

Check One of units provided for 2.5 hours work

2248-3 James Zell

11-7 to 3rd Yellow. 90 ft deep. 3rd fl

250 gpm from each, total pump

1st Yellow

700 gpm.

2595-3

12 HP Submersible pump on each

2nd Yellow

Booster pump. 4.5 gpm

cells. 8" A.C. pipe to CP

Booster pump. Motor 1/2 HP

50 HP 3515 RPM

Model B 050 2VGG 343

Ser # 60251031

Pump: Aurora Centrifugal

No. 78-9436, 364A-BP

Size 4 x 5 1/2, 600 gpm,

220 V AC, 3500 RPM

C.P. Yellow Model 12-60

Ser # 15166

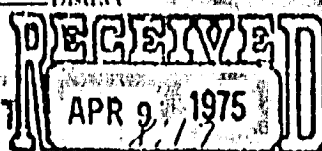
Water Right Number 2248-3

1. Considered MAY 21, 1975
2. Name of Applicant JAMES ZELL
3. Post Office Address CAVOUR
4. Amount of Water claimed 2.28
5. Source of Water supply GROUND WATER 100' WELL
6. Water to be used for IRRIGATION
- Acres to be irrigated 1600
7. Water to be diverted and used in BEADLE County
about 5W, 11.5 miles of CAVOUR
8. Proof of Publication Received 5-19-75
Not Received _____
9. Application Approved _____
Subject to _____
Not Approved _____
Action Deferred _____

10. Remarks:

No. 2248-3
 App. No. 1641-3 Water Division No. 3 JAMES RIVER
 (Blanks to be filled by the Engineer for the W. R. C.)

APPLICATION FOR PERMIT



STATE WATER RIGHTS COMM.
 PIERRE, SOUTH DAKOTA

To Appropriate Water within the State of South Dakota

(NOTE - Draw a line through items not applicable)

- Name of Applicant James Zell
 Postoffice address Cavour State S. Dak
 If a corporation show date and place of incorporation _____
- Method of accomplishing work (contract, employment of others, or by direct labor) Contract & direct labor
- Name of diversion work ZELL #1
- Amount of water claimed (cubic feet per second) 2.28
- Source of water supply Ground
- Location of point of diversion SE 1/4 25 109-61 (About mid point E 1/2 of SE 1/4 of 25)
 County Beadle
- Annual period or periods during which water is to be used April - Oct.
- Use to be made of water. (irrigation, industrial, municipal, commercial, recreation, etc.) Irrigation
- For irrigation use. Total number of acres to be irrigated 160

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 of SE 1/4 of 25 109-61	40
NW 1/4 " " " " " "	40
SW 1/4 " " " " " "	40
SE 1/4 " " " " " "	40

Land Description	No. Acres Irr.

Attach sheet if more space is needed

- Time required to complete construction of water supply system 5 years. Additional time required to complete application of water to the proposed beneficial use 2 years.
- Choice of newspaper for Notice of Intent to Appropriate Water publication Daily Plainsman
- Principal Features of the Proposed Water Supply System.
 - Works proposed to divert water from its natural source.
Bowl pump.
 - Works proposed to transport water to place of use.
Main line & center pivot
 - Works proposed to apply water to beneficial use.
Center pivot system

Estimated Total Cost \$ _____

Attachments: Attach Form 2A if diversion from a well or dugout, or if storage of water is proposed. Attach map.
 (See instructions concerning preparation.)

STATE OF SOUTH DAKOTA

County of Beadle

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

Signed James Zell
 Subscribed and sworn to before me this 4 day of Feb 19 75
Marian H. Branner
 Notary Public (or other qualified officer)

WATER RIGHT APPLICATION APPROVAL

The Water Resources Commission hereby approves Water Right Application No. 2248-3

JAMES FELL
(Applicant)

CAVOUR
(Post Office Address)

SOUTH DAKOTA 57324 With the following modifications:

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

See also
A379-3

Date of first receipt of application APRIL 9 19 75
Date of return to applicant for correction, amendments or changes required APRIL 9 19 75
Date of receipt of corrected application APRIL 16 19 75
Approved MAY 21 19 75 Recorded in Book 13 Page 293

WATER RIGHT PERMIT NO 2248-3

The Water Resources Commission hereby grants and issues this Water Right Permit No 2248-3 authorizing the construction of the water use system and the putting of water to beneficial use as stated in the Application and as modified in the Water Right Application approval, subject, however, to the following limitations and conditions:

1. The date from which applicant may claim right is APRIL 9 19 75
2. The equivalent of at least one-fifth of the work above specified is to be completed on or before NOVEMBER 21 19 77
3. The whole of said work is to be completed on or before MAY 21 19 80
4. The limit of time from proof of beneficial use of water appropriated in accordance herewith is MAY 21 19 82
5. The water appropriated shall be used for the purpose of IRRIGATION
6. The prior right of all persons who, by compliance with the laws of the State of South Dakota, have acquired a right to the use of water must not be injuriously affected by this appropriation.
7. The amount of the appropriation herein granted shall not exceed 2.28 cubic feet per second; neither shall it exceed the capacity of the above described water supply system, nor shall it exceed the amount of water needed for beneficial uses served, and if for the irrigation purposes said appropriation must be limited to not more than 3 acre feet per acre per year and be limited to not more than one-seventieth (1/70) of one cubic foot of water per second of time for each acre of land to which water is actually and beneficially applied for irrigation on or before MAY 21 19 82; said water to be used during the following described annual period: APRIL - OCTOBER

Witness my hand this 28TH day of MAY 19 75

WATER RESOURCES COMMISSION

By: Wm. W. Beale
Chief Engineer, Executive Officer

Certificate of Construction Issued _____, 19 _____

Water License Issued _____, 19 _____

PAGE NO.

Terry Bawdon
FOREMAN

JOB NAME			REMARKS	DESCRIPTION
DEPTH	TIME	Test Hole # 1		
1	20	0-25 Yellow Clay		
2	40	25-40 Blue Clay		N.E. & S.E. 25-109-61
3	60	40-77 Blue Clay		Beadle County
4	80	77-97 Good Sand		
5	100	97-100 Shale		
		Test Hole # 2		
1	20	0-25 Yellow Clay		
2	40	25-80 Blue Clay		
3	60	80-85 Good Sand		
4	80	85-100 Blue Clay		
5	100			
		Test Hole # 3		
1	20	0-25 Yellow Clay		
2	40	25-65 Blue Clay		
3	60	65-93 Good Sand		
4	80	95-100 Shale		
5	100			
		Test Hole # 4		
1	20	0-25 Yellow Clay		
2	40	25-65 Blue Clay		
3	60	65-97 Good Sand		
4	80	97-100 Shale		
5	100			
		Test Hole # 4 is cased up for water sample and supply well.		

Form 2A - Wells, Dugouts or Water Storage Dams (Supplement to form 2)

12. Principal Features of the Proposed Water Supply System (continued.)

D. Well Information or Estimates

(1) Drill Hole, Diameter 27", Depth 97'
 (2) Casing, Type Steel (wood, concrete, steel, etc) Diameter 14" Thickness .375
 (3) Perforated Screen.
 Type Johnson Irrigator, Diameter 12 1/2", Length 25'
 (4) Gravel Pack, Thickness 6", Length of gravel pack 97'

E. Dugout Information or Estimates.

(1) Surface dimensions _____, Depth _____

F. Fill out for Either a Well or a Dugout.

(1) Water Bearing Materials. (Please attach a copy to test well log if available.)

Character of Water bearing materials _____

Driller will furnish log

Depth to top of water bearing material 65'

Depth to bottom of water bearing material 97'

Thickness of water bearing material 32'

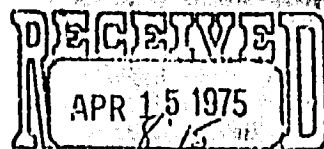
Depth to water (ground surface to water level) 31'

(2) Distance to nearest existing household or livestock water using wells.

On same owner's property _____ rds. On property owned by others 160 rds.

G. Water Storage Dams.

If the proposed water use system contains one or more water storage dams, please show in the space below, the height, maximum water depth, surface area and storage capacity of each storage dam. The location of each water storage dam should be shown on the water right map.



STATE WATER RIGHTS COM.
 PIERRE, SOUTH DAKOTA

James Zell 3-4-75
 (Signature of Applicant)

March 14, 1975

Mr. Jim Zell
Cavour, S.D. 57324

Dear Mr. Zell:

We have completed the analysis of the water sample brought in here on March 5. The original copy is enclosed for your use and keeping. I am also enclosing a copy of Extension Circular 654 with the approximate quality of your water for irrigation purposes designated by an encircled red cross on the outside back cover. Please read this circular as some of the information it contains pertains to your proposed irrigation.

The water quality you have is very high in salinity and medium in sodium. That means that there are two difficulties. One is the high salinity which could cause a build-up of total salts in the root zone, which would make performance of crops marginal, or maybe even completely unsatisfactory. Also the moderately high sodium content of this water gives it considerable opportunity to cause sodium-caused dispersion of soil clays after it has been used for a few years. The chances that both salinity and sodium could give difficulties in the future are increased under circumstances where small frequent applications of water are made. Therefore, I recommend that you develop this water supply for irrigation only under such circumstances that you will use it in fairly large quantities (three to five inches at a time) and infrequently through the growing season. By infrequently I mean perhaps three or four applications and no more. Under these circumstances the chances for natural rainfall to leach the salts and diminish the sodium effects are better than with small frequent applications. Furthermore the chances for leaching due to late fall or early spring precipitation can be increased if one does a thorough job of completely filling the soil profile with water in the late fall just before freeze-up. Sometimes this can be done in April and the April and May precipitation which normally follows could be used to help leach the salts out of the soil.

I am sorry that this water is of such low quality, but under such circumstances for your own benefit, I can make no better recommendation than this. A copy of this letter and of the water quality analysis

Cont. . . /2.



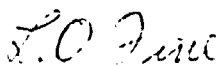
Mr. Jim Zell

March 14, 1975

Page 2.

and the WI-1 form which you submitted are being sent to the State Conservation Commission.

Sincerely yours,



L. O. Fine
Water Quality Lab

LOP:MRB

cc: ~~State~~ Conservation Commission
Richard Fadgan, Deadle County Agent
Darrel Fahl

STATE CONSERVATION COMMISSION
SUPPORTING INFORMATION
FOR APPROPRIATION OF GROUND WATER IN ACCORDANCE
WITH SECL 46-6-3 AS AMENDED
(This Form Required for Proposed Well Irrigation Only)

FOR COMPLETION BY THE

Irrigation System: _____

Water Quality: _____

Soils Capability: _____

Approved: W. M. H. H. H.
3/30/25

Disapproved: _____

NAME: James Zell

ADDRESS: Cavour, South Dakota 57324

COUNTY: Readle

LEGAL DESCRIPTION

1. WELL LOCATION: SE 1/4 25-109-61

2. AREA TO BE IRRIGATED SE 1/4 25-109-61

TYPE OF IRRIGATION

3. GRAVITY SPRINKLER (Indicate Type):

4. CROPS TO BE IRRIGATED: Row Crops and Alfalfa

LAND CAPABILITY FOR IRRIGATION

5. PERCENTAGE OF SLOPE: Attached Sheet

6. PHYSICAL SOILS CLASSIFICATION FOR IRRIGATION: _____

WATER QUALITY (TO BE COMPLETED BY COMMISSION)

7. SAMPLE NO.: 75-145

8. SALINITY: EC = 2.311 micromhos/cm (very light)

9. SODIUM: Sodium Adsorption Ratio = 4.29 (medium)

I do hereby certify that a chemical analysis of the ground water to be
acquired for irrigation from South Dakota State University and:
the land capability for irrigation information has been acquired from
SCS Soil Scientist

and:

that the legal description for the location of the well and land to be
irrigated is true and correct.

James J. Jell

Subscribed and sworn before me this

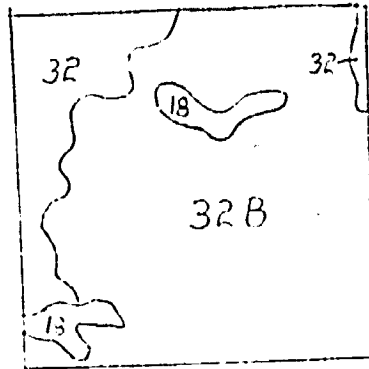
14th day of March 1975

Maria J. Brundage

Nataniel Brundage

(Title)

SOIL MAP



Legal description: SE $\frac{1}{4}$ of section 25, T109N, R61W

Soil Legend

- | | |
|-----|--|
| 32 | Carthage-Blendon sandy loam, 0-3 percent slope |
| 32B | Carthage-Blendon sandy loam, 3-6 percent slope |
| 18 | Tetonka-Hoven silt loams |

In mapping unit 32, the Carthage are moderately well drained soils with sandy loam surface layers about 20 inches thick and sandy loam subsoils over calcareous clay loam glacial till at 20 to 40 inch depths. The Blendon are moderately well drained soils with sandy loam surface layers about 10 inches thick and sandy loam subsoils over loamy sands and fine sands below 30 inches. Slopes are slightly concave to slightly convex, smooth and long. Permeability is moderately rapid, 2-6 in/hr in the sandy loam materials and moderately slow, 0.2-0.6 in/hr in the underlying clay loam materials. The main concern of managing these soils for sprinkler irrigation are the moderately slow internal drainage in the Carthage soils.

The Carthage-Blendon sandy loam(32B) have soils as described above in mapping unit 32 except for the greater slope. Slopes are more complex.

Tetonka-Hoven soils(18) are in enclosed depressions. Permeability is very slow and surface drainage is lacking. Dense compact subsoils and ponding during wet periods limit these soils for irrigation. Drainage of these areas make them desirable for irrigation.

REPORT OF ANALYSIS
Water Quality Laboratory
Water Resources Research Institute
South Dakota State University
Brookings, South Dakota 57006

Submitted by: Jim Coll
 Address: Cavour, SD 57324

Date Rec'd: March 5, 1975
 Sample No. 75-145
 Identification Coll-100
Coll, Box 25, T 119E, R 61N

WATER ANALYSIS

Calcium (Ca)	220	ppm*	11.00	me/l**
Magnesium (Mg)	70	ppm	3.74	me/l
Sodium (Na)	285	ppm	12.40	me/l
Potassium (K)	20	ppm	0.53	me/l
Sulfate (SO ₄)	938	ppm	19.50	me/l
Nitrate (NO ₃)		ppm		me/l
Chloride (Cl)	52	ppm	1.44	me/l
Bicarbonate (HCO ₃)	361	ppm	5.92	me/l
Carbonate (CO ₃)		ppm		me/l
Iron (Fe)	6.80	ppm		me/l
Fluoride (F)		ppm		me/l
Hardness (EDTA as CaCO ₃)		ppm		me/l
Alkalinity (Methyl Orange)	296	ppm (as CaCO ₃)		g.p.g.***
Alkalinity (Phenolphthalein)	0	ppm (as CaCO ₃)		
Electrical Conductivity	2311	micromhos per cm at 25° C.		
Sodium Adsorption Ratio	4.29			
Sodium	41.79	% of cations		
Residual sodium carbonate	0.00	me/l		
pH	7.76			
Others:				

*ppm=parts per million

**me/l=milliequivalents per liter

***g.p.g.=grains per gallon

COMMENTS: Total cations 29.67 me/l
 Total anions 26.36 me/l

By: Shirley Mitten

Service Performed

Amount Due

Determinations shown above.

17.00

Make checks payable to: Water Quality Laboratory

Cut along dotted line and return the lower portion with payment

Sample No. 75-145

Amount Enclosed \$

Signed

2248-3

Publish first publication, on or before May 8, 1975

NOTICE
INTENT TO APPROPRIATE WATER

Pierre, South Dakota 57501

April 17, 1975, 1975

Notice is hereby given that James Zell
whose post office address is Cavour, South Dakota, has made an application in accordance
with the provisions of the water laws of South Dakota for a permit to appropriate for beneficial use
2.28 cubic feet of water per second of time from the ground water through the
Zell #1, the point of diversion of which is to be located in the _____

Center of the E½ SE¼

of Section 25, Twp. 109N, Range 61W. Said water to be used for the purpose
of providing irrigation on the following described land:

SE¼, Section 25, T109N, R61W

This application No. 2248-3 will be considered by the Water Resources Commission at their office at
Pierre upon the 21st day of May, 1975, at 2:30 P. M. All interested
persons may appear and be heard.

WATER RESOURCES COMMISSION

By:

BURTON F. JONES
Water Rights Specialist

BFJ/lw

cc: James Zell, Cavour, S.D. 57324

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

No. 2248-3

PROOF OF PUBLICATION

STATE OF SOUTH DAKOTA)
County Beadle) ss.

I, Dorothy Murpny hereby

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

Water was taken from the Huron Daily Plainsman

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 Huron

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

May 2, 1975

May 9, 1975

Dorothy Murpny
(Signature)

Bookkeeper
(Title)

May 9, 1975

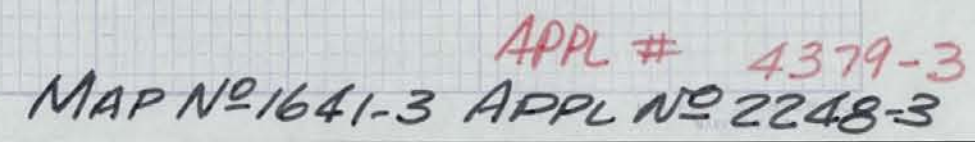
(Date Signed)

F.P. 5-275-1
NOTICE INTENT TO
APPROPRIATE WATER
Notice is hereby given that James
Zell, whose office address is
Cavour, South Dakota, has made an
application in accordance with the
provisions of the Water Rights of South
Dakota for a permit to appropriate
for beneficial use 2.78 cubic feet of
water per second of time from
ground water through the Zell No. 1
the point of diversion of which is to
be located in the Center of the
EASE 1/4 of Section 25, Twp. 3109N,
Range 61W, Sec. 25, T109N, R41W, S
for the purpose of providing irrigation
on the following described land:
SE 1/4, Section 25, T109N, R41W, S
This application No. 2248-3 will be
considered by the Water Resources
Commission at their office at Pierre
upon the 21st day of May, 1975, at
2:30 P.M. All interested persons
may appear and be heard.
WATER RESOURCES COM-
MISSION
BURTON F. JONES
Water Rights Specialist
No. 188 (adv.)

RECEIVED
MAY 19 1975

STATE WATER RIGHTS COM-
PIERRE, SOUTH DAKOTA

109-61 (Clifton Twp.)



Leene Bottomley

3-134C 89.4

7.4

28.0

NW 1/4 NE 1/4 - 33 AC

NE 1/4 NE 1/4
23 AC

out

54.2

OP 70

Well

230

SW 1/4 NE 1/4
33 AC.

~~Bear~~ Zell

SE 1/4 NE 1/4 - 33 AC

James

25

Ann Pearson

Transfer to

SAR

77.4

NW 1/4 SE 1/4 - 33 AC.

Permit #
2248-3
4379-3

OP

SW 1/4 SE 1/4 - 33 AC

NE 1/4 SE 1/4 - 33 AC

44.1

46.0

Well #3

4" Pipes
300' E.A.W.

1000' 8" Ac Pipe

Well #1

320'

SE 1/4 SE 1/4 - 33 AC

109-61

Henry DeVries

Oliver Hansen

3-134C

James B Zell

Mora McCoy

Permit # 2595-3

MAP # 1963-3