roberta Engel  
Notary Public

Irrigated acreage -- Elmwood Golf Course

|                                                    | Acres |                            |
|----------------------------------------------------|-------|----------------------------|
| NE $\frac{1}{4}$ NE $\frac{1}{4}$ SEC 7-T101N-R49W | 11    | TOTAL ACREAGE -- 240 acres |
| SE $\frac{1}{4}$ NE $\frac{1}{4}$ "                | 32    |                            |
| NW $\frac{1}{4}$ SE $\frac{1}{4}$ "                | 10    |                            |
| NE $\frac{1}{4}$ SE $\frac{1}{4}$ "                | 5     |                            |
| NW $\frac{1}{4}$ NW $\frac{1}{4}$ SEC 8-T101N-R49W | 4     |                            |
| SW $\frac{1}{4}$ NW $\frac{1}{4}$ "                | 3     |                            |
| NW $\frac{1}{4}$ SW $\frac{1}{4}$ "                | 2     |                            |

Remaining acreage listed on application:

**SOUTH DAKOTA  
WATER PERMIT No. 5556-3 FOR IRRIGATION**

Date of first receipt of application March 21, 1991.

Date Soil/Water Compatibility Permit received April 22, 1991.

Date of return to applicant for corrections, amendments or changes  
March 26, 1991.

Date of receipt of corrected application April 2, 1991.

The Water Management Board approved Water Permit Application No. 5556-3 on November 15, 1991 for Elmwood Golf Course, City of Sioux Falls, Parks Department, 600 E 7th St, Sioux Falls SD 57102 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. 5556-3 appropriates 1.42 cubic feet of water per second (cfs) from 2 existing wells (Nos. 1 & 2) to irrigate the Elmwood Golf Course. Water Permit No. 4232-3 authorizes an appropriation of 0.71 cfs from 1 well (No. 3) to irrigate 50 acres of the golf course. This permit authorizes no increase in the 0.71 cfs diversion rate specified on Permit No. 4232-3; however, water from well No. 3, along with water appropriated by this permit from well Nos. 1 and 2 will be used to irrigate up to 240 acres of the golf course. The wells (Big Sioux:Sioux Falls Management Unit) are located in the NE 1/4 NW 1/4 (No. 1), NW 1/4 NE 1/4 (No. 2), SE 1/4 NE 1/4 (No. 3) Section 7 and the 240 irrigated acres are located in the E 1/2 NW 1/4, NE 1/4 SW 1/4, NE 1/4, N 1/2 SE 1/4 Section 7; W 1/2 SE 1/4, SE 1/4 SW 1/4 Section 6; W 1/2 NW 1/4, NW 1/4 SW 1/4 Section 8; all in T101N-R49W.
2. The amount of the appropriation may not exceed 2 acre feet annually for each acre of land to which water is actually and beneficially applied for irrigation. The water is to be used during the following described annual period: April 1 - October 31.
3. The date from which applicant may claim right is March 21, 1991.
4. Water rights obtained in compliance with the laws of the State of South Dakota may not be unlawfully impaired by this appropriation.

**QUALIFICATIONS**

1. The wells approved under this Permit will be located near domestic wells and other wells which may obtain water from the same aquifer. The well owner under this Permit shall control his withdrawals so there is not a reduction of needed water supplies in adequate domestic wells or in adequate wells having prior water rights.
2. This permit is approved subject to the irrigation water use questionnaire being submitted each year.

(continued)

3. Approval of Permit No. 5556-3 authorizes withdrawal of 150 acre feet annually.
4. If development and pumping of the well authorized by Permit No. 5556-3 results in impairment of adequate domestic wells or adequate wells having prior water 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 whether lowered groundwater levels are due to drought, the location of the domestic wells in the aquifer, or 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.

**WATER MANAGEMENT BOARD**

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

FEB 27 1992  
(date)

## Supplemental Information

Well #1

(type or print in ink)

## 1. Well Information - Proposed construction

- a) Drill Hole Diameter 15" Depth 45'
- b) Casing Type Black Steel Diameter 12" Thickness .375 inches
- c) Screen Type Stainless Steel Diameter 12" Thickness 3/16 inch
- d) Gravel Pack Thickness 1½" Length of Gravel Pack 30'
- e) Depth to Top of Water Bearing Material 8'
- f) Depth to Water (ground surface to water level) 14'
- g) Distance to nearest existing domestic well:
- On applicants property 1,200' On property owned by others \_\_\_\_\_

## 2. Dugout Information Estimates

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



## 3. Water Storage Dams

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

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

\_\_\_\_\_  
 \_\_\_\_\_

b) Freeboard \_\_\_\_\_

c) Crest Width \_\_\_\_\_

Crest Length \_\_\_\_\_

d) Height \_\_\_\_\_

e) Primary Outlet Capacity \_\_\_\_\_  
 If Pipe, diameter \_\_\_\_\_

f) Secondary Spillway Capacity \_\_\_\_\_  
 Spillway width \_\_\_\_\_

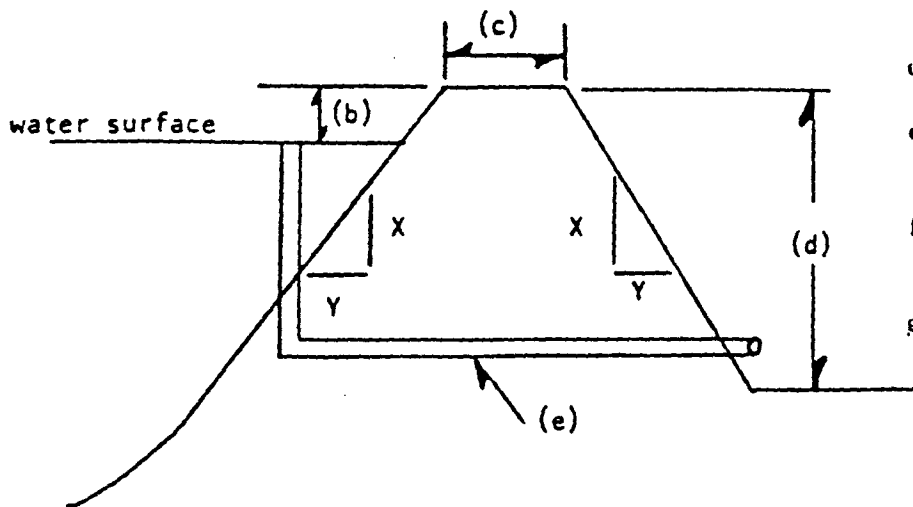
g) X & Y Slope  
 Upstream \_\_\_\_\_

Downstream \_\_\_\_\_

Surface Area of Impoundment \_\_\_\_\_

Storage \_\_\_\_\_ acre feet

Drainage area above dam \_\_\_\_\_



X [Signature]  
 Signature of Applicant

## Supplemental Information

Well #2

(type or print in ink)



## 1. Well Information - Proposed construction

- a) Drill Hole Diameter 15" Depth 42'
- b) Casing Type Black Steel Diameter 12" Thickness .375 inches
- c) Screen Type Stainless Steel Diameter 12" Thickness 3/16 inch
- d) Gravel Pack Thickness 1 1/2" Length of Gravel Pack 27'
- e) Depth to Top of Water Bearing Material 8'
- f) Depth to Water (ground surface to water level) 14.5'
- g) Distance to nearest existing domestic well:  
 On applicants property 1,000' On property owned by others \_\_\_\_\_

## 2. Dugout Information Estimates

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

## 3. Water Storage Dams

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

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

\_\_\_\_\_  
 \_\_\_\_\_

b) Freeboard \_\_\_\_\_

c) Crest Width \_\_\_\_\_

Crest Length \_\_\_\_\_

d) Height \_\_\_\_\_

e) Primary Outlet Capacity \_\_\_\_\_  
 If Pipe, diameter \_\_\_\_\_

f) Secondary Spillway Capacity \_\_\_\_\_  
 Spillway width \_\_\_\_\_

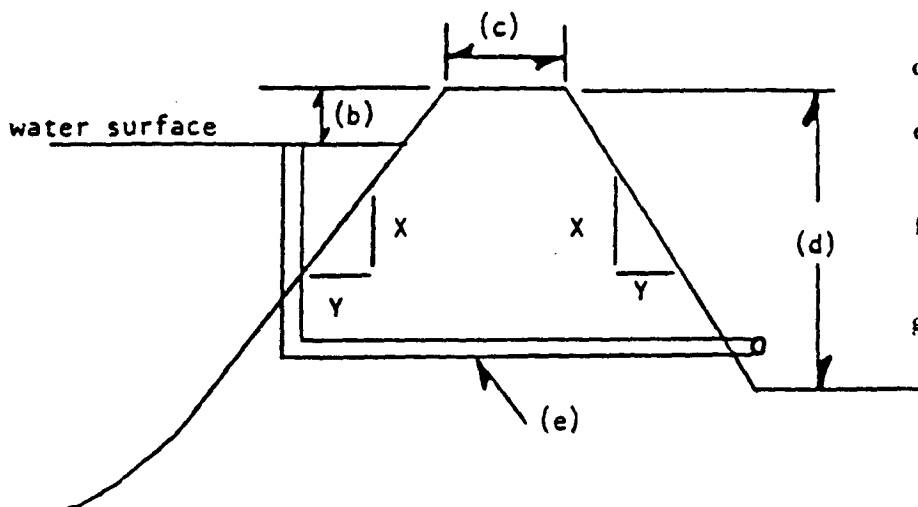
g) X & Y Slope  
 Upstream \_\_\_\_\_

Downstream \_\_\_\_\_

Surface Area of Impoundment \_\_\_\_\_

Storage \_\_\_\_\_ acre feet

Drainage area above dam \_\_\_\_\_

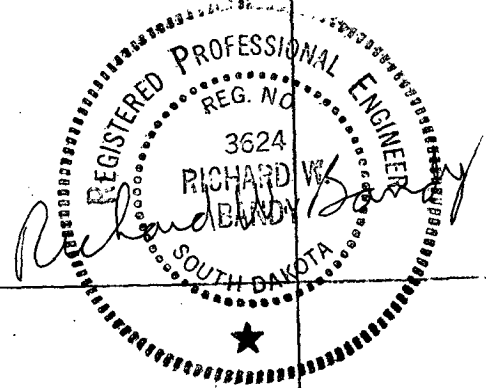


[Signature]  
 Signature of Applicant

Appl. No. 5556-B



Lu-Luton clay, somewhat poorly drained, fine-textured soil in alluvium on nearly level flood plains, somewhat subject to flooding.

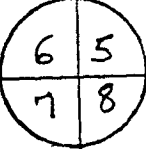


BIG SIOUX RIVER (DIKED)

Lu

#2  
EXISTING  
WELL  
1,950' N,  
450' E,  
CENTER OF  
SEC. 7

AIRPORT



RUSSELL AVE.

#1  
EXISTING WELL  
1,550' N,  
250' W,  
CENTER SEC 7

Lu

Lu

#3  
WELL PERMIT  
#4232-3

ELMWOOD GOLF COURSE

Lu

KIWANIS AVE.

MATERIALS COST ESTIMATE  
 ALTERNATIVE #1 - TORO DOUBLE ROW SYSTEM  
 ELMWOOD GOLF COURSE IRRIGATION SYSTEM  
 SIOUX FALLS, SOUTH DAKOTA

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July 1990

| No.                                          | Qty/Unit | Description                       | Unit Cost | Cost            |
|----------------------------------------------|----------|-----------------------------------|-----------|-----------------|
| <hr/>                                        |          |                                   |           |                 |
| 18 HOLE GOLF COURSE<br>(Materials Cost Only) |          |                                   |           |                 |
| 1                                            | 185 EA   | Toro 650 Electric Sprinkler Heads | 70.00     | 12950.00        |
| 2                                            | 407 EA   | Toro 680 Electric Sprinkler Heads | 125.00    | 50875.00        |
| 3                                            | 10750 LF | 6" PVC Pipe Class 200             | 2.30      | 24725.00        |
| 4                                            | 3300 LF  | 4" PVC Pipe Class 200             | 1.10      | 3630.00         |
| 5                                            | 31200 LF | 3" PVC Pipe Class 200             | 0.70      | 21840.00        |
| 6                                            | 13550 LF | 2" PVC Pipe Class 200             | 0.30      | 4065.00         |
| 7                                            | 8 EA     | 6" Valve                          | 300.00    | 2400.00         |
| 8                                            | 20 EA    | 4" Valve                          | 200.00    | 4000.00         |
| 9                                            | 31 EA    | 3" Valve                          | 150.00    | 4650.00         |
| 10                                           | 40 EA    | 2" Valve                          | 100.00    | 4000.00         |
| 11                                           | 150 EA   | PVC Tees Sch. 40                  | 23.00     | 3450.00         |
| 12                                           | 125 EA   | PVC Reducers/Bends Sch. 40        | 5.00      | 625.00          |
| 13                                           | 407 EA   | 3" Sprinkler Head Connections     | 15.00     | 6105.00         |
| 14                                           | 185 EA   | 2" Sprinkler Head Connections     | 5.00      | 925.00          |
| 15                                           | 21 EA    | Electrical Control Boxes          | 1000.00   | 21000.00        |
| 16                                           | 40000 LF | 10 Ga. Wire                       | 0.08      | 3200.00         |
| 17                                           | 80000 LF | 14 Ga. Wire                       | 0.04      | 3200.00         |
| 18                                           | 4000 TN  | Pipe Bedding                      | 8.00      | 32000.00        |
| 19                                           | 1 LS     | Well, Pump, Motor (400 gpm) F&I   | 42000.00  | 42000.00        |
| 20                                           | 1 EA     | Pump and Motor (400 gpm) F&I      | 15000.00  | 15000.00        |
| 21                                           | 1 LS     | Contingencies                     | 24360.00  | 24360.00        |
| Subtotal, 18 hole course                     |          |                                   |           | <hr/> 285000.00 |

MATERIALS COST ESTIMATE  
 ALTERNATIVE #1 - TORO DOUBLE ROW SYSTEM  
 ELMWOOD GOLF COURSE IRRIGATION SYSTEM  
 SIOUX FALLS, SOUTH DAKOTA

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July 1990

| No.                                                   | Qty/Unit | Description                       | Unit Cost | Cost      |
|-------------------------------------------------------|----------|-----------------------------------|-----------|-----------|
| -----                                                 |          |                                   |           |           |
| EAST 9 GOLF COURSE EXPANSION<br>(Materials Cost Only) |          |                                   |           |           |
| 1                                                     | 16 EA    | Toro 650 Electric Sprinkler Heads | 70.00     | 1120.00   |
| 2                                                     | 53 EA    | Toro 680 Electric Sprinkler Heads | 125.00    | 6625.00   |
| 3                                                     | 4700 LF  | 3" PVC Pipe Class 200             | 0.70      | 3290.00   |
| 4                                                     | 1000 LF  | 2" PVC Pipe Class 200             | 0.30      | 300.00    |
| 5                                                     | 5 EA     | 3" Valve                          | 150.00    | 750.00    |
| 6                                                     | 3 EA     | 2" Valve                          | 100.00    | 300.00    |
| 7                                                     | 10 EA    | PVC Tees Sch. 40                  | 23.00     | 230.00    |
| 8                                                     | 15 EA    | PVC Reducers/Bends Sch. 40        | 5.00      | 75.00     |
| 9                                                     | 53 EA    | 3" Sprinkler Head Connections     | 15.00     | 795.00    |
| 10                                                    | 16 EA    | 2" Sprinkler Head Connections     | 5.00      | 80.00     |
| 11                                                    | 5 EA     | Electrical Control Boxes          | 1000.00   | 5000.00   |
| 12                                                    | 15000 LF | 10 Ga. Wire                       | 0.08      | 1200.00   |
| 13                                                    | 30000 LF | 14 Ga. Wire                       | 0.04      | 1200.00   |
| 14                                                    | 370 TN   | Pipe Bedding                      | 8.00      | 2960.00   |
| 15                                                    | 1 EA     | Pump and Motor (400 gpm) F&I      | 15000.00  | 15000.00  |
| 16                                                    | 1 LS     | Pond                              | 20000.00  | 20000.00  |
| 17                                                    | 1 LS     | Contingencies                     | 6075.00   | 6075.00   |
|                                                       |          |                                   |           | -----     |
| Subtotal, East 9 expansion                            |          |                                   |           | 65000.00  |
| TOTAL ESTIMATED COST                                  |          |                                   |           | 350000.00 |

MATERIALS COST ESTIMATE  
 ALTERNATIVE #2 - RAINBIRD DOUBLE ROW SYSTEM  
 ELMWOOD GOLF COURSE IRRIGATION SYSTEM  
 SIOUX FALLS, SOUTH DAKOTA

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July 1990

| No.                                          | Qty/Unit | Description                             | Unit Cost | Cost      |
|----------------------------------------------|----------|-----------------------------------------|-----------|-----------|
| -----                                        |          |                                         |           |           |
| 18 HOLE GOLF COURSE<br>(Material Costs Only) |          |                                         |           |           |
| 1                                            | 20 EA    | Rain Bird 91DR Electric Sprinkler Heads | 105.00    | 2100.00   |
| 2                                            | 56 EA    | Rain Bird 51DR Electric Sprinkler Heads | 80.00     | 4480.00   |
| 3                                            | 511 EA   | Rain Bird 51DS Electric Sprinkler Heads | 70.00     | 35770.00  |
| 4                                            | 3000 LF  | 6" PVC Pipe Class 200                   | 2.30      | 6900.00   |
| 5                                            | 3300 LF  | 4" PVC Pipe Class 200                   | 1.10      | 3630.00   |
| 6                                            | 13000 LF | 3" PVC Pipe Class 200                   | 0.70      | 9100.00   |
| 7                                            | 40000 LF | 1 1/4" Flexible Poly Pipe               | 0.25      | 10000.00  |
| 8                                            | 16 EA    | Butterfly Isolation Valve               | 120.00    | 1920.00   |
| 9                                            | 152 EA   | 200 PE Series Electric Valve            | 90.00     | 13680.00  |
| 10                                           | 152 EA   | Valve Fittings                          | 15.00     | 2280.00   |
| 11                                           | 21 EA    | SBM 1260SS Controller                   | 1000.00   | 21000.00  |
| 12                                           | 30000 LF | Controller Cable                        | 0.15      | 4500.00   |
| 13                                           | 63000 LF | 14 Ga. Wire                             | 0.04      | 2520.00   |
| 14                                           | 1500 TN  | Pipe Bedding                            | 8.00      | 12000.00  |
| 15                                           | 1 LS     | Maxi Computer Software System           | 23000.00  | 23000.00  |
| 16                                           | 1 LS     | Well, Pump, Motor (400 gpm) F&I         | 42000.00  | 42000.00  |
| 17                                           | 1 EA     | Pump and Motor (400 gpm) F&I            | 15000.00  | 15000.00  |
| 18                                           | 1 LS     | Contingencies                           | 20120.00  | 20120.00  |
|                                              |          |                                         |           | -----     |
| Subtotal, 18 hole course                     |          |                                         |           | 230000.00 |

MATERIALS COST ESTIMATE  
 ALTERNATIVE #2 - RAINBIRD DOUBLE ROW SYSTEM  
 ELMWOOD GOLF COURSE IRRIGATION SYSTEM  
 SIOUX FALLS, SOUTH DAKOTA

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July 1990

| No.                                                   | Qty/Unit | Description                             | Unit Cost | Cost      |
|-------------------------------------------------------|----------|-----------------------------------------|-----------|-----------|
| -----                                                 |          |                                         |           |           |
| EAST 9 GOLF COURSE EXPANSION<br>(Material Costs Only) |          |                                         |           |           |
| 1                                                     | 16 EA    | Rain Bird 51DR Electric Sprinkler Heads | 80.00     | 1280.00   |
| 2                                                     | 53 EA    | Rain Bird 51DS Electric Sprinkler Heads | 70.00     | 3710.00   |
| 3                                                     | 2300 LF  | 3" PVC Pipe Class 200                   | 0.70      | 1610.00   |
| 4                                                     | 7000 LF  | 1 1/4" Flexible Poly Pipe               | 0.25      | 1750.00   |
| 5                                                     | 5 EA     | Butterfly Isolation Valve               | 120.00    | 600.00    |
| 6                                                     | 15 EA    | 200 PE Series Electric Valve            | 90.00     | 1350.00   |
| 7                                                     | 15 EA    | Valve Fittings                          | 15.00     | 225.00    |
| 8                                                     | 5 EA     | SBM 1260SS Controller                   | 1000.00   | 5000.00   |
| 9                                                     | 15000 LF | Controller Cable                        | 0.15      | 2250.00   |
| 10                                                    | 10000 LF | 14 Ga. Wire                             | 0.04      | 400.00    |
| 11                                                    | 200 TN   | Pipe Bedding                            | 8.00      | 1600.00   |
| 12                                                    | 1 EA     | Pump and Motor (400 gpm) F&I            | 15000.00  | 15000.00  |
| 13                                                    | 1 LS     | Pond                                    | 20000.00  | 20000.00  |
| 14                                                    | 1 LS     | Contingencies                           | 5225.00   | 5225.00   |
|                                                       |          |                                         |           | -----     |
| Subtotal, East 9 expansion                            |          |                                         |           | 60000.00  |
| TOTAL ESTIMATED COST                                  |          |                                         |           | 290000.00 |

STUDY OF  
ELMWOOD GOLF COURSE IRRIGATION SYSTEM IMPROVEMENTS  
SIOUX FALLS, SOUTH DAKOTA

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LIST OF EXHIBITS

| <u>Exhibit</u> | <u>Description</u>                                                               |
|----------------|----------------------------------------------------------------------------------|
| 1              | Elmwood Golf Course Irrigation System                                            |
| 2              | East Nine Golf Course Irrigation System                                          |
| 3              | Proposed Improvements to Elmwood Golf Course Irrigation System (Toro System)     |
| 4              | Proposed Improvements to Elmwood Golf Course Irrigation System (Rainbird System) |
| 5 to 7         | Pump Test Results for Pump Nos. 1, 2, and 3                                      |

APPENDIX A

Toro Sprinkler Head Specifications

APPENDIX B

Rainbird Sprinkler Head Specifications

STUDY OF  
ELMWOOD GOLF COURSE IRRIGATION SYSTEM IMPROVEMENTS  
SIOUX FALLS, SOUTH DAKOTA

1. INTRODUCTION

This report was prepared in accordance with the agreement dated December 13, 1989, between the City of Sioux Falls and DeWild Grant Reckert and Associates Company for a preliminary study of improvements to the Elmwood Golf Course irrigation system.

2. PROJECT SCOPE

The objective of this report is to prepare a concept design for improvements to the Elmwood Golf Course irrigation system. The following items summarize the scope of investigation of this study:

1. Collect information on the existing golf course irrigation system and prepare an updated plan of the system.
2. Perform tests on the 3 existing wells and pumps to determine present performance data.
3. Set up a hydraulic computer model of the distribution system and evaluate existing system performance and extensions off of the present system.
4. Prepare concept design drawings for improvements to accomplish the following objectives:
  - A. Expand system to irrigate the East 9 Golf Course.
  - B. Expand the system on the 18 hole course to a double row irrigation system.
5. Investigate supply improvements in the form of additional wells and/or a holding pond on the East 9 Golf Course.

6. Investigate improvements to the distribution pipeline in the form of main replacement, looping of dead-end lines, and installing isolation valves.
7. Investigate changing the control system from hydraulic to electric solenoid.
8. Develop sequence of priorities for phased construction of improvements.

### 3. EXISTING CONDITIONS

#### 3.1 Irrigation System

Exhibits 1 and 2 illustrate the best information available on the existing irrigation system for Elmwood Golf Course. This information was gathered from existing plans and details provided by Elmwood Golf Course personnel.

#### 3.2 Wells and Pumps

Presently there are three wells providing water to the golf course irrigation system. Well No. 1 located approximately 500 feet east of green No. 10 has a Byron Jackson vertical turbine pump rated at 375 gallons per minute (gpm) at 120 pounds per square inch (psi). The pump is driven by a 40 horsepower (hp) electric motor. A hydro-pneumatic tank system controls the operation of the pump.

Well No. 2 is located approximately 100 feet northwest of green No. 1. A Grundfos 6" submersible pump model SP75-4 was installed in this well in 1985. This pump has a nominal flow rate of 375 gpm at 75 psi, and is powered by a 25 hp motor.

Well No. 3, located between fairway Nos. 2 and 16, has a Layne & Bowler vertical turbine pump, which is powered by a 25 hp motor. No manufacturer's data was available concerning nominal discharge and total head output for this pump.

Sioux Well Drilling has provided maintenance of the three existing wells and pumps in recent years; however, no service records could be found by Sioux Well Drilling personnel at this time.

Exhibits 5 through 7 contain the results of pump tests for Pump Nos. 1 through No. 3 respectively. The tests were completed on May 8, 1990 by DGR personnel with assistance from golf course personnel. Exhibits 5 and 6 also include manufacturer's data concerning head versus discharge and efficiency curves for the respective pumps. No manufacturer's data was available for Pump No. 3.

It can be seen from Exhibit 5 that Pump No. 1 presently pumps about 440 gpm at 85 psi at ground surface as compared to its design capacity of 375 gpm at 120 psi. The pump appears to be operating near its most efficient range, although its present efficiency is probably somewhat less than the manufacturer's efficiency curve due to age and wear of the pump. Pump No. 2 pumps 335 gpm at 82 psi compared to a design capacity of 375 gpm at 75 psi. It also appears to operate near its most efficient range, according to Exhibit 6. Pump No. 3 presently pumps about 250 gpm at 98 psi, as shown on Exhibit 7. The normal operating conditions shown on Exhibits 5 through 7 were provided by golf course maintenance personnel.

Well performance tests could not be completed because of the lack of the required facilities at the well sites. Well No. 1 had a broken air line used for measuring drawdown in the well, and the other two wells did not have any access points from which to measure drawdown. In addition, only Well No. 3 has an observation well located approximately 9 feet from the well site. Periodic well performance tests are desirable, in order to monitor the efficiency of the well



## Rain Bird D-Series Golf Rotors

### Features

- Diaphragm valve for long, reliable life
- High strength plastic case with full 1½" inlet
- Easy to service
- Choice of 14 models

## Electric Valve-in-Head (DR) Rotors

### Features

- Electric valve-in-head design for individual control of greens, tees, and fairways
- Adjustable pressure regulation, factory preset at 80 psi
- ON/OFF/Auto switch allows for manual operation of the rotor

## Electric Valve-in-Head Low Pressure (DL) Rotors

### Features

- Electric valve-in-head design for individual control of greens, tees, and fairways
- Adjustable pressure regulation, factory preset at 60 psi
- ON/OFF/Auto switch allows for manual operation of the rotor

## Normally Open Hydraulic Diaphragm Valve-in-Head (DH) Rotors

### Features

Diaphragm valve-in-head design for individual control of greens, tees, and fairways  
Completely hydraulic, no 24-volt power requirement  
Utilizes standard hydraulic tubing

## Stopamatic® Battery System (DS) Rotors

### Features

- Operates at top performance and uniformity while preventing "low-head drainage" on hilly terrain
- Protects from "low head drainage" to 15 feet of elevation

## 51DR/DL/DH/DS Rotor

- 55' - 83' radius
- 14.5 - 46.1 gpm flow rate
- Dual nozzle, full circle

## 47DR/DL/DH/DS Rotor

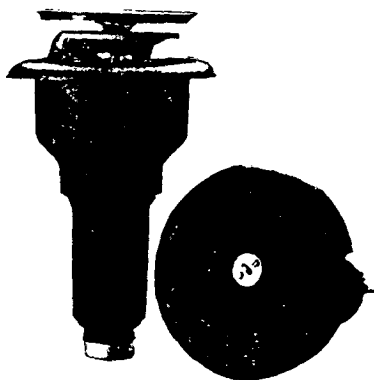
- 54' - 62' radius
- 10.8 - 18.3 gpm flow rate
- Single nozzle, part circle
- Adjustable arc — 20° to 340°

## 91DR/DH/DS Rotor

- 64' - 98' radius
- 28.0 - 71.8 gpm flow rate
- Dual nozzle, full circle

## 95DR/DH/DS Rotor

- 64' - 98' radius
- 28.0 - 71.8 gpm flow rate
- Dual nozzle, part circle



Rotor Family

## DRHA-1 DR Hose Adapter

### Features

- Designed for hand watering operations throughout the golf course
- Easily installed in rotor cases via existing rotor snap rings
- 1" threaded outlet accepts SH-1 and SH-2 Swivel Hose Ell's
- See Brochure D31217

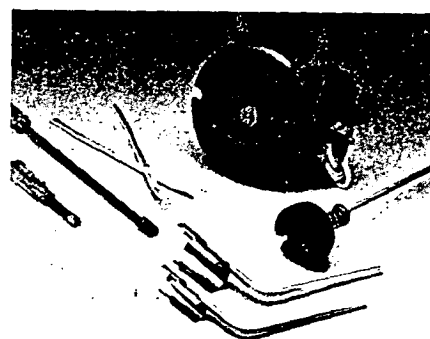


DRHA-1

## DR/DL/DH/DS Rotor Tools

### Features

- Tools to service all models of DR, DL, DH and DS rotors
- Constructed of long lasting plastic and metal alloys
- See Brochures D31211



Rotor Tools

For Additional Information, see  
Brochures:

|               |         |
|---------------|---------|
| 51/47 DR..... | D31201  |
| 51/47 DH..... | D31205  |
| 51/47 DS..... | D31225  |
| 51/47 DL..... | D31223A |
| 91/95 DR..... | D31204  |
| 91/95 DH..... | D31209  |
| 91/95 DS..... | D31226  |

# **ROTOR POP-UP SPRINKLERS**

## **41-51A-SAM**

Full Circle Stopamatic® Rotor  
Pop-up Sprinklers

### **Operating Range**

Precipitation Rate:  
.35 to .70 inches per hour  
Spacing: 43 to 99 feet  
Pressure: 40 to 100 psi

### **Features**

- High strength plastic case
- Heavy-duty brass pop-up assembly
- Internal Stopamatic® valve
- 2<sup>5</sup>/<sub>16</sub>" pop-up height
- Proven impact drive
- Straight-through flow
- Heavy-duty retract spring
- Wiper seal
- Inlet filter screen
- Easy to service
- Wide choice of nozzles
- Tapered self-flushing valve seat
- Nozzle vane
- TNT bearing
- Optional two-piece rubber cover (When ordering, add RC suffix to model number.)
- Optional keyhole (K) nozzle for low pressure operation (41-51AK-SAM only)

### **Specifications**

- 1" female threaded inlet
- Dimensions with aluminum cover:  
Overall height: 12<sup>5</sup>/<sub>16</sub>"  
Top diameter: 6<sup>3</sup>/<sub>4</sub>"
- Dimensions with rubber cover:  
Overall height — 13<sup>1</sup>/<sub>4</sub>"  
Top diameter — 6<sup>3</sup>/<sub>4</sub>"
- 1<sup>1</sup>/<sub>4</sub>" female thread case available as special order for 41-51A-SAM-G

- **41-51A-SAM:**  
For standard nozzle at 70 psi, the highest point of stream is 17' above nozzle at 52' from sprinkler. Nozzle outlet trajectory is 23°



**41-51A-SAM**

## **41-51A-SAM/41-51AP/41-51A Performance**

| PSI | RADIUS' | GPM  | NOZZLE  | *PRECIP. ■ | *PRECIP. ▲ |
|-----|---------|------|---------|------------|------------|
| 50  | 52      | 12.4 | 11x11   | .44        | .35        |
|     | 53      | 13.4 | 12x11   | .46        | .37        |
|     | 55      | 14.5 | 13x11   | .46        | .37        |
|     | 57      | 16.6 | 14x11   | .49        | .39        |
|     | 60      | 19.0 | 16x11   | .51        | .41        |
|     | ‡ 62    | 21.7 | 18x11.5 | .54        | .44        |
|     | 65      | 24.7 | 20x11.5 | .56        | .45        |
|     | 69      | 28.9 | 22x13   | .58        | .47        |
| 55  | 72      | 33.3 | 24x13   | .62        | .50        |
|     | 53      | 13.0 | 11x11   | .45        | .36        |
|     | 54      | 14.0 | 12x11   | .46        | .37        |
|     | 56      | 15.1 | 13x11   | .46        | .37        |
|     | 58      | 17.3 | 14x11   | .50        | .40        |
|     | 61      | 19.8 | 16x11   | .51        | .41        |
|     | ‡ 64    | 22.7 | 18x11.5 | .53        | .43        |
|     | 66      | 25.8 | 20x11.5 | .57        | .46        |
| 60  | 70      | 30.2 | 22x13   | .59        | .48        |
|     | 73      | 34.8 | 24x13   | .63        | .50        |
|     | 54      | 13.5 | 11x11   | .45        | .36        |
|     | 55      | 14.6 | 12x11   | .46        | .37        |
|     | 57      | 15.8 | 13x11   | .47        | .38        |
|     | 59      | 18.0 | 14x11   | .50        | .40        |
|     | 62      | 20.7 | 16x11   | .52        | .42        |
|     | ‡ 65    | 23.7 | 18x11.5 | .54        | .43        |
| 65  | 68      | 26.9 | 20x11.5 | .56        | .45        |
|     | 71      | 31.4 | 22x13   | .60        | .48        |
|     | 75      | 36.3 | 24x13   | .62        | .50        |
|     | 55      | 14.0 | 11x11   | .45        | .36        |
|     | 56      | 15.1 | 12x11   | .46        | .37        |
|     | 58      | 16.4 | 13x11   | .47        | .38        |
|     | 60      | 18.7 | 14x11   | .50        | .40        |
|     | 63      | 21.5 | 16x11   | .52        | .42        |
| 70  | ‡ 66    | 24.6 | 18x11.5 | .54        | .44        |
|     | 69      | 27.9 | 20x11.5 | .56        | .45        |
|     | 72      | 32.6 | 22x13   | .61        | .49        |
|     | 76      | 37.7 | 24x13   | .63        | .50        |
|     | 56      | 14.5 | 11x11   | .45        | .36        |
|     | 57      | 15.7 | 12x11   | .47        | .37        |
|     | 59      | 16.9 | 13x11   | .47        | .37        |
|     | 61      | 19.4 | 14x11   | .50        | .40        |
| 75  | 64      | 22.2 | 16x11   | .52        | .42        |
|     | ‡ 67    | 25.5 | 18x11.5 | .55        | .44        |
|     | 70      | 28.9 | 20x11.5 | .57        | .46        |
|     | 74      | 33.8 | 22x13   | .59        | .48        |
|     | 77      | 39.0 | 24x13   | .63        | .51        |
|     | 57      | 15.0 | 11x11   | .44        | .35        |
|     | 58      | 16.2 | 12x11   | .46        | .37        |
|     | 60      | 17.5 | 13x11   | .46        | .37        |

| NOZZLE CONVERSION CHART                                                                                 |       |      |       |       |      |       |      |
|---------------------------------------------------------------------------------------------------------|-------|------|-------|-------|------|-------|------|
| All nozzle combinations are given in XX/64 equivalents. The following chart can be used for conversion. |       |      |       |       |      |       |      |
| NEW                                                                                                     | 8     | 9    | 10    | 11    | 12   | 13    | 14   |
| OLD                                                                                                     | 1/8   | 9/64 | 5/32  | 11/64 | 3/16 | 13/64 | 7/32 |
| NEW                                                                                                     | 15    | 16   | 17    | 18    | 20   | 22    | 24   |
| OLD                                                                                                     | 15/64 | 1/4  | 17/64 | 9/32  | 5/16 | 11/32 | 3/8  |

## **41-51A-SAM/41-51AP/41-51A Performance**

| PSI | RADIUS' | GPM  | NOZZLE  | *PRECIP. ■ | *PRECIP. ▲ |
|-----|---------|------|---------|------------|------------|
| 75  | 57      | 15.0 | 11x11   | .44        | .35        |
|     | 58      | 16.2 | 12x11   | .46        | .37        |
|     | 60      | 17.5 | 13x11   | .47        | .38        |
|     | 62      | 20.0 | 14x11   | .50        | .40        |
|     | 65      | 23.0 | 16x11   | .52        | .42        |
|     | ‡ 68    | 26.3 | 18x11.5 | .55        | .44        |
|     | 71      | 29.9 | 20x11.5 | .57        | .46        |
|     | 75      | 34.9 | 22x13   | .60        | .48        |
| 80  | 78      | 40.3 | 24x13   | .64        | .51        |
|     | 57      | 15.5 | 11x11   | .46        | .37        |
|     | 59      | 16.7 | 12x11   | .46        | .37        |
|     | 60      | 18.0 | 13x11   | .48        | .39        |
|     | 63      | 20.7 | 14x11   | .50        | .40        |
|     | 66      | 23.7 | 16x11   | .52        | .42        |
|     | ‡ 69    | 27.1 | 18x11.5 | .55        | .44        |
|     | 72      | 30.8 | 20x11.5 | .57        | .46        |
| 90  | 76      | 36.0 | 22x13   | .60        | .48        |
|     | 79      | 41.5 | 24x13   | .64        | .51        |
|     | 59      | 16.4 | 11x11   | .45        | .36        |
|     | 60      | 17.6 | 12x11   | .47        | .38        |
|     | 62      | 19.1 | 13x11   | .48        | .38        |
|     | 65      | 21.8 | 14x11   | .50        | .40        |
|     | 68      | 25.0 | 16x11   | .52        | .42        |
|     | ‡ 71    | 28.7 | 18x11.5 | .55        | .44        |
| 100 | 74      | 32.6 | 20x11.5 | .57        | .46        |
|     | 78      | 38.1 | 22x13   | .60        | .48        |
|     | 81      | 43.9 | 24x13   | .64        | .52        |
|     | 60      | 17.2 | 11x11   | .46        | .37        |
|     | 62      | 18.5 | 12x11   | .46        | .37        |
|     | 63      | 20.1 | 13x11   | .49        | .39        |
|     | 66      | 23.0 | 14x11   | .51        | .41        |
|     | 69      | 26.3 | 16x11   | .53        | .43        |
| 100 | ‡ 72    | 30.2 | 18x11.5 | .56        | .45        |
|     | 75      | 34.2 | 20x11.5 | .59        | .47        |
|     | 79      | 40.0 | 22x13   | .62        | .49        |
|     | 83      | 46.1 | 24x13   | .64        | .52        |

## **41-51AK-SAM/41-51AK 41-51APK Performance Keyhole Nozzles**

|      |    |      |          |     |     |
|------|----|------|----------|-----|-----|
| 30** | 39 | 10.1 | 11Kx11.5 | .64 | .62 |
|      | 41 | 10.9 | 12Kx11.5 | .62 | .61 |
|      | 42 | 11.5 | 13Kx11.5 | .63 | .61 |
| 35** | 42 | 11.0 | 11Kx11.5 | .60 | .58 |
|      | 43 | 11.8 | 12Kx11.5 | .61 | .60 |
|      | 44 | 12.5 | 13Kx11.5 | .62 | .60 |
| 40   | 43 | 11.7 | 11Kx11.5 | .61 | .59 |
|      | 44 | 12.6 | 12Kx11.5 | .63 | .61 |
|      | 46 | 13.3 | 13Kx11.5 | .61 | .59 |
| 45   | 44 | 12.5 | 11Kx11.5 | .62 | .60 |
|      | 45 | 13.4 | 12Kx11.5 | .67 | .62 |
|      | 47 | 14.0 | 13Kx11.5 | .70 | .59 |
| 50   | 45 | 13.2 | 11Kx11.5 | .63 | .61 |
|      | 46 | 14.1 | 12Kx11.5 | .67 | .62 |
|      | 48 | 14.8 | 13Kx11.5 | .70 | .60 |

\*Precipitation Rates based on full circle operation and are given for reference only. For spacing recommendations, consult your irrigation specialist.  
\*\*Operating pressure for AP and A rotors only.  
■ Square Spacing based on 50% diameter of throw.  
▲ Triangular spacing based on 60% diameter of throw.  
‡ Standard Nozzle Size



# 680 SERIES ROTARY SPRINKLERS

## SPECIFICATIONS

INLET—1½" I.P.S. thread.  
HEIGHT—11".

ARC—Model 684, full circle.

MAXIMUM WORKING

PRESSURE—150 PSI.

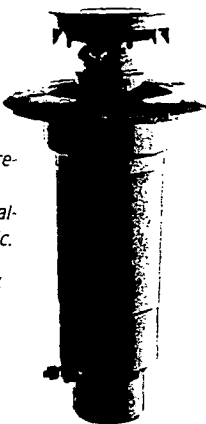
- 150 PSI: electric pressure-regulated.
- 100 PSI: hydraulic normally open and Checkomatic.

SOLENOID—24 V.A.C., 60Hz

Holding—.21 AMPS

In Rush—.42 AMPS

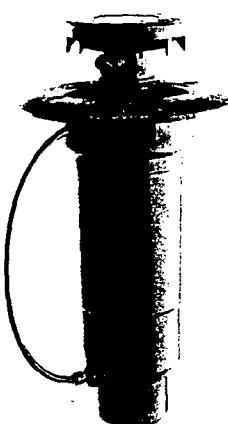
### NORMALLY OPEN VALVE-IN-HEAD



All internal parts of the sprinkler are accessible from the top of the sprinkler.

Gear driven with grease-packed gear assembly isolated from water stream.

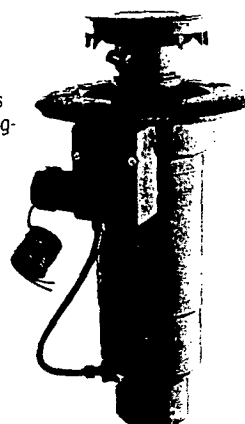
### CHECKOMATIC



Screen prevents debris from plugging nozzle.

Nozzle and cap pop-up 3 inches when head is in operation.

### 24 V.A.C. ELECTRIC VALVE-IN-HEAD



Single nozzle with "crown."

Positive spring retraction to pull cap and nozzles down when watering is finished.

## MODEL 684 Full Circle

|      | MODEL NO. | MODEL NO. | MODEL NO. | MODEL NO. | MODEL NO. | DESCRIPTION                                       |
|------|-----------|-----------|-----------|-----------|-----------|---------------------------------------------------|
| 360° | 684-01-84 | 684-01-85 | 684-01-86 | 684-01-87 | 684-01-88 | Full circle hydraulic valve-in-head normally open |
|      | 684-02-84 | 684-02-85 | 684-02-86 | 684-02-87 | 684-02-88 | Full circle, Checkomatic (COM)                    |
|      | 684-06-84 | 684-06-85 | 684-06-86 | 684-06-87 | 684-06-88 | Full circle electric valve-in-head (24 V.A.C.)    |

## PERFORMANCE CHART

| BASE<br>PRESSURE<br>P.S.I. | NOZZLE SET<br>-84<br>SIZE 5/16" |        | NOZZLE SET<br>-85<br>SIZE 11/32" |        | NOZZLE SET<br>-86<br>SIZE 3/8" |        | NOZZLE SET<br>-87<br>SIZE 13/32" |        | NOZZLE SET<br>-88<br>SIZE 7/16" |        |
|----------------------------|---------------------------------|--------|----------------------------------|--------|--------------------------------|--------|----------------------------------|--------|---------------------------------|--------|
|                            | RADIUS                          | G.P.M. | RADIUS                           | G.P.M. | RADIUS                         | G.P.M. | RADIUS                           | G.P.M. | RADIUS                          | G.P.M. |
| 40                         | 63'                             | 19.4   | 65'                              | 22.5   | 67'                            | 24.9   |                                  |        |                                 |        |
| 45                         | 65'                             | 20.3   | 68'                              | 22.5   | 69'                            | 26.4   |                                  |        |                                 |        |
| 50                         | 67'                             | 21.2   | 68'                              | 24.5   | 71'                            | 27.9   | 72'                              | 34.1   | 74'                             | 38.7   |
| 55                         | 69'                             | 22.3   | 71'                              | 24.8   | 72'                            | 29.2   | 74'                              | 34.1   | 78'                             | 40.6   |
| 60                         | 70'                             | 23.2   | 71'                              | 27.0   | 73'                            | 30.5   | 76'                              | 36.3   | 82'                             | 42.2   |
| 65                         | 71'                             | 24.3   | 72'                              | 28.0   | 75'                            | 31.8   | 78'                              | 36.9   | 83'                             | 43.9   |
| 70                         | 72'                             | 25.2   | 73'                              | 29.1   | 76'                            | 33.1   | 80'                              | 38.4   | 84'                             | 45.6   |
| 75                         |                                 |        |                                  |        |                                |        | 82'                              | 41.5   | 85'                             | 46.9   |
| 80                         |                                 |        |                                  |        |                                |        | 84'                              | 43.1   | 86'                             | 48.6   |
| 85                         |                                 |        |                                  |        |                                |        | 85'                              | 42.9   | 87'                             | 50.3   |

## SPACING OF SPRINKLERS

| Square Spacing     |                  |
|--------------------|------------------|
| No wind            | —55% of diameter |
| 4 m.p.h. wind      | —50% of diameter |
| 8 m.p.h. wind      | —45% of diameter |
| Triangular Spacing |                  |
| No wind            | —60% of diameter |
| 4 m.p.h. wind      | —55% of diameter |
| 8 m.p.h. wind      | —50% of diameter |
| Single Row Spacing |                  |
| No wind            | —50% of diameter |
| 4 m.p.h. wind      | —50% of diameter |
| 8 m.p.h. wind      | —45% of diameter |

## CONVERSION INFORMATION

- All gallons per minute shown are U.S.
- To convert to Imperial gallons per minute, multiply by .833.
- To convert to litres per minute, multiply by 3.78.
- To convert pounds per square inch (PSI) to kilograms per square centimeter, divide by 14.22.
- To convert feet to meters, divide by 3.28.



Toro Irrigation Division

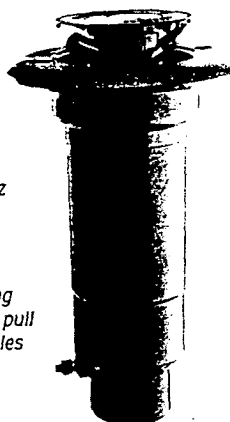
P.O. Box 489  
Riverside, CA 92502

(714) 688-9221



# 670 SERIES ROTARY SPRINKLERS

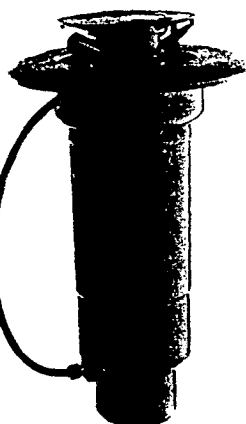
## NORMALLY OPEN VALVE-IN-HEAD



All internal parts of the sprinkler are accessible from the top of the sprinkler.

Planetary gear driven with grease-packed gear assembly isolated from water stream.

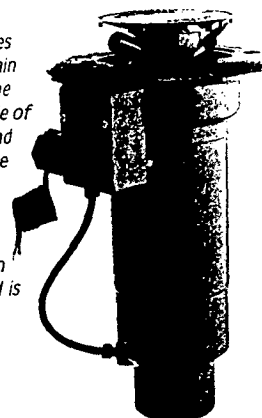
## CHECKOMATIC



Three nozzles with the main nozzle on the opposite side of the inner and intermediate nozzles.

Nozzle and cap pop-up 1 1/4 inch when head is in operation.

## 24 V.A.C. ELECTRIC VALVE-IN-HEAD



Free turning to prevent damage.

Stator-screen prevents debris from plugging nozzles.

### SPECIFICATIONS

THREAD—1 1/2" I.P.S. thread.

HEIGHT—11".

—Full circle.

MAXIMUM WORKING

PRESSURE—150 PSI.

MODEL—24 V.A.C., 60Hz

Wiring—21 AMPS

on Rush—.42 AMPS

Positive spring retraction to pull cap and nozzles down when watering is finished.

### MODEL 674 Gear Driven Full Circle

|      | MODEL NO. | MODEL NO. | MODEL NO. | MODEL NO. | MODEL NO. | DESCRIPTION                                                                  |
|------|-----------|-----------|-----------|-----------|-----------|------------------------------------------------------------------------------|
| 360° | 674-01-70 | 674-01-71 | 674-01-72 | 674-01-73 | 674-01-74 | Full circle, hydraulic valve-in-head (normally open)                         |
|      | 674-02-70 | 674-02-71 | 674-02-72 | 674-02-73 | 674-02-74 | Full circle, Checkomatic.                                                    |
|      | 674-06-70 | 674-06-71 | 674-06-72 | 674-06-73 | 674-06-74 | Full circle, electric valve-in-head (pressure regulated, manual on-off-auto) |
|      |           |           |           |           |           |                                                                              |

### SPACING OF SPRINKLERS

| Square Spacing     |                  |
|--------------------|------------------|
| No wind            | —55% of diameter |
| 4 m.p.h. wind      | —50% of diameter |
| 8 m.p.h. wind      | —45% of diameter |
| Triangular Spacing |                  |
| No wind            | —60% of diameter |
| 4 m.p.h. wind      | —55% of diameter |
| 8 m.p.h. wind      | —50% of diameter |
| Single Row Spacing |                  |
| No wind            | —50% of diameter |
| 4 m.p.h. wind      | —50% of diameter |
| 8 m.p.h. wind      | —45% of diameter |

### PERFORMANCE CHART

| HEAD PRESSURE<br>P.S.I. | NOZZLE SET<br>-70<br>SIZE 5/16" |        | NOZZLE SET<br>-71<br>SIZE 11/32" |        | NOZZLE SET<br>-72<br>SIZE 3/8" |        | NOZZLE SET<br>-73<br>SIZE 13/32" |        | NOZZLE SET<br>-74<br>SIZE 7/16" |        |
|-------------------------|---------------------------------|--------|----------------------------------|--------|--------------------------------|--------|----------------------------------|--------|---------------------------------|--------|
|                         | RADIUS                          | G.P.M. | RADIUS                           | G.P.M. | RADIUS                         | G.P.M. | RADIUS                           | G.P.M. | RADIUS                          | G.P.M. |
| 60                      | 76'                             | 35.5   | 78'                              | 39.5   |                                |        |                                  |        |                                 |        |
| 70                      | 80'                             | 38.4   | 82'                              | 42.7   | 85'                            | 47.9   | 86'                              | 52.6   |                                 |        |
| 80                      | 84'                             | 41.2   | 85'                              | 45.6   | 89'                            | 51.0   | 92'                              | 56.3   | 94'                             | 59.6   |
| 90                      | 86'                             | 43.8   | 87'                              | 48.5   | 92'                            | 54.5   | 95'                              | 59.8   | 99'                             | 63.4   |
| 100                     | 88'                             | 46.2   | 90'                              | 51.2   | 95'                            | 57.3   | 98'                              | 62.8   | 102'                            | 66.8   |

d Numbers — Where pressure regulation begins on the electric valve-in models.

### 7 YEAR EXTENDED LIMITED WARRANTY ON PARTS

Many years of innovative engineering and practical experience go into each of TORO's irrigation products. Since we believe firmly in the quality of our products, we want our warranty to reflect the confidence we have in them.

So The TORO Company, Irrigation Division, now offers a 7-year sliding scale limited warranty on each body, spring retracted drive and valve assembly in 630, 650, 670 and 690 Series valve-in-head rotary sprinklers.

This extended coverage warrants these critical parts against defects in material or workmanship, and normal wear, provided they are used for irrigation purposes under manufacturer's recommended specifications, for a seven (7) year period after the date of purchase.

The extended coverage provides a pro-rata reduction in replacement cost based on time of use and the manufacturer's suggested list price at time of replacement, according to the schedule shown here. To receive warranty benefits, customers should return their defective parts to their nearest TORO distributor.

### CONVERSION INFORMATION

- All gallons per minute shown are U.S.
- To convert to Imperial gallons per minute, multiply by .833.
- To convert to litres per minute, multiply by 3.78.
- To convert pounds per square inch (PSI) to atmospheres, divide by 14.7.
- To convert pounds per square inch (PSI) to kilograms per square centimeter, divide by 14.22.
- To convert feet to meters, divide by 3.28.

### PRO-RATA REDUCTION CHART

| YEAR | MONTHS | CUSTOMER REPLACEMENT PRICE* |
|------|--------|-----------------------------|
| 1    | 0-12   | 0%                          |
| 2    | 13-24  | 20%                         |
| 3    | 25-36  | 40%                         |
| 4    | 37-48  | 60%                         |
| 5    | 49-60  | 70%                         |
| 6    | 61-72  | 80%                         |
| 7    | 73-84  | 90%                         |

\*Customer's replacement price as a percentage of regular purchase price at date of replacement.



Excellence in Irrigation™

Toro Irrigation Division

P.O. Box 489  
Riverside, CA 92502

(714) 688-9221



# 660 SERIES ROTARY SPRINKLERS

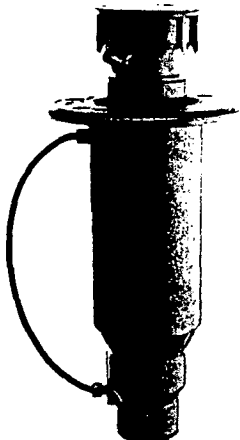
## NORMALLY OPEN VALVE-IN-HEAD



All internal parts of the sprinkler are accessible from the top of the sprinkler.

Gear driven with grease-packed gear assembly isolated from water stream.

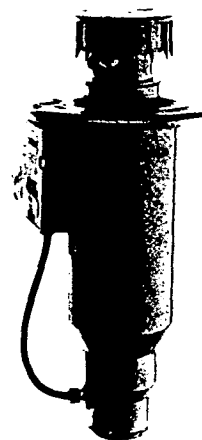
## CHECKOMATIC



Screen prevents debris from plugging nozzle.

Nozzle and cap pop-up 3 inches when head is in operation.

## 24 V.A.C. ELECTRIC VALVE-IN-HEAD



Single nozzle with "crown."

Positive spring retraction to pull cap and nozzles down when watering is finished.

### SPECIFICATIONS

INLET—1" I.P.S. thread.

HEIGHT—10".

ARC—Model 664, Full circle.

MAXIMUM WORKING

PRESSURE—

- 150 PSI: electric pressure-regulated.
- 100 PSI: hydraulic normally open and Checkomatic.

SOLENOID—24 V.A.C., 60Hz

Holding—.21 AMPS

In Rush—.42 AMPS

### MODEL 664 Full Circle

|      | MODEL NO. | MODEL NO. | MODEL NO. | MODEL NO. | MODEL NO. | MODEL NO. | DESCRIPTION                                         |
|------|-----------|-----------|-----------|-----------|-----------|-----------|-----------------------------------------------------|
| 360° | 664-01-62 | 664-01-63 | 664-01-64 | 664-01-65 | 664-01-66 | 664-01-67 | Full circle hydraulic valve-in-head (normally open) |
|      | 664-02-62 | 664-02-63 | 664-02-64 | 664-02-65 | 664-02-66 | 664-02-67 | Full circle, Checkomatic (COM)                      |
|      | 664-06-62 | 664-06-63 | 664-06-64 | 664-06-65 | 664-06-66 | 664-06-67 | Full circle electric valve-in-head (24 V.A.C.)      |

### SPACING OF SPRINKLERS

| Square Spacing     |                  |
|--------------------|------------------|
| No wind            | —55% of diameter |
| 4 m.p.h. wind      | —50% of diameter |
| 8 m.p.h. wind      | —45% of diameter |
| Triangular Spacing |                  |
| No wind            | —60% of diameter |
| 4 m.p.h. wind      | —55% of diameter |
| 8 m.p.h. wind      | —50% of diameter |
| Single Row Spacing |                  |
| No wind            | —50% of diameter |
| 4 m.p.h. wind      | —50% of diameter |
| 8 m.p.h. wind      | —45% of diameter |

### PERFORMANCE CHART

| P.S.I. | NOZZLE SET<br>-62<br>SIZE 7/32" |        | NOZZLE SET<br>-63<br>SIZE 1/4" |        | NOZZLE SET<br>-64<br>SIZE 5/16" |        | NOZZLE SET<br>-65<br>SIZE 11/32" |        | NOZZLE SET<br>-66<br>SIZE 3/8" |        | NOZZLE SET<br>-67<br>SIZE 13/32" |        |
|--------|---------------------------------|--------|--------------------------------|--------|---------------------------------|--------|----------------------------------|--------|--------------------------------|--------|----------------------------------|--------|
|        | RADIUS                          | G.P.M. | RADIUS                         | G.P.M. | RADIUS                          | G.P.M. | RADIUS                           | G.P.M. | RADIUS                         | G.P.M. | RADIUS                           | G.P.M. |
| 40     | 52'                             | 10.8   | 56'                            | 13.0   | 61'                             | 18.4   | 62'                              | 21.1   | 62'                            | 23.5   |                                  |        |
| 45     | 53'                             | 11.5   | 57'                            | 13.8   | 63'                             | 19.6   | 65'                              | 22.3   | 65'                            | 25.0   |                                  |        |
| 50     | 54'                             | 12.1   | 58'                            | 14.5   | 65'                             | 20.7   | 67'                              | 23.5   | 68'                            | 26.5   |                                  |        |
| 55     | 55'                             | 12.7   | 59'                            | 15.2   | 66'                             | 21.7   | 68'                              | 24.8   | 69'                            | 28.0   | 69'                              | 33.2   |
| 60     | 56'                             | 13.2   | 60'                            | 15.9   | 68'                             | 22.6   | 69'                              | 25.9   | 70'                            | 29.5   | 70'                              | 34.9   |
| 65     | 57'                             | 13.8   | 61'                            | 16.5   | 70'                             | 23.5   | 71'                              | 27.0   | 72'                            | 30.6   | 72'                              | 36.2   |
| 70     | 58'                             | 14.3   | 62'                            | 17.1   | 72'                             | 24.4   | 73'                              | 28.0   | 75'                            | 31.8   | 75'                              | 37.0   |

### CONVERSION INFORMATION

- All gallons per minute shown are U.S.
- To convert to Imperial gallons per minute, multiply by .833.
- To convert to litres per minute, multiply by 3.78.
- To convert pounds per square inch (PSI) to kilograms per square centimeter, divide by 14.22.
- To convert feet to meters, divide by 3.28.

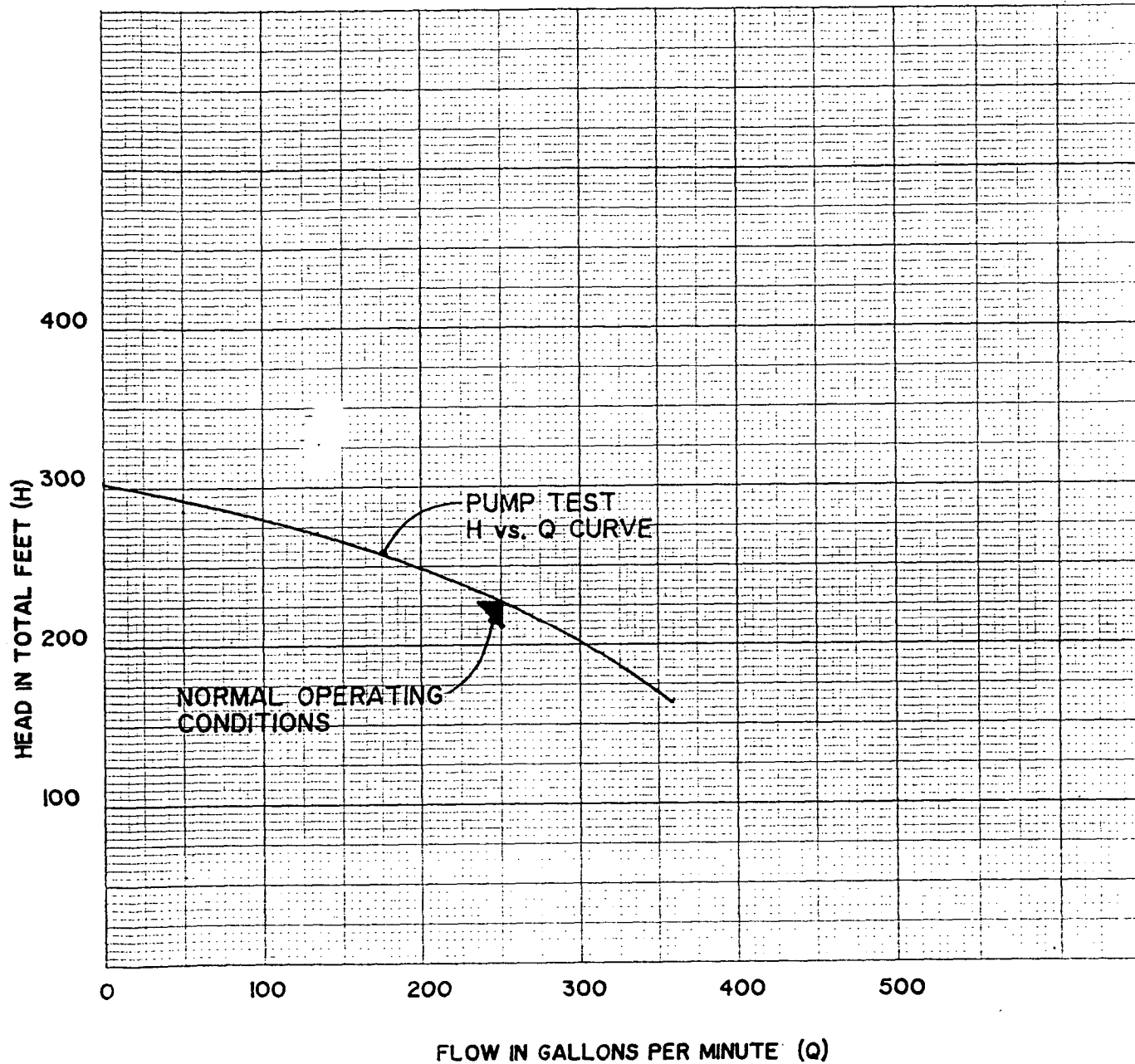


Toro Irrigation Division

P.O. Box 489  
Riverside, CA 92502

(714) 688-9221





### PUMP TEST RESULTS FOR PUMP NO. 3

TEST COMPLETED 5-8-90

NOTE: PUMP TEST H vs. Q CURVE MEASURED AT GROUND SURFACE WITH NO ALLOWANCE FOR WELL LIFT ELEVATION.

NOTE: MANUFACTURER'S HEAD vs. DISCHARGE CURVE AND EFFICIENCY CURVE NOT AVAILABLE.



DeWild Grant Reckert & Associates Co.  
Denver, Colorado  
Rock Rapids, Iowa  
Sioux City, Iowa  
Sioux Falls, South Dakota

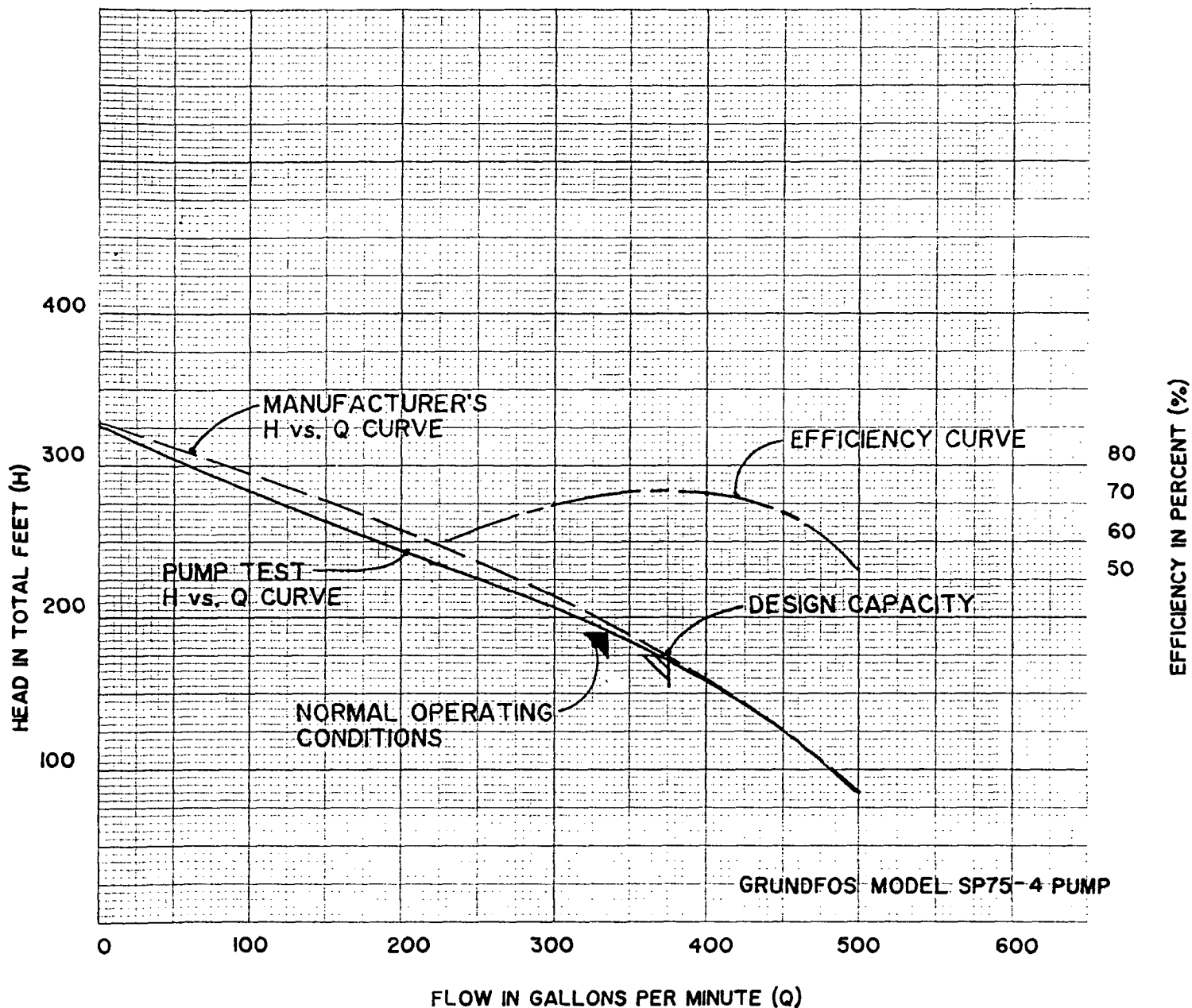
#39192

Date 6-90  
Drawn By JDH  
Approved LCN  
Revised

ELMWOOD GOLF COURSE  
IRRIGATION STUDY

SIoux FALLS, SOUTH DAKOTA

EXHIBIT 3



### PUMP TEST RESULTS FOR PUMP NO. 2

TEST COMPLETED 5-8-90

NOTE: PUMP TEST H vs. Q CURVE MEASURED  
AT GROUND SURFACE WITH NO ALLOWANCE  
FOR WELL LIFT ELEVATION.



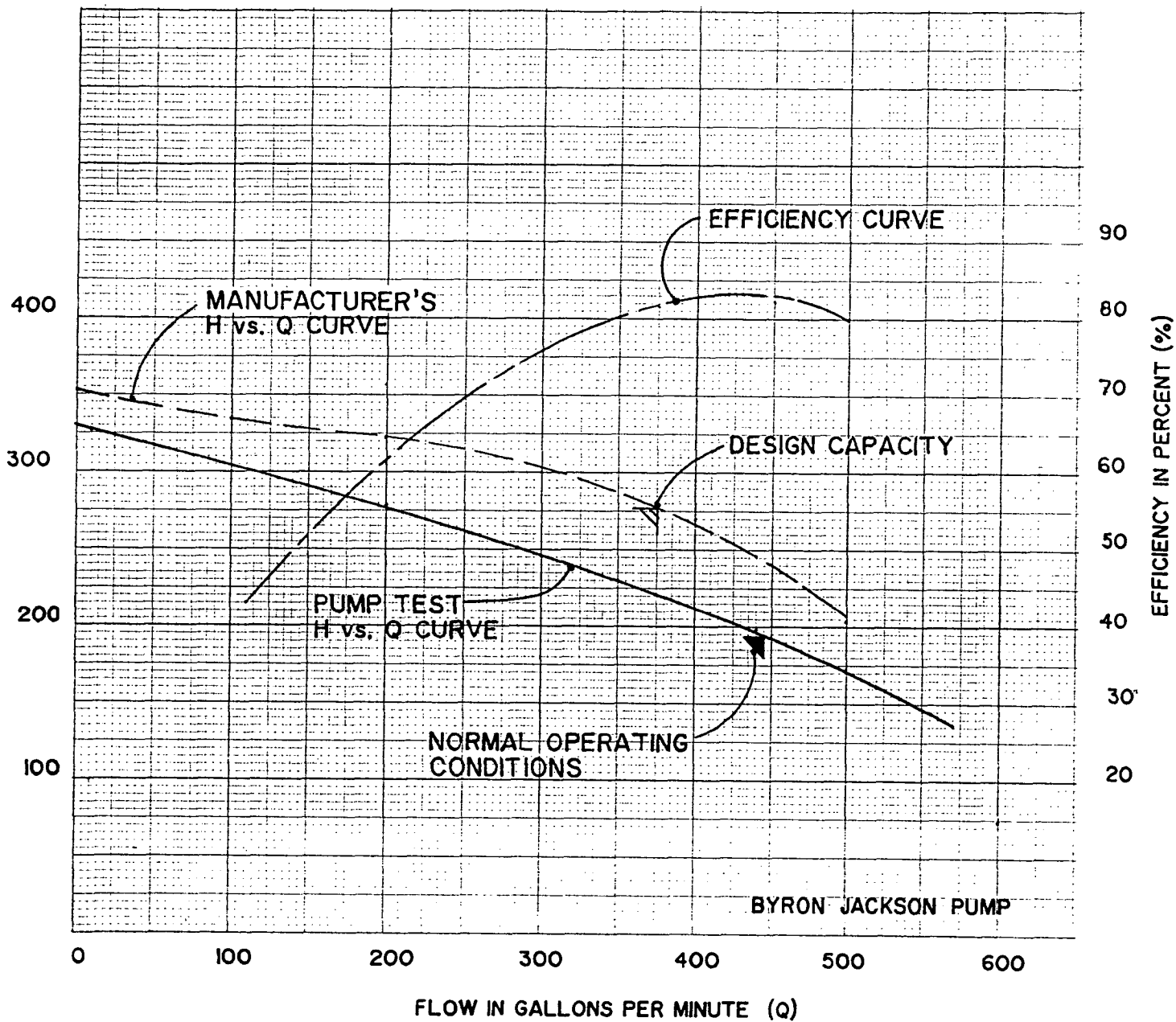
DeWild Grant Reckert & Associates Co.  
Denver, Colorado  
Rock Rapids, Iowa  
Sioux City, Iowa  
Sioux Falls, South Dakota

#39192

Date 6-90  
Drawn By JDH  
Approved LCN  
Revised

ELMWOOD GOLF COURSE  
IRRIGATION STUDY

SIOUX FALLS, SOUTH DAKOTA



**PUMP TEST RESULTS FOR PUMP NO. 1**  
**TEST COMPLETED 5-8-90**

NOTE: PUMP TEST H vs. Q CURVE MEASURED  
 AT GROUND SURFACE WITH NO ALLOWANCE  
 FOR WELL LIFT ELEVATION.



DeWild Grant Reckert & Associates Co.  
 Denver, Colorado  
 Rock Rapids, Iowa  
 Sioux City, Iowa  
 Sioux Falls, South Dakota  
**#39192**

Date 6-90  
 Drawn By JDH  
 Approved LCN  
 Revised

ELMWOOD GOLF COURSE  
 IRRIGATION STUDY  
 SIOUX FALLS, SOUTH DAKOTA

**EXHIBIT E**

REC-MGMT/FORM  
6/77SOUTH DAKOTA DEPARTMENT OF AGRICULTURE  
DIVISION OF CONSERVATION(RECOMMENDED MANAGEMENT)NE $\frac{1}{4}$  7-101N-49WNAME OF APPLICANT Kenneth Munro, Dir. Parks & Rec. Sioux Falls,  
(Elnwood Golf Course)RECOMMENDED MANAGEMENT:

1. Water should not be applied more than 1, 2, 3, 4, 5, times during the irrigation season.
2. Each uninterrupted application (one rotation of center pivot) should be of at least 1, 2, 3, 4, inches of water.
3. ☐ Yes    ☐ No    Surface drainage suggested
4. ☐ Yes    ☐ No    Subsurface drainage suggested
5. ☐ Yes    ☐ No    Specific land areas that should be avoided

Quality of water meets parameters of Silty clay loam soils

6. ☐ Deep tillage (For the purpose of aiding movement of water through dense subsoils)
7. ☐ Heavy full application of irrigation water

Water intake rate of Luton silty clay loam soils is normally slower than that required for agricultural crops, however, for folf green and with your method of irrigations there should be no major problems.

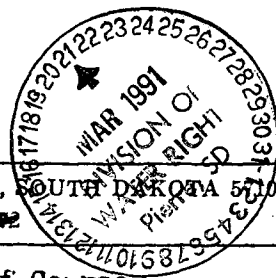
I do not believe you have any slope problems. Slops of 5% and more on Luton soils caould cause more runoff then intake.

Copy to Applicant        - 1  
 Copies to Water Rights - 2  
 Copy to File            - 1

# ELI DRILLING COMPANY SIOUX OWNER

Well #1

4701 NORTH CLIFF AVENUE • SIOUX FALLS, SOUTH DAKOTA 57104  
BUS. PHONE (605) 334-9002



Irrigation Well - Elmwood Golf Course  
Pumping 375 GPM

BORED and  
DRILLED WELLS | ALL TYPES PLUS  
IRRIGATION

(15" & borehole)  
Production Well

REC'D JUL 23 1981

(r = 6.5')

Observation Well

Static Water Level - 13' 8"

Static Water Level - 14' 4"

| Time           | Ft. and in.         |
|----------------|---------------------|
| 4:00           | start               |
| 4:01           | 22-5 $\frac{1}{2}$  |
| 4:02           | 22-6 $\frac{1}{2}$  |
| 4:03           | 22-7 $\frac{1}{4}$  |
| 4:04           | 22-7 $\frac{1}{8}$  |
| 4:05           | 22-7 $\frac{1}{8}$  |
| 4:06           | 22-7 $\frac{1}{8}$  |
| 4:07           | 22-7 $\frac{1}{8}$  |
| 4:08           | 22-7 $\frac{1}{4}$  |
| 4:09           | 22-7 $\frac{3}{8}$  |
| 4:10           | 22-7 $\frac{1}{2}$  |
| 4:15           | 22-7 $\frac{3}{4}$  |
| 4:20           | 22-8                |
| 4:25           | 22-8 $\frac{1}{2}$  |
| 4:30           | 22-8 $\frac{1}{2}$  |
| 4:45           | 22-9                |
| 5:00           | 22-9 $\frac{1}{2}$  |
| 5:30           | 22-9 $\frac{3}{4}$  |
| 6:00           | 22-10 $\frac{1}{4}$ |
| 6:30           | 22-10 $\frac{3}{4}$ |
| 7:00           | 22-11 $\frac{1}{4}$ |
| 7:30           | 23                  |
| 8:00           | 23 $\frac{1}{2}$    |
| 8:30           | 23-1                |
| 9:00           | 23-11 $\frac{1}{3}$ |
| 9:30           | 23-2                |
| 10:00          | 23-2 $\frac{1}{2}$  |
| end of pumping |                     |

| Time  | Ft. and in.        |
|-------|--------------------|
| 4:00  | start              |
| 4:01  | 17-4               |
| 4:02  | 17-5               |
| 4:03  | 17-5 $\frac{1}{2}$ |
| 4:04  | 17-5 $\frac{3}{4}$ |
| 4:05  | 17-6               |
| 4:06  | 17-6               |
| 4:07  | 17-6 $\frac{1}{8}$ |
| 4:08  | 17-6 $\frac{1}{8}$ |
| 4:09  | 17-6 $\frac{1}{4}$ |
| 4:10  | 17-6 $\frac{3}{8}$ |
| 4:15  | 17-6 $\frac{1}{2}$ |
| 4:20  | 17-6 $\frac{3}{4}$ |
| 4:25  | 17-6 $\frac{7}{8}$ |
| 4:30  | 17-7               |
| 4:45  | 17-7               |
| 5:00  | 17-7 $\frac{1}{8}$ |
| 5:30  | 17-7 $\frac{1}{4}$ |
| 6:00  | 17-7 $\frac{3}{8}$ |
| 6:30  | 17-7 $\frac{1}{2}$ |
| 7:00  | 17-7 $\frac{1}{2}$ |
| 7:30  | 17-7 $\frac{3}{4}$ |
| 8:00  | 17-8               |
| 8:30  | 17-8 $\frac{1}{4}$ |
| 9:00  | 17-8 $\frac{1}{2}$ |
| 9:30  | 17-8 $\frac{3}{4}$ |
| 10:00 | 17-9               |

Recovery readings

|       |                     |
|-------|---------------------|
| 10:01 | 15                  |
| 10:02 | 14-6                |
| 10:03 | 14-4                |
| 10:04 | 14-3                |
| 10:05 | 14-3 $\frac{1}{2}$  |
| 10:06 | 14-1 $\frac{3}{4}$  |
| 10:07 | 14-1 $\frac{1}{4}$  |
| 10:08 | 14-3 $\frac{1}{4}$  |
| 10:09 | 14-1 $\frac{1}{2}$  |
| 10:10 | 14-1 $\frac{1}{4}$  |
| 10:15 | 13-11 $\frac{3}{4}$ |
| 10:20 | 13-11 $\frac{1}{2}$ |
| 10:25 | 13-11               |
| 10:30 | 13-10 $\frac{1}{2}$ |
| 10:45 | 13-9 $\frac{1}{2}$  |
| 11:00 | 13-9 $\frac{1}{4}$  |
| 11:30 | 13-9                |
| 12:00 | 13-8 $\frac{3}{4}$  |

|       |                    |
|-------|--------------------|
| 10:01 | 15-2               |
| 10:02 | 14-9               |
| 10:03 | 14-8 $\frac{3}{4}$ |
| 10:04 | 14-8 $\frac{1}{2}$ |
| 10:05 | 14-8 $\frac{1}{2}$ |
| 10:06 | 14-8               |
| 10:07 | 14-7 $\frac{3}{4}$ |
| 10:08 | 14-7 $\frac{1}{2}$ |
| 10:09 | 14-7 $\frac{1}{4}$ |
| 10:10 | 14-7               |
| 10:15 | 14-6 $\frac{3}{4}$ |
| 10:20 | 14-6 $\frac{1}{4}$ |
| 10:25 | 14-6               |
| 10:30 | 14-5 $\frac{3}{4}$ |
| 10:45 | 14-5 $\frac{1}{2}$ |
| 11:00 | 14-5 $\frac{1}{4}$ |
| 11:30 | 14-5               |
| 12:00 | 14-4 $\frac{3}{4}$ |

Well pumping 500 gal. per min.

Time  
10:27 start  
10:28  
10:29  
10:30  
10:31  
10:32  
10:33  
10:34  
10:35  
10:36  
10:37  
10:42  
10:47  
10:52  
11:00  
11:10  
11:20  
11:30  
12:00  
12:30  
1:00  
1:30  
2:00  
2:30  
3:00  
3:30  
4:00  
4:30

Pumping well readings  
static level 14'6"  
21'  
22'  
22' $\frac{1}{4}$ "  
22' $\frac{1}{5}$ "  
22' $\frac{1}{5}$ "  
22' $\frac{3}{4}$ "  
22'1"  
22'1 $\frac{1}{2}$ "  
22'2"  
22'2 $\frac{1}{2}$ "  
22'3 $\frac{1}{2}$ "  
22'4 $\frac{1}{2}$ "  
22'6"  
22'8"  
22'9"  
22'10"  
22'10"  
22'11"  
23'1 $\frac{1}{2}$ "  
23'1"  
23'1 $\frac{1}{2}$ "  
23'2 $\frac{1}{4}$ "  
23'3"  
23'3 $\frac{1}{2}$ "  
23'4"  
23'4 $\frac{1}{2}$ "  
23'5 $\frac{1}{4}$ "

Well #2

Recovery well readings  
static level 14'  
14'  
14'10"  
15'  
15'2"  
15'4"  
15'6"  
15'9"  
16'  
16'3"  
16'10"  
17'  
17'4"  
17'8"  
17'10"  
17'10 $\frac{1}{2}$ "  
18'  
18'3"  
18'5"  
18'5"  
18'5 $\frac{1}{2}$ "  
18'6"  
18'9"  
18'9"  
18'9 $\frac{1}{4}$ "  
18'9 $\frac{1}{2}$ "  
18'11"  
19'



stop test pumping  
recovery readings

top of casing 14'6"  
4:30 stop  
4:31  
4:32  
4:33  
4:34  
4:35  
4:36  
4:37  
4:38  
4:39  
4:40  
4:45  
4:50  
4:55  
5:00  
5:10  
5:20  
5:30  
6:00  
6:30

23'5 $\frac{1}{4}$ "  
17'1"  
16'9"  
16'7"  
16'4 $\frac{1}{2}$ "  
16'3"  
16'2"  
16'1"  
16'  
15'11"  
15'10"  
15'9"  
15'8"  
15'7"  
15'6"  
15'5"  
15'4"  
15'3"  
15'  
14'11"  
14'10"  
14'9"  
14'6"  
14'3 $\frac{1}{2}$ "

14' top of 2" casing  
19'  
16'4"  
16'2"  
16'  
15'10"  
15'9"  
15'8"  
15'7"  
15'6"  
15'5"  
15'4"  
15'3"  
15'2"  
15'1"  
15'  
14'11"  
14'10"  
14'9"  
14'6"  
14'3 $\frac{1}{2}$ "

6/60

18 Oct 81  
Date

# RECEIPT

Division of Water Rights

South Dakota Department of Water and Natural Resources

412690

Pierre, May 29, 19 91

RECEIVED OF City of Sioux Falls, 600 East 7th St., Sioux Falls, SD 57102-0496  
the following amount in fees for services rendered as provided for by law:

|                                                                                                                              |       |
|------------------------------------------------------------------------------------------------------------------------------|-------|
| Fee for Application for Permit No. <u>5556-3</u> to Appropriate Water, to construct works and to put water to beneficial use | 27500 |
| Fee for Application for Permit No. _____ to Appropriate Water for Future Use                                                 |       |
| Fee to retain Future Use Permit No. _____ after period of seven years.                                                       |       |
| Fee for Inspecting Constructed Works, confirming beneficial use and issuing Water License No. _____                          |       |
| Fee for Filing Transfer Form _____                                                                                           |       |
| Fee for Filing Extension Request _____                                                                                       |       |
| Fee for Certified Copy of _____                                                                                              |       |
| Fee for Print Copy of Map _____                                                                                              |       |
| Fee for Certifying _____                                                                                                     |       |
| Fee for _____                                                                                                                |       |
| (Any Other Work Provided by Law)                                                                                             |       |
| Total                                                                                                                        | 27500 |

Department of Agriculture  
WI#1  
5/87

SOIL/WATER COMPATIBILITY PERMIT  
Division of Conservation



Office Use Only

4598

WR#

OWNERS NAME: CITY OF SIOUX FALLS-ELMWOOD GOLF COURSE OWNERS ADDRESS: 500 E 7TH STREET

SIOUX FALLS, SD 57102

COUNTY LAND LOCATED IN: MINNEHARA PHONE: 339-7060

LEGAL DESCRIPTION:

(3) ☒ Well ☐ Surface

1. LOCATION: WELL #1: NE $\frac{1}{4}$  NW $\frac{1}{4}$  7-T101N-R49W; WELL #2: NW $\frac{1}{4}$  NE $\frac{1}{4}$  7-T101N-R49W;

Depth: WELL #3: SE $\frac{1}{4}$  NE $\frac{1}{4}$  7-T101N-R49W

| Legal Description                              | Acres | Legal Description                              | Acres |
|------------------------------------------------|-------|------------------------------------------------|-------|
| NE $\frac{1}{4}$ NW $\frac{1}{4}$ 7-T101N-R49W | 23    | SE $\frac{1}{4}$ SW $\frac{1}{4}$ 6-T101N-R49W | 6     |
| SE $\frac{1}{4}$ NW $\frac{1}{4}$ 7-T101N-R49W | 28    | NE $\frac{1}{4}$ NE $\frac{1}{4}$ 7-T101N-R49W | 11    |
| NE $\frac{1}{4}$ SW $\frac{1}{4}$ 7-T101N-R49W | 2     | SE $\frac{1}{4}$ NE $\frac{1}{4}$ 7-T101N-R49W | 32    |
| NW $\frac{1}{4}$ NE $\frac{1}{4}$ 7-T101N-R49W | 39    | NW $\frac{1}{4}$ SE $\frac{1}{4}$ 7-T101N-R49W | 10    |
| SW $\frac{1}{4}$ NE $\frac{1}{4}$ 7-T101N-R49W | 38    | NE $\frac{1}{4}$ SE $\frac{1}{4}$ 7-T101N-R49W | 5     |
| NW $\frac{1}{4}$ SE $\frac{1}{4}$ 6-T101N-R49W | 5     | NW $\frac{1}{4}$ NW $\frac{1}{4}$ 8-T101N-R49W | 4     |
| SW $\frac{1}{4}$ SE $\frac{1}{4}$ 6-T101N-R49W | 32    | SW $\frac{1}{4}$ NW $\frac{1}{4}$ 8-T101N-R49W | 3     |
|                                                |       | NW $\frac{1}{4}$ SW $\frac{1}{4}$ 8-T101N-R49W | 2     |

TOTAL ACRES = 240

2. TYPE OF IRRIGATION: GRAVITY: \_\_\_\_\_ TOWLINE: \_\_\_\_\_ CENTER PIVOT: \_\_\_\_\_ GUN: \_\_\_\_\_ OTHER: AUTOMATIC  
(Specify) POP-UP

3. CROPS TO BE IRRIGATED: GOLF COURSE TURF

WATER QUALITY:

4. WATER SAMPLE NUMBER: \_\_\_\_\_ 7. ADJUSTED (SAR): 2.03  
5. SALINITY (EC X 10<sup>6</sup>): 1316 8. PERCENT SODIUM: 10.84  
6. SODIUM (SAR): 0.70

Requirements:

The water management shall be such that it does not result in the raising of the water table, ponding or excess wetness. On the long term, a form of artificial drainage may be deemed necessary; i.e., tile drainage.

A buffer strip of permanent vegetation, which is not irrigated shall be maintained along the Big Sioux River.

Please be advised, we do not consider the Swampbuster or Wetland provisions in developing our recommendation. Before undertaking any drainage project, contact your local SCS Office.

Director, Division of Conservation

APRIL 18, 1991

Date

XXX APPROVED

       DISAPPROVED

       WAIVER

XXX REQUIREMENTS

Soil/water permits will be recorded by the Department of Agriculture, with the County Register of Deeds.



February 11, 1991

## DEPARTMENT OF WATER & NATURAL RESOURCES

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

Denny Doorn  
Parks & Recreation Dept.  
600 E 7th Street  
Sioux Falls SD 57103

Dear Mr. Doorn:

This letter is in response to our meeting on January 15, 1991, regarding water permits/rights held by your Department.

I have reviewed our files and can not locate any water rights other than No. 4232-3 (copy enclosed) for irrigation of the Elmwood Golf Course. Currently, Water Right No. 4232-3 allows irrigation of 50 acres located in the E1/2 NE1/4, SW1/4 NE1/4 from a well in the NE1/4; all in section 7-T101N-R49W. Any acreage irrigated from the well in the NE1/4 NW1/4 section 7 or acreage in addition to the 50 permitted acres irrigated from the permitted well will need to be covered by an additional permit. Enclosed is a water permit application.

A map is also enclosed outlining in red the area of the golf course and listing the acreage by 40 acre subdivisions. The actual number of acres to which water is physically applied is likely less than the total acreage outlined on the enclosed map. Listed below is the mapped acreage: all in T101N-R49W

|                   |          |                   |         |
|-------------------|----------|-------------------|---------|
| NE1/4 NW1/4 sec 7 | 25 acres | NW1/4 SE1/4 sec 6 | 6 acres |
| SE1/4 NW1/4 sec 7 | 30       | SW1/4 SE1/4 sec 6 | 34      |
| NE1/4 SW1/4 sec 7 | 4        | SE1/4 SW1/4 sec 6 | 6       |
| NW1/4 NE1/4 sec 7 | 40       | NW1/4 NW1/4 sec 8 | 5       |
| NE1/4 NE1/4 sec 7 | 14       | SW1/4 NW1/4 sec 8 | 3       |
| SW1/4 NE1/4 sec 7 | 40       | NW1/4 SW1/4 sec 8 | 2       |
| SE1/4 NE1/4 sec 7 | 35       |                   |         |
| NW1/4 SE1/4 sec 7 | 13       |                   |         |
| NE1/4 SE1/4 sec 7 | 7        |                   |         |

Total acreage - 264 acres

The new application needs to match the irrigated acreage to the specific well used to irrigate that acreage (a separate sheet of paper may be used if necessary). The maximum sustained pump capacity of each well should also be included on the permit application.

(continued)

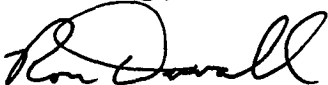
February 11, 1991  
Denny Doorn  
Page 2 of 2

I have reviewed the irrigation questionnaires from 1978 to the present for Water Right No. 218-3 for the property formerly owned by Mr. Reardon. The questionnaires indicate that the property has not been irrigated from the Big Sioux River. You also indicated, with the understanding that no water has been available during the last three years, that no irrigation has occurred while the city has owned the property. If the last three years are excluded due to lack of water availability, water still has not been put to beneficial use for at least 10 years. Based on this, it appears Water Right No. 218-3 has been either forfeited due to nonuse or abandoned and needs to be scheduled for a hearing to have the Water Management Board consider cancelling the water right. If you have additional information regarding water use under No. 218-3, please contact me. Notice will be given of the time and place of hearing.

I also need a clarification regarding the correct location of the well use for irrigating the Kuehn Park Golf Course. I believe the correct location is 200 feet east and 60 feet south of the NE corner of section 26-T101N-R50W (map enclosed); however, water license No. 4231-3 locates the well 200 feet west of the NE corner rather than 200 feet east. Please inform me of the correct location and I will correct the water license, if necessary.

Thank you for your assistance during our meeting and if you have any questions about this letter or completing an application please contact me.

Sincerely,



Ron Duvall  
Natural Resources Engineer  
605 773-3352

enc.



PARKS & RECREATION DEPARTMENT  
600 East 7th Street  
Sioux Falls, SD 57102-0496  
Phone/TDD (605) 339-7060  
Fax (605) 335-4326

March 18, 1991



Mr. Ron Duvall  
Natural Resources Engineer  
Water Rights Division  
Department of Water and Natural Resources  
Joe Foss Building  
Pierre, SD 57501

Dear Mr. Duvall:

Enclosed is a water permit application for Elmwood Golf Course here in Sioux Falls. The application covers two existing old wells at Elmwood Golf Course. These wells are similar to the other existing well covered under Permit No. 4232-3. The water is taken from the same aquifer, and I have included a copy of the water sample report for the permitted well. I have also enclosed as much information concerning a well log for the two wells as I could find in our files.

Regarding the filing fee, I have issued purchase order No. 100414 for the \$250 fee that is required. Please submit an invoice or letter of billing to us so that we can process the check to you.

I hope I have included all the necessary information. If you have any questions, please feel free to contact me.

Sincerely,

Larry Weires  
Park Development Specialist

Enclosure



DEPARTMENT OF WATER & NATURAL RESOURCES  
Joe Foss Building  
523 East Capitol  
Pierre, South Dakota 57501-3181

\*\*\*\*\*  
\* INVOICE \*  
\*\*\*\*\*

March 26, 1991

Invoice No. 20411

City of Sioux Falls  
Parks and Recreation Dept.  
600 E 7th Street  
Sioux Falls SD 57102

Your purchase order No. 100414

---

|                                             | Fee                                  |
|---------------------------------------------|--------------------------------------|
| Application for Permit to Appropriate Water | \$250.00 for 179 acres               |
| for irrigation of Elmwood Golf Course       | or                                   |
| (Fee dependent on acreage)                  | \$275.00 for 181 ac up to<br>240 ac. |

---

Please pay either \$250.00 or \$275.00 depending on the number acres to be irrigated. A fee schedule is attached.

  
KAREN SCHLAACK  
Natural Resources Analyst  
Water Rights Division  
605 773-3352



## DEPARTMENT OF WATER & NATURAL RESOURCES

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

March 26, 1991

Denny Doorn  
Parks & Recreation Department  
600 E 7th Street  
Sioux Falls SD 57103

Dear Mr. Doorn:

This letter is in response to the permit application for the Elmwood Golf Course received on March 21, 1991. The following information is needed to complete the permit application:

- 1) This application needs to include all of the acreage being irrigated that is not covered by Water Right No. 4232-3. According to our conversation in January 1991, well No. 3 is used for irrigation of 50 acres described on No. 4232-3 (E1/2 NE1/4, SW1/4 NE1/4 section 7). In addition, the acreage in section 8 (NW1/4 NW1/4 - 5 ac, SW1/4 NW1/4 - 3 ac, NW1/4 SW1/4 - 2 ac) is also being irrigated from well No. 3 but is not covered by No. 4232-3. I have also noted that the acreage located in section 7 (NW1/4 SE1/4 - 13 ac, NE1/4 SE1/4 - 7 ac) is not included on this application and is not covered by No. 4232-3.

The areas listed in section 8 and the N1/2 SE1/4 section 7 need to be included on the permit application if these areas are irrigated. Well No. 3 should also be included on the application if the areas to be added to the application are irrigated from well No. 3. Please identify what additions are needed, if any, and the additions will be made to the permit application with your permission.

- 2) A diversion rate of approximately 1.1 cfs (495 gpm) is included on the permit application. Please explain if this pump rate represents the combined pumping capacity of well Nos. 1 and 2 or for all 3 wells. Water Right No. 4232-3 currently allows a diversion rate of 0.71 cfs (320 gpm) from well No. 3.
- 3) Enclosed is the map submitted with the permit application. The map needs to be signed by one of the following persons: 1) A SD registered professional engineer, 2) A SD licensed land surveyor, or 3) A government employee who regularly prepares maps as part of his or her employment.

(continued)

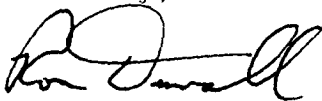
March 26, 1991  
Denny Doorn  
Page 2

- 4) If additional acreage needs to be added, the application fee will go up another \$25.00 assuming the total area does not exceed 240 acres. The enclosed invoice identifies the fee as being either \$250.00 or \$275.00 depending on the total acreage.

The water permit application can not be processed until the application is complete. Please complete the above items and return the signed map to the Water Rights Division.

Please contact me if you have any questions.

Sincerely,



Ron Duvall  
Natural Resources Engineer  
605 773-3352

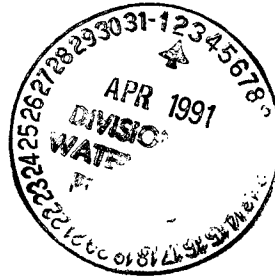
enc.



PARKS & RECREATION DEPARTMENT  
600 East 7th Street  
Sioux Falls, SD 57102-0496  
Phone/TDD (605) 339-7060  
Fax (605) 335-4326

March 29, 1991

Mr. Ron Duvall  
Natural Resource Engineer  
Department of Water  
and Natural Resources  
Joe Foss Building  
523 East Capitol  
Pierre, SD 57501-3181



Dear Mr. Duvall:

This letter is in response to your letter of March 26, 1991, regarding the permit application for the Elmwood Golf Course. You had requested additional information regarding the permit, and I would like to offer the following:

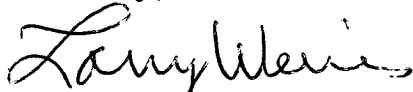
1. The question regarding the acreage being irrigated by the two wells is difficult to compute. Technically, all three of the wells at the Elmwood Golf Course are used jointly to irrigate the entire golf course. The wells are connected together through their piping and do not operate independently. Water that is pumped by Well No. 3 could actually flow to the far north side of the course and irrigate that area, and vice versa with Wells No. 1 and 2. There is no way to determine where the water is going from each of the wells other than it is being used to irrigate the golf course. In computing the acreage, I simply tried to divide the course evenly amongst three wells. Obviously, this is not totally accurate, but I have no other way of explaining this. I would say that the total acreage of 264 acres at Elmwood Golf Course is irrigated by the three wells, and in fact, all of those acres are not actually irrigated because some of it is occupied by clubhouse, parking lots, roads, shop area, and areas not irrigated. I would estimate the irrigated acreage at 229 acres. Please adjust our application to reflect the uses of the wells as I have indicated.
2. The diversion rate of approximately 1.1 cfs (495 gallons per minute) is incorrect. The actual rate should be 1.42 cfs or 640 gallons per minute. This would be for both Wells No. 1 and 2, but would not include Well No. 3. Wells No. 1 and No. 2 produce approximately 325 gallons per minute each. Please change our application to reflect the correct figure.

Mr. Ron Duval  
Page 2  
March 29, 1991

3. I have enclosed a map that has been signed by a city engineer that shows the location of our wells.

I hope this provides you with the information that you need. If you have questions, please contact me.

Sincerely,



Larry Weires  
Park Development Specialist

Enclosure

RECOMMENDATION OF CHIEF ENGINEER FOR WATER PERMIT  
APPLICATION NO. 5556-3, Elmwood Golf Course - City of Sioux Falls

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. 5556-3, Elmwood Golf Course - City of Sioux Falls, 6000 East 7th Street, Sioux Falls, SD 57102.

The Chief Engineer is recommending DEFERRAL of Application No. 5556-3 to allow additional time to review the application.

See report on application for additional information.

JOHN HATCH, Chief Engineer  
May 18, 1991

1

WATER PERMIT APPLICATION NO. 5556-3  
ELMWOOD GOLF COURSE - CITY OF SIOUX FALLS  
AUGUST 19, 1991

Application No. 5556-3 proposes appropriation of 1.42 cubic feet of water per second (cfs) from 2 existing wells (well Nos. 1 & 2) to irrigate the Elmwood Golf Course. Three wells are currently used to irrigate 240 acres of the golf course, although Water Permit No. 4232-3 only authorizes the diversion of 0.71 cfs from 1 well (well No. 3) to irrigate 50 acres of the golf course. This application does not propose an increase of the diversion rate specified by Permit No. 4232-3 for well No. 3, (0.71 cfs). The wells are located in the NE 1/4 NW 1/4 (No. 1), NW 1/4 NE 1/4 (No. 2), SE 1/4 NE 1/4 (No. 3) Sec. 7, and the 240 irrigated acres are located in the E 1/2 NW 1/4, NE 1/4 SW 1/4, NE 1/4, N 1/2 SE 1/4 Sec. 7; W 1/2 SE 1/4, SE 1/4 SW 1/4 Sec. 6; W 1/2 NW 1/4, NW 1/4 SW 1/4 Sec. 8; all in T101N-R49W

**AQUIFER:** Big Sioux: Sioux Falls

**AQUIFER CHARACTERISTICS:**

The Sioux Falls Management Unit of the Big Sioux Aquifer is an alluvium mantled, glacial outwash deposit, which consists of silt, fine to coarse sand, and gravel. The management unit underlies approximately 22,900 acres in Minnehaha County and contains an estimated 103,050 acre-feet of recoverable water in storage in the county (Hedges, 1982). The aquifer is restricted to the Big Sioux Alluvial Valley, and is bounded both to the north (near Dell Rapids) and on the south (Sioux Falls) by the relatively impermeable Sioux Quartzite. The aquifer thickness ranges from 0 at the aquifer boundary to a maximum of approximately 48 feet. The aquifer is predominately under unconfined conditions.

The Division of Water Rights monitors 14 observation wells completed into the Sioux Falls Management Unit. Hydrographs of the wells are included in this report (figures 1-14). The hydrographs show that the highest annual water level generally occurs around April-June, and the lowest annual water level generally occurs around August-October. The decline of water levels during the summer months is due to increased evapotranspiration, reduced recharge, and pumpage. Water levels rise during the late winter and spring due to recharge, if available. The observation well hydrographs show the water level of the aquifer fluctuates rapidly in response to recharge. The response to withdrawals is less obvious and tends to be represented by a slow gradual decline. Hydrographs also show the unusually high annual precipitation (recharge) in 1985-1987 where groundwater levels were above the norm. It is not possible to distinguish between natural water level fluctuations and the effects of pumping from the hydrographs. Measurements taken from Division of Water Rights' Observation Wells indicate that long-term water level declines have not occurred in the Sioux Falls Management Unit.

**DISCUSSION:**

SDCL 46-2A-9 requires that a permit to appropriate water may only be issued if there is reasonable probability that there is unappropriated

water available for the applicant's proposed use, that the proposed diversion can be developed without unlawful impairment of existing rights, and that the proposed use is a beneficial use and in the public interest.

The availability of unappropriated water can be evaluated in part by considering SDCL 46-6-3.1, which requires that an application to appropriate groundwater can not be approved if, according to the best information reasonably available, it is probable that the quantity of water withdrawn annually from a groundwater source will exceed the quantity of average estimated annual recharge.

#### **Recharge:**

Recharge to the Sioux Falls Management Unit occurs primarily through infiltration of precipitation, and streamflow losses. Calculated estimates of average annual recharge to the Sioux Falls Management Unit include:

| METHOD OF ANALYSIS  | INVESTIGATOR  | AVE. RECHARGE   |
|---------------------|---------------|-----------------|
| Base flow recession | Hedges (1983) | 12,404 ac-ft/yr |
| Observation well    | Hedges (1983) | 10,686 ac-f/yr  |
| Flow net            | Hedges (1983) | 1,908 ac-ft/yr  |
| Computer model      | Koch (1982)   | 13,200 ac-ft/yr |

#### **Withdrawal:**

Withdrawals from the aquifer occur through evapotranspiration, discharge to the Big Sioux River, possibly through leakage to underlying aquifers, and pumpage. The majority of pumpage from the aquifer is for appropriative uses.

#### **Appropriations:**

Currently there are 75 Water Permits/Rights appropriating water from the Sioux Falls Management Unit. Permits issued from the aquifer include 51 municipal permits, 11 irrigation permits, 5 rural water system permits, 1 suburban housing permit, 6 commercial and industrial permits, and 3 future use permits. Appropriative rights from the Sioux Falls Management Unit of the Big Sioux Aquifer represent a total combined diversion rate of 148.02 cubic feet of water per second (cfs). Non-irrigation permits/rights appropriate up to 79,093 ac-ft/yr from the aquifer assuming full time pumping at permitted diversion rate, (which will probably never occur). Irrigation permits/rights authorize the irrigation of 1814.70 acres and appropriate 5194.10 ac-ft/yr from the Sioux Falls Management Unit, assuming full utilization of the volume authorized by each permit (2 ac-ft/yr for permits approved after June 31, 1978, and 3 ac-ft/yr for prior permits), (again, this will probably never occur). Future use permits reserve 5,097 ac-ft/yr from the Sioux Falls management unit. The total appropriation from the aquifer is 89,384.10 acre-feet/year.

The total appropriation from the aquifer may be adjusted by pending Water Management Board actions. The Board will consider the cancellation of seven permits which represent appropriations from the Sioux Falls Management Unit totaling 8.48 cfs, (6,140 ac-ft/yr, assuming full time pumping at the authorized diversion rate). The

amount of water remaining in Future Use Permit No. 448-3 may also require further Board review. When Future Use permit No. 448-3, was reviewed by the Water Management Board on December 5, 1990, and the amount of water remaining reserved was determined to be 3,597 ac-ft/yr. It appears that Permit No. 397-3 and Permit No. 1579-3 were erroneously deducted from the future use reservation. The actual amount remaining in future use permit No. 448-3 should be 5,265 ac-ft/yr, rather than 3597 ac-ft/yr. Total appropriations from the Sioux Falls Management Unit of the Big Sioux Aquifer, reflecting adjustments to the future permit and cancellations would then be 84,912.10 ac-ft/yr.

At the time this report was prepared, three applications dealing with the Sioux Falls Management Unit were pending Water Management Board action. The City of Sioux Falls has made an application to appropriate 720 ac-ft/yr at a diversion rate of 1.34 cfs (No.5521-3); an application to reserve for future use 10,000 ac-ft/yr, (No.5523-3); and an application to place to beneficial use 480 ac-ft/yr that is reserved by Future Use Permit No. 448-3, at a diversion rate of 0.78 cfs, (No.5533-3). The total appropriation from the aquifer assuming Board approval of these permits would be 95,632.10 ac-ft/yr, (note: Permit No.5533-3 does not affect total appropriation since it is from future use).

#### **Pumpage:**

The Sioux Falls Management Unit is heavily appropriated, however, historically, the average annual use has been less than 15% of the appropriation. Average annual pumpage from the Sioux Falls Management Unit was estimated in 1983 to be 17,370 acre-feet per year (Hedges, 1983). The average daily use from the aquifer was estimated in 1989 to be 20.0 MGD (22,627 ac-ft/yr), (Barari, 1989).

Reported withdrawals from the Sioux Falls Management Unit for 1990 include:

|                           |                                       |
|---------------------------|---------------------------------------|
| City of Sioux Falls:      | 17,788 ac-ft (DeJong, pers. com 1991) |
| Minnehaha Com Water Corp: | 1,253 ac-ft (Hall, pers. com. 1991)   |
| Irrigation:               | 473 ac-ft (Water Rights, 1991)        |

The total withdrawal for these three uses equals 19,514 ac-ft. The City of Sioux Falls has recently increased development of the Big Sioux River to meet more of their demands, therefore, during a "normal" year groundwater diversions are expected to be less than the 1990 pumpage.

#### **Hydrologic Budget:**

A general equation of the hydrologic budget for an aquifer can be written:

$$\text{Recharge} - \text{Withdrawal} = \text{Change in Storage}$$

The best information (numbers) available indicate that the quantity of water withdrawn annually from the Sioux Falls Management Unit exceeds the calculated average estimated annual recharge. Estimated average annual recharge and pumpage values inserted into the hydrologic budget

estimate an average annual loss from storage of at least 4,000 ac-ft/yr (4% of the water in storage).

A sustained downward trend in the water level of the aquifer has not been observed in Division of Water Rights Observation Wells. Therefore, the physical evidence (water level readings) does not support the estimates. One reason for this is that the recharge estimates of the aquifer are based essentially on historic data, and can be considered average annual "natural" recharge. Under natural conditions, recharge occurs primarily infiltration of precipitation.

The dynamic equilibrium of the Sioux Falls Management Unit that is evident from water level measurements, reflects the excellent hydraulic connection that exists between the Big Sioux River and the Big Sioux Aquifer. The river acts as both a gaining stream and a losing stream depending on the hydraulic gradient between the aquifer and the river. When the water levels of the aquifer are higher than the stage of the river, groundwater is released from storage from the aquifer to the river. The river recharges the aquifer when water levels in the aquifer are below the river stage. Under "natural" conditions, the Big Sioux River is a gaining stream, and discharge from the aquifer to the river would actually account for a major portion of the total withdrawals from the aquifer. Development of the aquifer has created conditions in which on an annual basis, the river contributes more recharge to the aquifer than the aquifer discharges to the river. The difference between annual "natural" recharge and annual water use is balanced by induced recharge from the Big Sioux River.

The amount of recharge induced from the river to the aquifer, is governed by the hydraulic gradient between the river and the aquifer, the streambed infiltration rate, thickness of the streambed sediments, the transmissivity of aquifer, and flows available in the river. Of the variables effecting the amount of recharge that can be induced from the river, the flows available in the river are the most critical.

At the Sioux Falls Cliff Avenue gaging station the average discharge of the Big Sioux River is 523 cfs (378,000 ac-ft/yr), the median of yearly mean discharges over the 18 year period of record is 313 cfs (227,000 ac-ft/yr), (Burr, 1990), (see figure 15). Although this gage includes urban runoff and contributions from Skunk Creek (averages 69.2 cfs ave), (see figure 16), it is still apparent that flows are available in the Big Sioux River to contribute additional recharge water for the aquifer.

Although water is available in the Big Sioux River, under "natural" conditions, the aquifer rejects potential recharge due to insufficient storage space. Development of the aquifer has increased the frequency in which sufficient storage space is available when water is available for induced recharge. In other words the more the aquifer is developed, the greater the likelihood that storage space is available when recharge is available. At the current level of development, average annual "induced" recharge is estimated to be between 4,000

ac-ft/yr and 9,300 ac-ft/yr depending on the estimates used for average annual use and average annual "natural" recharge.

#### Groundwater Flow Model:

As the water levels in the aquifer are lowered below "natural" levels, induced recharge is increased. A numerical (computer simulated) ground-water flow model was developed for the Sioux Falls Management Unit, to be used as a management tool, including estimating the potential induced recharge maximum. The model predicts the hydraulic effects of selected stresses applied to the hydrologic system. There are certain limitations inherent to the model, however, owing to approximations of hydrologic and geologic data. Four scenarios presented by Koch, (1982) demonstrate the relationship between recharge and withdrawal from the aquifer. Three scenarios represent simulations made under "normal" hydrologic conditions, these are listed below.

| SCENARIO             | PRECIP<br>RECHARGE | RIVER<br>RECHARGE<br>(in ac-ft/yr) | DISCHARGE<br>TO RIVER | ET    | USE    |
|----------------------|--------------------|------------------------------------|-----------------------|-------|--------|
| 1. Pre-Development   | 11,600             | 1,400                              | 11,700                | 1,300 | 0      |
| 2. Equilibrium       | 11,600             | 10,400                             | 7,800                 | 600   | 13,700 |
| 3. Increased Pumping | 11,600             | 23,700                             | 2,830                 | 310   | 32,200 |

It can be seen that under "normal" hydrologic conditions, increased pumping decreases the water level of the aquifer thus decreasing evapotranspiration losses, and discharge to the river, and increasing induced recharge from the river.

Koch's fourth scenario modeled a hypothetical hydrologic situation with pumping increased to a rate of 32,200 acre-ft/yr under drier conditions than occurred during 1976. The simulation revealed that with no aquifer recharge, and a dry river, the pumping rate had to be decreased after three months. A pumping rate of 25 MGD from wells throughout the entire aquifer could be sustained for 248 days and a pumping rate of 24 MGD could be sustained for 279 days (Koch, 1983).

The record low-flow rate, (35 years of record), in the river occurred for 270 days from June, 1976 to March, 1977. During this low-flow period, there was a period of 54 consecutive days of zero streamflow in the summer of 1976. It is estimated that this 1976-1977 drought was a 100 year or greater low-flow condition (Koch, 1983).

The amount of water that is available for appropriation from the Sioux Falls Management Unit is the amount that can be withdrawn for an infinite period of years with normal river stage and average precipitation conditions, that causes no net change in storage (decline of water levels). Koch's model quantifies this as approximately 32,200 ac-ft/yr.

It is possible to put to beneficial use the entire amount of water that is appropriated by a future use permit. Depending upon the Board's action on pending applications, likely pumpage from the

aquifer (current estimated average annual pumpage plus the reservation made by future use permits), may equal 32,200 ac-ft/yr.

#### Effects on Existing Rights:

An engineering study done for the city by HDR Engineering, Inc. (1990), estimates a safe sustainable yield from an extended city well field in the Sioux Falls Management Unit of 22 MGD (24,645 ac-ft/yr). The estimate is less than obtained by the USGS model mainly for two reasons; the HDR model does not include the entire management unit; and since the HDR study is more or less a plan for how the city will meet future needs, it is conservative rather than optimistic, (Dostol, pers. com. 1991). A transient state simulation done by HDR predicts 4 season equilibrium in the management unit with cyclic storage management, at an average daily pumping rate of 22 MGD. In cyclic storage the aquifer is mined in order to create storage space for additional induced recharge. Under "average normal conditions" the model predicts a 5,179 ac-ft gain in aquifer storage in the spring, a loss from storage in the summer of 703 ac-ft, a loss from storage during the fall of 1232 ac-ft, and a 3285 ac-ft loss from storage during the winter.

The major obstacle to development of the Sioux Falls Management Unit under the assumption that increased withdrawals from the aquifer will increase the recharge to the aquifer, is the dependence on water being available when aquifer storage is available. As with any aquifer or system, recharge may not be instantaneous to withdrawal, and water must be withdrawn from storage in the interim. The most sensitive periods of withdrawal were summer and winter of an given year. Fluctuations observed in Division of Water Rights observation wells, identify changes in storage of the aquifer of approximately 30% of the total storage capacity of the aquifer. Increased pumpage from the aquifer may lead to greater depletions from storage. Since the Sioux Falls Management Unit is relatively thin, a prolonged interim between withdrawal and recharge may lead to the lowering of the water level of the aquifer thus reducing needed water supplies to some existing wells.

In the past, the Water Management Board has qualified water permits to assure development without the unlawful impairment of existing rights. Qualifications for groundwater permits typically require the well owner to control withdrawals so there is not a reduction of needed water supplies in adequate wells. The average saturated thickness of the Sioux Falls Management Unit is estimated to be 22.5 feet based on Hedges', (1982) storage, areal extent, and specific yield estimates. A fairly large portion of the aquifer contains less than 20 feet of saturated thickness, and a number of wells completed into the aquifer are supplied by only a few feet of saturated thickness. If the thickness of the aquifer is less than 20 feet and the inlet of the pump can be placed as near the bottom of the aquifer as is practical, the wells would be adequate. If the aquifer thickness is greater than the thickness penetrated by the particular well, the wells may not be adequate. If the water level is lowered even a minor amount in an adequate well completed where the aquifer is thin, the water supply to that well may be reduced, and therefore, unlawfully impaired.

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 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. In either case mitigation may be necessary, if the pumping authorized by junior priority rights is to continue.

The excellent hydraulic connection that exists between the Big Sioux River and the Sioux Falls Management Unit necessitates the consideration of surface water rights supplied by the river. The Big Sioux River supports domestic users and 8 appropriative rights in this area. The Water Rights/Permits authorize diversion of 41.93 cfs. This includes Water Right No. 12-3, John Morrell & Co., for 2.20 cfs, to be used primarily non-consumptively, and Water Right No. 859-3 which authorizes storage of 192 ac-ft in Baltic Dam. It has been established that a discharge rate of 20 cfs at the Cliff Avenue Gauge is sufficient to support domestic and appropriative rights below the Sioux Falls Management Unit.

Steady state simulation of pumping 32,200 ac-ft/yr (optimistic safe sustainable yield estimate), under "normal" hydrologic conditions, predicts a net annual loss from the river to the aquifer of 20,870 ac-ft/yr, compared to 2,600 ac-ft/yr net loss under existing conditions (Koch, 1982). Although water availability may be restricted at times due to low or no flow occurrences, it is probable that the frequency of low or no flow occurrences will not increase due to this appropriation.

Permit qualifications such as requirements of spacing between wells and from the Big Sioux River, and a requirement to control individual pumping rates may be necessary on any permit to put water to use. However, any permit which would authorize withdrawal of water in excess of the current estimated average annual recharge may need to be qualified to assure that an excessive "overdraft" from aquifer storage does not impair prior water rights, including domestic wells.

#### CONCLUSIONS:

1. The Sioux Falls Management Unit of the Big Sioux Aquifer is fairly thin and underlies a relatively limited area.
2. The most optimistic estimate available for average annual "natural" recharge to the Sioux Falls Management Unit is 13,200 ac-ft/yr.
3. Pumpage from the Sioux Falls Management Unit during 1990 by the City of Sioux Falls, Minnehaha Community Water Corp., and irrigation permit holders was reported to be 19,514 ac-ft.
4. The average daily use from the aquifer has been estimated to be 20.0 MGD (22,627 ac-ft/yr).
5. The Division of Water Rights Observation Well measurements indicate that the present rate of development "induced recharge"

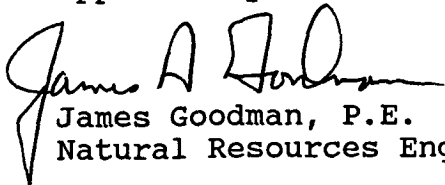
from the Big Sioux River offsets the difference between "natural recharge" and withdrawals.

6. Recharge available to the Sioux Falls Management Unit exceeds the current capacity of the aquifer to store the recharge.
7. The safe sustainable yield of the Sioux Falls Management Unit is the amount that can be withdrawn for an infinite period of years with normal river stage and average precipitation conditions, that causes no net change in storage.
8. Average annual recharge to the aquifer could be increased with increased withdrawal.
9. The most optimistic safe sustainable yield estimate available for the Sioux Falls Management Unit is 32,200 ac-ft/yr.
10. The appropriation made by future use permits can be completely developed.
11. Pumpage at the 1990 rate along with development of existing future use permits, would withdraw 26,279 ac-ft/yr. Sioux Falls Permit No. 5521-3 would appropriate an additional 720 ac-ft/yr, if approved.
12. Depending upon the Board's action on pending applications, likely pumpage from the aquifer (current estimated average annual pumpage plus the reservation made by future use permits), may equal 32,200 ac-ft/yr. There would be no additional water available for appropriation except for appropriations from existing future use allocations.



Ken Buhler  
Natural Resources Engineer

approved by



James Goodman, P.E.  
Natural Resources Engineer

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57501

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Ground-Water Resources Eastern South Dakota and Upper Big Sioux  
River, South Dakota and Iowa, U.S. Army Corps of Engineers

# MINNEHAHA COUNTY WELLS

MA-57D

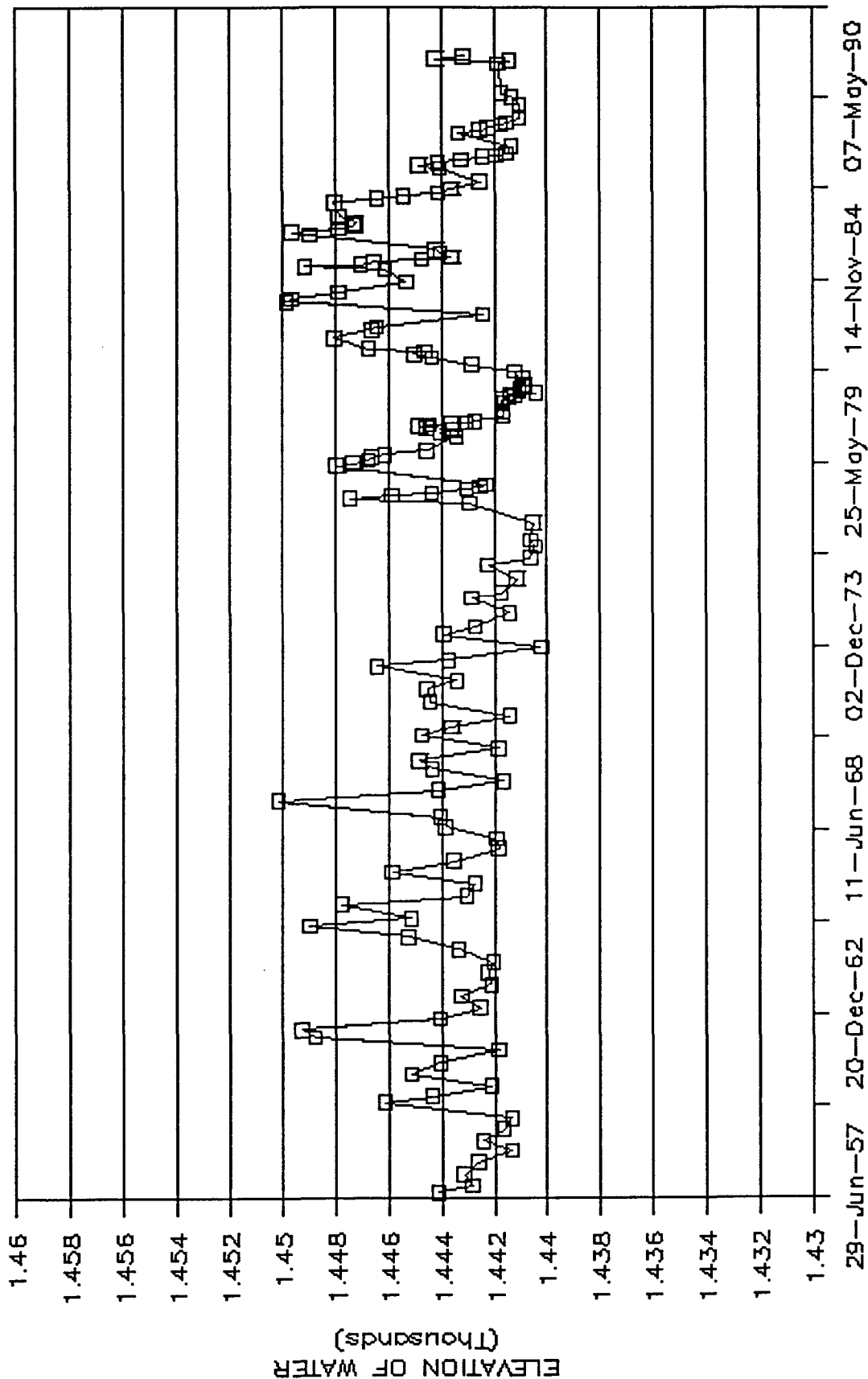


Figure 1

Figure 2

# MINNEHAHA COUNTY WELLS

MA57H

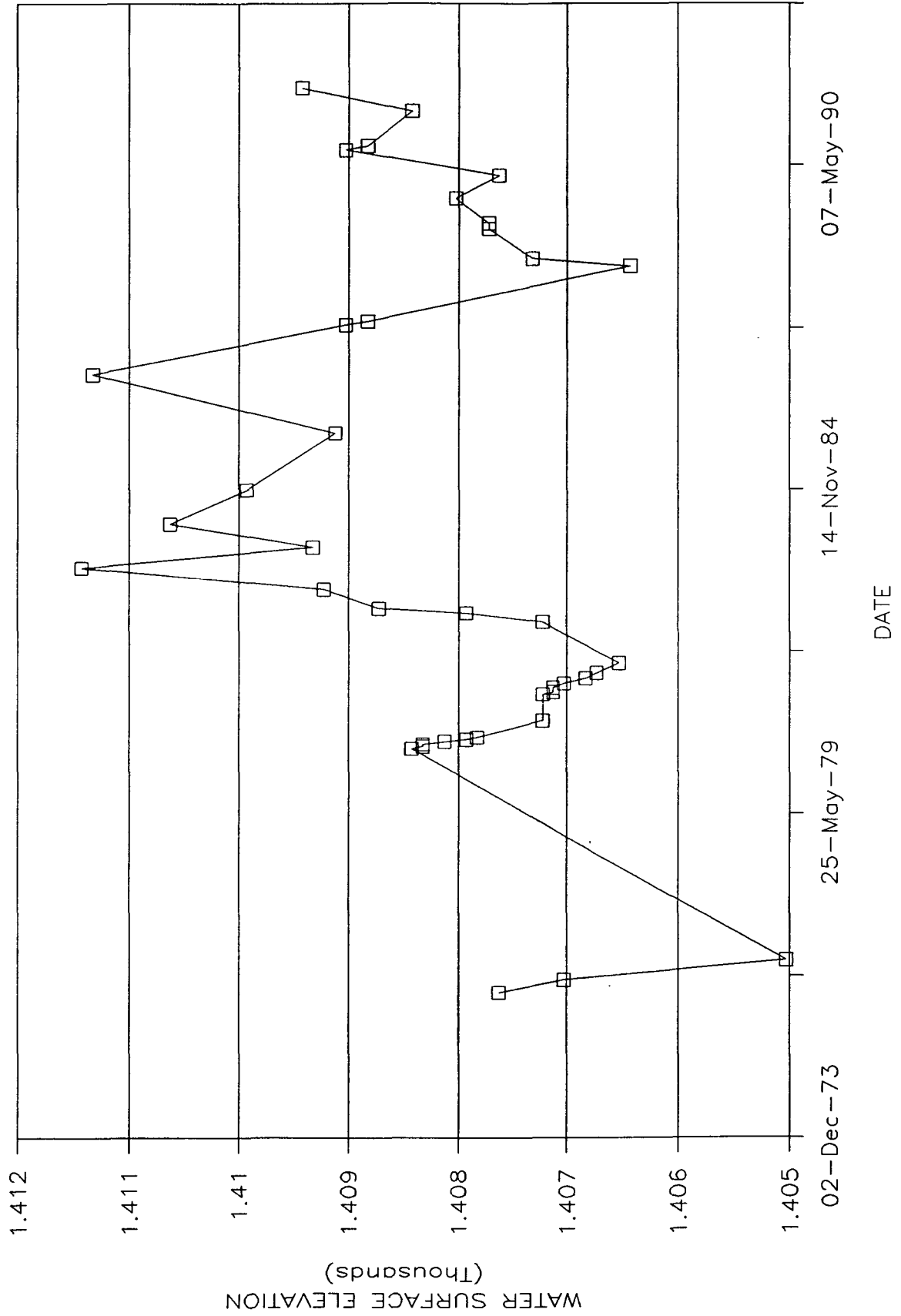


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# MINNEHAHA COUNTY

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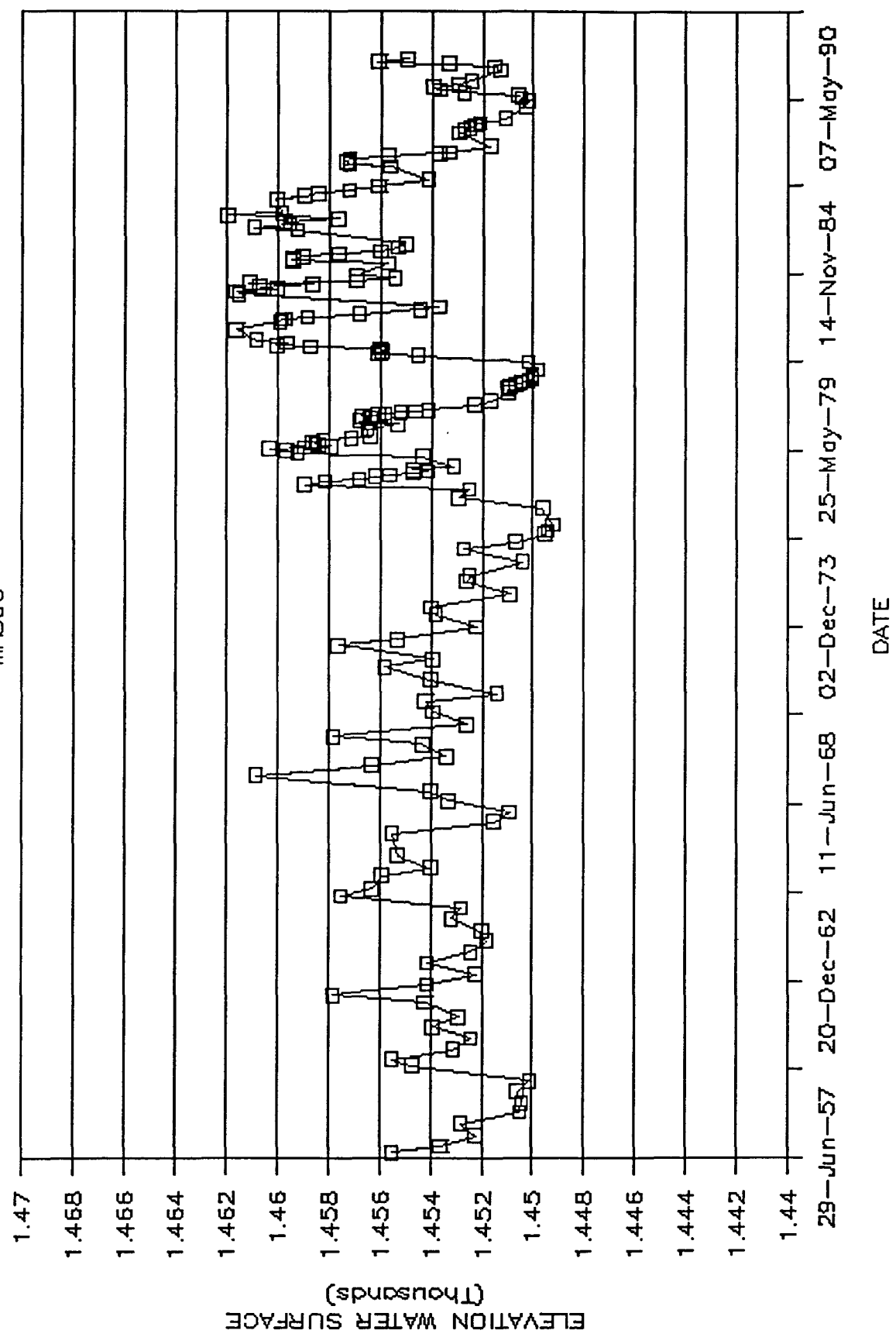


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# MINNEHAHA COUNTY

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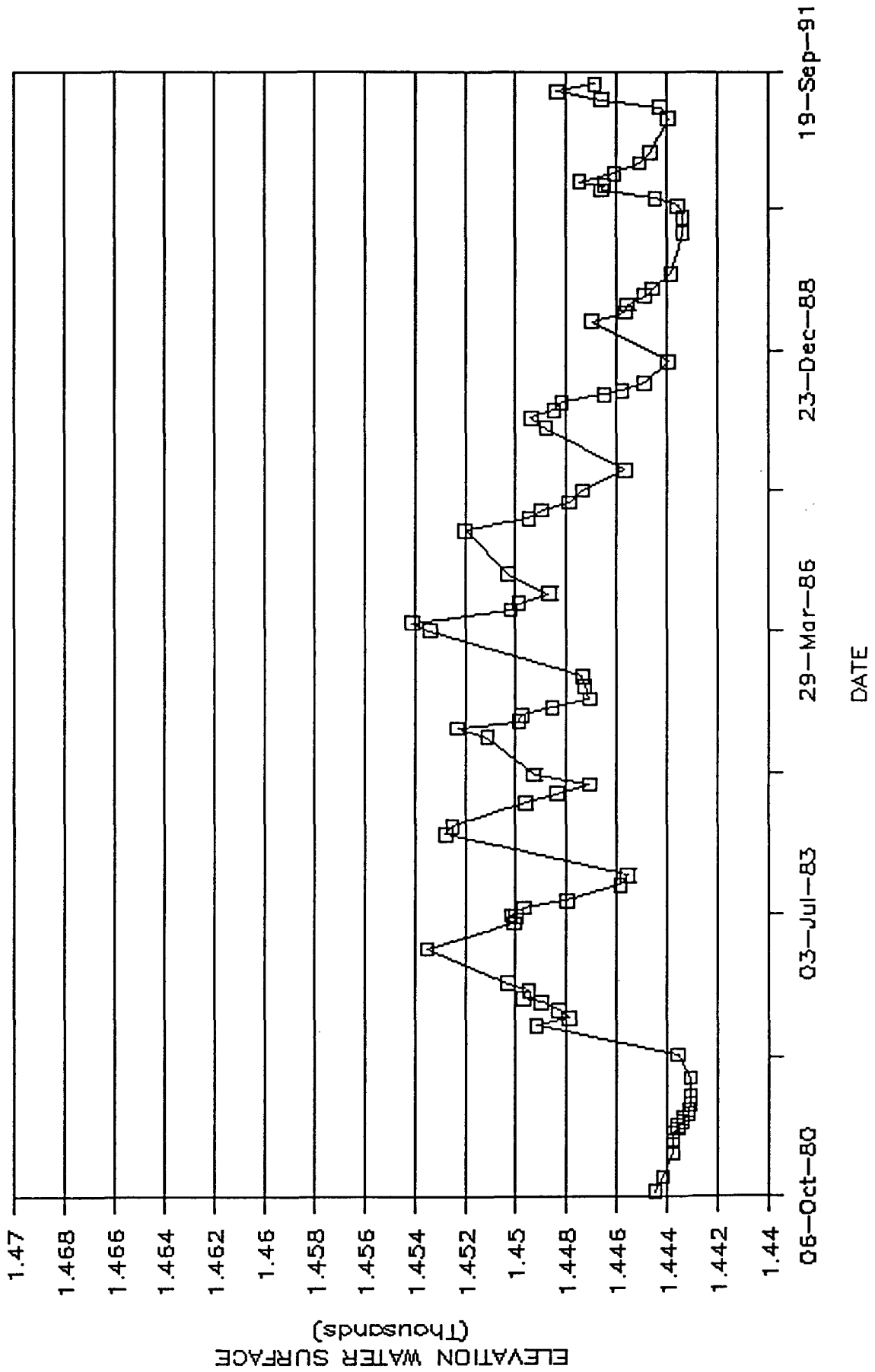
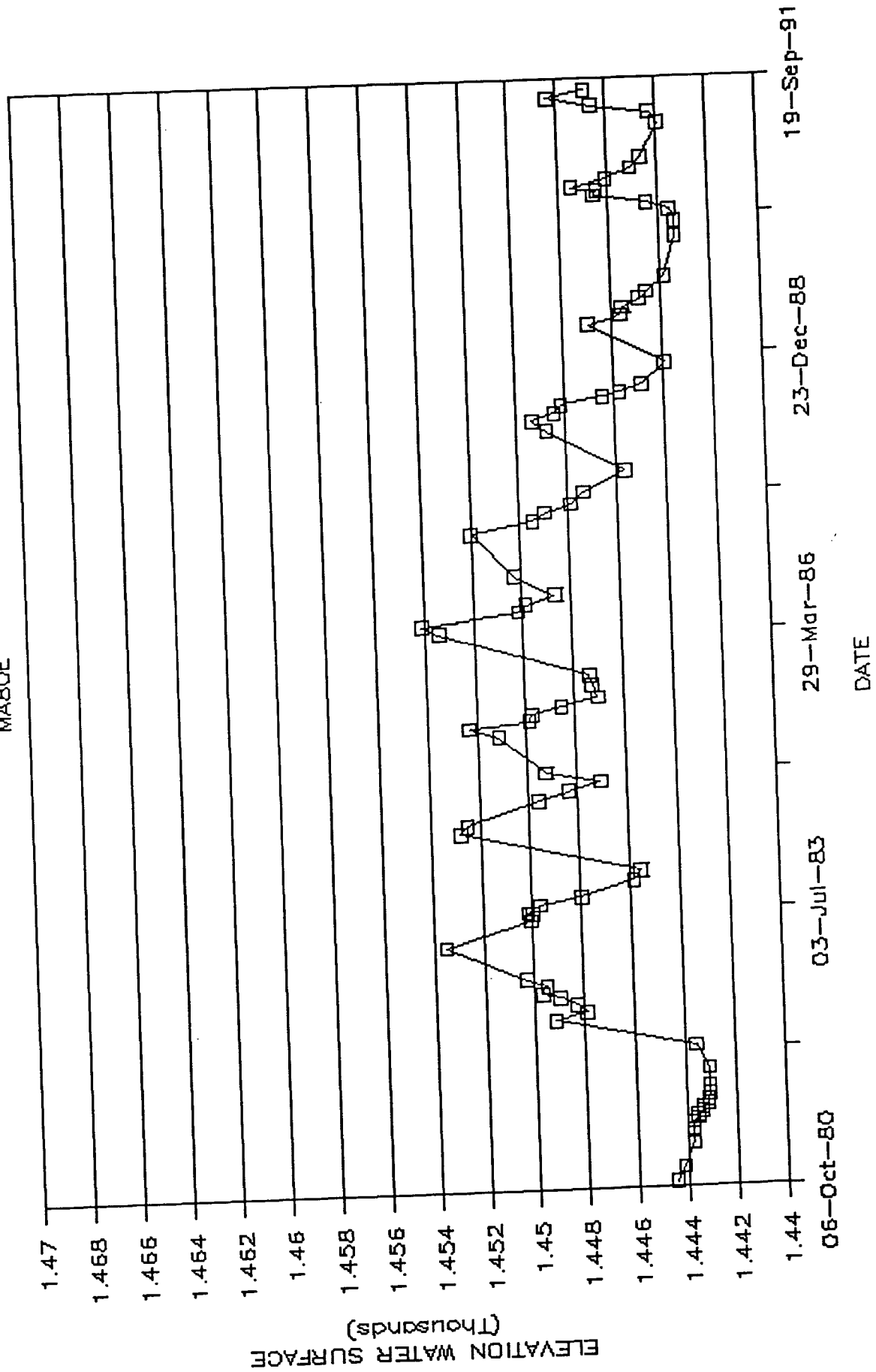


Figure 5

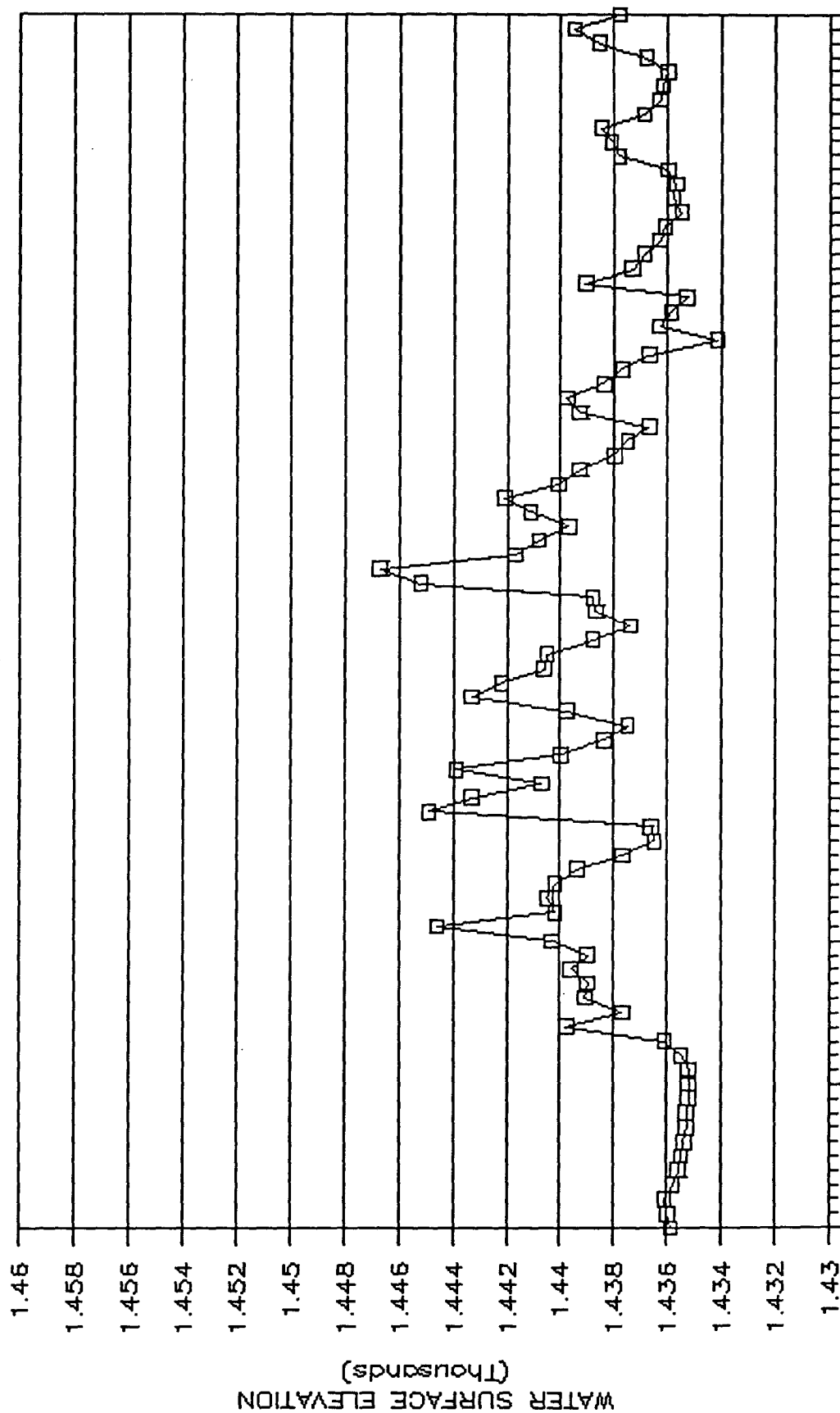
# MINNEHAHA COUNTY

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# MINNEHAHA COUNTY WELLS

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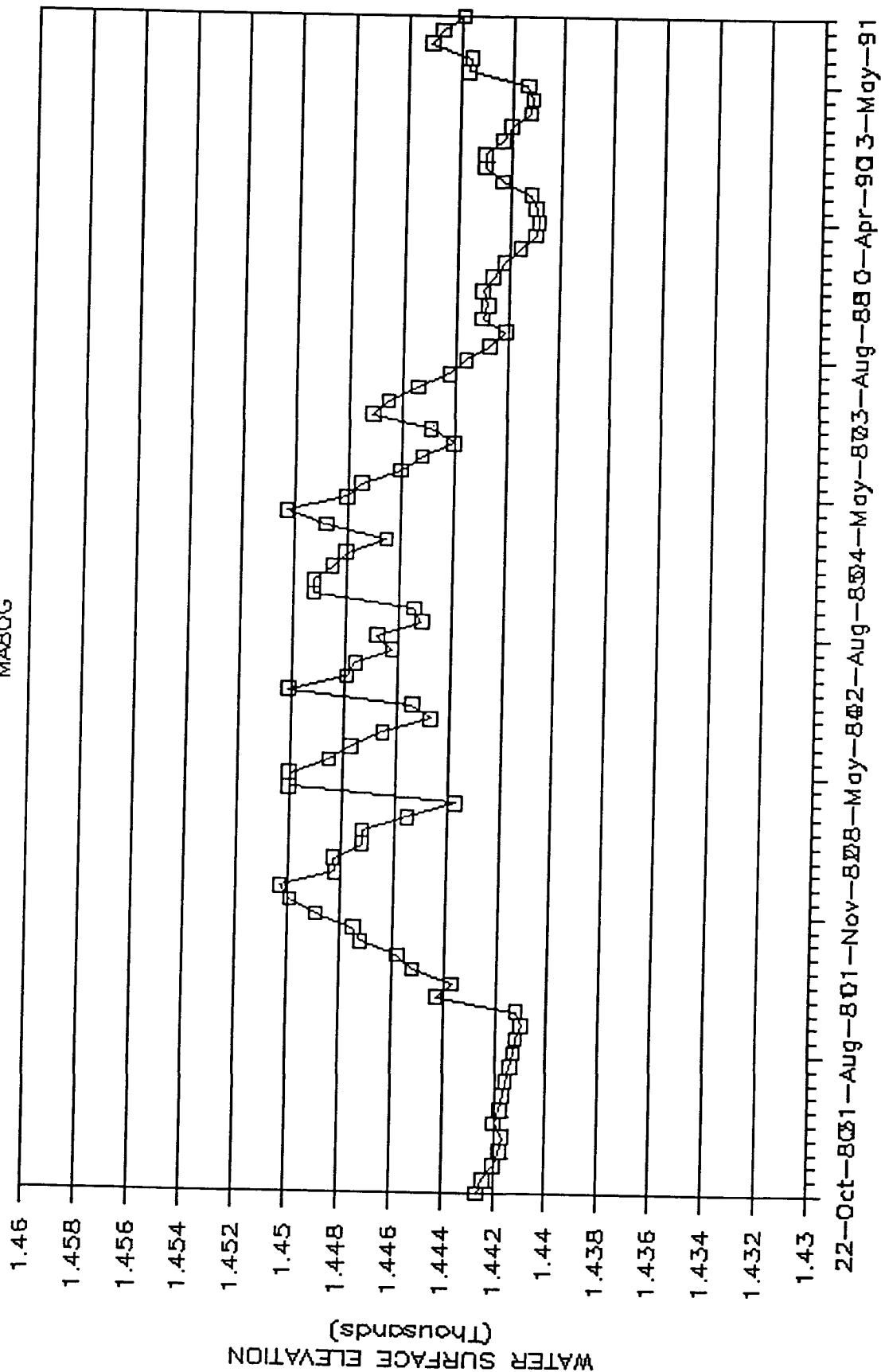


12-Dec-80 1-Aug-81 1-Nov-81 1-May-82 1-Jun-82 1-Oct-82 1-Jun-83 1-Jul-83 1-Nov-83

DATE

# MINNEHAHA COUNTY WELLS

MABOG



DATE

Figure 7

# MINNEHAHA COUNTY WELLS

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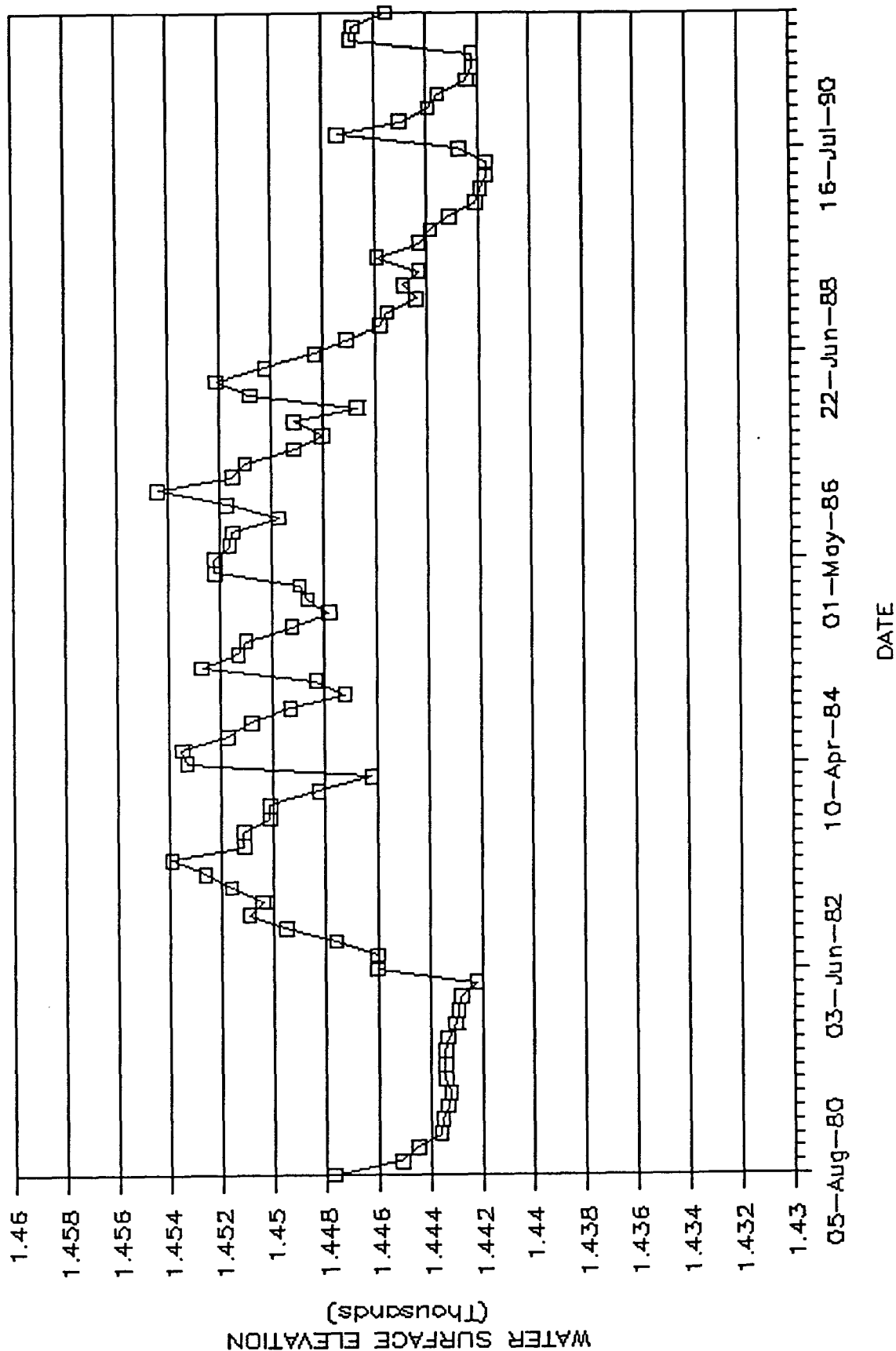


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# MINNEHAHA COUNTY WELLS

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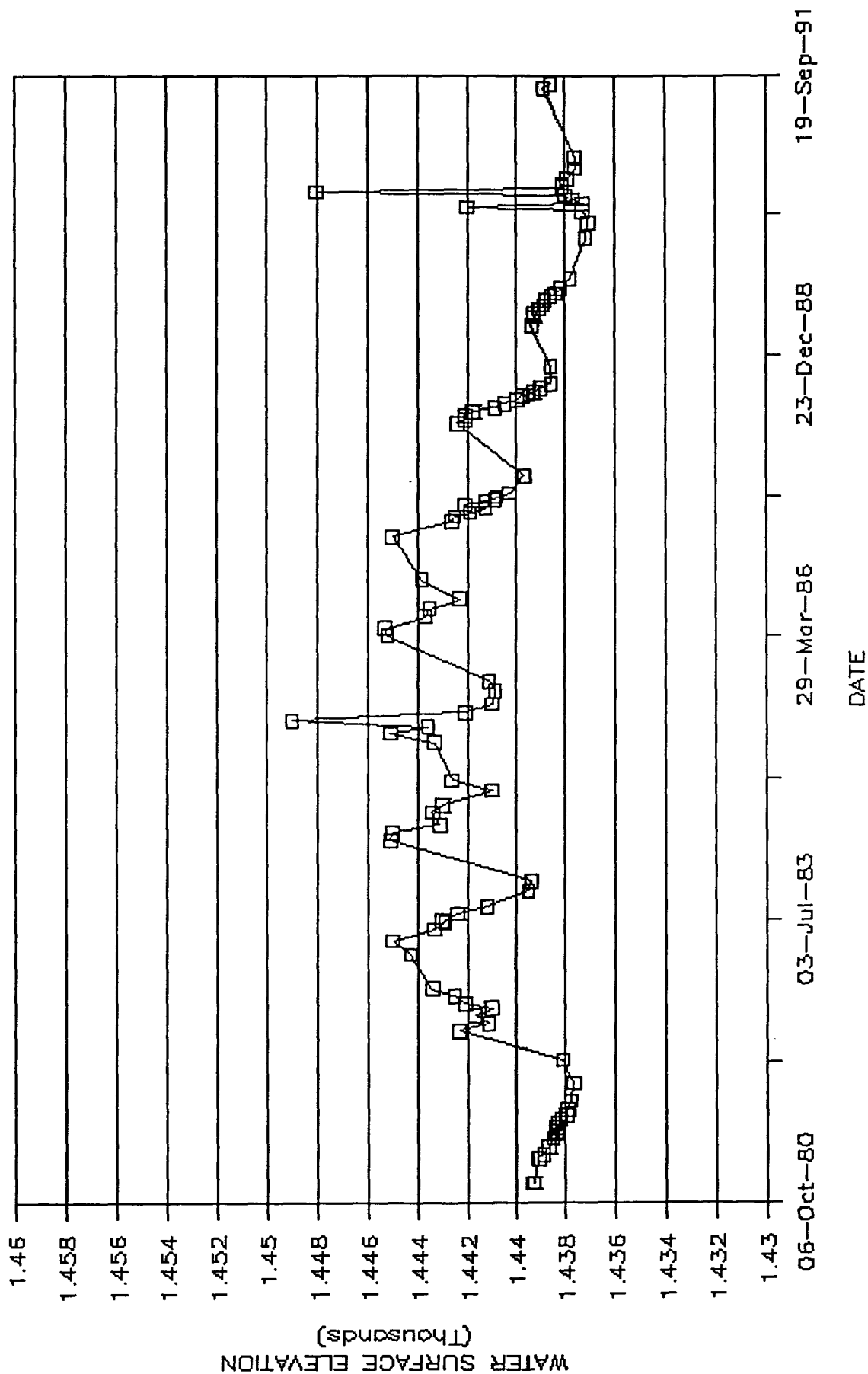


Figure 9

# MINNEHAHA COUNTY WELLS

MASOL

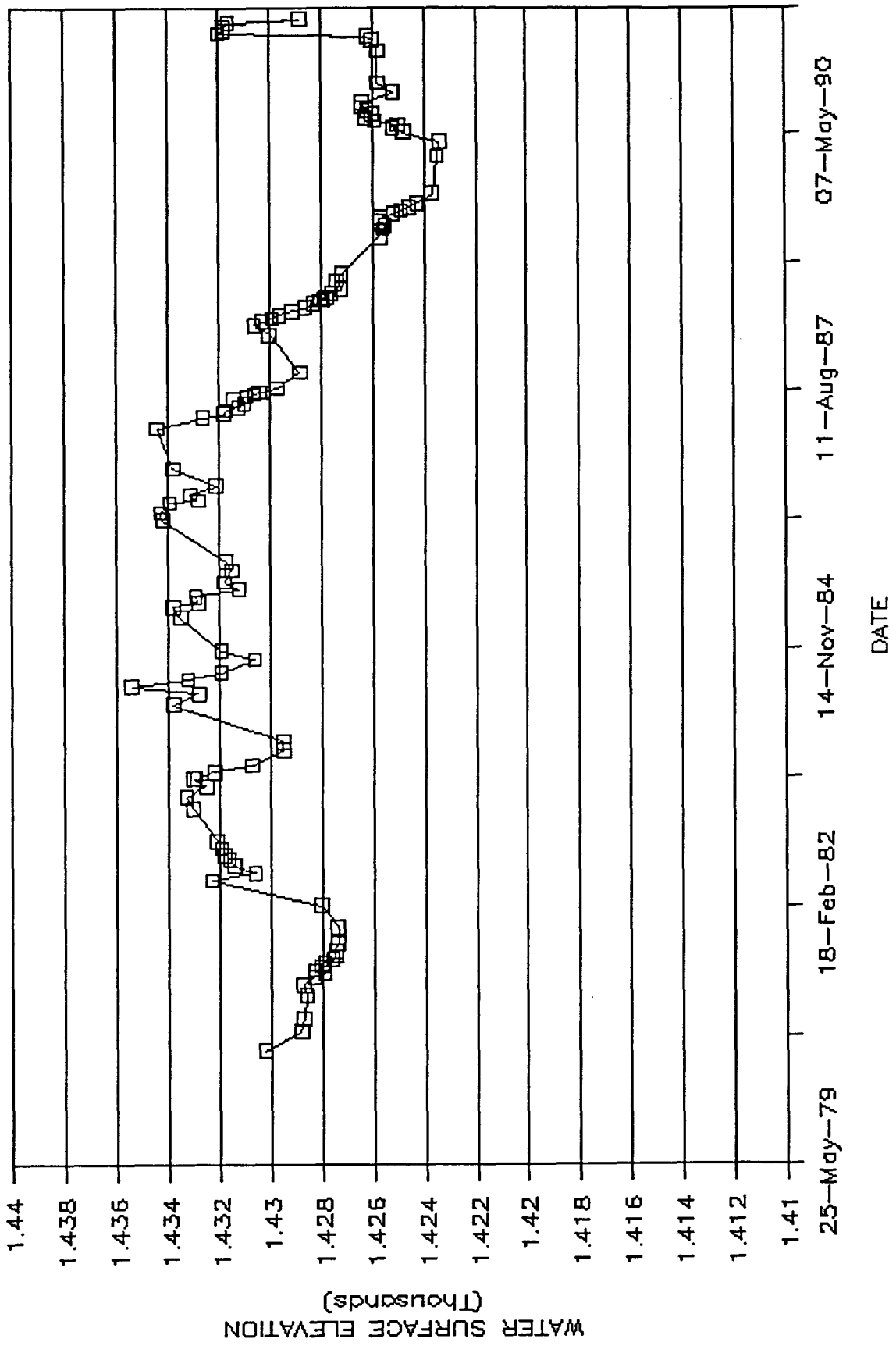


Figure 11

# MINNEHAHA COUNTY WELLS

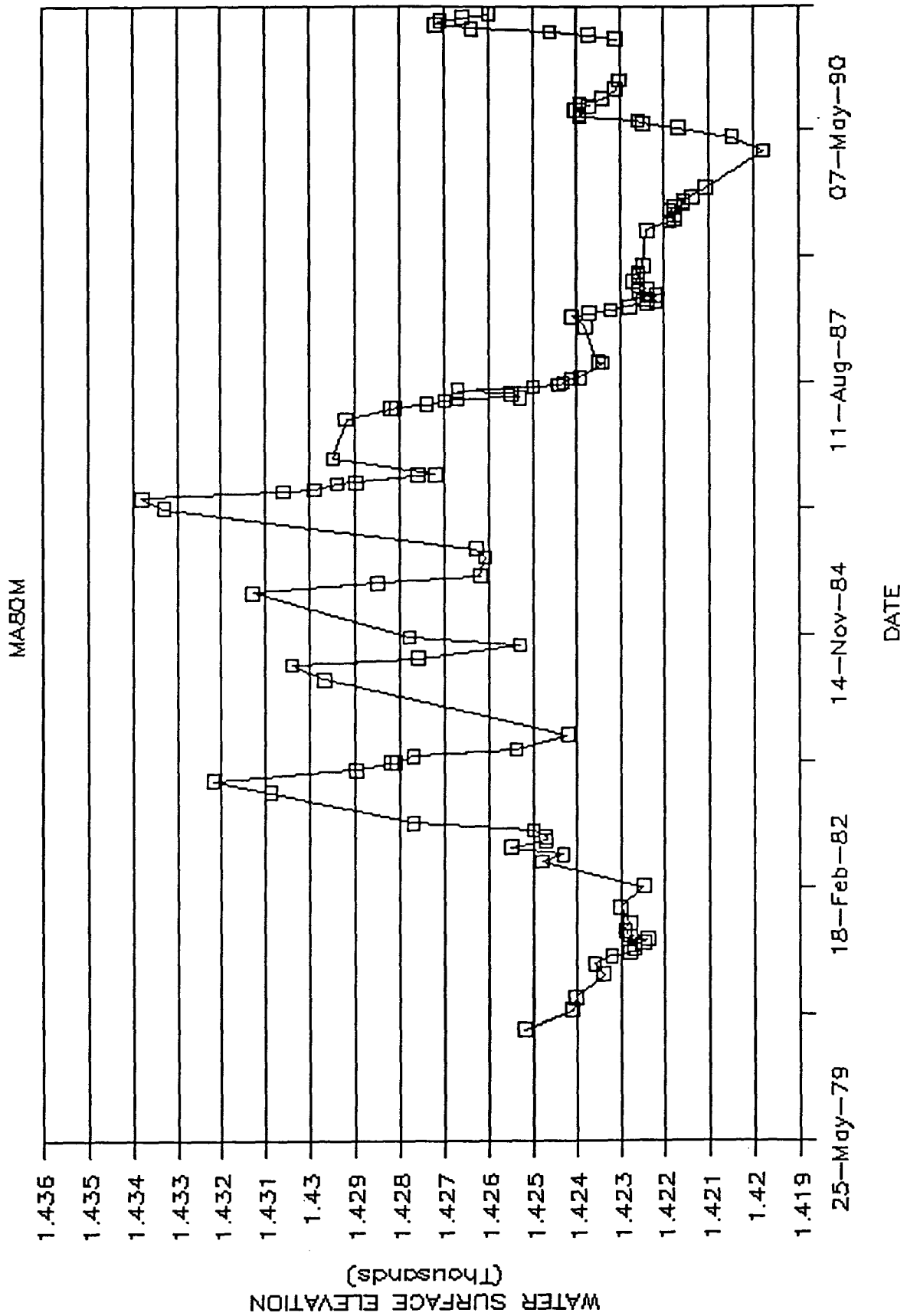


Figure 12

# MINNEHAHA COUNTY WELLS

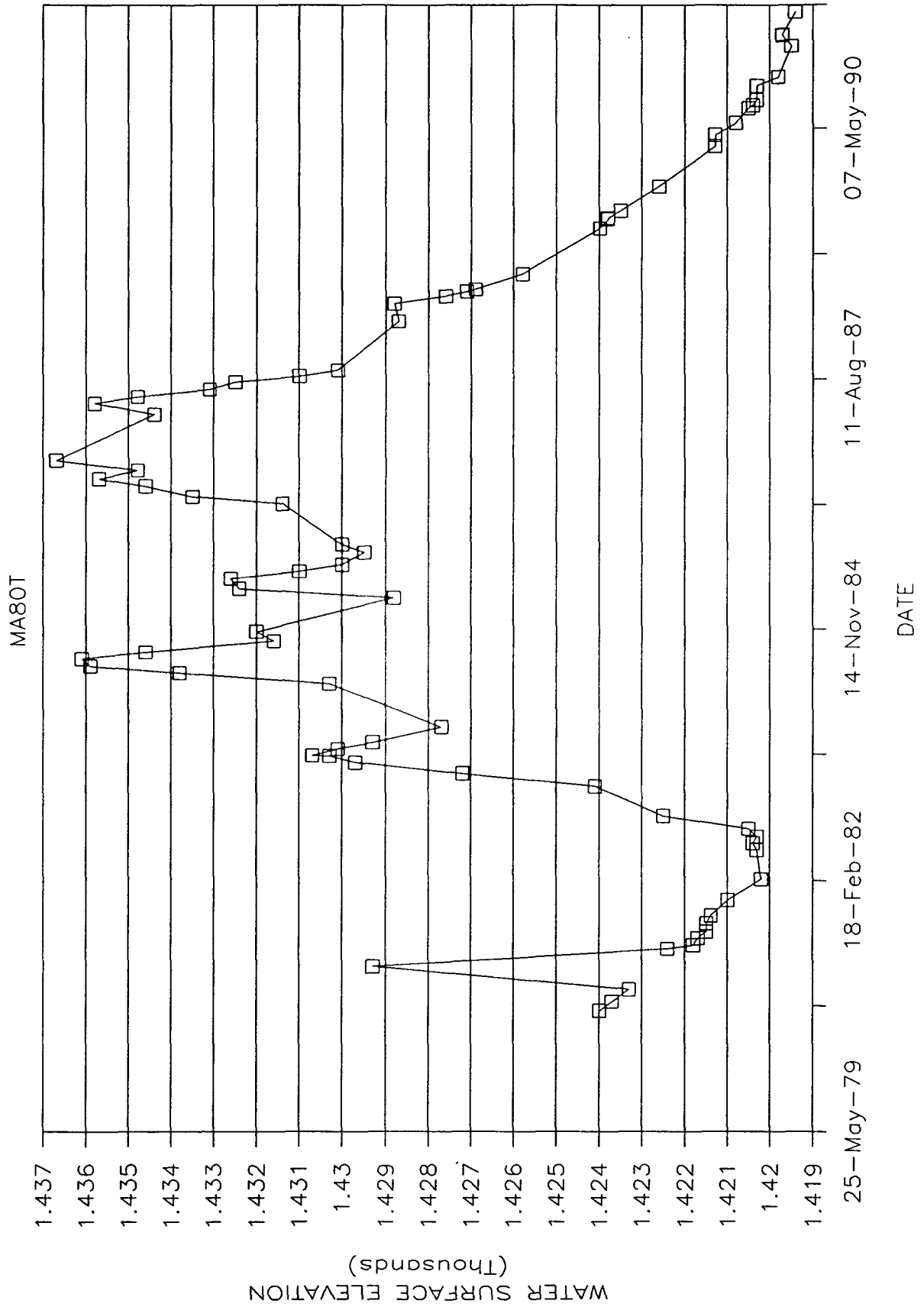
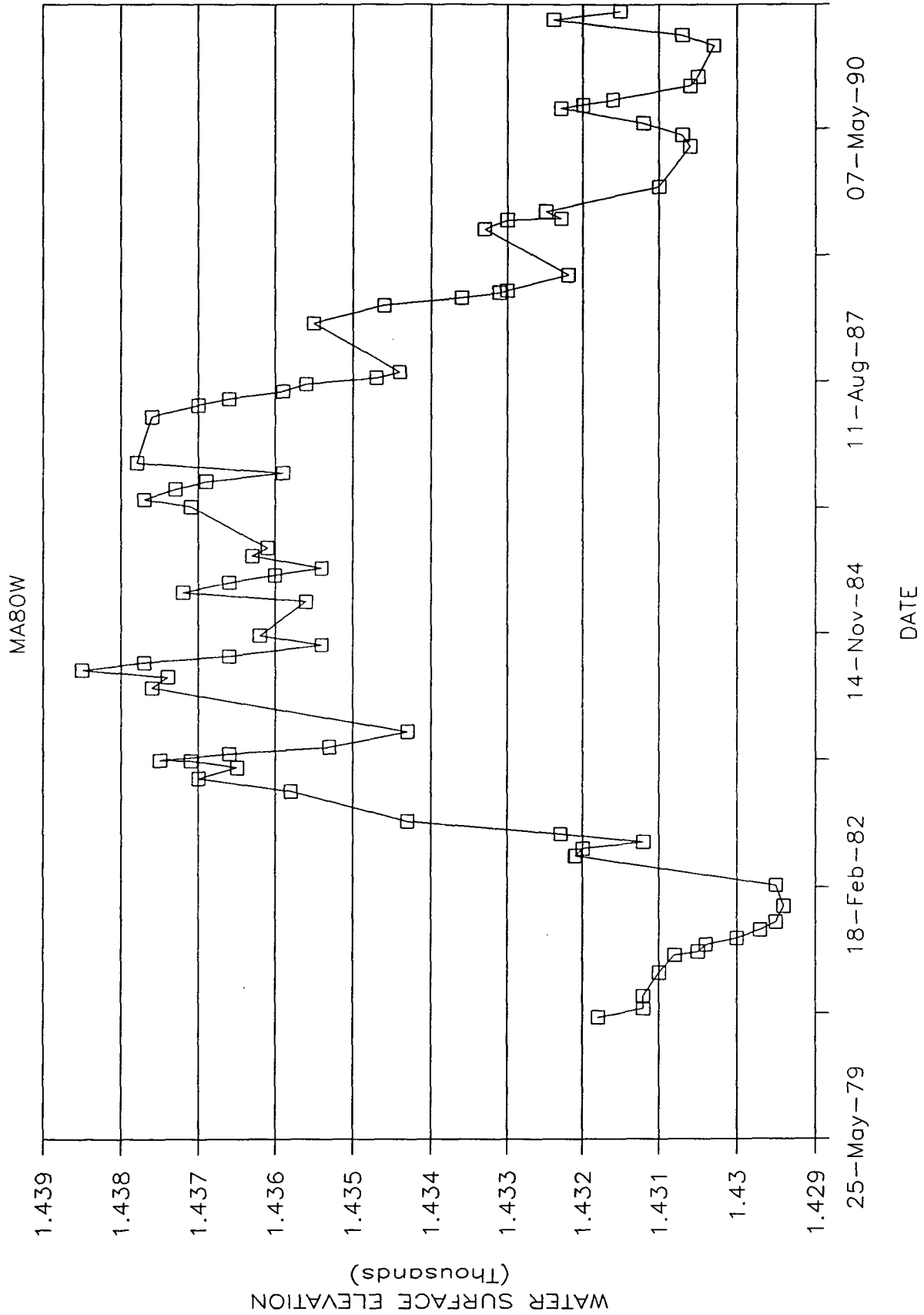


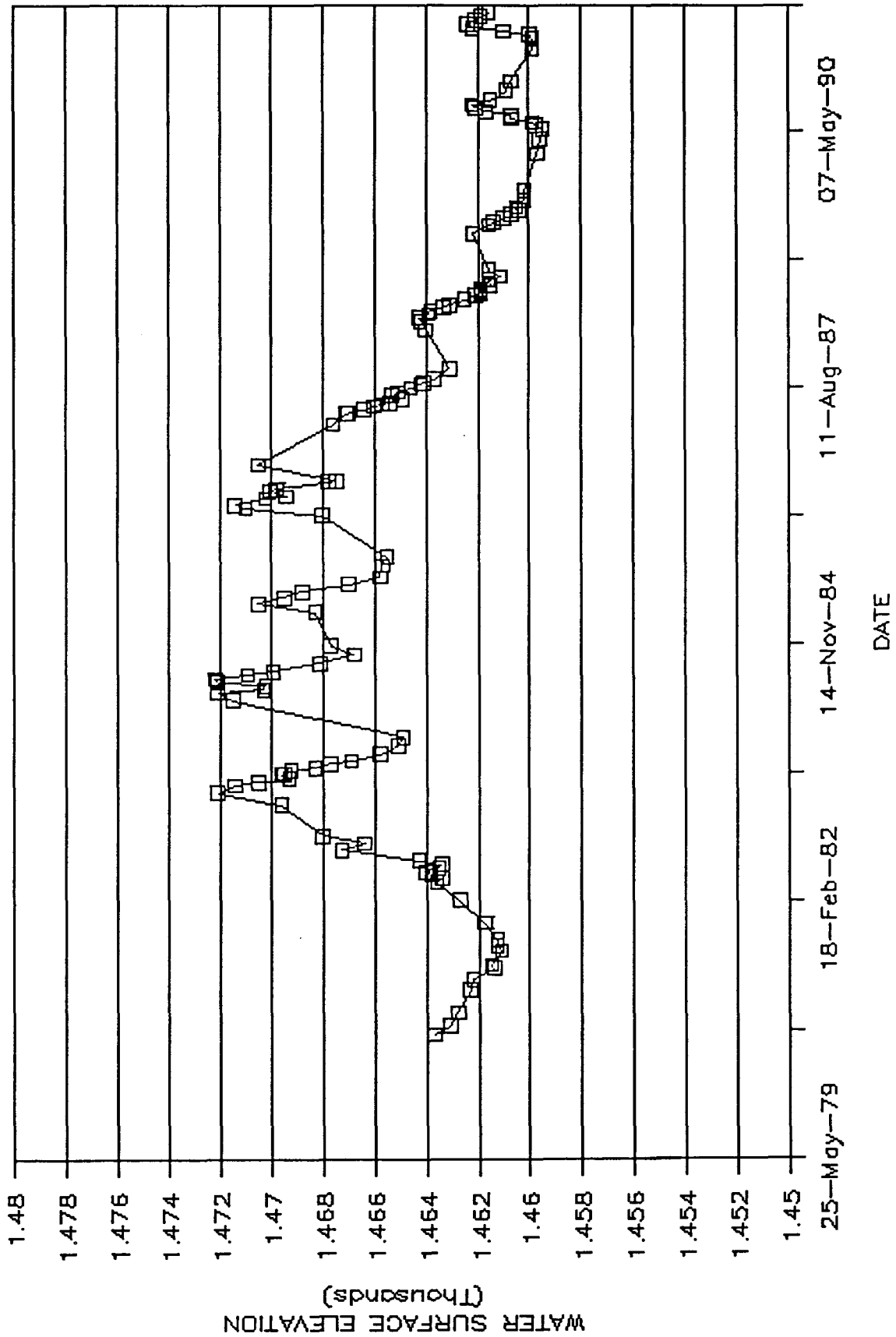
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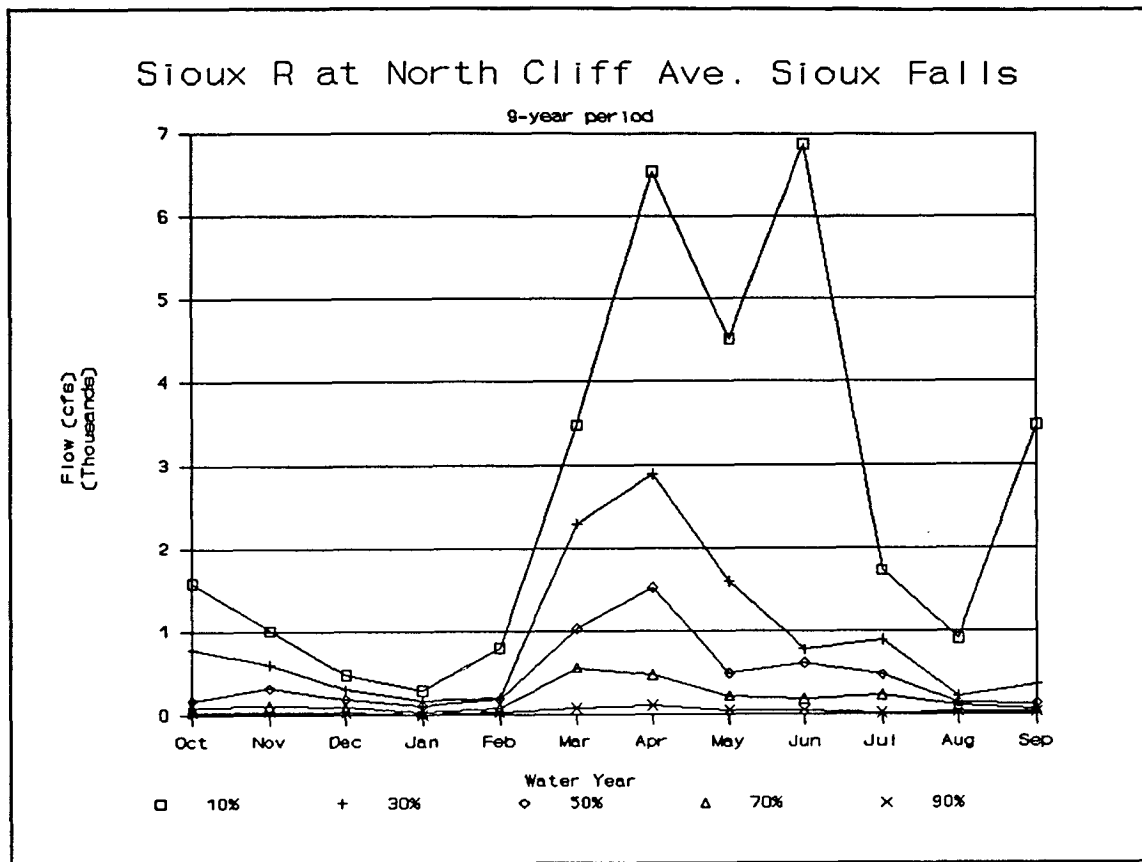
# MINNEHAHA COUNTY WELLS



# MINNEHAHA COUNTY WELLS

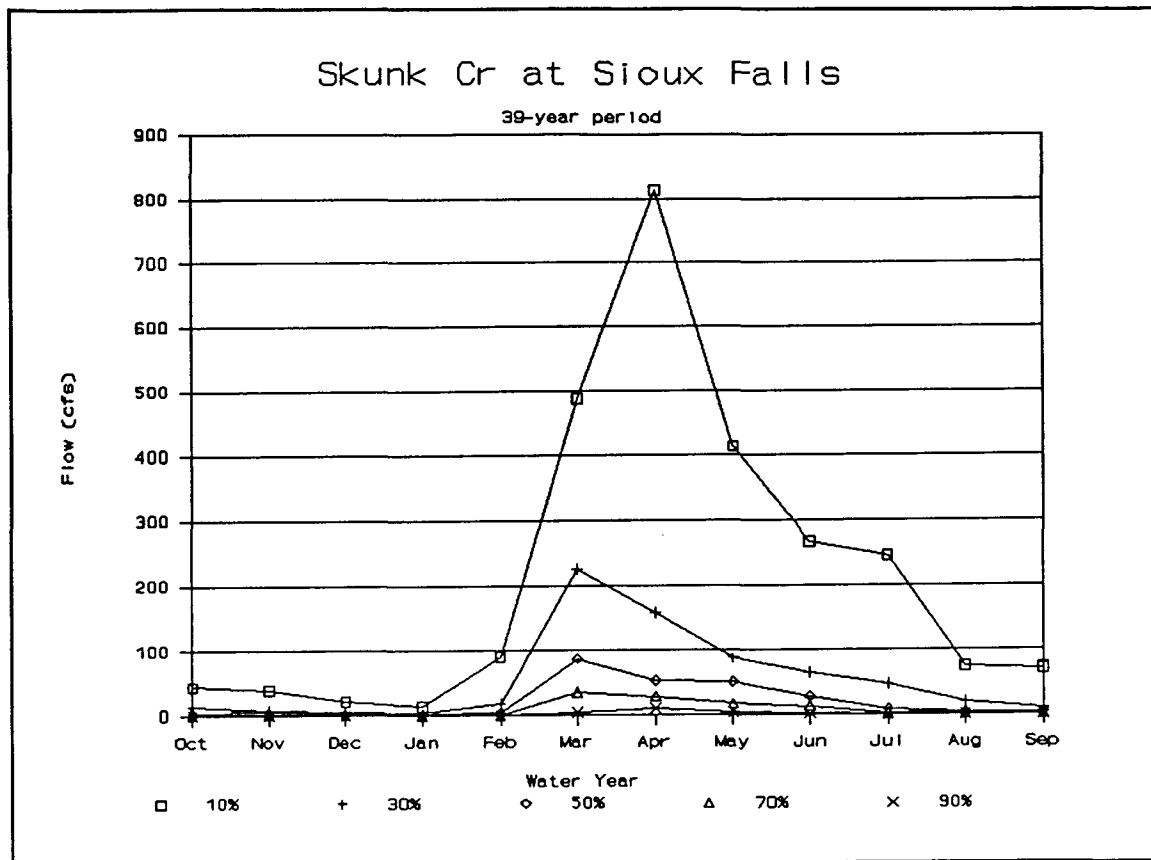
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Sioux River at North Cliff Ave. at Sioux Falls SD  
9 years of record

|     | 10%     | 30%     | 50%     | 70%    | 90%    |
|-----|---------|---------|---------|--------|--------|
| Oct | 1580.32 | 781.83  | 168.32  | 90.8   | 30.83  |
| Nov | 1008.9  | 601.43  | 317.66  | 105.33 | 41.26  |
| Dec | 476.38  | 302.64  | 185.8   | 98.25  | 36.32  |
| Jan | 289.25  | 172.42  | 118.54  | 32.25  | 6.26   |
| Feb | 798.17  | 199.78  | 179.6   | 75.67  | 32.25  |
| Mar | 3478.61 | 2295.48 | 1025.06 | 562.45 | 77.06  |
| Apr | 6543    | 2884.66 | 1524.1  | 477.03 | 106.73 |
| May | 4516.12 | 1600.03 | 499.51  | 223.42 | 55     |
| Jun | 6880.16 | 778.23  | 617.1   | 185.7  | 53.6   |
| Jul | 1729.96 | 888.12  | 470.45  | 236.38 | 19.77  |
| Aug | 912.22  | 217.61  | 141.74  | 114.38 | 33.03  |
| Sep | 3467.66 | 354     | 124.46  | 62     | 28     |



Skunk Creek at Sioux Falls SD  
39-year period

|     | 10%    | 30%    | 50%   | 70%   | 90%   |
|-----|--------|--------|-------|-------|-------|
| Oct | 45.06  | 15.28  | 4.37  | 1.53  | 0.43  |
| Nov | 39.5   | 8.51   | 5.32  | 2.65  | 0.6   |
| Dec | 22.13  | 5.77   | 3.43  | 2.38  | 0.57  |
| Jan | 14.01  | 3.32   | 1.87  | 0.93  | 0.21  |
| Feb | 90.42  | 17.89  | 4.2   | 1.23  | 0.17  |
| Mar | 488.18 | 225.87 | 87.98 | 36.58 | 4.68  |
| Apr | 813.26 | 158.5  | 53.8  | 28.7  | 10.43 |
| May | 414.03 | 88.45  | 51.67 | 17.44 | 4.5   |
| Jun | 266.26 | 65.43  | 28.69 | 12.94 | 1.7   |
| Jul | 245.77 | 47.32  | 8.35  | 2.94  | 0.43  |
| Aug | 75.74  | 20.43  | 5.25  | 1.48  | 0.22  |
| Sep | 71.06  | 10.67  | 4.03  | 1.32  | 0.28  |

REVISED RECOMMENDATION OF CHIEF ENGINEER FOR WATER PERMIT  
APPLICATION NO. 5556-3, Elmwood Golf Course - City of Sioux Falls

Pursuant to SDCL 46-2A-2, the following is the revised recommendation of the Chief Engineer, Water Rights Division, Department of Environment and Natural Resources concerning Water Permit Application No. 5556-3, Elmwood Golf Course - City of Sioux Falls, 6000 East 7th Street, Sioux Falls, SD 57102.

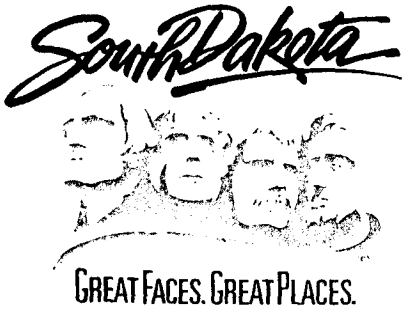
The Chief Engineer is recommending DEFERRAL of Application No. 5556-3 until the Water Management Board takes action on City of Sioux Falls Future Use Permit Application No. 5523-3.

See report on application for additional information.



JOHN HATCH, Chief Engineer  
August 19, 1991

Explanation: If the Board approves No. 5523-3, no additional applications should be approved from the Sioux Falls Management Unit unless the water is taken from an existing future use permit. The aquifer will be fully appropriated if No. 5523-3 is approved.



August 29, 1991

Argus Leader  
PO Box 5034  
Sioux Falls, SD 57117-5034

ATTENTION: Legal Department

Enclosed is a Notice of Hearing on Application No. 5556-3 to be published twice. Please publish the first notice on September 4, 1991, 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 Elmwood Golf Course, City of Sioux Falls - Parks Dept. - 600 East 7th Street, Sioux Falls, SD.

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

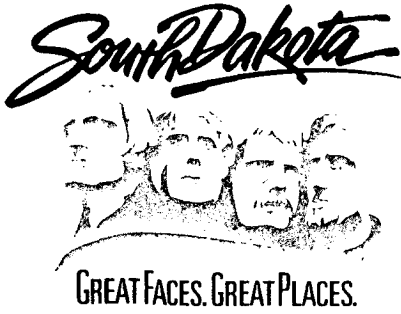
No. \_\_\_\_\_

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 \_\_\_\_\_



**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 NEWSPAPER RIGHT AWAY.

August 29, 1991

Lowen Schuett  
Elmwood Golf Course  
City of Sioux Falls/Parks Dept.  
600 E 7th St  
Sioux Falls, SD 57102

Dear Mr. Schuett:

Water Permit Application No. 5556-3 for irrigation use has been examined and found to comply with the South Dakota Water Laws and applicable rules. A notice of hearing has been sent to the Publisher of the Argus Leader printed at Sioux Falls, SD. For your information, a copy of the notice, the recommendation of the Chief Engineer and a report on the application are enclosed. Please review the notice prior to publication and notify this office, if you have any corrections or questions.

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

Sincerely,

Eric Gronlund  
Natural Resources Engineer  
605 773-3352

enclosures

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

Instruction to Newspaper - Publish first Notice on September 5, 1991, with the second publication 7 days later. The applicant is responsible for payment.

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NOTICE OF HEARING on Application No. 5556-3 to Appropriate Water

Notice is given that Elmwood Golf Course - City of Sioux Falls - Parks Dept - 600 E 7th Street, Sioux Falls, SD 57102 has filed an application for a water permit to appropriate 1.42 cubic feet of water per second (cfs) from 2 existing wells (Nos. 1 & 2) to irrigate the Elmwood Golf Course. Water Permit No. 4232-3 authorizes an appropriation of 0.71 cfs from 1 well (No. 3) to irrigate 50 acres of the golf course. This application authorizes no increase in the 0.71 cfs diversion rate specified on Permit No. 4232-3; however, water from well No. 3, along with water appropriated by this application from well Nos. 1 and 2, will be used to irrigate up to 240 acres of the golf course. The wells (Big Sioux:Sioux Falls Aquifer) are located in the NE 1/4 NW 1/4 (No. 1), NW 1/4 NE 1/4 (No. 2), SE 1/4 NE 1/4 (No. 3) Section 7 and the 240 irrigated acres are located in the E 1/2 NW 1/4, NE 1/4 SW 1/4, NE 1/4, N 1/2 SE 1/4 Section 7; W 1/2 SE 1/4, SE 1/4 SW 1/4 Section 6; W 1/2 NW 1/4, NW 1/4 SW 1/4 Section 8; all in T101N-R49W.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends DEFERRAL of Application No. 5556-3 until the Water Management Board takes action on City of Sioux Falls Future Use Permit Application No. 5523-3 and until the Water Management Board makes a decision on the declaratory ruling request by domestic well owners in the Renner area north of Sioux Falls.

Any person interested in opposing or supporting this application must file a written petition with BOTH the applicant and Chief Engineer. The applicant must also file a petition if opposed to the Chief Engineer's recommendation. The Chief Engineer's address is "Water Rights 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 September 23, 1991. The petition may be informal, but must include a statement describing the petitioner's interest in the application, the petitioner's reasons for opposing or supporting the application, and the signature and mailing address of the petitioner or the petitioner's legal counsel, if legal counsel is obtained.

The Board will consider this application on October 2, 1991, at 9:30 am, Embassy 1 & 2, Holiday Inn City Centre, 100 West 8th Street, Sioux Falls, SD. The Chief Engineer's recommendation is not final or binding upon the Board. The Board is authorized to 1) approve, 2) approve with qualifications, 3) defer, or 4) deny this application based on the facts presented at the public hearing. The October 2, 1991, hearing date will be automatically delayed for at least 20 days upon written request to the Chief Engineer from the applicant or any interested person opposing the application. The request for an automatic delay must be filed by September 23, 1991. If an automatic delay is requested, the hearing will be rescheduled for the December 4 & 5, 1991, Board meeting in Pierre, SD.

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 the Water Rights Division to request copies of information pertaining to this application or to assure access to the hearing by the handicapped.

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

## PROOF OF PUBLICATION

STATE OF SOUTH DAKOTA )  
 ) ss.  
 County of MINNEHAHA )



I, MARY DEVISH

certify that the attached printed Notice was taken  
 from the SIOUX FALLS ARGUS LEADER

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

CITY of SIOUX FALLS

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

WEDNESDAY, SEPTEMBER 4, 1991

WEDNESDAY, SEPTEMBER 11, 1991

Mary Devish  
 (Signature)  
Controller  
 (Title)  
9/12/91  
 (Date Signed)

Cost of Printing: 99.56  
246 lines

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

4224

Sept. 4, 11, 1991

**NOTICE OF HEARING on**  
 Application No. 5556-3 to  
 Appropriate Water

Notice is given that Elmwood Golf Course - City of Sioux Falls - Parks Dept - 600 E 7th Street, Sioux Falls, SD 57102 has filed an application for a water permit to appropriate 1.42 cubic feet of water per second (cfs) from 2 existing wells (Nos. 1 & 2) to irrigate the Elmwood Golf Course. Water Permit No. 4232-3 authorizes an appropriation of 0.71 cfs from 1 well (No. 3) to irrigate 50 acres of the golf course. This application authorizes an increase in the 0.71 cfs diversion rate authorized on Permit No. 4232-3.

Water from well No. 3, with water appropriated by application from well Nos. 1 & 2, will be used to irrigate up to 240 acres of the golf course. The wells (Big Sioux: Sioux Falls Aquifer) are located in the NE 1/4 NW 1/4 (No. 1), NW 1/4 NE 1/4 (No. 2), SE 1/4 NE 1/4 (No. 3) Section 7 and the 240 irrigated acres are located in the E 1/2 NW 1/4, NE 1/4 SW 1/4, NE 1/4, N 1/2 SE 1/4 Section 7; W 1/2 SE 1/4, SE 1/4 SW 1/4 Section 8; W 1/2 NW 1/4, NW 1/4 SW 1/4 Section 8; all in T101N-R49W.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends DEFERRAL of Application No. 5556-3 until the Water Management Board takes action on City of Sioux Falls Future Use Permit Application No. 5523-3 and until the Water Management Board makes a decision on the declaratory ruling request by domestic well owners in the Renner area north of Sioux Falls.

Any person interested in opposing or supporting this application must file a written petition with BOTH the applicant and Chief Engineer. The applicant must also file a petition if opposed to the Chief Engineer's recommendation. The Chief Engineer's address is "Water Rights 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 September 23, 1991. The petition may be informal, but must include a statement describing the petitioner's interest in the application, the petitioner's reasons for opposing or supporting the application, and the signature and mailing address of the petitioner or the petitioner's legal counsel, if legal counsel is obtained.

The Board will consider this application on October 2, 1991, at 9:30 am, Embassy 1 & 2, Holiday Inn City Centre, 100 West 8th Street, Sioux Falls, SD. The Chief Engineer's recommendation is not final or binding upon the Board. The Board is authorized to 1) approve, 2) approve the qualifications, 3) defer, or 4) deny this application based on the facts presented at the public hearing. The October 2, 1991, hearing date will be automatically delayed for at least 20 days upon written request to the Chief Engineer from the applicant or any interested person opposing the application. The request for an automatic delay must be filed by September 23, 1991. If an automatic delay is requested, the hearing will be rescheduled for the December 4 & 5, 1991, Board meeting in Pierre, SD.

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 the Water Rights Division to request copies of information pertaining to this application or to assure access to the hearing by the handicapped.

## PROOF OF PUBLICATION

STATE OF SOUTH DAKOTA )  
 County Lincoln ) ss.



I, Sandra Lundstrom

certify that the attached printed Notice was taken  
 from the SIOUX VALLEY NEWS

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

City \_\_\_\_\_ of Canton \_\_\_\_\_

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

September 5, 1991

September 12, 1991

Sandra Lundstrom  
 (Signature)

Bookkeeper  
 (Title)

9-12-91  
 (Date Signed)

Cost of Printing: \$50.04

VERNON R. THORSON  
 My commission expires  
 January 20, 1995.

**NOTICE OF HEARING  
 on Application No. 5556-3  
 to Appropriate Water**

Notice is given that Elmwood Golf Course - City of Sioux Falls - Parks Dept - 600 E. 7th Street, Sioux Falls, SD 57102 has filed an application for a water permit to appropriate 1.42 cubic feet of water per second (cfs) from 2 existing wells (No. 1 & 2) to irrigate the Elmwood Golf Course. Water Permit No. 4232-3 authorizes an appropriation of 0.71 cfs from 1 well (No. 3) to irrigate 50 acres of the golf course. This application authorizes no increase in the 0.71 cfs diversion rate specified on Permit No. 4232-3; however, water from well No. 3, along with water appropriated by this application from well Nos. 1 and 2, will be used to irrigate up to 240 acres of the golf course. The wells (Big Sioux: Sioux Falls Aquifer) are located in the NE 1/4 NW 1/4 (No. 1), NW 1/4 NE 1/4 (No. 2), SE 1/4 NE 1/4 (No. 3) Section 7 and the 240 irrigated acres are located in the E 1/2 NW 1/4, NE 1/4 SW 1/4, NE 1/4, N 1/2 SE 1/4 Section 7; W 1/2 SE 1/4, SE 1/4 SW 1/4 Section 6; W 1/2 NW 1/4, NW 1/4 SW 1/4 Section 8; all in T101N-R49W.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends DEFERRAL of Application No. 5556-3 until the Water Management Board takes action on City of Sioux Falls Future Use Permit Application No. 5523-3 and until the Water Management Board makes a decision on the declaratory ruling request by domestic well owners in the Renner area north of Sioux Falls.

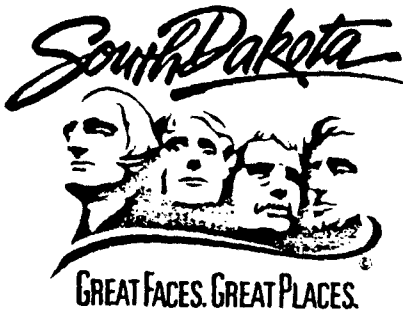
Any person interested in opposing or supporting this application must file a written petition with BOTH the applicant and Chief Engineer. The applicant must also file a petition if opposed to the Chief Engineer's recommendation. The Chief Engineer's address is "Water Rights Division, Foss Building, 523 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 September 23, 1991. The petition may be informal, but must include a statement describing the petitioner's interest in the application, the petitioner's reasons for opposing or supporting the application, and the signature and mailing address of the petitioner or the petitioner's legal counsel, if legal counsel is obtained.

The Board will consider this application on October 2, 1991, at 9:30 am, Embassy 1 & 2, Holiday Inn City Centre, 100 West 8th Street, Sioux Falls, SD. The Chief Engineer's recommendation is not final or binding upon the Board. The Board is authorized to 1) approve, 2) approve with qualifications, 3) defer, or 4) deny this application based on the facts presented at the public hearing. The October 2, 1991, hearing date will be automatically delayed for at least 20 days upon written request to the Chief Engineer from the applicant or any interested person opposing the application. The request for an automatic delay must be filed by September 23, 1991. If an automatic delay is requested, the hearing will be rescheduled for the December 4 & 5, 1991, Board meeting in Pierre, SD.

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 the Water Rights Division to request copies of information pertaining to this application or to assure access to the hearing by the handicapped.

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





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

August 30, 1991

**NOTICE**

**TO:**

- Water Permit/Right Holders for the Sioux Falls Management Unit of the Big Sioux Aquifer
- Persons Petitioning the Water Management Board for a Declaratory Ruling to Resolve Problems with Domestic Wells in the Renner Area
- Other Interested Persons

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

**SUBJECT:** Water Management Board Hearings on Declaratory Ruling Requests and City of Sioux Falls Water Permit Applications from the Sioux Falls Management Unit of the Big Sioux Aquifer, and the Middle Skunk Creek Aquifer

The Water Management Board at its meeting October 2, 1991 in Sioux Falls will consider the following issues:

- 1) A request for a declaratory ruling on the decline of the water levels in private domestic wells in the Renner area north of Sioux Falls.
- 2) A request for a declaratory ruling to establish a maximum annual withdrawal limitation for the Big Sioux Aquifer: Sioux Falls Management Unit. This aquifer (groundwater) is located between Sioux Falls and Dell Rapids.
- 3) Future Use Application No. 5523-3 by the City of Sioux Falls to reserve 10,000 acre feet of water from the Sioux Falls Management Unit of the Big Sioux Aquifer.
- 4) Water Permit Application Nos. 5521-3, 5533-3, and 5556-3 by the City of Sioux Falls from the Sioux Falls Management Unit of the Big Sioux Aquifer.

- 5) Future Use Application No. 5522-3 by the City of Sioux Falls to reserve 10,000 acre feet of water from the Middle Skunk Creek Aquifer.

Enclosed are copies of the notices of hearings for the declaratory rulings and permit applications to be published in the Sioux Falls Argus Leader for two consecutive weeks and copies of the petitions requesting the Board to issue declaratory rulings. Any interested person that intends to participate in the hearing before the Board by presenting evidence or cross-examining witnesses must file a written petition with the Chief Engineer by September 23, 1991.

The Board will consider these issues on October 2, 1991, beginning at 8:30 am at the Embassy Rooms 1 & 2, Holiday Inn City Centre, 100 West 8th Street, Sioux Falls, SD. If you require further information or have questions regarding the upcoming hearing, please contact Eric Gronlund at 605 773-3352.

cc: Diane Best, Assistant Attorney General

enclosures

Senator Roberta Rasmussen  
Rt 2, Box 23  
Hurley, SD 57036-9666

Representative Juel S. Johnson  
P.O. Box 536  
Parker, SD 57053-0333

Representative Mike Wagner  
115 Oak, Box 308  
Baltic, SD 57003

Senator Pam Nelson  
2505 South Marion Road  
Sioux Falls, SD 57106

Representative Bill Sandness  
4004 Watson Ave.  
Sioux Falls, SD 57106

Representative Patricia Pilcher  
3200 O'Gorman Dr.  
Sioux Falls, SD 57105

Senator Keith Paisley  
2409 S. Elmwood  
Sioux Falls, SD 57105

Representative Robert E. Caselli  
1405 S. Garfield Ave.  
Sioux Falls, SD 57105

Representative Dave Munson  
1009 S. Lyndale  
Sioux Falls, SD 57105

Senator Richard Belatti  
1212 S. Phillips Ave.  
Sioux Falls, SD 57105

Representative Jack G. Rentschler  
14401 Vista Lane  
Sioux Falls, SD 57105

Representative John Timmer  
1212 Elkhorn  
Sioux Falls, SD 57104

Senator Linda Stensland  
1800 O'Tonka Ridge  
Sioux Falls, SD 57103

Representative Roger Hunt  
RR 1, Box 875  
Brandon, SD 57005

Representative Janice Nicolay  
1401 Suburban Drive  
Sioux Falls, SD 57103-3762

Senator Karen Muenster  
117 N. Duluth  
Sioux Falls, SD 57104-3023

Representative Patrick Kane  
201 Security Building  
Sioux Falls, SD 57102

Representative Mary Vanderlinde  
1201 North Minnesota Ave.  
Sioux Falls, SD 57104

CERTIFICATION

I hereby certify that on September 3, 1991 I have personally deposited with the U.S. Mail postage prepaid envelopes containing a Notice of Water Management Board Hearings on Declaratory Ruling Requests and City of Sioux Falls Water Permit Applications from the Sioux Falls Management Unit of the Big Sioux Aquifer, and the Middle Skunk Creek Aquifer, along with a copy of the Declaratory Ruling for Sioux Falls, a copy of the Publication Notice from Water Permit Nos. 5521-3, 5533-3, and 5556-3, and copy of Publication Notice from Future Use Nos. 5522-3 and 5523-3 addressed as stated on the attached list.

Sent Inter-office To:

Diane Best, Assistant Attorney General, Capitol Building.

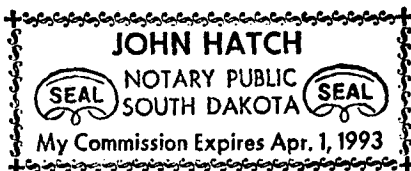
*Cheryl F. Frost*

Cheryl F. Frost  
Secretary

STATE OF SOUTH DAKOTA )  
                                  ) SS  
COUNTY OF HUGHES )

Sworn to, before me, this 5<sup>th</sup> day of September, 1991.

*John Hatch*  
Notary Public



Water Rights Division - DENR  
Conversation File Documentation

NAME OF PERSON OR FILE: Sioux Falls applications and declaratory ruling

ADDRESS: \_\_\_\_\_ COUNTY: Minnehaha

DATE: 9/3/91 TELEPHONE: \_\_\_\_\_

RE: \_\_\_\_\_

COMMENTS:

Copies on the August 30, 1991 Notice regarding the Water Management Board's October 2, 1991 meeting to consider the Sioux Falls issues were sent to the Parties of Record sheet compiled from the petition requesting a declaratory ruling from the people in the Renner area. There were 4 people whose last name was illegible from the petition and the notice was not sent to them (Mary Kennedy was supposed to have gotten back to us on these people's last name but had not).

The people who signed the petition requesting a declaratory ruling are not currently parties of record to the City of Sioux Falls water permit application or future use applications.

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

NAME: Eric Lundberg

## PARTIES OF RECORD SHEET

| Name                               | Address           | City        | State | Zip Code |
|------------------------------------|-------------------|-------------|-------|----------|
| Jack and Mary Kennedy              | 6613 N Cliff Ave  | Sioux Falls | SD    | 57104    |
| Leann Niebuhrs                     | 6601 N Cliff Ave  | Sioux Falls | SD    | 57104    |
| Lyle Hanson                        | 5409 N Fairfax    | Sioux Falls | SD    | 57104    |
| Gene Heibult                       | 6421 N 10th Ave   | Sioux Falls | SD    | 57104    |
| Wayne Wipf                         | 6313 N Cliff Ave  | Sioux Falls | SD    | 57104    |
| Fred Vandersnick                   | RR 1 Box 741      | Renner      | SD    | 57055    |
| Minnie Eggers                      | Box 813           | Renner      | SD    | 57055    |
| Geneva M. Hofer                    | RR #10            | Sioux Falls | SD    | 57104    |
| Gwendalyn M. Farley                | Rt Box 871        | Renner      | SD    | 57055    |
| Diane Aspaas                       | Box 671           | Renner      | SD    | 57055    |
| Elmer Christians                   | Hwy 115 N         | Renner      | SD    | 57055    |
| Darrel Hoyer                       | RR 1 Box 679      | Renner      | SD    | 57055    |
| Scott and Brenda Tough             | 6413 N Cliff Ave  | Sioux Falls | SD    | 57104    |
| Ole Aspaas                         | Box 771           | Renner      | SD    | 57055    |
| Kevin Briffett                     | RR 1 Box 729      | Renner      | SD    | 57055    |
| Richard and Delores M. Christenson | RR 1 Box 819      | Renner      | SD    | 57055    |
| Irvin Mekvold                      |                   | Renner      | SD    | 57055    |
| Jerry Hendren                      | Box 30            | Renner      | SD    | 57055    |
| Clarence Bos                       | Box 673           | Renner      | SD    | 57055    |
| Robert and Shirley Chambers        | 6501 N Cliff Ave  | Sioux Falls | SD    | 57104    |
| Nita Hover                         | 6601 N 10th Ave   | Sioux Falls | SD    | 57104    |
| Denny and Pat Christensen          | RR 1 Box 877      | Renner      | SD    | 57055    |
| Merlin and Marge Helmbolt          | 6605 N Cliff Ave  | Sioux Falls | SD    | 57104    |
| Paul Skyberg                       | RR 1 Box 601      | Renner      | SD    | 57055    |
| David and Edward Behrends          | 5412 N French Ave | Sioux Falls | SD    | 57104    |
| Mike Austad                        | 550 Renner Rd     | Renner      | SD    | 57055    |
| JoAnn Plienis                      | 6405 N 10th Ave   | Sioux Falls | SD    | 57104    |
| Deb Finke                          | 6805 N Cliff Ave  | Sioux Falls | SD    | 57104    |
| Richard Walters                    | RR 1 Box 677      | Renner      | SD    | 57055    |
| Ronald Kiger                       | Rt 1 Box 805      | Renner      | SD    | 57055    |
| Bruce and Teresa Westergard        | Rt 1 Box 669      | Renner      | SD    | 57055    |
| Don Deraad                         | 6500 N 10th Ave   | Sioux Falls | SD    | 57104    |
| Loy Schildhauer                    | 6416 N 10th Ave   | Sioux Falls | SD    | 57104    |
| Verle Jucht                        | RR 1 Box 763      | Renner      | SD    | 57055    |
| Curtis Nelson                      | 6500 N 9th Ave    | Sioux Falls | SD    | 57104    |
| Duane and Patricia Floren          | 6513 N Cliff Ave  | Sioux Falls | SD    | 57104    |
| Jon Clauson                        | RR 1 Box 739      | Renner      | SD    | 57055    |
| Robert DeGreef                     | RR 1 Box 823      | Renner      | SD    | 57055    |
| Herman Knock                       | 6705 N Cliff Ave  | Sioux Falls | SD    | 57104    |
| Terry Schwebach                    | 6801 N 10th Ave   | Sioux Falls | SD    | 57104    |
| Ronald and Carole Pittenger        | 6713 N 10th Ave   | Sioux Falls | SD    | 57104    |
| Lorraine Raaen                     | RR 1 Box 611      | Renner      | SD    | 57055    |
| Norman and Darleen Paulson         | 6605 N 10th Ave   | Sioux Falls | SD    | 57104    |
| Paul Schloe                        | RR 1 Box 829      | Renner      | SD    | 57055    |
| Don Ahlschlager                    | 6705 N 10th Ave   | Sioux Falls | SD    | 57104    |
| Steven and Teri Nyhaug             | 6420 N 10th Ave   | Sioux Falls | SD    | 57104    |

## PARTIES OF RECORD SHEET

| Name                          | Address             | City        | State | Zip Code |
|-------------------------------|---------------------|-------------|-------|----------|
| David W. Myers                | 6509 N 10th Ave     | Sioux Falls | SD    | 57104    |
| Clarence Machmiller           | Rt 1 Box 631        | Renner      | SD    | 57055    |
| Daniel D. Hansen              | RR Box 851          | Renner      | SD    | 57055    |
| Herman and Marvel Brende      | Rt 10 Box 122       | Sioux Falls | SD    | 57104    |
| Mike and Audrey Spaeth        | 6425 N 10th Ave     | Sioux Falls | SD    | 57104    |
| Charles Berg                  | 425 Silver Creek Rd | Renner      | SD    | 57055    |
| Betty Miller                  | 6812 N 10th Ave     | Sioux Falls | SD    | 57104    |
| Nick H Ehlen                  | 6701 N Cliff Ave    | Sioux Falls | SD    | 57104    |
| Norman Wuebben                | 6301 N Cliff Ave    | Sioux Falls | SD    | 57104    |
| Dean Bollinger                | 6709 N Cliff Ave    | Sioux Falls | SD    | 57104    |
| Jerry and Nancy Zeig          | 6700 N Fairfax Ave  | Sioux Falls | SD    | 57104    |
| Rick and Tamara K Powell      | 6600 N 9th Ave      | Sioux Falls | SD    | 57104    |
| Lorraine May                  | 6321 N French Ave   | Sioux Falls | SD    | 57104    |
| Agnes Schmiesing              | 1100 E 64th St N    | Sioux Falls | SD    | 57104    |
| Jennie Hecht                  | 5404 N French Ave   | Sioux Falls | SD    | 57104    |
| Marvin and Shirley Sorum      | Box 691             | Renner      | SD    | 57055    |
| Genevieve Sorum               | Box 787             | Renner      | SD    | 57055    |
| Alan Aspaas                   | RR 1                | Renner      | SD    | 57055    |
| Ernie Wevik Jr                | RR 1 Box 635        | Renner      | SD    | 57055    |
| Bradley Danielson             | PO Box 52           | Renner      | SD    | 57055    |
| Richard A Vaughn              | 6600 N 10th Ave     | Sioux Falls | SD    | 57104    |
| Donald and Linda A Cose       | RR 1 Box 647        | Renner      | SD    | 57055    |
| Charles Moe and Carol         | RR 1 Box 533        | Renner      | SD    | 57055    |
| Ann Horak                     |                     |             |       |          |
| Clarence Oien                 | RR 1 Box 883        | Renner      | SD    | 57055    |
| Juden Peterson                | RR 1 Box 111        | Baltic      | SD    | 57003    |
| Harold Borgen                 | RR 1 Box 701        | Renner      | SD    | 57055    |
| Viola Borgen                  | Rt 1 Box 70         | Renner      | SD    | 57055    |
| Douglas and Cynthia M. Scheid | 6704 N Fairfax Ave  | Sioux Falls | SD    | 57104    |
| Nick Meyer                    | 6309 N Cliff Ave    | Sioux Falls | SD    | 57104    |
| Matthew Balk                  | 6501 N 10th Ave     | Sioux Falls | SD    | 57104    |

# CERTIFICATION

I hereby certify that on September 3, 1991 I have personally deposited with the U.S. Mail postage prepaid envelopes containing a Notice of Water Management Board Hearings on Declaratory Ruling Requests and City of Sioux Falls Water Permit Applications from the Sioux Falls Management Unit of the Big Sioux Aquifer, and the Middle Skunk Creek Aquifer, along with a copy of the Declaratory Ruling for Sioux Falls, a copy of the Publication Notice from Water Permit Nos. 5521-3, 5533-3, and 5556-3, and a copy of Publication Notice from Future Use Nos. 5522-3 and 5523-3 addressed as stated on the attached list.

Cheryl F. Frost

**Cheryl F. Frost**  
**Secretary**

STATE OF SOUTH DAKOTA )  
 ) SS  
COUNTY OF HUGHES )

Sworn to, before me, this 10<sup>th</sup> day of September, 1991.



*John H. H. H.*  
Notary Public

CERTIFICATION

I hereby certify that on September 4, 1991, I have personally deposited with the U.S. Mail, postage prepaid envelopes containing Notices dated August 30, 1991, regarding Sioux Falls Water Permit Application Nos. 5521-3, 5533-3, 5556-3; Future Use Water Permit Application Nos. 5522-3 and 5523-3; and Water Management Board Hearings on Declaratory Ruling Requests and City of Sioux Falls Water Permit Applications from the Sioux Falls Management Unit of the Big Sioux Aquifer, and the Middle Skunk Creek Aquifer addressed to:

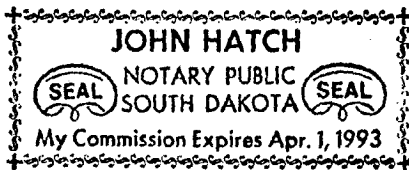
Water Permit/Right Holders for the Sioux Falls Management Unit of the Big Sioux Aquifer (see attached list).

*Jaci R. Konop*

JACI R. KONOP  
Senior Secretary

STATE OF SOUTH DAKOTA )  
                                  ) SS  
COUNTY OF HUGHES         )

Sworn to, before me, this 5<sup>th</sup> day of September, 1991.



*John Hatch*  
Notary Public

Water Permit/Right Holders for the Sioux Falls Management Unit of the Big Sioux Aquifer

1. Lakeside Dairy Packaging Facility, 1200 W Russell St., Sioux Falls, SD 57104
2. Henry Carlson, Box 84010, Sioux Falls, SD 57101
3. Val K. Beckman, & Farmers Nat'l Co., PO Box 287, Sioux Falls, SD 57101
4. Lorain Overvaag, RR, Dell Rapids, SD 57022
5. Minnehaha Com Water Corp., RR 2 Box 26A, Dell Rapids, SD 57022
6. Lyle V. Jensen, RR 2 Box 189, Beresford, SD 57004
7. Mrs. Dale Swartz, RR 1 Box 104, Baltic, SD 57003
8. Clarence Machmiller, RR 1, Box 631, Renner, SD 57055
9. Sioux Falls Development Foundation, 101 W 9th St, Sioux Falls, SD 57101
10. SD Land Company, & Frank Boyce, PO Box F, Sioux Falls, SD 57101
11. SD Air National Guard, PO Box 5044, Sioux Falls, SD 57117
12. Missouri Basin Municipal Power, PO Box 84610, Sioux Falls, SD 57118
13. Midwest Lawn Care Corp., 1701 N Louise, Sioux Falls, SD 57107
14. Robert/Angela McConville, 829 North Duluth, Sioux Falls, SD 57104
15. Minnehaha Community Water Corp., PO Box 2000, Sioux Falls, SD 57102
16. KOA Campgrounds of Sioux Falls, Drawer M, Sioux Falls, SD 57101
17. City of Sioux Falls, 224 W. 9th St., Sioux Falls, SD 57101
18. R C Sweetman, Sweetman, Construction, Box 809, Sioux Falls, SD 57101
19. E M Sweetman, Box 809, Sioux Falls, SD 57101
20. Lincoln County RWS, Harrisburg, SD 57032
21. City of Dell Rapids, Mayor, BO Box 10, Dell Rapids, SD 57022
22. Charles E. Berg, RR 1 Box 8, Baltic, SD 57003
23. City of Baltic, Mayor, PO Box 327, Baltic, SD 57003

## CERTIFICATION

I hereby certify that on September 9, 1991 I have personally deposited with the U.S. Mail postage prepaid envelopes containing a Notice of Water Management Board Hearings on Declaratory Ruling Requests and City of Sioux Falls Water Permit Applications from the Sioux Falls Management Unit of the Big Sioux Aquifer, and the Middle Skunk Creek Aquifer, along with a copy of the Publication Notice of Hearing for Declaratory Ruling, and a copy of the Publication Notice for Application Nos. 5521-3, 5522-3, 5523-3, 5533-3, and 5556-3 addressed as stated below:

Sioux Falls Development Foundation, 315 S. Phillips Ave., Sioux Falls,  
SD 57102.

Cheryl F. Front

**Cheryl F. Frost**  
**Secretary**

STATE OF SOUTH DAKOTA )  
 ) SS  
COUNTY OF HUGHES )

Sworn to, before me, this 10<sup>th</sup> day of September, 1991.



*John Bates*  
Notary Public

FROM: Eric Gronlund

TO: John Hatch

DATE: 09-11-91

TIME: 15:38

CC: Jim Goodman  
Ken Buhler  
DianeB

SUBJECT: Sioux Falls Issues on Oct. 2, 1991

PRIORITY:

ATTACHMENTS:

-----  
In an effort to keep everyone informed on phone calls that come in regarding the Sioux Falls issues, I'm will be sending you the highlights of any of these conversations.

9/11/91 - John Buss with the Minnehaha Community Water Corp. called with questions regarding the Sioux Falls Water Management Unit (SFMU). They are quite concerned about how this may affect them. His questions regarding recent withdrawals from the SFMU were easily answered by looking at through Ken's report. We also discussed the Water Corporation's future use permit. I sent him copies of all the reports on the Sioux Falls applications.

Points of Interest:

1. Mr. Buss said that last week the city's consulting engineering firm, HDR, contacted him on the ability of Water Corp. to provide water to the folks in the Renner area and to domestic well owners in the Middle Skunk Creek Aquifer. Mr. Buss thought it was particularly interesting that while the city of Sioux Falls was trying to tie up the last remaining unappropriated water in the SFMU and Middle Skunk Creek aquifer, effectively halting the expansion potential of the water corporation beyond the 1500 acre feet they have in future use, the city may at the same time try to get the water corporation to hook up those domestic users that may be impacted by the city's use of water.

2. Mr. Buss also stated that he felt the City of Sioux Falls' municipal use of water for irrigating parks and residential lawns would also be an issue at the hearing. He stated that most people feel that water for human consumption is more important than lawn and park watering.

He indicated they will also be filing a petition to intervene.

# MINNEHAHA COMMUNITY WATER, CORP.

RURAL ROUTE 2, BOX 26A  
DELL RAPIDS, SOUTH DAKOTA 57022-9424  
TELEPHONE (605) 428-3374 or 529-5799  
FAX (605) 428-3395



September 20, 1991

Mr. John Hatch, Chief Engineer  
Water Rights Division  
Department of Environment and Natural Resources  
Joe Foss Building  
523 East Capitol  
Pierre, SD 57501-3181

Dear Mr. Hatch:

Subject: Future Water Rights Request from the Sioux Falls Management  
Unit of the Big Sioux Aquifer

Enclosed is a copy of a petition for a temporary delay in the granting of future water rights permits out of the Sioux Falls Management Unit of the Big Sioux Aquifer.

We feel that the time has come for all parties involved to sit down and develop a comprehensive water use plan for the Sioux Falls Unit of the Big Sioux Aquifer. I would envision taking a look at everyone's needs, the present applications of the permitted water, water rates of entities involved, and some goals being established for reduced water consumption--such as water conserving appliances, landscaping, etc.

I think everyone agrees that if we continue our present usage practices, with our limited water supply in the area, wars will be fought in our courts over water in the future.

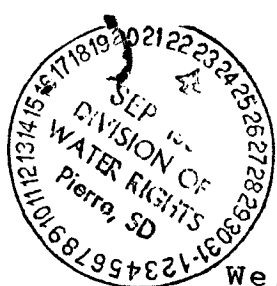
Thank you in advance for your consideration of our request.

Sincerely,

John Buss  
Manager - MCWC

JB/eg

CC: Gary Hanson  
Lyle Johnson



# PETITION

We, the undersigned petitioners, state that each is a resident of Minnehaha County, South Dakota, within an area affected by Future Use Application No. 5523-3, by the City of Sioux Falls to reserve 10,000 acre feet of water from the Sioux Falls Management Unit of the Big Sioux Aquifer, and water permit application Nos. 5521-3, 5533-3, and 5556-3 by the City of Sioux Falls to appropriate water from the Sioux Falls Management Unit of the Big Sioux Aquifer, and that each petitioner has authority to and does sign on behalf of the political subdivision or corporation indicated, and that each petitioner opposes the granting of said application upon the following grounds:

(1) That before any water is further appropriated or set aside in this area, a comprehensive water management plan should be developed involving the City of Sioux Falls and surrounding affected areas.

(2) That the proposed water rights will impair the beneficial use of and existing rights to that water.

(3) That there is insufficient unappropriated ground water in said aquifer to support the said applications.

(4) That the public interest is not served by granting said applications at this time, in the absence of a comprehensive water management plan.

The undersigned petitioners further request that an automatic delay of the hearings on said applications be granted.

The undersigned petitioner, Minnehaha Rural Water Corporation, states that it is represented by Jerry Lammers, attorney at law, of Lammers, Lammers, Kleibacker & Parent, Post Office Box 45, Madison, South Dakota 57042.

1. Minnehaha Rural Water Corporation

By: John Buss  
Its manager

Address: RR 2 BOX 26A

DELL RAPIDS

Date: 9/20/91

3. CITY OF BALTIMORE

By: Mitchell Wagner  
Its MAYOR

Address: Box 308

BALTIMORE, SD 57003

Date: 9/20/91

2. City of Dell Rapids

By: Thomas J. Easley  
Its Mayor

Address: P.O. Box 10

Dell Rapids SD 57022

Date: 9-20-91

4. City of Hartford

By: John W. Edberg  
Its Mayor

Address: Drawer D

Hartford, S.D.

Date: 9/20/91

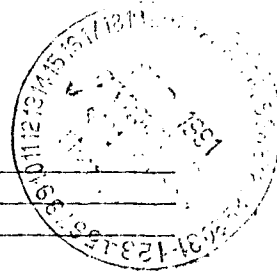
Mineral County Economic Develop. Association

By: Myron D. Mahan  
Its V.P. MCEDA

Address: 210 Douglas Blvd  
Baltic, SD 57003  
Date: 9-20-91

By: \_\_\_\_\_  
Its \_\_\_\_\_

Address: \_\_\_\_\_  
Date: \_\_\_\_\_



6. Mineral County Rural Development  
By: Theresa G. Early  
Its Chairman

Address: P.O. Box 10  
Dell Rapids, SD 57012  
Date: 9-20-91

10. \_\_\_\_\_  
By: \_\_\_\_\_  
Its \_\_\_\_\_

Address: \_\_\_\_\_  
Date: \_\_\_\_\_

7. City of Humboldt  
By: Thomas L. Githoff  
Its Mayer

Address: 404 So. Jefferson  
Humboldt, S.D. 57035  
Date: 9-21-91

11. \_\_\_\_\_  
By: \_\_\_\_\_  
Its \_\_\_\_\_

Address: \_\_\_\_\_  
Date: \_\_\_\_\_

8. City of Spearman  
By: Scott C. Denny  
Its Town Office

Address: 705 Main Ave.  
Spearman, S.D. 57030  
Date: 9-21-91

12. \_\_\_\_\_  
By: \_\_\_\_\_  
Its \_\_\_\_\_

Address: \_\_\_\_\_  
Date: \_\_\_\_\_

Parties

## WOODS, FULLER, SHULTZ &amp; SMITH P.C.

LAWYERS

310 SOUTH FIRST AVENUE

SIOUX FALLS, SOUTH DAKOTA 57102

TELEPHONE (605) 336-3890

TELECOPIER (605) 339-3357

Melvin T. Woods (1899-1965)

Howell L. Fuller (1909-1981)

John B. Shultz (1912-1975)

Francis M. Smith  
Merle A. Johnson  
Arlo D. Sommerfeld  
Richard O. Gregerson  
John E. Simko  
William C. Taylor  
William P. Fuller  
Stuart L. Tiede  
Gary P. Thimmes  
Bradley C. Crouseburg  
James M. Wiedernich  
Conrad H. Harverson  
Richard J. Conroyan  
J. C. Shultz  
Roger W. Damgaard  
Barbara Anderson Lewis  
Frederick M. Entwistle  
David C. Krohn  
Sara L. Burdette  
Michael M. Billion  
Mark J. Weber  
A. Russell Jacklow

FACSIMILE TRANSMISSION  
COVER LETTER

DELIVER TO:

*John Hatch*

FROM:

*Michael Billion*

TOTAL NUMBER OF PAGES:

*3*

(Including cover sheet)

PLEASE CALL US AS SOON AS POSSIBLE IF YOU DO NOT RECEIVE ALL PAGES:

(605) 336-3890 and ask for

*Barb F.*Sent to Fax No. *773-6035*

SEP 1951  
DIVISION OF  
WATER RIGHTS  
Pierre, SD

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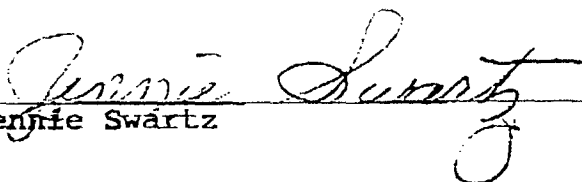
NOW, THEREFORE, she prays that she be allowed to intervene in the above referenced matters, and requests that all notices be sent to her attorneys of record, Michael M. Billion and William



- 2 -

Taylor of Woods, Fuller, Shultz & Smith P.C., 310 South First Avenue, Sioux Falls, South Dakota 57102.

Dated this 23 day of September, 1991.

  
Jennie Swartz

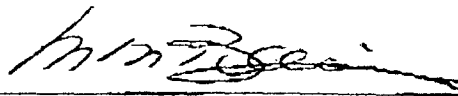
#### CERTIFICATE OF SERVICE

I hereby certify that on the 23rd day of September, 1991, I sent by first-class mail, postage prepaid, a true and correct copy of the foregoing Notice to Intervene to each of the following:

Mr. John Hatch  
Chief Engineer  
Division of Water Rights  
S.D. Department of Water and Natural Resources  
State Capitol Building  
Pierre, South Dakota 57501

Mr. Lyle Johnson  
Waste Water Superintendent  
Sioux Falls City Water Department  
2100 North Minnesota Avenue  
Sioux Falls, South Dakota 57104

WOODS, FULLER, SHULTZ & SMITH P.C.

By 

Michael M. Billion  
310 South First Avenue  
Sioux Falls, South Dakota 57102  
Attorneys for Jennie Swartz

We are supporting the declaratory ruling that annual withdrawals of the Big Sioux Aquifer be limited to 32,200 acre feet of water per year.

John Teegrett 6217 No Cliff S.F. 332-7678  
Dennis Kukegaard 6213 No Cliff SF 334-3584  
Robert Chambers 6501 No Cliff SF 334-0413  
Shirley Thompson 6501 No Cliff SF 332-0413  
Joe Mott 6509 N. Cliff S.F. 335-6652  
Dore Mott 6509 N. Cliff SF 335-6652  
Dore Furr 6513 N. Cliff SF 336-8154  
Marge Helmslet 6605 N. Cliff SF 339-1102  
M. L. H. H. 6605 N. Cliff SF 339-1102  
Gloria J. Hanson RR1 Box 723 Renner 338-2258  
Ronald J. Hanson RR1 Box 723 Renner 338-2258  
Viola Borgen Rt 1 Box 701 Renner - 3320951  
Harold R. R. Rt 1 Box 701 Renner 3320951  
Curtis O. Eggen Rt 10 Box 74 S. Falls 33-2-0718  
Carol Peltinger 6713 N. 10 SF SD 334-3333  
Diane Aspaas R1, Box 671 Renner, SD 339-9142  
Al Aspaas " " " " " "  
Jan Skyleberg RR1 Box 601 Renner, SD 343-5275  
Paul Skyleberg RR1 Box 601 Renner SD 343-5275  
Randy Skyleberg RR1 Box 721 Renner SD 332-1173  
Bob Skyleberg RR1 Box 720 Renner SD 336-2239  
M. L. H. H. RR1 Box 723 Renner SD 334-5452

John Hatch, Chief Engineer  
Water Rights Division  
Joe Foss Building  
523 E. Capitol  
Pierre, SD 57501



2

Dear John Hatch, Chief Engineer

We are opposing the applications filed: #5521-3, #5523-3, #5533-3, #5522-3 and #5556-6 we do not want any new water permits until our water problems are resolved in the Renner and Meadow Veiw area.

We are supporting the declaratory ruling that anual withdrawals of the Big Sioux Aquifer be limited to 32,200 acre feet of water per year.

Leann Nicholas 334-0455 6601 N. Cliff Ave, SF, SD  
David W. Meyers 338-7996 6509 North 10th Ave SF, SD  
Gudy Meyers 338-7996 6509 N 10th Ave SF, SD  
Nita Nauman 6601 10th Ave. N. SF, SD. 336-8735  
Kermit Hoover 6601 10th Ave. N. SF, SD. 336-8735  
Richard Vaughn 6600 N. 10th SFSD 338719/  
Kathleen Vaughn 6600 N. 10th SFSD 338719/  
Sherrilyn Barton 6505 N 10th SFSD 338-9401  
Mrs Matthew Balk 6501 North 10th Ave SF SD 334-2132  
Margaret Balk 6501 North 10th Ave SF SD 334-2132  
Vonda Raad 6500 N. 10th Ave. SF SD 332-0564  
Betty De Raad 6500 N. 10th Ave SF SD. 332-0564  
Steven Nyhaug 6420 N 10, SFSD 334-5484  
Teri Nyhaug 6420 N 10th SFSD 334-5484  
Julie Neubert 6421 N. 10th Ave SF SD 335-8105  
John Plenis 6405 N. 10th Ave. 334-5503  
Barb Van Laan 6316 N. 10th Ave. 338-7180  
Curtis Eyr 6400 N 10th Ave 339 2012  
Byring 6313 N Cliff 332 2693  
Deane Meyer 6309 N Cliff SF SD. 338-2059  
Patricia Weebken 6301 N. Cliff SF SD. 339-2292  
Norman Weebken 6301 N. Cliff SF SD 339-2293

John Hatch, Chief Engineer  
Water Rights Division  
Joe Foss Building  
523 E. Capitol  
Pierre, SD 57501



3

Dear John Hatch, Chief Engineer

We are opposing the applications filed: #5521-3, #5523-3, #5533-3, #5522-3 and #5556-6 we do not want any new water permits until our water problems are resolved in the Renner and Meadow Veiw area.

We are supporting the declaratory ruling that anual withdrawals of the Big Sioux Aquifer be limited to 32,200 acre feet of water per year.

Randy Zieser RR1 Box 737 Renner 335-5868  
Genevieve Sorum RR1 Box 787 Renner SD  
Jury Mow RT1 Box 623 543-5643 Renner SD  
Linda Cosg RR1 Box 647 Renner 543-5858  
Matt Shur RR1 Box 765 Renner 332-0850  
Candy Hender Box 30 Renner 332-7663  
Lz Vonne Bernolt RR1 Box 807 Renner 338-0150  
Shelly Jumblyson RR1 Box 567 Renner 543-5623  
Ronald J. Peterson RR1 Box 653 Renner SD 332-0458  
Dag Smith RR1 Box 865 Renner SD 339-0575  
Doris Clauson RR1 Box 739 Renner SD 332-6164  
Kathy Jensen Box 68 Renner SD 9-1353  
Herbert Swanson RR1 Box 783 Renner SD  
Kelly B. Egan RR1 Box 645 Renner S.D. 543-5924  
Linda Egan RR1 Box 645 Renner S.D. <sup>↑</sup> Same 334-5659  
Dean E. Sorum RR1 Box 754 Renner SD 332-0214  
Dandy K. Sorum RR1 Box 754 Renner SD 334-5659  
Jim A. Kuntel RR1 Box 655 Renner SD 339-0470  
Annette Meyer RR1 Box 675 Renner SD 334-4054  
Floyd France RR1 Box 955 Renner SD 543-5226  
Clarence Bor RR1 Box 673 Renner SD 332-0318  
Low Clauson RR1 Box 739 Renner S.D. 332-6164

4

We are supporting the declaratory ruling that annual withdrawals of the Big Sioux Aquifer be limited to 32,200 acre feet of water per year.

ROGER CHRISTENSON - 1100 E. 84<sup>th</sup> ST. SIOUX FALLS S.D. 3320614  
 Duane Egge - 603 E 3<sup>rd</sup> ST. COLTON S.D. 446-3281  
 Myron & Nohava - 210 Douglas Blvd. Baltic, S.D. 529-5600  
 Jeffery Pedersen - R.R. 2, Box 49B COLTON S.D. 446-3922  
 Roger L. Benson - Box 23 LYONS S.D. 543-5548  
 Selmer Johnson - Box 35 Sherman, S.D. 5911-3578  
 Earl ~~Johnson~~ - RR 11 Box 1200 Sioux Falls S.D. 3346219  
 Ewa Christenson - 1100 E. 84<sup>th</sup> ST. N. Sioux Falls, S.D. 332-0614

John Hatch, Chief Engineer  
Water Rights Division  
Joe Foss Building  
523 E. Capitol  
Pierre, SD 57501



Dear John Hatch, Chief Engineer

We are opposing the applications filed: #5521-3, #5523-3, #5533-3, #5522-3 and #5556-6 we do not want any new water permits until our water problems are resolved in the Renner and Meadow Veiw area.

We are supporting the declaratory ruling that anual withdrawals of the Big Sioux Aquifer be limited to 32,200 acre feet of water per year.

Erwin Meckold Renner 33.987 RR#1  
Faye Hanson 5409 N. Taylor St. SD  
Herman Knock 6705 N. Cliff Sioux Falls S.D.

Dean Bollinger 6709 N. Cliff ave. Sioux Falls SD  
Marian Nilsson 6801 N. Cliff ave. Sioux Falls, S.D.  
Dub Fite 6805 N. Cliff Sioux Falls S.D.  
Betty L. Miller 6812 No. 10<sup>th</sup> Ave, S. Falls, S.D. 57104  
Matt Miller 6812 N. 10<sup>th</sup> Ave, Sioux Falls, SD, 57104  
Jeff Miller 6812 N. 10<sup>th</sup> Ave, Sioux Falls, SD 57104  
Dane Nanson 6812 N. 10<sup>th</sup> Ave, Sioux Falls, SD 57104  
Dean Renner 6805 N. 10<sup>th</sup> Ave Sioux Falls, SD 57104  
Lorraine Renner 6805 N. 10<sup>th</sup> Ave, Sioux Falls, SD 57104  
Joan Monahan 6701 N. 10<sup>th</sup> Ave, Sioux Falls SD. 57104  
Lillian Nilsson 6700 N 10<sup>th</sup> Sioux Falls SD 57104  
Karen Cody Rt. 1 Box 841 Renner, SD 57055  
Nick Ehlert 6701 N. Cliff ave S.F. S. Dak 57104  
Jack Kennedy 6613 N. Cliff Sioux falls S. Dak.  
Mary M. Kennedy 6613 N. Cliff Sioux falls SD. 331442



**DEPARTMENT of ENVIRONMENT  
and NATURAL RESOURCES**

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

September 23, 1991

Gary Hanson, City Commissioner  
City of Sioux Falls  
224 W 9th St.  
Sioux Falls, SD 57102

Dear Mr. Hanson:

Enclosed is a copy of the petition of opposition filed with this office on the City of Sioux Falls Future Use Permit Application Nos. 5522-3 and 5523-3 and Water Permit Application Nos. 5521-3, 5533-3 and 5556-3. The petition also supports the declaratory ruling for establishment of a maximum annual withdrawal limitation from the Big Sioux Aquifer:Sioux Falls Management Unit. I am sending the petition to you in the event that the petitioners inadvertently did not provide you a copy.

If you have any questions regarding the submittal of this petition, please feel free to contact this office.

Sincerely,

*Eric Gronlund*  
Eric Gronlund  
Water Rights Division  
605 773-3352

enclosure

cc: Lyle Johnson  
Janet Brekke, Assistant City Attorney

*South Dakota*

GREAT FACES. GREAT PLACES.

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

September 23, 1991

Mike Billion  
310 South First Ave.  
Sioux Falls, SD 57102

Dear Mr. Billion:

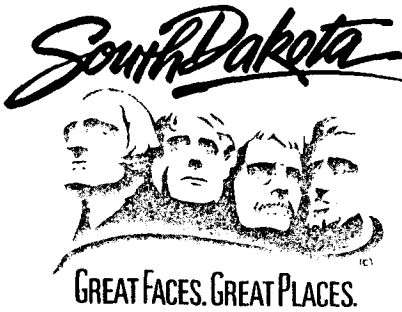
Per your phone conversation with Eric Gronlund earlier today, please find enclosed a copy of the Report and Recommendation for Water Permit Application Nos. 5521-3, 5523-3, 5533-3, and 5556-3.

If we can be of further assistance, please feel free to contact our office.

Sincerely,

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

encl



**DEPARTMENT of ENVIRONMENT  
and NATURAL RESOURCES**

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

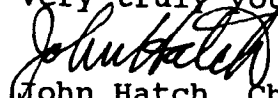
September 24, 1991

**Water Management Board:**

Several of the agenda items (City of Sioux Falls) scheduled for the October 2 meeting in Sioux Falls have been automatically continued. Due to the significance and local interest generated by the City of Sioux Falls agenda items, a special Board meeting should be held in Sioux Falls.

I am suggesting that a special meeting be held in Sioux Falls on November 5 and 6, 1991. Setting a special meeting date is scheduled for 8:30 am at the October 2, 1991 Board meeting. The Board may also be requested to set times for filing prehearing legal briefs, and to determine any other procedural issues at the October 2 meeting. John Guhin has a conflict November 7. If the parties believe the hearings will exceed two days; other meeting dates may be necessary.

Very truly yours,

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

cc: John Guhin, Deputy Attorney General  
Diane Best, Assistant Attorney General

*South Dakota*

GREAT FACES. GREAT PLACES.

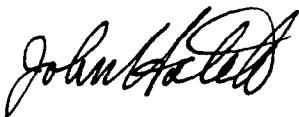
**DEPARTMENT of ENVIRONMENT  
and NATURAL RESOURCES**

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

September 24, 1991

**NOTICE**

TO:       - Water Permit/Right Holders for the Sioux Falls Management Unit of the Big Sioux Aquifer  
          - Persons Petitioning the Water Management Board for a Declaratory Ruling to Resolve Problems with Domestic Wells in the Renner Area  
          - Other Interested Persons

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

SUBJECT:   Automatic Delay of Hearing on the request for a Declaratory Ruling on the Decline of the Water Levels in Private Domestic Wells in the Renner Area North of Sioux Falls and City of Sioux Falls Water Permit Applications from the Sioux Falls Management Unit of the Big Sioux Aquifer.

A hearing was scheduled on October 2, 1991, before the Water Management Board to consider the request for a declaratory ruling on private domestic well problems in the Renner area north of Sioux Falls. The City of Sioux Falls, a party to this proceeding, has requested that the hearing on this declaratory ruling request be automatically delayed pursuant to SDCL 46-2A-4 and 46-2A-5. Therefore, the hearing on this declaratory ruling request will not be held on October 2, 1991.

A petition from the following petitioners requests an automatic delay of the hearings on City of Sioux Falls Water Permit Applications No. 5523-3, 5521-3, 5533-2, and 5556-3, all for Sioux Falls Management Unit, Big Sioux Aquifer Water.

Minnehaha Rural Water Corporation  
  represented by Jerry Lammers  
City of Dell Rapids  
City of Baltic  
City of Hartford  
Minnehaha County Economic Development Association  
Minnehaha County Rural Mayors Association  
City of Humboldt  
City of Garretson

The hearings on Application Nos. 5523-3, 5521-3, 5533-2 and 5556-3 will not be held October 2, 1991.

I am requesting the Water Management Board to schedule a special, early November meeting in Sioux Falls to consider the declaratory ruling request and City of Sioux Falls Water Permit Applications. Discussion on the dates and procedure for this special meeting will take place before the Board at 8:30 am on October 2, 1991 in the Embassy Rooms 1 & 2, Holiday Inn City Centre, 100 West 8th Street, Sioux Falls, SD. On October 2, 1991, the Board may also set times for filing prehearing legal briefs, and determine any other procedural issues. No evidence will be presented on the declaratory ruling request or City of Sioux Falls applications.

After October 2, 1991, notice will be provided to any parties of record (persons who have filed petitions in response to previous notices) of the date, time and place of the hearings before the Water Management Board regarding the declaratory ruling request and City of Sioux Falls applications. If you have any questions, please contact Eric Gronlund at 773-3352.

Since no opposition petitions have been filed, the Water Management Board will still consider the Chief Engineer's request for declaratory ruling to establish a maximum annual withdrawal limitation of 32,200 acre feet annually from the Sioux Falls Management Unit, Big Sioux Aquifer and cancellation of six City of Sioux Falls vested water right claims and one water right as scheduled October 2, 1991.

Enclosed for your information is a copy of the October 2, 1991 Board Meeting Agenda.

cc: Water Management Board  
John Guhin, Deputy Attorney General  
Diane Best, Assistant Attorney General  
Gary Hanson, City Commissioner  
Lyle Johnson, Utility Manager  
Janet Brekke, Assistant City Attorney  
Jerome Lammers, Attorney

## CERTIFICATION

I hereby certify that on September 24, 1991 I have personally deposited with the U.S. Mail postage prepaid envelopes containing a Notice of Automatic Delay of Hearing on the request for a Declaratory Ruling on the Decline of the Water Levels in Private Domestic Wells in the Renner Area North of Sioux Falls and City of Sioux Falls Water Permit Applications from the Sioux Falls Management Unit of the Big Sioux Aquifer, and a copy of the October Agenda Sixty Fourth Water Management Board Meeting to be held October 2, 1991 addressed as stated below and on the attached list:

Gary Hanson, City Commissioner, City of Sioux Falls, 224 W. 9th Street, Sioux Falls, SD 57102.

Lyle Johnson, Utility Manager, 224 W. 9th St., Sioux Falls, SD 57102.

Janet Brekke, Assistant City Attorney, 224 W. 9th St., Sioux Falls, SD 57102.

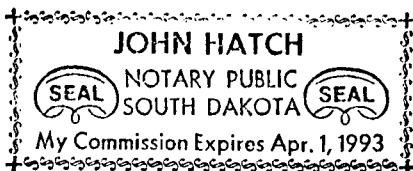
Jerome Lammers, Attorney, Lammers, Lammers, Kleibacker & Parent, P.O.  
Box 45, Madison, SD 57042-0045.

Chas F. Frost

Cheryl F. Frost  
Secretary

STATE OF SOUTH DAKOTA )  
 ) SS  
COUNTY OF HUGHES )

Sworn to, before me, this 26<sup>th</sup> day of September, 1991.



John Hatell  
(Notary Public

## CERTIFICATION

I hereby certify that on September 25, 1991 I have personally deposited with the U.S. Mail postage prepaid envelopes containing a Notice of Automatic Dealy of Hearing on the request for a Declaratory Ruling on the Decline of the Water Levels in Private Domestic Wells in the Renner Area North of Sioux Falls and City of Sioux Falls Water Permit Applications from the Sioux Falls Management Unit of the Big Sioux Aquifer, and a copy of the October Agenda Sixty Fourth Water Management Board Meeting to be held October 2, 1991 addressed as stated below:

John W. Edberg, Mayor, City of Hartford, Drawer D, Hartford, SD 57033.

Thomas J. Earley, Chairman, Minnehaha Co. Rural Mayors Association,  
P.O. Box 10, Dell Rapids, SD 57022.

Scott A. Dewey, Finance Officer, City of Garretson, 705 Main Ave.,  
Garretson, SD 57030.

Myron G. Nohava, V.P. MCEDA, Minnehaha Co. Economic Development  
Assoc., 210 Douglas Blvd., Baltic, SD 57003

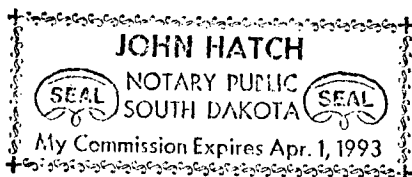
Thomas L. Pethoff, Mayor, City of Humboldt, 404 S. Jefferson,  
Humboldt, SD 57035.

Cheryl F. Frost

Cheryl F. Frost  
Secretary

STATE OF SOUTH DAKOTA )  
 ) SS  
COUNTY OF HUGHES )

Sworn to, before me, this 26<sup>th</sup> day of September, 1991.



*John H. H. H.*  
Notary Public



**DEPARTMENT of ENVIRONMENT  
and NATURAL RESOURCES**

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

GREAT FACES. GREAT PLACES.

October 9, 1991

**NOTICE**

TO: Gary Hanson, City Commissioner  
City of Sioux Falls  
224 W. 9th Street  
Sioux Falls, SD 57102  
and Parties of Record

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

SUBJECT: Rescheduling of Hearings on: 1) Request for a Declaratory Ruling to Establish a Maximum Annual Withdrawal Limitation of 32,200 Acre Feet of Water Annually, 2) Declaratory Ruling on Decline of Water Levels in Private Domestic Wells in the Renner Area North of Sioux Falls, and 3) City of Sioux Falls Permit Applications from the Sioux Falls Management Unit of the Big Sioux Aquifer and Establishment of a Procedural Order for the Hearings

The Water Management Board will consider the following declaratory ruling requests and permit applications from the Sioux Falls Management Unit of the Big Sioux Aquifer at a special meeting on November 13, 1991 beginning at 8:30 am in the Starlite Room on the Ninth Floor, Holiday Inn City Centre, 100 West 8th Street, Sioux Falls, SD 57102. Parties of record will be permitted to provide testimony at only the hearing(s) for which a petition(s) to intervene was filed.

- 1) The declaratory ruling request to establish a maximum annual withdrawal limitation of 32,200 acre feet annually (deferred at the October 2, 1991 Board meeting).
- 2) The declaratory ruling request on the decline of the water levels in private domestic wells in the Renner area north of Sioux Falls.
- 3) The City of Sioux Falls Future Use Permit Application No. 5523-3.
- 4) The City of Sioux Falls Water Permit Application Nos. 5521-3, 5533-3 and 5556-3.

The hearing on the declaratory ruling on the decline of water levels in private domestic wells and Application Nos. 5521-3, 5523-3, 5533-3 and 5556-3 were automatically delayed from the October 2, 1991 Board meeting pursuant to SDCL 46-2A-4 and 46-2A-5.

Enclosed is an agenda for the November 13 and 14, 1991 special meeting of the Water Management Board. If the agenda issues scheduled for November 13, 1991 extend into the second day of the Board meeting, then the Board will continue hearing these issues at 8:30 am on November 14, 1991, prior to consideration of Future Use Permit Application No. 5522-3.

Applicable provisions of the notice of hearings published September 4 and 11, 1991 in the Sioux Falls Argus Leader and September 5 and 12, 1991 in the Sioux Valley News will still apply at these hearings.

A procedural order is enclosed which sets a schedule for filing of pre-hearing briefs regarding the declaratory ruling on the decline of the water levels in private domestic wells in the Sioux Falls Management Unit of the Big Sioux Aquifer and appointment of a pre-hearing officer.

If you have any questions regarding the upcoming hearings, please contact Eric Gronlund at 773-3352.

cc: Diane Best, Assistant Attorney General  
Janet Brekke, Assistant City Attorney  
Jerome B. Lammers, Attorney  
Lyle Johnson, Utility Manager  
Lowen Schuett, Park Superintendent

enclosures

[illegible]

NOTICE  
AND ORDER

On October 2, 1991, the South Dakota Water Management Board (Board) met to set its date for hearing and make other procedural determinations in the above-entitled administrative proceedings. At this public meeting, the Board determined that the hearings in the above-entitled cases will be held at 8:30 a.m. on November 13, 1991, in the Starlite Room on the 9th Floor, Holiday Inn City Centre, 100 West 8th Street, Sioux Falls, South Dakota. In addition, the Board set the following schedule for the filing of prehearing briefs in Matter of the Adequacy of Ground Water for Domestic Wells in the Renner Area:

City will make its brief available to  
Petitioners at the City Offices on this  
date. In the afternoon the City will  
mail the brief to those petitioners who  
have not yet picked up their copy as  
well as to the Board members, Board  
counsel and the Division of Water  
Rights. The Division of Water Rights  
will send its brief to the Board  
members, Board counsel, and the  
Petitioners on this date.

Petitioners will leave their briefs at the registration desk of the Sioux Falls Holiday Inn. Copies are to be provided for the Board members, Board counsel,

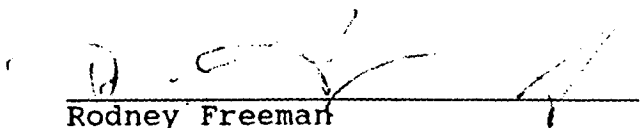
the Division of Water Rights, and the City (10 copies).

In addition to the above determinations, the Board appointed the undersigned Board member to serve as prehearing officer in each of the above-entitled cases and to give notice of the appointment as well as of the above procedural determinations.

As ordered by the Board, NOTICE IS HEREBY GIVEN that the undersigned Board member has been appointed to serve as prehearing officer in each of the above-entitled cases. Prehearing issues (discovery & procedural requests) will be heard upon notice to all parties in the case involved. Issues involving the merits will not be addressed by the prehearing officer, but are reserved for the hearing before the Board, and

NOTICE IS FURTHER GIVEN that the prehearing briefs are to be filed according to the schedule set forth above. These briefs are limited to legal issues to be considered in Matter of the Adequacy of Ground Water for Domestic Wells in the Renner Area and are not to be filed for the other cases set forth in the above caption.

Dated this 1<sup>st</sup> day of October, 1991.

  
Rodney Freeman  
Prehearing Officer

## CERTIFICATION

I hereby certify that on October 9, 1991 I have personally deposited with the U.S. Mail postage prepaid envelopes containing a Notice of Rescheduling of Hearings on: 1) Request for a Declaratory Ruling to Establish a Maximum Annual Withdrawal Limitation of 32,200 Acre Feet of Water Annually, 2) Declaratory Ruling on Decline of Water Levels in Private Domestic Wells in the Renner Area North of Sioux Falls, and 3) City of Sioux Falls Permit Applications from the Sioux Falls Management Unit of the Big Sioux Aquifer and Establishment of a Procedural Order for the Hearings, and a copy of the Proposed Agenda Special Water Management Board Meeting to be held November 13 & 14, 1991 addressed as stated below, and on the attached list:

Gary Hanson, City Commissioner, City of Sioux Falls, 224 W. 9th Street, Sioux Falls, SD 57102.

Janet Brekke, Assistant City Attorney, City of Sioux Falls, 224 W. 9th Street, Sioux Falls, SD 57102.

Jerome B. Lammers, Attorney, 108 N. Egan, P.O. Box 45, Madison, SD  
57042-0045.

Lyle Johnson, Utility Manager, City of Sioux Falls, 224 W. 9th Street,  
Sioux Falls, SD 57102.

Lowen Schuett, Park Superintendent, Parks & Recreation Department, 600 E. 7th, Sioux Falls, SD 57102-0496.

Commissioner Jim Zweep, RR 1, Box 2235, Brandon, SD 57005.

David Queal, Office of Planning & Zoning, Minnehaha County Courthouse,  
415 North Dakota Ave., Sioux Falls, SD 57102.

**Sent Inter-office To:**

Diane Best, Assistant Attorney General, Capitol Building.

*Cheryl F. Frost*  
Cheryl F. Frost  
Secretary

STATE OF SOUTH DAKOTA )  
 ) SS  
COUNTY OF HUGHES )

Sworn to, before me, this 10<sup>th</sup> day of October, 1991.



*John A. [Signature]*  
Notary Public



**DEPARTMENT of ENVIRONMENT  
and NATURAL RESOURCES**

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

GREAT FACES. GREAT PLACES.

October 9, 1991

Robert Chambers  
6501 North Cliff Avenue  
Sioux Falls, SD 57104

Dear Mr. Chambers:

Enclosed are copies of the notices sent out in the past months regarding the declaratory rulings and Sioux Falls permit applications from the Sioux Falls Management Unit of the Big Sioux Aquifer. You are a party of record to these proceedings and as such will be permitted to provide testimony at the hearing(s) for which you petitioned to intervene.

If I may be of further assistance, please feel free to contact me.

Sincerely,

A handwritten signature in cursive script, appearing to read "Eric Gronlund".

Eric Gronlund  
Water Rights Division  
605 773-3352

enclosure



**DEPARTMENT of ENVIRONMENT  
and NATURAL RESOURCES**

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

October 16, 1991

Dear :

I am writing to let you know that a special meeting of the Water Management Board will be held in Sioux Falls beginning at 8:30 am in the Starlite Room on the Ninth Floor of the Holiday Inn City Centre on November 13 and 14, 1991 to consider the following declaratory ruling requests and City of Sioux Falls permit applications.

- 1) A declaratory ruling request to establish a maximum annual withdrawal limitation of 32,200 acre feet annually from the Sioux Falls Management Unit of the Big Sioux Aquifer (deferred at the October 2, 1991 Board meeting).
- 2) A declaratory ruling request on the decline of the water levels in private domestic wells in the Renner area north of Sioux Falls.
- 3) City of Sioux Falls Future Use Permit Application No. 5523-3 for the Sioux Falls Management Unit of the Big Sioux Aquifer.
- 4) City of Sioux Falls Future Use Permit Application No. 5522-3 from the Middle Skunk Creek Aquifer.
- 5) City of Sioux Falls Water Permit Application Nos. 5521-3, 5533-3 and 5556-3 from the Sioux Falls Management Unit of the Big Sioux Aquifer.

During the past months, copies of the public notices and other relevant correspondence have been sent to you to keep you informed about these water issues that may have an impact on your constituents. The Minnehaha Community Water Corporation; five cities - Dell Rapids, Hartford, Baltic, Humboldt, and Garretson; the Minnehaha County Economic Development Association; Minnehaha County County Rural Mayors Association; and 128 persons in the Renner area have petitioned to intervene in the hearings concerning the Sioux Falls Management Unit of the Big Sioux Aquifer. There have been 164 persons who have petitioned to intervene in the hearing concerning the Middle Skunk Creek Aquifer application. Petitioning enables these citizens and

groups to provide testimony to the Board. The Board will hear testimony on November 13 and 14, 1991, consider the evidence, and ultimately, make rulings on the two declaratory rulings and the permit applications.

Enclosed is a copy of the proposed agenda for this special Board meeting. If you have any questions regarding these water issues, please feel free to contact me.

Very truly yours,

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

enclosure

Senator Roberta Rasmussen  
Rt 1, Box 23  
Hurley, SD 57036-9666

Representative Mike Wagner  
115 Oak, Box 308  
Baltic, SD 57033

Representative Bill Sandness  
4004 Watson Ave.  
Sioux Falls, SD 57106

Senator Keith Paisley  
2409 S. Elmwood  
Sioux Falls, SD 57105

Representative Dave Munson  
1009 S. Lyndale  
Sioux Falls, SD 57105

Representative Jack G. Rentschler  
4401 Vista Lane  
Sioux Falls, SD 57105

Senator Linda Stensland  
1800 O'Tonka Ridge  
Sioux Falls, SD 57103

Representative Janice Nicolay  
1401 Suburban Dr.  
Sioux Falls, SD 57103-3762

Representative Patrick Kane  
201 Security Building  
Sioux Falls, SD 57102

Representative Juel S. Johnson  
P.O. Box 536  
Parker, SD 57053-0333

Senator Pam Nelson  
2505 South Marion Road  
Sioux Falls, SD 57106

Representative Patricia Pilcher  
3200 O'Gorman Dr.  
Sioux Falls, SD 57105

Representative Robert E. Caselli  
1405 S. Garfield Ave.  
Sioux Falls, SD 57105

Senator Richard Belatti  
1212 S. Phillips Ave.  
Sioux Falls, SD 57105

Representative John Timmer  
1212 Elkhorn  
Sioux Falls, SD 57104

Representative Roger Hunt  
RR 1, Box 875  
Brandon, SD 57005

Senator Karen Muenster  
117 N. Duluth  
Sioux Falls, SD 57104-3023

Representative Mary Vanderlinde  
1201 North Minnesota Ave.  
Sioux Falls, SD 57104

Francis M. Smith  
Merle A. Johnson  
Arlo D. Sommerfeld  
Richard O. Gregerson  
John F. Simko  
William C. Taylor  
William P. Fuller  
Stuart L. Fiedle  
Gary P. Thimsen  
Bradley C. Grossenbutz  
James M. Wiederrich  
Garnet H. Haraldson  
Richard J. Corcoran  
J. G. Shultz  
Roger W. Damgaard  
Barbara Anderson Lewis  
Frederick M. Entwistle  
David C. Kroon  
Michael M. Billion  
Mark J. Welter  
A. Russell Janklow  
James E. Moore

WOODS, FULLER, SHULTZ & SMITH P.C.

LAWYERS

310 SOUTH FIRST AVENUE

SIOUX FALLS, SOUTH DAKOTA 57102

TELEPHONE (605) 336-3890  
TELECOPIER (605) 339-3357

Melvin L. Woods (1899-1983)  
Howell L. Fuller (1909-1981)  
John B. Shultz (1912-1975)

William J. Janklow  
Of Counsel

October 21, 1991



Via FAX

Mr. John Hatch  
Chief Engineer  
Division of Water Rights  
S.D. Department of Water & Natural Resources  
State Capitol Building  
Pierre, South Dakota 57501

Re: Jennie Swartz

Dear Mr. Hatch:

Mrs. Swartz is no longer retaining Woods, Fuller, Shultz & Smith to represent her in this matter. Kindly address future notices directly to her at:

Rural Route 1  
Box 104  
Baltic, South Dakota 57003

Sincerely,

WOODS, FULLER, SHULTZ & SMITH P.C.

Michael M. Billion

cc: Mrs. Jennie Swartz



**DEPARTMENT of ENVIRONMENT  
and NATURAL RESOURCES**

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

October 22, 1991

Jerome B. Lammers, Attorney  
Lammers, Lammers, Kleibacker & Parent  
108 North Egan  
P.O. Box 45  
Madison, SD 57042-0045

Dear Mr. Lammers:

Enclosed is the information you requested regarding the Big Sioux Aquifer:Sioux Falls Management Unit issues to be heard by the Water Management Board at their special meeting on November 13, 1991. Specifically the enclosures include:

- 1) Original petition requesting declaratory ruling from Renner citizens.
- 2) Notice to Gary Hanson, dated May 8, 1991.
- 3) Affidavits in the matter of the adequacy of ground water for domestic wells in the Renner area.
- 4) Notice, dated August 1, 1991, to Gary Hanson.
- 5) Letter from Gary Hanson, dated August 19, 1991, responding to the Chief Engineer's August 1, 1991 Notice.
- 6) Public Notice published regarding declaratory rulings.
- 7) Petitions of opposition from citizens in the Renner and Meadow View area to Application Nos. 5521-3, 5522-3 (Middle Skunk Creek Aquifer), 5523-3, 5533-3, 5556-3 and in support of annual withdrawal limitation.
- 8) Petition of opposition from Minnehaha Community Water, Corp. and area municipalities.
- 9) "Notice and Order" on filing of briefs.
- 10) Report on petition for declaratory ruling to limit annual withdrawals from the Sioux Falls Management Unit of the Big Sioux Aquifer.

- 11) Reports prepared by Water Rights Division staff on Future Use Application No. 5523-3 and Water Permit Application Nos. 5521-3, 5533-3 and 5556-3.

Obviously, the enclosed information does not include all of the contents in the files. I have tried provide you with the essential information on the declaratory rulings, applications and correspondence that relates directly to the issues at hand. If you believe that I may have overlooked any pertinent information, please let me know.

If I may be of any further assistance, please do not hesitate to contact me.

Sincerely,

*Eric Gronlund*

Eric Gronlund  
Water Rights Division  
605 773-3352

enclosure

LAMMERS, LAMMERS, KLEIBACKER & PARENT  
LAWYERS

108 NORTH EGAN - P. O. BOX 45  
MADISON, SOUTH DAKOTA 57042-0045

J. H. LAMMERS (1893-1983)  
JEROME B. LAMMERS  
WILSON M. KLEIBACKER  
PHILIP R. PARENT



256-6677  
AREA CODE 605  
FAX NUMBER  
(605) 256-6679

October 22, 1991

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

Dear John:

RE: Renner Area Private Domestic Wells/Declaratory Ruling

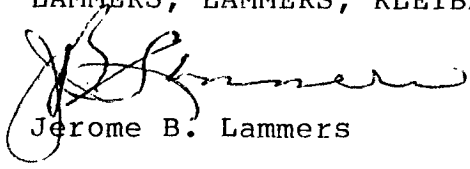
Please let this confirm my telephone conference yesterday with Eric Gronlund of your office whereby I advised him that I was representing approximately thirty-seven people involved in the above captioned matter and would appear on their behalf before the Water Mangement Board on November 13 and 14.

Mr. Gronlund has agreed to forward to me copies of all pertinent documentation, including, but not limited to, the petition, affidavits, your data, reports and recommendations.

If there is anything else that you need from me, please do not hesitate to contact me.

Yours very sincerely,

LAMMERS, LAMMERS, KLEIBACKER & PARENT

  
Jerome B. Lammers

JBL/ke

pc: Richard Vaughn



## City of Dell Rapids

P. O. Box No. 10 \* SOUTH DAKOTA 57027

Water Management Board  
Attn: Rodney Freeman  
Holiday Inn City Centre  
100 W. 8th Street  
Sioux Falls, SD 57102



Dear Board Members:

I am not able to appear before you today because of a previously scheduled trip to Virginia. This letter will address the concerns of the Minnehaha County Rural Mayor's Association as well as my concerns as Mayor of Dell Rapids. The Mayor's Association met on October 17, 1991 to discuss the issue permit applications impacting the Big Sioux Aquifer.

The Mayor's Association is very concerned with the request of the City of Sioux Falls for Permit Applications from the Sioux Falls Management Unit of the Big Sioux Aquifer. With the issuance of any permits there should exist a joint agreement on a regulated water management plan that addresses the concerns and needs of the users of the Big Sioux Aquifer.

The Minnehaha County Rural Mayor's Association represents the ten communities of Baltic, Brandon, Colton, Crooks, Dell Rapids, Garretson, Hartford, Humboldt, Sherman and Valley Springs. Altogether we represent over 11,000 citizens. Obviously most of us depend on the water provided by the Big Sioux Aquifer. Our association was formed to enable us to speak with unity about issues that concern our members. Having begun our united effort at rural economic development, our interest and concern in this issue is directly related to our effort at economic development.

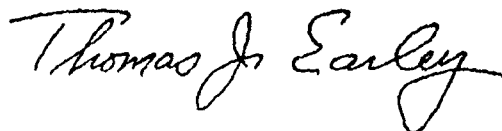
As Mayor of Dell Rapids my immediate concern stems from our city being a customer of Minnehaha Community Water Corporation (MCWC). Our relationship with MCWC has been excellent and we firmly support the position and actions of the MCWC Board of Directors. MCWC is an example of an efficient and well managed rural water system.

In my opinion, this process itself tends to create an impression of us against them. A sense of confrontation is a creation of the legalism and paperwork flowing back and forth.

It is not, I repeat, not my intention to be confrontational or in any way create a situation that will hinder cooperation with our neighbor, the City of Sioux Falls. Just as the towns in the Mayor's Association know that we must cooperate among ourselves to achieve lasting progress for our area, so too must we take the same approach with the City of Sioux Falls. No one can deny the legitimate concerns the City of Sioux Falls has when one looks at the growth they have experienced and the predictions for the next ten to twenty years. We realize these last years have seen a concentrated effort by the City of Sioux Falls to update the water distribution system after years of inattention. In carrying out this responsibility all we are asking is that there be recognition and acknowledgement of the needs and concerns of the other users of the Big Sioux Aquifer. Just as Sioux Falls enjoys the economic benefit offered by our 11,000 plus citizens, we too experience the benefit of the growth of Sioux Falls. Since not everyone decides to live in Sioux Falls, our communities have seen a dramatic increase in new housing starts. We are in reality one economic body. We must arrive at decisions that recognize our unique relationship.

Very simply, since we all share and need the water contained in the Big Sioux Aquifer, doesn't it make sense that we work together at establishing a water management plan for the Big Sioux Aquifer that efficiently manages this resource and meets the needs of all the users. Conservation of water should be an integral part of this plan. All utilities that draw water from the Big Sioux Aquifer should capture the full cost of operation from the consumers. The use of the second-penny sales tax by Sioux Falls to subsidize their utility operation should be phased out over the next five years. Enterprise funds should be self-sufficient.

A water management plan must be flexible to allow for adjustments due to unforeseen future needs. By looking at the big picture I feel we can address all our needs and still protect our valuable resource. Now is the time for us to take a positive approach to the challenge we all face. Let's not let the system get in the way of our putting together a water management plan. In a spirit of cooperation so much more can be achieved. Let's do it.



Thomas J. Earley  
Chairman, Minnehaha County  
Rural Mayor's Association



**DEPARTMENT of ENVIRONMENT  
and NATURAL RESOURCES**

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

FEB 27 1992

Lowen Schuett  
Elmwood Golf Course  
City of Sioux Falls/Parks Dept  
600 E 7th St  
Sioux Falls, SD 57102

Dear Mr. Schuett:

Enclosed is Water Permit No. 5556-3 authorizing construction of your water diversion system and beneficial use of the water, not exceeding the limits as specified in the Water Permit.

We will schedule an inspection so that the Water License may be issued to you, thus completing your acquisition of a Water Right.

Very truly yours,

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

enclosures

REPORT ON INSPECTION OF PERMIT NUMBER 5556-3 (incorporate 4232-3)

DATE 4/20/92

Other permit(s) associated with the project 4232-3

DIVERSION POINT LEGAL LOCATION: 3 wells - Wells No. 1 and 2 (under 5556-3) and Well #3 (under 4232-2)

WELL LOCATION: Well No. 1 is 2398'E and 785'S of the NW corner; Well No.2 is 2096'W and 437' of the NE corner; and Well No. 3 is 1480'S and 1260'W of the NE corner; all in Section 7-T101N-R49W, MINNEHaha County, SD

No. of Wells 3 Depth(s) 40.7'/32'/32'

- a) Casing: 1) diameter all 12 inches      b) Screen: 1) type all stainless steel  
2) length 32 feet      2) length unknown feet  
3) type all black steel      c) Pump 1) make Grundfos/LB Vertical/Byron  
d) Static Water Level 14.5'/~13'/13.8' feet      2) model SP 75-4/47242/771H7784  
e) Motor:      3) size all 6" inches  
1) make Grundfos/US Electric (#2 and 3)      4) capacity 335/250/440 GPM  
2) model No. SP 75-4/A324UPY/9708981-D-318      5) turbine pump - No. of stages all 3  
3) horsepower rating 25/25/40 hp      6) operating pressure 82/98/85 PSI

**DISTRIBUTION LINES OR CANALS:**

- a) type Cast Iron/PVC      b) size 6" Cast Iron and 2"/3"/4"/6" PVC  
c) length 50'/21,405'/14,140'/6270'/2850' feet

**System Type:**

a) Permanent Golf Course Sprinkler System - System consists of lines to 186 Toro Model No. 650, 174 Toro Model No. 670 and 36 Toro Model No. 680 Sprinklers for irrigating 18 hole golf course greens, tees and fairways as well as practice green

**CHEMIGATION EQUIPMENT:**

a) does chemigate N (Y/N)

**PERMIT QUALIFICATIONS AND REGULATIONS:**

- a) Soil and water permit lands agree with lands being irrigated and lands listed on permit Y (Y/N)  
b) Special qualifications to permit being abided by Y (Y/N)  
c) All structures, wells and lands on map Y (Y/N)  
d) Irrigation Questionnaires checked to determine if permit owner started irrigation by the end of construction period Y (Y/N)

Water Permit 5556-3 appropriates 1.42 cfs of water from Wells No. 1 and 2. Water Permit No. 4232-3 authorizes diversion of 0.71 cfs of water to irrigate 50 acres of the golf course located in the E1/2 NE1/4 and the SW1/4 NE1/4 of Section 7-T101N-R49W. This license authorizes no additional diversion of water from Well No.3 above the 0.71 cfs from No. 4232-3. Water will, however, be used from Well No. 3 along with Wells No. 1 and 2 within the described irrigation system to irrigate the entire 238 acres of the golf course.

Permit No. 5556-3

Big Sioux River Water District

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

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

I have this day made a thorough examination of the water use system constructed by Elmwood Golf Course of City of Sioux Falls holder of Permit No. 5556-3, bearing the priority of March 21, 1991 authorizing the diversion of 1.42 cu. ft. per second of the waters of the Big Sioux Aquifer - Sioux Falls Management Unit for irrigation purposes, in Minnehaha County.

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

A. Works used to divert the water:

3 wells - Well No. 1 - 40.7' deep with 12" black steel casing and 12" stainless steel screen, 3 stage Grundfos pump, model No. SP 75-4, 6", 335 GPM @ 82 PSI, Grundfos Motor, Model No. SP 75-4, 25 HP; Well No. 2 - 32' deep with 12" black steel casing and stainless steel screen, 3 stage LB Vertical Pump, Model No. 47242, 6", 250 GPM @ 98 PSI, US Electric Motor - Model No. A324UPY, 25 HP; Well No. 3 - 32 deep, with 12" black steel casing and stainless steel screen, 3 stage Byron pump, Model No. 771H7784, 6", 440 GPM @ 85 PSI

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

50' of 6" Cast iron pipe and 21,405' of 2" PVC, 14,140' of 3" PVC, 6270' of 4" PVC and 2850' of 6" PVC

C. Works used to apply water to beneficial use:

Permanent Sprinkler System consisting of 186 Toro Model No. 650, 174 Toro Model No. 670 and 36 Toro Model No. 680 Sprinklers for irrigating 18 hole golf course greens, tees and fairways as well as practice greens

The system is in the following condition excellent. The point of diversion is located Well No. 1 - 2398'E and 785'S of the NW corner; Well No. 2 - 2096'W and 437'S of the NE corner; and Well No. 3 - 1480'S and 1260'W of the NE corner; all in Section 7-T101N-R49W.

The works are capable of diverting and conveying to the place of use <sup>2.28</sup>~~1.30~~ cu. ft. per

second of water which is to be used for irrigation. Water has been put to beneficial use to the maximum extent as follows:

Section 6-T101N-R49W:

NW1/4 SE1/4 = 5 acres

SW1/4 SE1/4 = 33 acres

SE1/4 SW1/4 = 5 acres

Section 7-T101N-R49W:

NE1/4 NW1/4 = 20 acres

SE1/4 NW1/4 = 27 acres

SW1/4 NE1/4 = 36 acres

NW1/4 NE1/4 = 37 acres

NE1/4 NE1/4 = 14 acres

SE1/4 NE1/4 = 35 acres

NE1/4 SE1/4 = 4 acres

NW1/4 SE1/4 = 11 acres

NE1/4 SW1/4 = 2 acres

Section 8-T101N-R49W:

NW1/4 NW1/4 = 4 acres

SW1/4 NW1/4 = 3 acres

NW1/4 SW1/4 = 2 acres

There are 50 acres covered under No. 4232-3 in the E1/2 NE1/4 and the SW1/4 NE1/4; all in Section 7-T101N-R49W

comprising a total of 238 acres of land and the license should be issued for <sup>2.13</sup>~~1.30~~ cfs.

Applicable permit qualifications have been complied with ☒ Yes ☐ No

Exceptions to compliance are: None Date 4/20/92



Gregory C. Johnston  
Natural Resources Engineer  
DENR, Water Rights Division

Greg, All 3 wells have black steel casing  
12" in diameter. The length consists of 2  
5' columns, and 1 10' column<sup>(?)</sup>. The screen type  
is stainless 12" in diameter. Current water  
levels on all 3 is in the 12' to 13' range.  
West Well is 40' 8" deep, North well 32',  
East well 32'.

Thank you  
Dick Tuttle  
EGC



A handwritten signature or set of initials, possibly "PAX", written in dark ink.

# NOT TO SCALE

All in Section 6 - T101N-49W:

NW<sup>1</sup>/<sub>4</sub> SE<sup>1</sup>/<sub>4</sub> = 5 acres

SW<sup>1</sup>/<sub>4</sub> SE<sup>1</sup>/<sub>4</sub> = 33 acres

SE<sup>1</sup>/<sub>4</sub> SW<sup>1</sup>/<sub>4</sub> = 5 acres

All in Section 7 - T101N-R49W:

NW<sup>1</sup>/<sub>4</sub> NE<sup>1</sup>/<sub>4</sub> = 37 acres

SW<sup>1</sup>/<sub>4</sub> NE<sup>1</sup>/<sub>4</sub> = 36 acres

NE<sup>1</sup>/<sub>4</sub> NE<sup>1</sup>/<sub>4</sub> = 14 acres

SE<sup>1</sup>/<sub>4</sub> NE<sup>1</sup>/<sub>4</sub> = 35 acres

NE<sup>1</sup>/<sub>4</sub> NW<sup>1</sup>/<sub>4</sub> = 20 acres

SE<sup>1</sup>/<sub>4</sub> NW<sup>1</sup>/<sub>4</sub> = 27 acres

NW<sup>1</sup>/<sub>4</sub> SE<sup>1</sup>/<sub>4</sub> = 11 acres

NE<sup>1</sup>/<sub>4</sub> SE<sup>1</sup>/<sub>4</sub> = 4 acres

NE<sup>1</sup>/<sub>4</sub> SW<sup>1</sup>/<sub>4</sub> = 2 acres

All in Section 8 - T101N-R49W:

NW<sup>1</sup>/<sub>4</sub> NW<sup>1</sup>/<sub>4</sub> = 4 acres

SW<sup>1</sup>/<sub>4</sub> NW<sup>1</sup>/<sub>4</sub> = 3 acres

NW<sup>1</sup>/<sub>4</sub> SW<sup>1</sup>/<sub>4</sub> = 2 acres

Total = 238 acres

NO. 5556-3

ELMWOOD GOLF COURSE

(Includes No. 4232-3)

71. Drawn by

Gregory C. Johnston

Gregory C. Johnston

Water Rights Division

DENR

Natural Resources Engineer

9/17/92

N  
1" = 765'



**STATE OF SOUTH DAKOTA**  
**WATER LICENSE NO. 5556-3**

(1) Elmwood Golf Course, City of Sioux Falls, of Parks & Recreation Department, 600 E 7th Street, Sioux Falls, SD 57102-0496 made Application No. 5556-3, March 21, 1991 for a water permit to appropriate 1.42 cubic feet of water per second (cfs) from groundwater (two existing wells), Minnehaha County, South Dakota for irrigation purposes. Permit No. 5556-3, with a priority date of March 21, 1991 was approved November 15, 1991 and issued to the applicant for diversion of water with construction of the described water supply system completed and the application to beneficial use of said water completed.

Water Permit No. 5556-3 authorizes 1.42 cfs from two wells to irrigate the Elmwood Golf Course. Water Right No. 4232-3 authorizes diversion of 0.71 cfs from one well to irrigate portions of the golf course. No. 5556-3 did not increase the 0.71 cfs from well #3, however the water from all three wells will be used to irrigate the entire golf course. The applicable portions of Water Right No. 4232-3 have been incorporated into this Water License No. 5556-3.

Priority dates are as follows:      1.42 cfs - March 21, 1991 (No. 5556-3)  
                                                 0.71 cfs - February 13, 1978 (No. 4232-3)

(2) It is certified that the applicant has complied with the provisions of South Dakota State Law relating to completion of the construction of the water supply system and is entitled to divert 2.13 cubic feet of water per second for beneficial use. The location of the diversion points are: Well #1 - 2398'E and 785'S of the NW corner (NE¼ NW¼); Well #2 - 2096'W and 437'S of the NE corner (NW¼ NE¼); Well #3 - 1480'S and 1260'W of the NE corner (SE¼ NE¼), all in Section 7, T101N, R49W.

(3) The applicant has complied with the provisions of South Dakota State Law relating to the application of water to beneficial use to irrigate the following land:

| Section 6, T101N, R49W                                     | Section 7, T101N, R49W                                                                                                                                                                     | Section 8, T101N, R49W                                                                             |
|------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|
| NW¼ SE¼ 5 acres<br>SW¼ SE¼ 33 acres<br><br>SE¼ SW¼ 5 acres | NE¼ NW¼ 20 acres<br>SE¼ NW¼ 27 acres<br><br>SW¼ NE¼ 36 acres<br>NW¼ NE¼ 37 acres<br>NE¼ NE¼ 14 acres<br>SE¼ NE¼ 35 acres<br><br>NE¼ SE¼ 4 acres<br>NW¼ SE¼ 11 acres<br><br>NE¼ SW¼ 2 acres | NW¼ NW¼ 4 acres<br>SW¼ NW¼ 3 acres<br><br>NW¼ SW¼ 2 acres<br><br><b>TOTAL ACRES IRRIGATED: 238</b> |

**Water License No. 5556-3**  
**Elmwood Golf Course - City of Sioux Falls**  
**Page 2**

(4) Pursuant to South Dakota Water Law 46-5-30.1 Elmwood Golf Course, City of Sioux Falls of 600 7th Street, Sioux Falls, SD 57102-0496 the holder and/or owner of Incorporated Water Permit No. 5556-3 is issued a license to appropriate water, the right to use 2.13 cubic feet of water per second from groundwater (three wells) with priority dates of March 21, 1991 (1.42 cfs) and February 13, 1978 (0.71 cfs) from the location specified in (2) of this license. The water to be conducted to and upon lands specified in (3) of this license for the purpose of irrigation. This license is subject to any limitations or qualifications listed in Incorporated Water Permit No. 5556-3 and subject to South Dakota State Law.

  
\_\_\_\_\_  
JOHN HATCH, Chief Engineer  
Water Rights Division  
Department of Environment and Natural Resources

NOV 14 1994  
\_\_\_\_\_  
date

# PARKS AND RECREATION DEPARTMENT

600 East Seventh Street, Sioux Falls, SD 57102-0496

FAX (605) 335-4326

Hearing Impaired (605) 339-7060

Voice (605) 339-7060

America's #1 City



September 13, 1993

Ms. Cheryl F. Frost, Secretary  
Water Rights Division  
Department of Environment  
and Natural Resources  
Joe Foss Building  
523 East Capitol  
Pierre, SD 57501-3181

Dear Cheryl:

Enclosed you will find our check in the amount of \$50 for the issuance of our water license for our water permit No. 5556-3. I believe all information has been completed, and you may now issue our water license. If you have any questions, please contact me.

Sincerely,

Larry Weires  
Park Development Specialist

Enclosure



COPY

February 7, 1994

**DEPARTMENT of ENVIRONMENT  
and NATURAL RESOURCES**

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

Larry Weires  
Parks and Recreation Department  
600 East Seventh Street  
Sioux Falls, SD 57102-0496

**SUBJECT: Water Permit for Elmwood Golf Course**

Dear Mr. Weires:

I am writing regarding the water permits for Elmwood Golf Course. Currently, the total amount of water appropriated for irrigation of the golf course is 2.13 cubic feet of water per second (cfs) by Water Permit No. 5556-3 (1.42 cfs) and Water Right No. 4232-3 (0.71 cfs). An inspection of the golf course found the three wells capable of diverting 2.28 cfs. A copy of Water Permit No. 5556-3 and Water Right No. 4232-3 are enclosed.

The inspection by Greg Johnston found the wells with the following capacities based on the pumps installed at the well:

Well # 1 -- 335 gallons per minute (gpm) [0.75 cfs]  
Well # 2 -- 250 gpm [0.55 cfs]  
Well # 3 -- 440 gpm [0.98 cfs] This is the well authorized by Water Right  
No. 4232-3 for an appropriation of 0.71 cfs.

The golf course is capable of diverting from the wells a total of 2.28 cfs which is 0.15 cfs greater than permitted. If the golf course diverts at a rate greater than 2.13 cfs, a water permit needs to be obtained to appropriate the additional water. I have enclosed a partially completed application form for the appropriation of an additional 0.15 cfs.

If the maximum diversion rate from the wells does not ever exceed 2.13 cfs (approx. 955 gpm), a new water permit will not be necessary. Please contact me if this is the case.

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

Sincerely,

Eric Gronlund  
Water Rights Division  
605 773-3352

enclosure



**DEPARTMENT of ENVIRONMENT  
and NATURAL RESOURCES**

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

August 5, 1993

5556-3

City of Sioux Falls  
Parks & Recreation Department  
600 E. 7th Street  
Sioux Falls, SD 57117-5034

RE: Elmwood Golf Course

Dear Sirs:

The inspection of your water use system and the inspection of the extent of application of water to beneficial use, as developed under Water Permit No. 5556-3, has been completed. Your final water right document, the Water License, can now be issued.

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

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

Sincerely,

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

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

# RECEIPT

413896

## Division of Water Rights

### South Dakota Department of Environment and Natural Resources

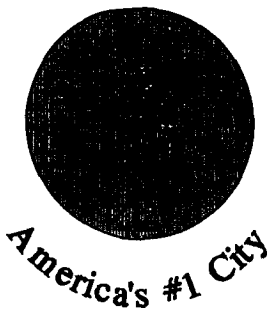
Pierre, \_\_\_\_\_ September 17, 19 93

RECEIVED OF City of Sioux Falls, Parks & Rec Dept, 500 E 7th St, Sioux Falls, SD 57102  
the following amount in fees for services rendered as provided for by law:

|                                                                                                                         |              |       |
|-------------------------------------------------------------------------------------------------------------------------|--------------|-------|
| Fee for Application for Permit No. _____ to Appropriate Water, to construct<br>and to put water to beneficial use _____ |              |       |
| Fee for Application for Permit No. _____ to Appropriate Water, for Future<br>Use _____                                  |              |       |
| Fee to retain Future Use Permit No. _____ after period of seven years.                                                  |              |       |
| Fee for Inspecting Constructed Works, confirming beneficial use and issuing Water<br>License No. <u>5556-3</u>          | 50           | 00    |
| Fee for Filing Transfer Form _____                                                                                      |              |       |
| Fee for Filing Extension Request _____                                                                                  |              |       |
| Fee for _____                                                                                                           |              |       |
| _____                                                                                                                   |              |       |
| _____                                                                                                                   |              |       |
| (Any Other Work Provided by Law)                                                                                        | <b>Total</b> | 50 00 |

By John Hutchings  
Chief Engineer

# PARKS AND RECREATION DEPARTMENT



February 10, 1994



600 East Seventh Street, Sioux Falls, SD 57102-0496

FAX (605) 335-4326

Hearing Impaired (605) 339-7060

Voice (605) 339-7060

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

Dear Mr. Gronlund:

I received your letter regarding the water permits for Elmwood Golf Course here in Sioux Falls. I did review with Terry Comstock who is the golf course manager the various pumping rates that are authorized under our water right permits.

Mr. Comstock told me that we rarely if ever have all three of our wells pumping at the same time. Because of the arrangement of the irrigation system, only a portion of the irrigation heads are operating at any one time. The demand for water is never enough to require all three pumps to be pumping at maximum at the same time. Mr. Comstock said that he thought that we would pump 900 gallons per minute at maximum output at any one time. Mr. Comstock also said that he thought that the well pumps do not pump at the rated capacity anymore due to the age of the pumps and the mechanical equipment involved.

It would therefore be our opinion that the maximum diversion rate from our wells at Elmwood Golf Course never exceeds 2.31 cfs, which is the allowed amount under our water right permit.

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

Sincerely,

Larry Weires  
Park Development Specialist

**Water Rights Division -DENR  
Conversation or File Documentation**

**NAME OF PERSON OR FILE:** Elmwood Golf Course, City of Sioux Falls

**ADDRESS:** Parks & Rec Dept, 600 E 7th St, Sioux Falls, SD 57102-0496 **COUNTY:** MA

**DATE:** May 9, 1994 **TELEPHONE:** (605) 339-7060

**RE:** Licensing of Water Permit No. 5556-3 (will incorporate Water Right No. 4232-3)

**COMMENTS:**

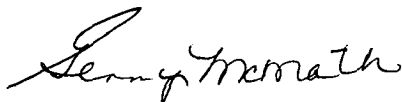
In reviewing the inspection report for preparation of the license, I noted that the wells are capable of diverting 2.28 cfs. Water Right No. 4232-3 & Water Permit No. 5556-3 authorize 2.13 cfs.

On February 7, 1994, Eric wrote to Larry Weires with the Parks and Recreation Department. He indicated to Mr. Weires that if the city diverted at 2.28 cfs, a new water permit would be required for 0.15 cfs (difference between permitted diversion and actual diversion).

By letter dated February 10, 1994, Mr. Weires stated they felt the maximum output at any one time would be 900 gallons per minute. He felt they would never exceed the 2.13 cfs currently allowed under permit. (His letter stated 2.31 cfs; however I feel this was a typographical error since the rate being discussed was 2.13 cfs)

**CONCLUSION:**

Incorporate the applicable portions of Water Right No. 4232-3 into Water License No. 5556-3. Issue the license for 2.13 cfs, which is the amount allowable under Nos. 4232-3 and 5556-3.



Genny McMath  
Environmental Scientist



**DEPARTMENT of ENVIRONMENT  
and NATURAL RESOURCES**

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

NOV 14 1994

5556-3

Larry Weires  
Elmwood Golf Course  
City of Sioux Falls  
Parks & Recreation Department  
600 E. 7th Street  
Sioux Falls, SD 57102-0496

Dear Mr. Weires:

Enclosed is Water License No. 5556-3. This is the final water right document completing your process of obtaining a Water Right. Enclosed is Receipt No. 413896 in the amount of \$50.00 which you paid for the inspection and issuance of the Water License.

For your information SDCL 46-6-27 requires that if the owner of an existing well, such as the well authorized by Water Right No. 5556-3, constructs a replacement well and does not plan to use the old well, the old well is considered abandoned and must be plugged. Also, any well that is being used or is not considered abandoned must be valved and controlled, if flowing, or sealed and capped so that no leaking occurs either underground or at the surface.

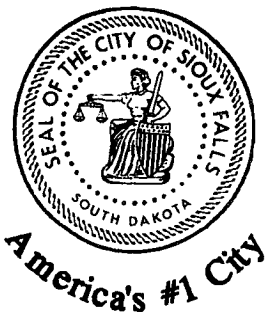
As long as you use the water beneficially, as stated in the Water License, the State Water Laws provide that you have a continuing right to use the water. If you have any questions, please contact our office.

Very truly yours,

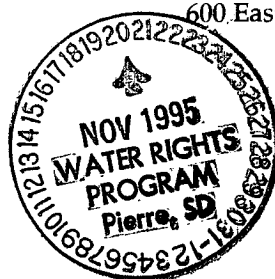
JOHN HATCH, Chief Engineer  
Water Rights Division  
(605) 773-3352

gm  
enclosures

**NOTE:** The applicable portions of Water Right No. 4232-3 have been incorporated into this Water License No. 5556-3.



## PARKS AND RECREATION DEPARTMENT



600 East Seventh Street, Sioux Falls, SD 57102-0496

FAX (605) 335-4326

Hearing Impaired (605) 339-7060

Voice (605) 339-7060

November 14, 1995

Dear Genny,

Enclosed are the questionnaires I received by way of Dave Fischer. We would like to also receive the questionnaire for Elmwood Golf Course. This would give all the questionnaires to one office. You can send it to the same address noted on the enclosed forms.

Thank you.

Mike Buus





5556-3

**DEPARTMENT of ENVIRONMENT  
and NATURAL RESOURCES**

PMB 2020  
JOE FOSS BUILDING  
523 EAST CAPITOL  
PIERRE, SOUTH DAKOTA 57501-3182  
[www.state.sd.us/denr](http://www.state.sd.us/denr)

October 30, 2006

Galynn Huber  
Sioux Falls Parks & Rec Dept  
100 E 6<sup>th</sup> St  
Sioux Falls SD 57104-5929

RE: Water Right or Permit Nos. 4231-3, 5416-3, 5512-3, 5556-3, 5698-3, 6157-3

Dear Mr. Huber:

Enclosed is a "Notice" dated October 20, 2006 concerning the 2006 irrigation questionnaires. The notice was originally mailed to 600 E 7<sup>th</sup> St, Sioux Falls SD. The post office notified us that your address has changed and I will update our records accordingly.

If you have any questions, please contact me.

Sincerely,

Genny McMath  
Environmental Scientist  
Water Rights Program  
(605) 773-3352

enclosures



DEPARTMENT of ENVIRONMENT  
and NATURAL RESOURCES

JOE FOSS BUILDING  
PMB 2020  
523 EAST CAPITOL  
PIERRE SOUTH DAKOTA 57501-3182  
[www.denr.sd.gov](http://www.denr.sd.gov)

October 25, 2013

5556-3

City of Sioux Falls Parks and Recreation Department  
100 East 6<sup>th</sup> St  
Sioux Falls, SD 57104

Dear City of Sioux Falls Parks and Recreation Department:

Water Right No. 5556-3 appropriates 2.13 cubic feet per second (cfs) of water from three wells completed into the Big Sioux: Sioux Falls aquifer. Of this 2.13 cfs, 0.71 cfs to irrigate 51 acres originates from Water Right No. 4232-3, which has been incorporated into 5556-3 for a total of 238 acres irrigated. The well originally associated with Water Right No. 4232-3 (completed to a depth of 52 feet) located in the SW  $\frac{1}{4}$  NE  $\frac{1}{4}$  of Sec 7, T101N R49W was for the irrigation of 41 acres in the NE  $\frac{1}{4}$  and four acres in the SE  $\frac{1}{4}$  of Sec 7, in addition to four acres in the NW  $\frac{1}{4}$  and two acres in the SW  $\frac{1}{4}$  of Sec 8, all in T101N R49W. This well is now referred to as Well No. 3 of Water Right No. 5556-3.

The city requested authorization to change the diversion point associated with Well No. 3 of Water Right No. 5556-3 to a point located approximately 950 feet to the northeast of the original well location.

Upon review of the request and pursuant to SDCL 46-5-13.1, the new well location is authorized without application or publication of a notice of hearing pursuant to SDCL 45-2A-4. No increase in the authorized diversion rate of 2.13 cfs or the number of acres irrigated (238 acres) from the Big Sioux: Sioux Falls aquifer is authorized. If the total diversion rate or the number of acres irrigated increases, a new water right permit will need to be obtained.

If you have any questions, please contact Bracken Capen at (605) 773-3352.

Sincerely,

Jeanne Goodman  
Chief Engineer  
Water Rights Program

**File No. 5556-3**

**Approval of Change of Diversion Point**

---

**NAME:** City of Sioux Falls Parks and Recreation Department

**ADDRESS:** 100 East 6<sup>th</sup> St., Sioux Falls, SD 57104

**DATE:** October 25, 2013

**COUNTY:** Minnehaha

**TELEPHONE:** (605) 367-8217

**BACKGROUND:**

Water Right No. 4232-3 appropriates 0.71 cubic feet per second (cfs) from one well completed into the Sioux Falls management unit of the Big Sioux River aquifer (approximately 52 feet deep) in the SW  $\frac{1}{4}$  NE  $\frac{1}{4}$  of Sec 7, T101N-R49W in order to irrigate eight acres in the NE  $\frac{1}{4}$  NE  $\frac{1}{4}$  of Sec 7, 12 acres in the SW  $\frac{1}{4}$  NE  $\frac{1}{4}$  of Sec 7, 21 acres each in the SE  $\frac{1}{4}$  NE  $\frac{1}{4}$  of Sec 7, four acres in the NE  $\frac{1}{4}$  SE  $\frac{1}{4}$ , two acres in the NW  $\frac{1}{4}$  SW  $\frac{1}{4}$  of Sec 8, two acres in the SW  $\frac{1}{4}$  NW  $\frac{1}{4}$  of Sec 8, and two acres in the NW  $\frac{1}{4}$  NW  $\frac{1}{4}$  of Sec 8 (for a total of 51 irrigated acres); all in T101N-R49W in Minnehaha County. The original water right (No. 4232-3) with a priority date of February 13, 1978 has been incorporated into Water Right No. 5556-3 which has a priority date of March 21, 1991. Since being incorporated, the well previously associated with Water Right No. 4232-3 is now referred to as Well No. 3 of Water Right No. 5556-3. The license is conditioned with well interference, well construction, and irrigation questionnaire qualifications.

The city of Sioux Falls has requested permission to change the diversion point of Well No. 3 to the SE  $\frac{1}{4}$  NE  $\frac{1}{4}$  of Sec 7, 1,588 feet south of and 1,119 feet west of the northeast corner of the section. This new diversion point will be located approximately 950 feet to the northeast of the original well. The existing Well No. 3 has already been plugged.

**AUTHORITY:**

Pursuant to SDCL 46-5-13.1, the location of a diversion point may be changed or additional points may be licensed provided the following conditions are met and the potential for interference with other existing diversion is not increased.

- **Developed water source is the same as permitted source and no additional water is appropriated.**

The water source authorized by Water Right No. 5556-3 is the Big Sioux: Sioux Falls aquifer. The existing well (now plugged) was completed to a depth of approximately 52 feet. The new well is expected to be completed to a depth of 34 feet with a static water level of 7 feet 7 inches and is expected to access the same aquifer as the original well.

No additional appropriation of water is authorized. Water Right No. 5556-3 appropriates 2.13 cfs (0.71 cfs from Water Right No. 4232-3 and 1.42 cfs from Water Right No. 5556-3) and no additional diversion rate authority is being requested.

**Review of Existing Diversion**

The well completion report and water rights databases were reviewed for the nearest domestic wells and water rights on file. The nearest registered domestic well is located approximately 2,000 feet to the east of the new well site. At this distance, interference is not expected to be a concern. The nearest water rights which are not owned by the city of Sioux Falls (4880-3 and 4620-3) are located approximately 3,500 feet to the southeast and 3,500 feet to the west of the proposed new well site, respectively. Interference is not expected to be a concern at these distances.

#### **Observation Well Data**

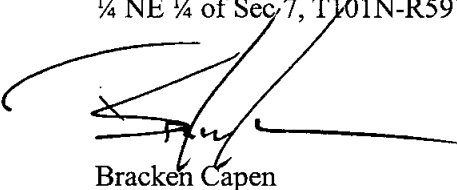
The Water Rights Program monitors several observation wells located in the Big Sioux River aquifer. The closest observation well (MA-57H) is approximately 1.25 miles to the east of the proposed new well site. This well has been in place since 1957 and shows static water level fluctuations seven to 14 feet below land surface as a result of seasonal pumping. Historic water levels in observation well MA-57H show that the aquifer level is controlled by pumping. However, this pumping has not prevented a full annual recovery of the water level within the aquifer.

#### **CONCLUSION**

- The new well location does not propose to appropriate additional water.
- The new well is to be completed into the same formation as the existing well, the Big Sioux: Sioux Falls aquifer.
- Unlawful impairment of existing water rights is not expected to occur.

#### **RECOMMENDED ACTION:**

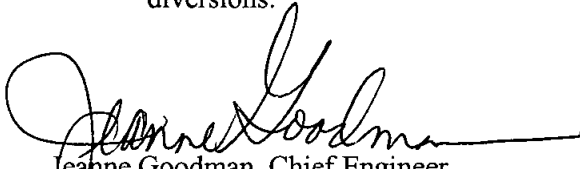
Based on the above criteria, it is recommended that the request for a change of diversion point to the SE  $\frac{1}{4}$  NE  $\frac{1}{4}$  of Sec 7, T101N-R59W be approved.



Bracken Capen  
Natural Resources Engineer

The Chief Engineer makes a finding pursuant to SDCL 46-5-13.1 and ARSD 74:02:01:14:01 that:

The change of diversion point does not increase the potential for adverse effects to existing diversions.



Jeanne Goodman, Chief Engineer  
Water Rights Program

## FORM 2: Application for irrigation in South Dakota

(type or print)

|                                                                                                                 |                                                       |
|-----------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|
| Mail to:<br>PMB 2020<br>DENR - Water Rights<br>523 E Capitol Ave<br>Pierre, SD 57501-3182<br>ph. (605) 773-3352 | (office use only )<br>No. _____ Hydrologic Unit _____ |
|                                                                                                                 | Basin _____                                           |
|                                                                                                                 | Newspaper _____                                       |
|                                                                                                                 |                                                       |

RECEIVED

OCT 21 2013

WATER RIGHTS  
PROGRAM**Application For Permit To Appropriate Water For Irrigation**

Type of Application: ☐ New ☐ Vested Right ☒ Amendment/Correction to Permit No. 4232-3  
(Use predates Mar 2, 1955)

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

Change diversion point for permit number 4232-3 pursuant to FDCL 46-5-13.1

1. Name to Appear on Irrigation Permit City of Sioux Falls Parks and Recreation Department  
(check one) ☒ Owner ☐ Tenant/lessee ☐ Owner's Legal Agent \_\_\_\_\_  
(name and complete address if different than above name)

Mailing Address 100 East 6th Street Sioux Falls SD 57104-5929  
(Address) (City) (State) (Zip Code)

Home Phone 605-367-8217 Cell 605-201-1767 Email tmiedema@siouxfalls.org

2. Amount of water claimed 0.71 \*CFS or      \*\*GPM      \*\*\*AF Total Acreage 50  
(\*Cubic Feet per Second) (\*\*Gallons per Minute) (\*\*\*)Acre Feet - storage capacity of dam/dugout or annual use if applicable)

3. Source of water supply Big Sioux River Aquifer

4. Location of point of diversion Change diversion point to- well- 1588 feet south and 1119 feet west of the  
(example - 3 wells in SW1/4 NE1/4 section 12-T104N-R53W)  
northeast corner of Section 7-T101N-R49W County Minnehaha

5. County or counties where water will be used Minnehaha County

6. Annual period during which water is to be used April to mid-November

7. List below each forty acre division, or lot, or fraction thereof and show number of acres to be irrigated in each.  
(Attach sheet if more space is needed)

| Land Description               | Acres | Land Description               | Acres |
|--------------------------------|-------|--------------------------------|-------|
| Elmwood Golf Course            |       | Sec 7-T101N-R49W NE 1/4 SE 1/4 | 4     |
| Sec 7-T101N-R49W NE 1/4 NE 1/4 | 8     | Sec 8-T101N-R49W NW 1/4 SW 1/4 | 2     |
| Sec 7-T101N-R49W SW 1/4 NE 1/4 | 12    | Sec 8-T101N-R49W SW 1/4 NW 1/4 | 2     |
| Sec 7-T101N-R49W SE 1/4 NE 1/4 | 21    | Sec 8-T101N-R49W NW 1/4 NW 1/4 | 2     |

8. Give a description of the project. (Attach sheet if more space is needed)

Change diversion point for the existing permit number 4232-3. The new diversion point is a 34' well that will be connected to the existing system. The existing system is capable of diverting 0.71 cfs from the Big Sioux River Aquifer to feed a storage pond at Elmwood Golf Course to irrigate 50 acres. This permit has been incorporated into permit number 5556-3, as water from this well and 2 others in permit number 5556-3 will be used to irrigate the entire golf course.

I, Tory Miedema, the applicant, certify that I have read this application, have examined the attached map, and that the matters stated are true.



**SECTION 7 - T101N - R49W**

NE1/4 NE1/4 = 8 AC  
SW1/4 NE1/4 = 12 AC  
SE1/4 NE1/4 = 21 AC  
NE1/4 SE1/4 = 4 AC  
TOTAL = 45 AC

**SECTION 8 - T101N - R49W**

NW1/4 SW1/4 = 2 AC  
SW1/4 NW1/4 = 2 AC  
NW1/4 NW1/4 = 2 AC  
TOTAL = 6 AC

[Blue shaded area] = IRRIGATED AREA

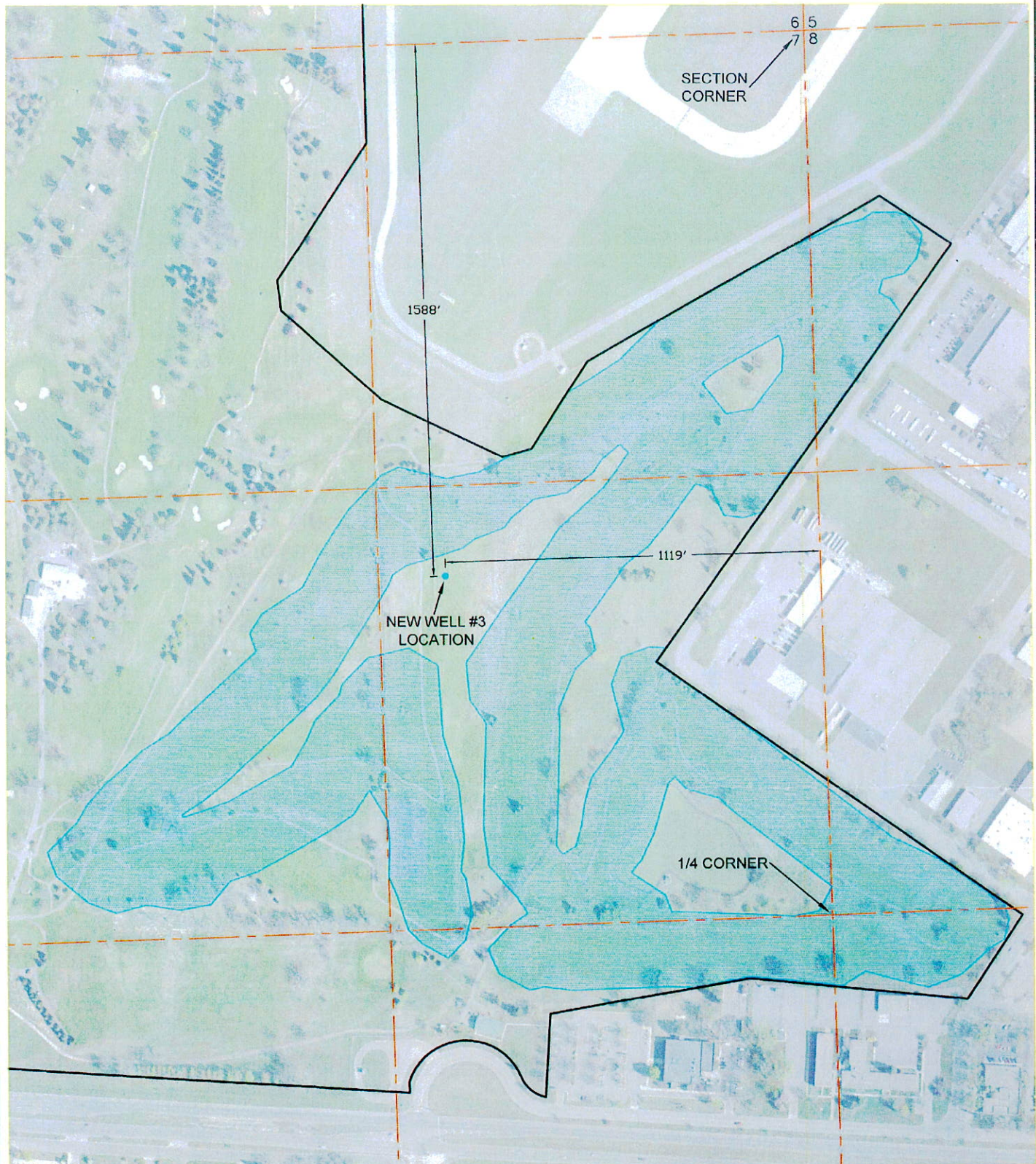
[Solid black line] = PROPERTY LINE

[Dashed orange line] = SECTION LINE

RECEIVED SCALE: 1" = 400'

OCT 21 2013

WATER RIGHTS PROGRAM



|           | DATE     |
|-----------|----------|
| DR: STZ   | 10/14/13 |
| DSGN: MDW | 10/14/13 |
| APPR: MDW | 10/14/13 |



**GOLDSMITH HECK**  
ENGINEERS, INC.

524 N. Sycamore Ave., Suite 1 • Sioux Falls, SD 57110 • Ph: 605.332.9685

**ELMWOOD GOLF COURSE**  
**SIOUX FALLS, SOUTH DAKOTA**

Well Location Exhibit

File Name: EDC\_Survey with East 9  
Golf\_Staking.dwg  
Project No.: 213739  
Sheet No.: 1 of 1

LACEY Well Drilling Inc.  
47582 240<sup>th</sup> St.

Dell Rapids, S.Dak 57022

Test hole - 10-7-13

RECEIVED

OCT 21 2013

WATER RIGHTS  
PROGRAM

Elmwood Golf Course

2604 W. Russell St

Sixes Falls, S.Dak 57104

0-5 Black Till

5-25 Clean Sand

25-34'6" Very Coarse Grey Gravel

Sum - 7'7"

Driller: Joan Redder-Lacey

Joan Redder-Lacey  
LC: 111

LACEY Well Drilling, Inc.

**STATE OF SOUTH DAKOTA**  
**WATER LICENSE NO. 5556-3**

(1) Elmwood Golf Course, City of Sioux Falls, of Parks & Recreation Department, 600 E 7th Street, Sioux Falls, SD 57102-0496 made Application No. 5556-3, March 21, 1991 for a water permit to appropriate 1.42 cubic feet of water per second (cfs) from groundwater (two existing wells), Minnehaha County, South Dakota for irrigation purposes. Permit No. 5556-3, with a priority date of March 21, 1991 was approved November 15, 1991 and issued to the applicant for diversion of water with construction of the described water supply system completed and the application to beneficial use of said water completed.

Water Permit No. 5556-3 authorizes 1.42 cfs from two wells to irrigate the Elmwood Golf Course. Water Right No. 4232-3 authorizes diversion of 0.71 cfs from one well to irrigate portions of the golf course. No. 5556-3 did not increase the 0.71 cfs from well #3, however the water from all three wells will be used to irrigate the entire golf course. The applicable portions of Water Right No. 4232-3 have been incorporated into this Water License No. 5556-3.

Priority dates are as follows:      1.42 cfs - March 21, 1991 (No. 5556-3)  
                                                 0.71 cfs - February 13, 1978 (No. 4232-3)

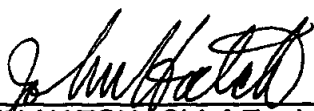
(2) It is certified that the applicant has complied with the provisions of South Dakota State Law relating to completion of the construction of the water supply system and is entitled to divert 2.13 cubic feet of water per second for beneficial use. The location of the diversion points are: Well #1 - 2398'E and 785'S of the NW corner (NE¼ NW¼); Well #2 - 2096'W and 437'S of the NE corner (NW¼ NE¼); Well #3 - 1480'S and 1260'W of the NE corner (SE¼ NE¼), all in Section 7, T101N, R49W.

(3) The applicant has complied with the provisions of South Dakota State Law relating to the application of water to beneficial use to irrigate the following land:

| Section 6, T101N, R49W                                     | Section 7, T101N, R49W                                                                                                                                                                     | Section 8, T101N, R49W                                                                             |
|------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|
| NW¼ SE¼ 5 acres<br>SW¼ SE¼ 33 acres<br><br>SE¼ SW¼ 5 acres | NE¼ NW¼ 20 acres<br>SE¼ NW¼ 27 acres<br><br>SW¼ NE¼ 36 acres<br>NW¼ NE¼ 37 acres<br>NE¼ NE¼ 14 acres<br>SE¼ NE¼ 35 acres<br><br>NE¼ SE¼ 4 acres<br>NW¼ SE¼ 11 acres<br><br>NE¼ SW¼ 2 acres | NW¼ NW¼ 4 acres<br>SW¼ NW¼ 3 acres<br><br>NW¼ SW¼ 2 acres<br><br><b>TOTAL ACRES IRRIGATED: 238</b> |

**Water License No. 5556-3**  
**Elmwood Golf Course - City of Sioux Falls**  
**Page 2**

(4) Pursuant to South Dakota Water Law 46-5-30.1 Elmwood Golf Course, City of Sioux Falls of 600 7th Street, Sioux Falls, SD 57102-0496 the holder and/or owner of Incorporated Water Permit No. 5556-3 is issued a license to appropriate water, the right to use 2.13 cubic feet of water per second from groundwater (three wells) with priority dates of March 21, 1991 (1.42 cfs) and February 13, 1978 (0.71 cfs) from the location specified in (2) of this license. The water to be conducted to and upon lands specified in (3) of this license for the purpose of irrigation. This license is subject to any limitations or qualifications listed in Incorporated Water Permit No. 5556-3 and subject to South Dakota State Law.

  
\_\_\_\_\_  
JOHN HATCH, Chief Engineer  
Water Rights Division  
Department of Environment and Natural Resources

NOV 14 1994

\_\_\_\_\_  
date

# NOT TO SCALE

All in Section 6 - T101N-49W:

NW 1/4 SE 1/4 = 5 acres

SW 1/4 SE 1/4 = 33 acres

SE 1/4 SW 1/4 = 5 acres

All in Section 7 - T101N-R49W:

NW 1/4 NE 1/4 = 37 acres

SW 1/4 NE 1/4 = 36 acres

NE 1/4 NE 1/4 = 14 acres

SE 1/4 NE 1/4 = 35 acres

NE 1/4 NW 1/4 = 20 acres

SE 1/4 NW 1/4 = 27 acres

NW 1/4 SE 1/4 = 11 acres

NE 1/4 SE 1/4 = 4 acres

NE 1/4 SW 1/4 = 2 acres

All in Section 8 - T101N-R49W:

NW 1/4 NW 1/4 = 4 acres

SW 1/4 NW 1/4 = 3 acres

NW 1/4 SW 1/4 = 2 acres

Total = 238 acres

NO. 5556-3

ELMWOOD GOLF COURSE

(Includes No. 4232-3)

71. Drawn by

Gregory C. Johnston

Gregory C. Johnston

Water Rights Division

DENR

Natural Resources Engineer

9/17/92

N  
1" = 765'



5556-3



DEPARTMENT of ENVIRONMENT  
and NATURAL RESOURCES

JOE FOSS BUILDING  
523 EAST CAPITOL  
PIERRE SOUTH DAKOTA 57501-3182  
<http://denr.sd.gov>

November 13, 2018

Kelby Mieras  
Sioux Falls Parks & Rec Dept  
PO Box 7402  
Sioux Falls SD 57117-7402

RE: Water Permit/Right Nos. 4231-3, 5416-3, 5512-3, 5556-3, 5698-3, 6157-3, 6210A-3 & 7805-3

Dear Sir:

Enclosed is a "Notice" dated October 30, 2018 concerning the 2018 irrigation questionnaires.

The notice was originally mailed to 100 E 6<sup>th</sup> St, Sioux Falls. The post office notified us that your address has changed and I will update our records accordingly.

If you have any questions, please contact me.

Sincerely,

Genny McMath  
Water Rights Program  
(605) 773-3352  
email: [genny.mcmath@state.sd.us](mailto:genny.mcmath@state.sd.us)

enclosures



DEPARTMENT of AGRICULTURE  
and NATURAL RESOURCES  
JOE FOSS BUILDING  
523 E. CAPITOL AVE  
PIERRE SD 57501-3182  
danr.sd.gov

January 19, 2024

### NOTICE

TO: CITY OF SIOUX FALLS PARKS & REC DEPT, JOSH JOHNSON, 231 NORTH DAKOTA AVE, SIOUX FALLS, SD 57117 7402

FROM: Ron Duvall, Engineer III  
for Eric Gronlund, Chief Engineer  
Water Rights Program

SUBJECT: Reporting Requirement for 2023 Irrigation Questionnaire(s)

Our records indicate your 2023 Irrigation Questionnaire(s) has not been submitted for Permit No(s) 5416-3, 5556-3 & 6210A-3. The request for the Questionnaire was dated October 20, 2023. The Water Management Board has directed owners of water permits who have not submitted the 2023 Irrigation Questionnaire(s) be given notice of permit violation and a hearing to be held by the Board. The hearing is to determine what action is to be taken for violation of Water Permit No(s) 5416-3, 5556-3 & 6210A-3 qualification:

"This permit is approved subject to the Irrigation Water Use Questionnaire being submitted each year."

The hearing will be held at **Wednesday, March 6, 2024 at 9:30 am (Central Time)** in the Floyd Matthew Training Center, Joe Foss Building, 523 E Capitol Avenue, Pierre, SD and will be conducted pursuant to SDCL 46-1-12, 46-1-14, 46-2-9, 46-2-11 and 46-2-17. These are contested case hearings pursuant to Chapter 1-26. According to SDCL 46-1-12, the Board may suspend a permit for a period of up to one year for the first violation of a permit qualification or up to three years for a second violation or cancel a permit for a third violation. Following the hearing, the Water Management Board can:

1. Suspend or cancel Permit No(s) 5416-3, 5556-3 & 6210A-3 in accordance with applicable provisions of SDCL 46-1-12;
2. Postpone any action; or
3. Take no action.

The hearing is an adversary proceeding. The permit owner has the right to be present or to be represented by a lawyer. These and other due process rights will be forfeited if they are not exercised. Decisions of the Board may be appealed to the Circuit Court and the State Supreme Court as provided by law.

If the questionnaire(s) is (are) received in this office before the **March 6, 2024** hearing you will no longer be in violation of your permit and your name will be removed from the Board agenda. Enclosed are additional questionnaire(s) for your use. If you have questions or need assistance, please contact Amanda Dewell at (605) 773-3352 or email at [amanda.dewell@state.sd.us](mailto:amanda.dewell@state.sd.us). **If you prefer, you can complete the questionnaire online at the following link: <https://danr.sd.gov/iq> using this password: AXMXCF**

**NOTE:** Please contact the Water Rights Program, Joe Foss Building, 523 E Capitol, Pierre, SD (605-773-3352) to assure access to the meeting room for the handicapped or to obtain an interpreter for the hearing impaired.



5416-3 5556-3  
6210A-3

**DEPARTMENT of AGRICULTURE  
and NATURAL RESOURCES**

JOE FOSS BUILDING  
523 E. CAPITOL AVE  
PIERRE SD 57501-3182  
danr.sd.gov

January 25, 2024

5416-3  
5556-3  
6210A-3

City of Sioux Falls  
c/o Kelby Mieras  
231 North Dakota Ave  
Sioux Falls SD 57117

Dear Mr. Mieras:

I am writing to acknowledge the receipt of your 2023 irrigation questionnaire(s).

You may disregard the January 19, 2024, "Notice" concerning the reporting requirements for Water Permit No(s). 5416-3, 5556-3, 6210A-3. The information was received prior to the March 6, 2024, Water Management Board meeting and these permit numbers have been removed from the agenda.

If you have any questions, please contact me.

Sincerely,

Amanda Dewell  
Water Rights Program  
605 773-3352  
Amanda.Dewell@state.sd.us