

BEFORE THE INDUSTRIAL COMMISSION

OF THE STATE OF NORTH DAKOTA

CASE NO. 5936  
ORDER NO. 6863

IN THE MATTER OF A HEARING CALLED ON A  
MOTION OF THE COMMISSION TO CONSIDER THE  
APPLICATION OF CONOCO INC. FOR AN ORDER  
AUTHORIZING THE CONVERSION OF THE  
FRENZEL #79 WELL, LOCATED IN THE NW NE OF  
SECTION 31, T.140N., R.96W., AND THE  
DICKINSON STATE #A-83 WELL LOCATED IN THE  
NW NW OF SECTION 5, T.139N., R.96W.,  
DICKINSON FIELD, STARK COUNTY, NORTH  
DAKOTA, FOR THE INJECTION OF FLUIDS IN THE  
PROPOSED DICKINSON-LODGEPOLE UNITIZED  
FORMATION PURSUANT TO CHAPTER 43-02-05  
OF THE NORTH DAKOTA ADMINISTRATIVE CODE,  
AND PROVIDING SUCH OTHER AND FURTHER  
RELIEF AS THE COMMISSION DEEMS  
NECESSARY.

ORDER OF THE COMMISSION

BY THE COMMISSION:

Pursuant to legal notice this cause came on for hearing at 9:00 a.m.  
on the 8th day of June, 1994, in Bismarck, North Dakota, before an examiner  
appointed by the Industrial Commission of North Dakota, hereinafter referred  
to as the "Commission."

NOW, on this 16th day of June, 1994, the Commission, a quorum being  
present, having considered the testimony adduced and the exhibits received  
at said hearing, and being fully advised in the premises,

FINDS:

(1) That due public notice having been given as required by law, the  
Commission has jurisdiction of this cause and the subject matter thereof.

(2) That Conoco Inc. (hereinafter "Conoco") is desirous of injecting  
fluids into the Dickinson-Lodgepole Unit in the Frenzel #79 well, located  
in the NW NE of Section 31, Township 140 North, Range 96 West, Stark  
County, North Dakota.

(3) That Conoco is desirous of injecting fluids into the  
Dickinson-Lodgepole Unit in the Dickinson State "A" #83 well, located in the  
NW NW of Section 5, Township 139 North, Range 96 West, Stark County,  
North Dakota.

(4) That Conoco has applied (Case No. 5933) for an order of the  
Commission providing for the unitized management and operation of the  
Dickinson-Lodgepole Unit.

(5) That Conoco presented evidence in Case No. 5935 which  
indicates the Plan of Unitization has been signed, ratified, or approved by

lessees and royalty owners owning the percentage in and to the unit area required by North Dakota Century Code Section 38-08-09.5.

(6) That the unit will become effective July 1, 1994.

(7) That injections would be into the Lodgepole Formation within the proposed Dickinson-Lodgepole Unit to enhance the recovery of oil.

(8) That the water found in the Lodgepole Formation in this area contains in excess of 10,000 parts per million of total dissolved solids.

(9) That the proposed injection operations will not cause or allow movement of fluid into an underground source of drinking water.

(10) That the proposed injection well is sited in such a fashion that it will inject into a formation which has confining zones that are free of known open faults or fractures within the area of review.

(11) That the proposed injection well will be constructed in such a manner as to prevent the movement of fluids into or between underground sources of drinking water.

(12) That in order to enhance the recovery of oil, prevent possible damage to surface lands and contamination of surface and subsurface waters, this application should be granted.

IT IS THEREFORE ORDERED:

(1) That Conoco its assigns and successors, is hereby permitted to inject into the unitized formation in and under the Dickinson-Lodgepole Unit through a well located in the NW NE of Section 31, Township 140 North, Range 96 West, Stark County, North Dakota.

(2) That Conoco its assigns and successors, is hereby permitted to inject into the unitized formation in and under the Dickinson-Lodgepole Unit through a well located in the NW NW of Section 5, Township 139 North, Range 96 West, Stark County, North Dakota.

(3) That the operator shall comply with all provisions of an injection permit issued for each well by the Oil and Gas Division of the Industrial Commission.

(4) That this order shall remain in full force and effect until further order of the Commission.

Dated this 16th day of June, 1994.

INDUSTRIAL COMMISSION  
STATE OF NORTH DAKOTA

/s/ Edward T. Schafer, Governor

/s/ Heidi Heitkamp, Attorney General

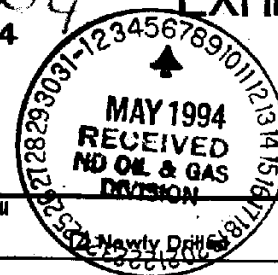
/s/ Sarah Vogel, Commissioner of Agriculture



APPLICATION FOR FLUID INJECTION - FORM 14  
INDUSTRIAL COMMISSION OF NORTH DAKOTA  
OIL AND GAS DIVISION  
SFN 18669 (3-92)

EXHIBIT 20

600 East Boulevard  
Bismarck, ND 58505



PLEASE READ INSTRUCTIONS ON BACK OF FORM BEFORE COMPLETING.

Type of Project <input checked="" type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Saltwater Disposal <input type="checkbox"/> Gas Storage		Type of Injection Well <input checked="" type="checkbox"/> Converted <input type="checkbox"/> Commercial	
Name of Operator Conoco Inc.		Address 800 Werner Ct., Casper, WY 82601	
Well Name and Number Frenzel No. 79		Field or Unit Dickinson Field, Lodgepole Unit	

Qtr.-Qtr. NW NE	Section 31	Township 140N	Range 96W	County Stark
Distance From (N) (S) Section Line 900' FNL		Distance From (E) (W) Section Line 1800' FEL		

Qtr.-Qtr. SW NE	Section 31	Township 140N	Range 96W	County Stark
Distance From (N) (S) Section Line 1579' FNL		Distance From (E) (W) Section Line 1250' FEL		

Geologic Name of Injection Zone Lodgepole		Injection Interval 10,190' - 10,260'	
Geologic Name of Confining Zone Lodgepole		Thickness 696'	
Bottom Hole Fracture Pressure of the Confining Zone 6902		Gradient 0.7	
Estimated Average Injection Rate and Pressure 2000 b/d @ 200 psi		Estimated Maximum Injection Rate and Pressure 4000 b/d @ 2500 psi	
Geologic Name of Lowest Known Fresh Water Zone Fox Hills		Depth to Base 2100	
Total Depth of Well 10,274' (Measured depth)		Log Run on Well GR/DIL/Sonic/CNL/CBIL/CBL/PET	

CASING, TUBING, AND PACKER DATA

NAME OF STRING	SIZE	WEIGHT (LBS/FT.)	SETTING DEPTH	SACKS OF CEMENT	TOP OF CEMENT	TOP DETERMINED BY
Surface	8 5/8"	24	2284	1384 cu ft	Surface	Full Returns
Intermediate						(Visual)
Long String	5 1/2"	17				
	5 1/2"	23				
	5 1/2"	20	10,271	1076 cu ft	4000'	CBL

	TOP	BOTTOM	SACKS OF CEMENT
Liner			

	TYPE
Tubing	2 7/8" 4.7# 10,140'

Packer: Setting Depth 10,140'	Model Baker R3	<input checked="" type="checkbox"/> Compression <input type="checkbox"/> Permanent <input type="checkbox"/> Tension
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FOR STATE USE ONLY

Permit Number and Well File Number	
UIC Number	Approval Date
By	
Title	

I hereby swear or affirm that the information herein provided is true, complete and correct as determined from all available records.

Signature <u>E. Leon Grant</u> E. Leon Grant	Title <u>SEVERAL DEEDS</u>	Date 6 May 94
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STATE OF Wyoming )  
COUNTY OF Natrona )  
On May 6 19 94, E. LEON GRANT known to me to be the person described in and who executed the foregoing instrument, personally appeared before me and acknowledged that (s)he executed the same as a free act and deed.

Deborah J. Estes  
Notary Public

My Commission Expires July 21, 1996

## INSTRUCTIONS

1. If an injection well is to be drilled, an Application For Permit To Drill - SFN 4615 (Form 1) also must be completed and accompanied by a plat prepared by a registered surveyor and a drilling fee.
2. Attach a plat detailing the location, name and operator of all wells in the area of review (1/4 mile radius). Include: injection wells, producing wells, plugged wells, abandoned wells, drilling wells, dry holes and water wells.
3. Attach a tabulation of data on all wells in area of review that penetrated the proposed injection zone. Include: well type, downhole schematic, date drilled, location and depth.
4. Attach a quantitative analysis from a state approved laboratory of fresh water from the two nearest fresh water wells.
5. Attach a quantitative analysis from a state approved laboratory of a representative sample of water to be injected.
6. Describe the lithology of the proposed injection zone and confining zone.
7. Attach all available logging and test data on the well concerning the proposed injection zone that has not been previously submitted.
8. Briefly describe the proposed injection program.
9. Attach a list identifying all source wells.
10. Attach schematic drawings of the system including surface and subsurface wellbore construction.
11. List the needed corrective action on wells penetrating the injection zone in the area of review.
12. Include a description of land ownership within the area of review.
13. Attach a certificate of notification to land owners in area of review and include letter sent.
14. Attach a Sundry Notice - SFN 5749 (Form 4) detailing the proposed procedure.
15. Read sections 43-02-05-04 of the oil and gas regulations to insure that this application is complete.
16. The original and four copies of this application and attachments shall be filed with the Industrial Commission, Oil and Gas Division.

cc: Mr. Paul Schulz - (w/o enc.)

**BEFORE THE INDUSTRIAL COMMISSION  
OF THE STATE OF NORTH DAKOTA**

CASE NO. \_\_\_\_\_



IN THE MATTER OF THE APPLICATION OF  
CONOCO INC. FOR AN ORDER OF THE  
COMMISSION AUTHORIZING THE  
CONVERSION OF THE FRENZEL WELL NO. 79,  
LOCATED IN THE NW¼ OF THE NE¼  
OF SECTION 31, TOWNSHIP 140 NORTH,  
RANGE 96 WEST, AND THE DICKINSON  
STATE NO. A-83 WELL, LOCATED IN THE  
NW¼NW¼ OF SECTION 5, TOWNSHIP 139 NORTH,  
RANGE 96 WEST, DICKINSON  
FIELD, STARK COUNTY, NORTH DAKOTA,  
FOR THE INJECTION OF FLUIDS IN THE  
PROPOSED DICKINSON-LODGEPOLE  
UNITIZED FORMATION PURSUANT TO  
CHAPTER 43-02-05 OF THE NORTH DAKOTA  
ADMINISTRATIVE CODE, AND PROVIDING  
SUCH OTHER AND FURTHER RELIEF AS  
THE COMMISSION DEEMS NECESSARY

**AFFIDAVIT OF PAUL E. SCHULZ**

STATE OF WYOMING       )  
                                  )  
COUNTY OF NATRONA    )

Paul E. Schulz, being first duly sworn, upon his oath deposes and states

- 1) That he is employed by Conoco Inc. as a Senior Conservation Advisor in its Casper, Wyoming office.
- 2) Conoco Inc. is the operator and working interest owner of wells located within the Dickinson Field, Stark County, North Dakota. Conoco Inc.'s mailing address is as follows:

Conoco Inc.  
800 Werner Court  
Casper, Wyoming 82601

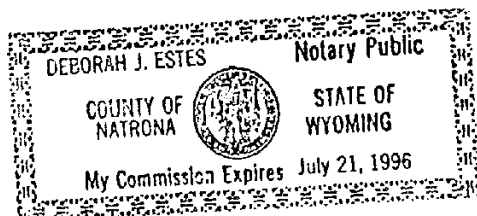
- 3) Attached as Exhibit 1 is a plat showing the proposed boundaries of the Dickinson Lodgepole Unit. Shown on the plat is the location of all Lodgepole formation producing wells contained within the proposed unit.
- 4) Attached as Exhibit 2 is a topographic plat showing a portion of the lands both contained by and adjacent to the proposed Dickinson Lodgepole Unit. Shown on the map are two circles of one-quarter mile radius centered on both the surface and bottomhole locations of the Frenzel No. 79 well. The lands within the boundaries of these circles constitute the "area of review" for this application, as defined by Commission Rule 43-02-05-01 (1).
- 5) Attached as Exhibit 3 is a topographic plat showing a portion of the lands both contained by and adjacent to the proposed Dickinson Lodgepole Unit. Shown on the map is a circle of one-quarter mile radius centered on the Dickinson State No. A-83 well. The lands within the boundaries of this circle constitute the "area of review" for this application, as defined by Commission Rule 43-02-05-01 (1).
- 6) One well, the Frenzel No. 79 well, is located within the "area of review" identified for the Frenzel No. 79 well. Attached as Exhibit 4 is a table containing the pertinent well history and construction data on the Frenzel No. 79 well, in accordance with Commission Rule 43-02-05-04 (1c).
- 7) One well, the Dickinson State No. A-83 well, is located within the "area of review" identified for the Dickinson State No. A-83 well. Attached as Exhibit 5 is a table containing the pertinent well history and construction data on the Dickinson State No. A-83 well, in accordance with Commission Rule 43-02-05-04 (1c).
- 8) Attached as Exhibit 6 is a table showing the average and maximum estimated injection rates and pressures for both the Frenzel No. 79 and Dickinson State No. A-83 wells.
- 9) Both the Frenzel No. 79 and Dickinson State No. A-83 wells will serve as Lodgepole formation injection wells for the proposed Dickinson Lodgepole Unit. Water for injection will be supplied by the Dickinson Heath Sand Unit Well No. 62. To this end, Well No. 62 will be converted to a Dakota formation water supply well.
- 10) Attached as Exhibit 7 is a standard analysis of the Dakota formation water obtained from the Dickinson Heath Sand Unit Well No. 44. This sample is representative of the Dakota formation water quality observed throughout the Dickinson Field. An analysis of the Dakota formation water obtained from the Dickinson Heath Sand Unit Well No. 62 will be submitted to the North Dakota Industrial Commission following completion of the conversion work.
- 11) Attached as Exhibits 8 & 9 are standard analyses of the water obtained from the "Art Riddle" and "Joe Lupo" fresh water supply wells, respectively. The aforementioned fresh water wells are located near the Frenzel No. 79 well.
- 12) Attached as Exhibits 10 & 11 are standard analyses of the water obtained from the "ND Research University" and "U of ND Corral" fresh water supply wells, respectively. The aforementioned fresh water wells are located near the Dickinson State No. A-83 well.
- 13) The lowest known source of fresh water in the Dickinson Field is the Fox Hills formation, located at a depth of approximately 2,100'.

- 14) The injection interval for both the Frenzel No. 79 and Dickinson State No. A-83 wells will be the Lodgepole formation. The Lodgepole formation is a limestone mound ranging in thickness from zero to 310 feet. The actual Lodgepole injection interval in Well No. 79 will extend from 10,190' - 10,260', while the injection interval for Well No. A-83 will extend from 9,860' - 9,926'. Both injection intervals are below the oil/water contact identified for the Lodgepole reservoir. The porous limestone reservoir portion of the Lodgepole formation is completely encased within an impermeable limestone seal. This seal functions as the confining interval for the injection interval.
- 15) Attached as Exhibit 12 & 13 are schematic diagrams of the proposed completion of the Frenzel No. 79 and Dickinson State No. A-83 wells, respectively, as Lodgepole formation injection wells.
- 16) Attached as Exhibits 14 & 15 are schematic diagrams of the proposed wellhead and injection facilities for both the Frenzel No. 79 and Dickinson State No. A-83 wells.
- 17) Attached as Exhibit 16 is a section of the Frenzel No. 79 dual laterolog, showing the Lodgepole formation interval from 10,190' - 10,260' into which water will be injected.
- 18) Attached as Exhibit 17 is a section of the Dickinson State No. A-83 dual laterolog, showing the Lodgepole formation interval from 9,860' - 9,926' into which water will be injected.
- 19) The estimated fracture pressure for the Lodgepole formation in the Dickinson Field is approximately 6,902 psig. This value yields a fracture gradient of 0.7 psi/ft.
- 20) Attached as Exhibit 18 is a list containing both the names and mailing addresses of all landowners located within the "area of review" of the Frenzel No. 79 well.
- 21) Attached as Exhibit 19 is a list containing both the names and mailing addresses of all landowners located within the "area of review" of the Dickinson State "A" No. 83 well.
- 17) Attached as Exhibits 20 & 21 are completed Commission Form 14 for the Frenzel No. 79 well and Dickinson State No. A-83 wells, respectively. Please note that remedial procedures will be performed on both wells prior to their being placed on injection. Revised Form 14s reflecting the results of these remedial procedures will be submitted once the work has been completed.

DATED this 9th day of May, 1994.

Paul E. Schulz  
PAUL E. SCHULZ

Subscribed and sworn to before me this 9th day of May, 1994.



Deborah J. Estes  
Notary Public

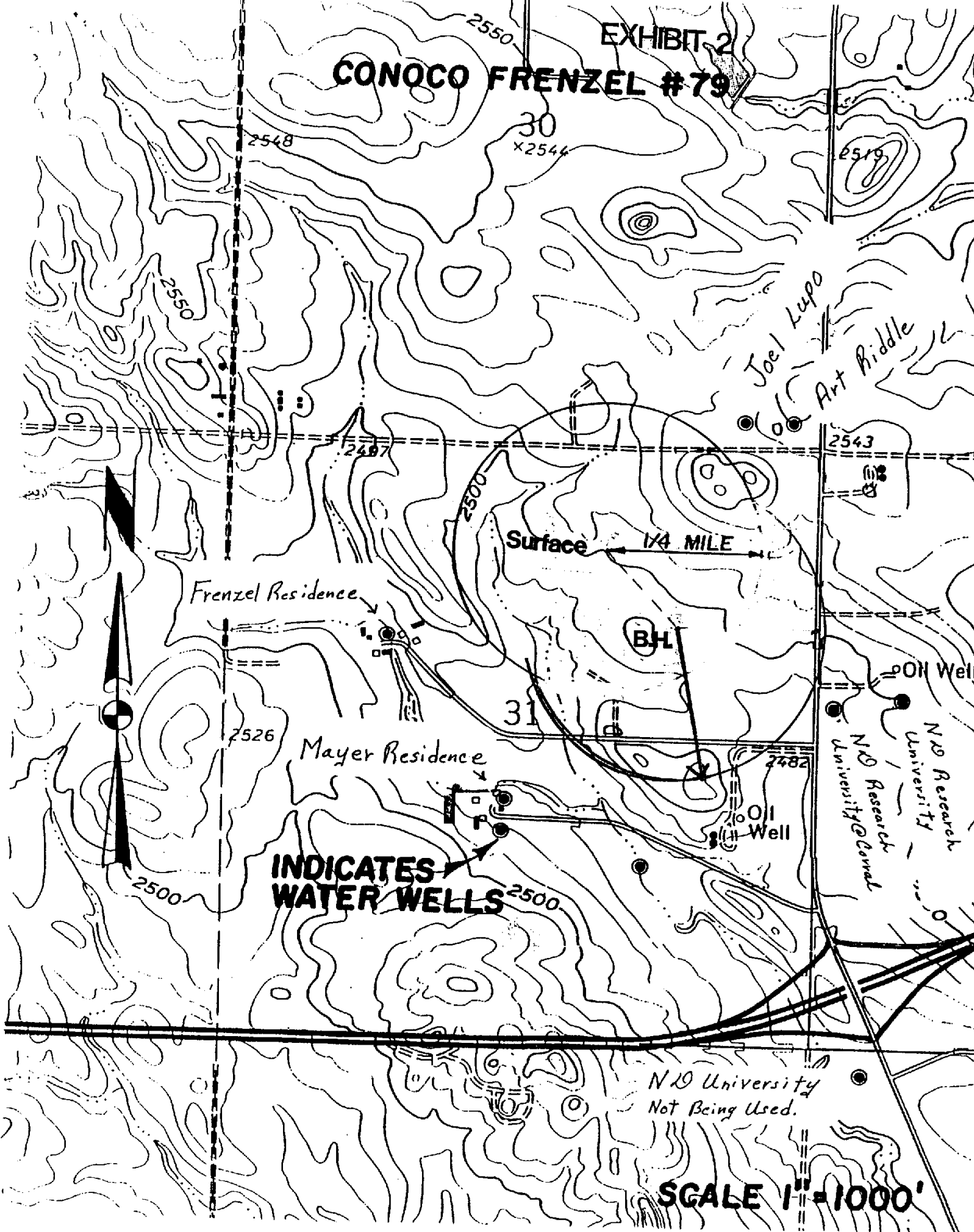
County of Natrona

My Commission Expires: July 21, 1996



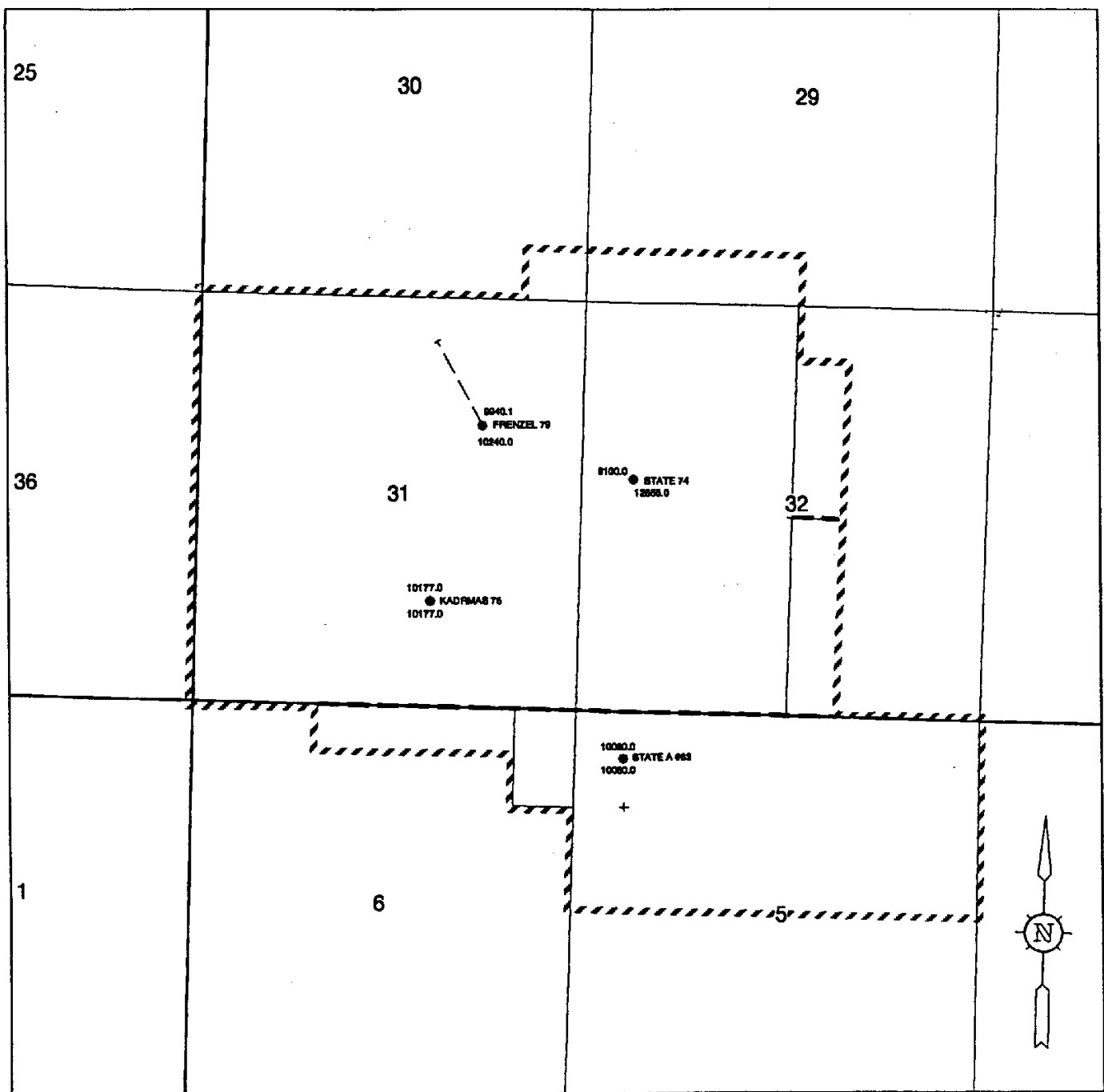
**EXHIBIT 2**

**CONOCO FRENZEL #79**



R 97 W

R 96 W



T 140 N

T 139 N

Unit Boundary

Scale  
1000'

# DICKINSON LODGEPOLE UNIT

Stark Co., North Dakota

CONOCO INC.  
Exhibit No. 1

## EXHIBIT 8

P.3

## ASTRO-CHEM LAB, INC.

4102 2nd Ave. West

Williston, North Dakota 58802-0972

P.O. Box 972

Phone: (701) 572-7355

WATER ANALYSIS REPORTSAMPLE NUMBER W-94-0993DATE OF ANALYSIS 4-18-94COMPANY Conoco, Inc.CITY DickinsonSTATE NDWELL NAME AND/OR NUMBER Art RiddleDATE RECEIVED 4-15-94DST NUMBERSAMPLE SOURCE Water WellLOCATION OF SEC. TWN. RANGE COUNTYFORMATIONDEPTHDISTRIBUTION Cary Hays - Dickinson, ND

RESISTIVITY @ 77°F = 20.202 Ohm-Meters

pH = 8.15

SPECIFIC GRAVITY @ 77°F = 0.996

H<sub>2</sub>S = Neg

TOTAL DISSOLVED SOLIDS (CALCULATED) = 430 mg/L ( 431 ppm)

SODIUM CHLORIDE (CALCULATED) = 6 mg/L ( 6 ppm)

CATION	MEQ/L	mg/L	ANION	MEQ/L	mg/L
CALCIUM	2.6	52	CHLORIDE	0.1	3
MAGNESIUM	2.4	27	CARBONATE	0.0	0
SODIUM	0.9	21	BICARBONATE	4.8	293
IRON	0.0	0.1	SULFATE	0.6	27
CHROMIUM	0.0	0.0	NITRATE	0.0	3
BARIUM	0.0	0.0			
POTASSIUM	0.1	4			

WATER ANALYSIS PATTERN

Na, K	1.0	1		0	1.0 Cl
Ca	1.0	3		5	1.0 HCO <sub>3</sub>
Mg	1.0	2		6	0.1 SO <sub>4</sub>
Fe	0.1	0		0	0.1 CO <sub>3</sub>

MEQ/LREMARKS

**ASTRO-CHEM LAB, INC.**

4102 2nd Ave. West

Williston, North Dakota 58802-0972

P.O. Box 972

Phone: (701) 572-7355

WATER ANALYSIS REPORT

SAMPLE NUMBER W-94-0992 DATE OF ANALYSIS 4-18-94  
COMPANY Conoco, Inc.  
CITY Dickinson STATE ND  
WELL NAME AND/OR NUMBER Joel Lupo  
DATE RECEIVED 4-15-94 DST NUMBER  
SAMPLE SOURCE Water Well  
LOCATION OF SEC. TWN. RANGE COUNTY  
FORMATION DEPTH  
DISTRIBUTION Cary Hays - Dickinson, ND

RESISTIVITY @ 77°F = 18.999 Ohm-Meters pH = 8.11  
SPECIFIC GRAVITY @ 77°F = 0.994 H<sub>2</sub>S = Neg  
TOTAL DISSOLVED SOLIDS (CALCULATED) = 412 mg/L ( 414 ppm)  
SODIUM CHLORIDE (CALCULATED) = 6 mg/L ( 6 ppm)

CATION	MEQ/L	mg/L	ANION	MEQ/L	mg/L
CALCIUM	2.6	52	CHLORIDE	0.1	3
MAGNESIUM	2.0	22	CARBONATE	0.0	0
SODIUM	1.1	25	BICARBONATE	4.4	268
IRON	0.0	0.0	SULFATE	0.7	34
CHROMIUM	0.0	0.0	NITRATE	0.0	2
BARIUM	0.0	0.0			
POTASSIUM	0.1	5			

WATER ANALYSIS PATTERN

Na, K	1.0	1		0	1.0 Cl
Ca	1.0	3		4	1.0 HCO <sub>3</sub>
Mg	1.0	2		7	0.1 SO <sub>4</sub>
Fe	0.1	0		0	0.1 CO <sub>3</sub>

MEQ/L

REMARKS

# EXHIBIT 7

## SATHE ANALYTICAL LABORATORY, INC.

301 W. 2ND STREET

P.O. BOX 1527  
WILLISTON, ND. 58801

701-572-3632

### WATER ANALYSIS REPORT

OPERATOR: CONOCO INC.

DATE: 10-24-91

WELL NO. DHSU #44

LAB NO.: W-91-2924

FIELD: not listed

FORMATION: Dakota

COUNTY: Stark

INTERVAL: Production

STATE: ND

DST #: none

LOC: not listed

SAMPLE Production Water

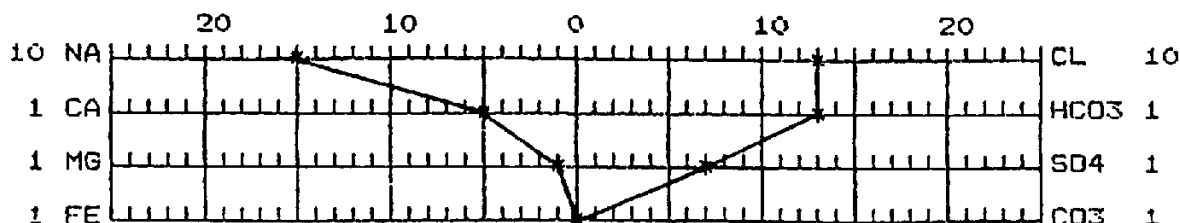
CATIONS	MG/L	MEQ/L	ANIONS	MG/L	MEQ/L
SODIUM	3400.0	147.9	CHLORIDE	4728.8	133.4
CALCIUM	100.0	5.0	CARBONATE	0.0	0.0
MAGNESIUM	12.0	1.0	BICARBONATE	799.4	13.1
IRON	0.7	0.0	SULFATE	341.2	7.1
POTASSIUM	15.0	0.4	NITRATE	4.7	0.1
BARIUM	0.0	0.0			
CHROMIUM	0.0	0.0			

SPECIFIC GRAVITY @ 77°F 1.005 PH 7.67

RESISTIVITY @ 77°F, ohm-meters 0.742 NA CL (Calc.) 7797.7

TOTAL DISSOLVED SOLIDS (Calc.) MG/L 9401.8 HYDROGEN SULFIDE NEG

### WATER ANALYSIS PATTERN - MEQ/L



REMARKS - Sample received on 10-23-91 from Cary Hays -- Dickinson ND

### DISTRIBUTION OF RESULTS

Cary Hays -- Dickinson ND - 2 copies

EXHIBIT 16  
DUAL INDUCTION  
FRENZEL NO. 79

Producing Perforations  
10050-10107' will be squeezed

10100

Injection Perforations  
10190-10260'

10200

FR — GAMMA RAY

TENSION CURVE —

MEDIUM INDUCTION —

FR — DEEP INDUCTION

TD

## **EXHIBIT 4**

### **OFFSET WELL DATA**

**Well Name:** Frenzel No. 79

**Well Location:** Surface - 900'FNL, 1,800'FEL, Section 31, T140N, R96W,  
Stark County, North Dakota

Bottomhole - 1,502'FNL, 1,299'FEL, Section 31, T140N, R96W,  
Stark County, North Dakota

**Date Drilled:** August - September, 1993

**TD:** 10,274'

**Completion Interval:** Lodgepole Formation, 10,050' - 10,107' (Existing perforations)

**Surface Casing (Type & Setting Depth):** 8-5/8", 24#, J-55, ST&C, 0' - 2,284'

**Surface Casing Cement Job (Amount, Estimated Top):** 1,097 Cu.ft of Halliburton Lite,  
followed by 287 cu.ft of Class G,  
Cement to surface

**Production Casing (Type & Setting Depth):** 5-1/2", 17#, 23# & 20#, L-80 & TCA-80, 0' - 10,271'

**Production Casing Cement Job (Amount, Estimated Top):** DV Tool @ 9,780'  
1st Stage: 156 cu.ft of Class G  
2nd Stage: 115 cu.ft. of Class G,  
followed by 178 cu.ft. of Class G foam  
(9.5 ppg), 213 cu.ft. of Class G foam  
(12.5 ppg) and 414 cu.ft. of Class G  
Cement top = 4,000'

# **EXHIBIT 6**

## **INJECTION RATES AND PRESSURES FRENZEL NO. 79 & DICKINSON STATE NO. A-83 WELLS**

	<u>Injection Pressure, Psig</u>	<u>Injection Rate, BWPD</u>
Average	200	2,000
Maximum	2,500	4,000

NOTE: INJECTION RATES AND PRESSURES ARE ASSUMED TO  
BE IDENTICAL FOR BOTH THE FRENZEL NO. 79 &  
DICKINSON STATE NO. A-83 WELL



# FRENZEL #79

T. 140 N. — R. 96 W., SEC. 31  
900' FNL & 1800' FEL  
STARK CO., NORTH DAKOTA

KB= 2515'  
GL= 2501'

## NOTE

All depths are  
measured depths.

This is a directional  
hole below 8,931'

8 5/8", 24#/ft. @ 2284'

2 7/8" Tubing

TOC @ 4000'

DV Tool @ 9,780'

Lodgepole 10,050'— 10,107'  
Squeezed

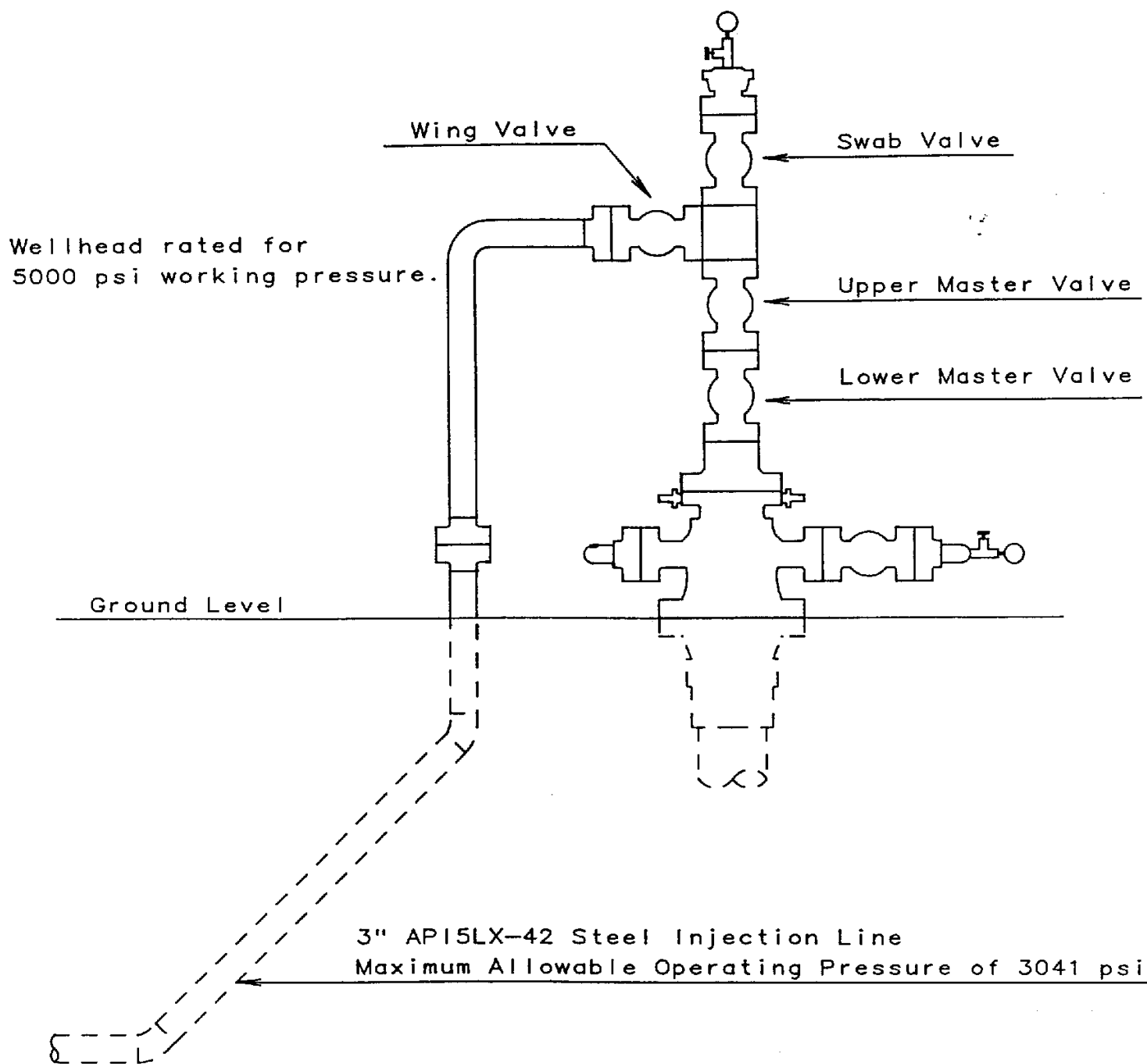
Injection Packer @ 10,140'

Lodgepole 10,190'— 10,260'

PBTD @ 10,261'  
5 1/2" @ 10,271'  
TD @ 10,274'

Fren-Inj

EXHIBIT 12

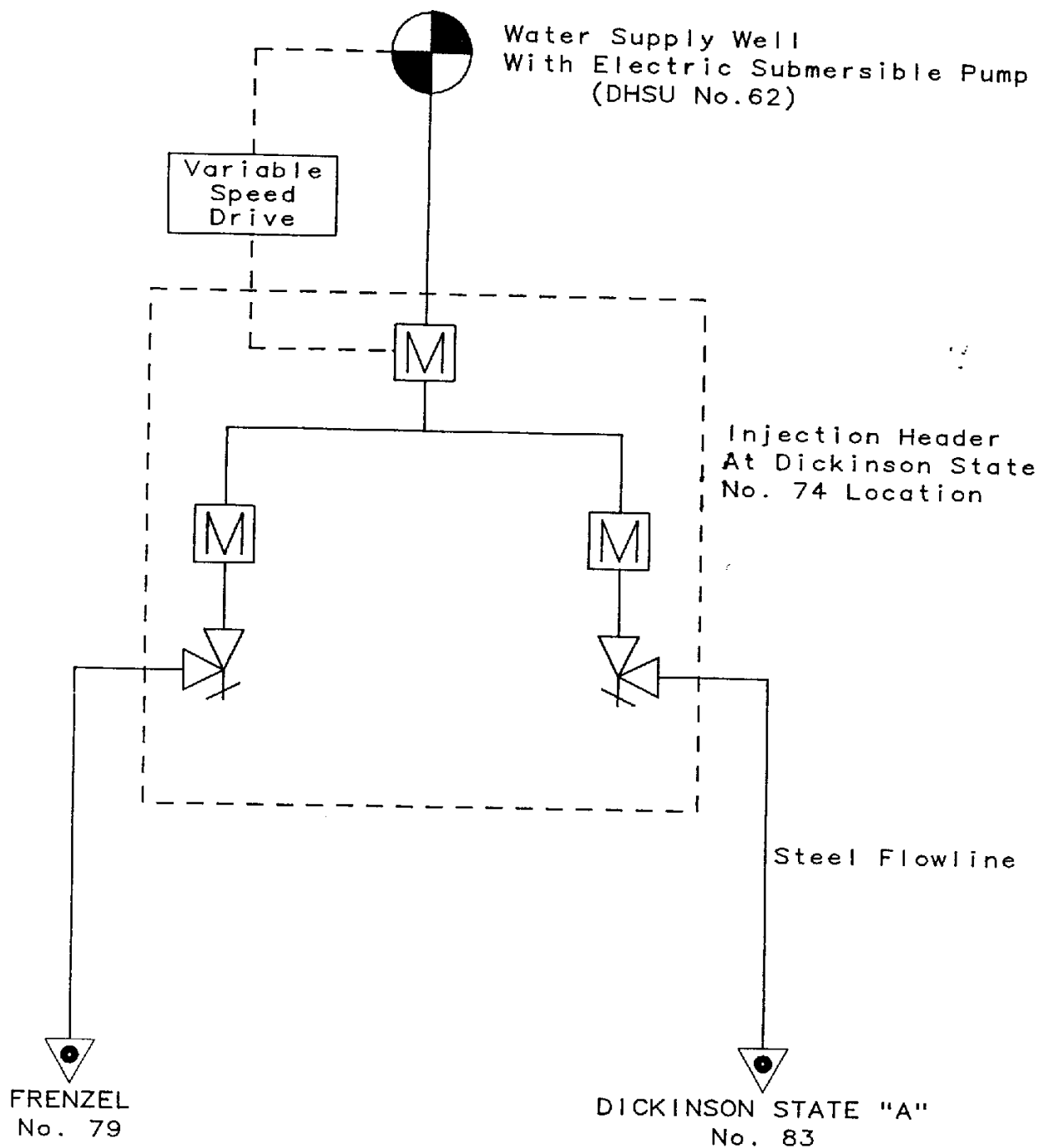


## EXHIBIT 14

**conoco**

CASPER DIVISION

LODGEPOLE INJECTION  
WELLHEAD



METER



ADJUSTABLE CHOKE



INJECTION WELL

## EXHIBIT 15

**conoco**

CASPER DIVISION

INJECTION SYSTEM  
PROCESS FLOW

BEFORE THE INDUSTRIAL COMMISSION

OF THE STATE OF NORTH DAKOTA

CASE NO. \_\_\_\_\_

IN THE MATTER OF THE APPLICATION OF  
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CONVERSION OF THE FRENZEL NO. 79  
WELL, LOCATED IN THE SW¼ OF THE NE¼  
OF SECTION 31, TOWNSHIP 140 NORTH,  
RANGE 96 WEST, AND THE DICKINSON  
STATE NO. A-83 WELL LOCATED IN THE  
NW¼NW¼ OF SECTION 5, TOWNSHIP 139  
NORTH, RANGE 96 WEST, DICKINSON  
FIELD, STARK COUNTY, NORTH DAKOTA,  
FOR THE INJECTION OF FLUIDS IN THE  
PROPOSED DICKINSON-LODGEPOLE  
UNITIZED FORMATION PURSUANT TO  
CHAPTER 43-02-05 OF THE NORTH DAKOTA  
ADMINISTRATIVE CODE, AND PROVIDING  
SUCH OTHER AND FURTHER RELIEF AS  
THE COMMISSION DEEMS NECESSARY.

AFFIDAVIT OF SERVICE BY MAIL

STATE OF NORTH DAKOTA     )  
  ) ss.  
COUNTY OF BURLEIGH     )

Lyn Entzi, being first duly sworn, deposes and says that on the 6th day of May, 1994, she served the attached:

APPLICATION OF CONOCO INC.

by placing a true and correct copy thereof in an envelope addressed as follows:

See attached Exhibit A

and depositing the same, with postage prepaid, in the United States mail at Bismarck, North Dakota.

Lyn Entzi-Odden  
LYN ENTZI-ODDEN

Subscribed and sworn to before me this 6th day of May, 1994.

Rosalinde K. Kienzle  
ROSALINDE KIENZLE, Notary Public  
Burleigh County, North Dakota  
My Commission expires: 05-23-95

ROSALINDE K. KIENZLE  
Notary Public STATE OF NORTH DAKOTA  
My Commission Expires MAY 23, 1995

**FRENZEL NO. 79 WELL**

Lester Frenzel and Marlene Frenzel  
Route 1, Box 161  
Dickinson, ND 58601

County of Stark, North Dakota  
Box 130  
Dickinson, ND 58601

City of Dickinson  
c/o Ed Karsky, City Engineer  
P.O. Box 1037  
Dickinson, ND 58601

North Dakota State University  
Dickinson Experiment Station  
P.O. Box 5435  
Fargo, ND 58105

Arthur J. Ridl and Dorothy A. Ridl  
Route 1, Box 160  
Dickinson, ND 58601

Joel L. Lupo and Josann M. Lupo  
Route 1, Box 164  
Dickinson, ND 58601

Douglas J. Kadrmas  
2314 25-1/2 Ave. S.  
Fargo, ND 58103

Mildred J. Kadrmas and Joseph J. Kadrmas  
1030 4th Avenue W.  
Dickinson, ND 58601

**EXHIBIT A**

**EXHIBIT 18**

**MAILING LIST  
FRENZEL NO. 79 WELL**

City of Dickinson  
c/o Ed Karsky, City Engineer  
P.O. Box 1037  
Dickinson, North Dakota 58601

Douglas J. Kadrmas  
2314 25-½ Avenue South  
Fargo, North Dakota 58103

Joel L. & Josann M. Lupo  
Route 1, Box 164  
Dickinson, North Dakota 58601

Arthur J. & Dorothy A. Ridl  
Route 1, Box 160  
Dickinson, North Dakota 58601

Lester & Marlene Frenzel  
Route 1, Box 161  
Dickinson, North Dakota 58601

Mildred J. & Joseph J. Kadrmas  
1030 4th Avenue West  
Dickinson, North Dakota 58601

North Dakota State University  
Dickinson Experimental Station  
P.O. Box 5435  
Fargo, North Dakota 58105

County of Stark, North Dakota  
Box 130  
Dickinson, North Dakota 58601

**BEFORE THE INDUSTRIAL COMMISSION  
OF THE STATE OF NORTH DAKOTA**

CASE NO. \_\_\_\_\_

**IN THE MATTER OF THE APPLICATION OF  
CONOCO INC. FOR AN ORDER OF THE  
COMMISSION AUTHORIZING THE  
CONVERSION OF THE FRENZEL NO. 79  
WELL, LOCATED IN THE SW¼ OF THE NE¼  
OF SECTION 31, TOWNSHIP 140 NORTH,  
RANGE 96 WEST, AND THE DICKINSON  
STATE NO. A-83 WELL LOCATED IN THE  
NW¼NW¼ OF SECTION 5, TOWNSHIP 139  
NORTH, RANGE 96 WEST, DICKINSON  
FIELD, STARK COUNTY, NORTH DAKOTA,  
FOR THE INJECTION OF FLUIDS IN THE  
PROPOSED DICKINSON-LODGEPOLE  
UNITIZED FORMATION PURSUANT TO  
CHAPTER 43-02-05 OF THE NORTH DAKOTA  
ADMINISTRATIVE CODE, AND PROVIDING  
SUCH OTHER AND FURTHER RELIEF AS  
THE COMMISSION DEEMS NECESSARY.**

**APPLICATION OF CONOCO INC.**

COMES NOW the applicant, Conoco Inc. ("Conoco"), and respectfully shows the  
North Dakota Industrial Commission ("Commission") as follows:

1.

That Conoco is the owner of an interest in the oil and gas leasehold estate in the  
Southwest Quarter of the Northeast Quarter (SW¼NE¼) of Section 31, Township 140  
North, Range 96 West, Stark County, North Dakota ("Section 31").



2.

That Conoco is the owner of an interest in the oil and gas leasehold estate in the Northwest Quarter of the Northwest Quarter (NW¼NW¼) of Section 5, Township 139 North, Range 96 West, Stark County, North Dakota ("Section 5").

3.

That such lands are within the boundaries of the Dickinson Field and within the boundary of the proposed Dickinson-Lodgepole Unit.

4.

That Conoco is the operator of various wells located within the boundaries of the Dickinson Field, Stark County, North Dakota and will be the operator for the proposed Dickinson-Lodgepole Unit.

5.

That pursuant to Chapter 43-02-05 of the North Dakota Administrative Code, Conoco is desirous of converting the Frenzel No. 79 well located in the Southwest Quarter of the Northeast Quarter (SW¼NE¼) of Section 31 and the Dickinson State No. A-83 well located in the Northwest Quarter of the Northwest Quarter (NW¼NW¼) of Section 5 for the purposes of utilizing said wells for the injection of fluids into the proposed Dickinson-Lodgepole unitized formation.

6.

That attached herewith and marked Exhibit A are two plats showing the location of the proposed injection wells, all other producing wells, abandoned producers and dry holes in the Dickinson Field area.

7.

That attached herewith as Exhibit B is a list of all surface owners with the area of review to each of which will be mailed a copy of this application.

8.

That Conoco requests that the Commission enter its order authorizing the underground injection of fluids into the proposed Dickinson-Lodgepole unitized formation in the Frenzel No. 79 well located in the Southwest Quarter of the Northeast Quarter (SW $\frac{1}{4}$ NE $\frac{1}{4}$ ) of Section 31, Township 140 North, Range 96 West and the Dickinson State No. A-83 well located in the Northwest Quarter of the Northwest Quarter (NW $\frac{1}{4}$ NW $\frac{1}{4}$ ) of Section 5, Township 139 North, Range 96 West, Dickinson Field, Stark County, North Dakota, pursuant to Chapter 43-02-05 of the North Dakota Administrative Code and providing such other and further relief as the Commission deems necessary.

WHEREFORE, applicant requests that the matter be set for hearing on June 8, 1994 and that thereafter the Commission issue its Order granting the relief requested and such other and further relief as the Commission may deem appropriate.


DATED this *6th* day of May, 1994.


By **LAWRENCE BENDER**

**314 East Thayer Avenue  
Post Office Box 400  
Bismarck, North Dakota 58502**

**STATE OF NORTH DAKOTA     )**  
**) ss.**  
**COUNTY OF BURLEIGH         )**

read the foregoing application, knows the  
this affiant's knowledge, and belief.

  
\_\_\_\_\_  
LAWRENCE BENDER

  
Lynette Entzi-Odden, Notary Public  
Burleigh County, North Dakota  
My Commission Expires: 6-26-99

**LYNETTE ENTZI-ODDEN**  
Notary Public, STATE OF NORTH DAKOTA  
My Commission Expires JUNE 26, 1999

**BEFORE THE INDUSTRIAL COMMISSION  
OF THE STATE OF NORTH DAKOTA**

CASE NO. \_\_\_\_\_

**IN THE MATTER OF THE APPLICATION OF  
CONOCO INC. FOR AN ORDER OF THE  
COMMISSION AUTHORIZING THE  
CONVERSION OF THE FRENZEL NO. 79  
WELL, LOCATED IN THE NW¼ OF THE NE¼  
OF SECTION 31, TOWNSHIP 140 NORTH,  
RANGE 96 WEST, AND THE DICKINSON  
STATE NO. A-83 WELL LOCATED IN THE  
NW¼NW¼ OF SECTION 5, TOWNSHIP 139  
NORTH, RANGE 96 WEST, DICKINSON  
FIELD, STARK COUNTY, NORTH DAKOTA,  
FOR THE INJECTION OF FLUIDS IN THE  
PROPOSED DICKINSON-LODGEPOLE  
UNITIZED FORMATION PURSUANT TO  
CHAPTER 43-02-05 OF THE NORTH DAKOTA  
ADMINISTRATIVE CODE, AND PROVIDING  
SUCH OTHER AND FURTHER RELIEF AS  
THE COMMISSION DEEMS NECESSARY.**



**AFFIDAVIT OF SERVICE BY MAIL**

STATE OF NORTH DAKOTA     )  
  ) ss.  
COUNTY OF BURLEIGH     )

Lyn Entzi, being first duly sworn, deposes and says that on the *10th* day of May, 1994, she served the attached:

AMENDED APPLICATION OF CONOCO INC.

by placing a true and correct copy thereof in an envelope addressed as follows:

See attached Exhibit A

and depositing the same, with postage prepaid, in the United States mail at Bismarck, North Dakota.

Lyn Entzi-Odden  
LYN ENTZI-ODDEN

Subscribed and sworn to before me this *10th* day of May, 1994.

Rosalinde Kienzle  
ROSALINDE KIENZLE, Notary Public  
Burleigh County, North Dakota  
My Commission expires: 05-23-95

**ROSALINDE K. KIENZLE**  
**Notary Public STATE OF NORTH DAKOTA**  
**My Commission Expires MAY 23, 1995**

**BEFORE THE INDUSTRIAL COMMISSION  
OF THE STATE OF NORTH DAKOTA**

CASE NO. \_\_\_\_\_

IN THE MATTER OF THE APPLICATION OF CONOCO INC. FOR AN ORDER OF THE COMMISSION AUTHORIZING THE CONVERSION OF THE FRENZEL NO. 79 WELL, LOCATED IN THE NW¼ OF THE NE¼ OF SECTION 31, TOWNSHIP 140 NORTH, RANGE 96 WEST, AND THE DICKINSON STATE NO. A-83 WELL LOCATED IN THE NW¼NW¼ OF SECTION 5, TOWNSHIP 139 NORTH, RANGE 96 WEST, DICKINSON FIELD, STARK COUNTY, NORTH DAKOTA, FOR THE INJECTION OF FLUIDS IN THE PROPOSED DICKINSON-LODGEPOLE UNITIZED FORMATION PURSUANT TO CHAPTER 43-02-05 OF THE NORTH DAKOTA ADMINISTRATIVE CODE, AND PROVIDING SUCH OTHER AND FURTHER RELIEF AS THE COMMISSION DEEMS NECESSARY.



**AMENDED APPLICATION OF CONOCO INC.**

COMES NOW the applicant, Conoco Inc. ("Conoco"), and respectfully shows the North Dakota Industrial Commission ("Commission") as follows:

1.

That Conoco is the owner of an interest in the oil and gas leasehold estate in the Northwest Quarter of the Northeast Quarter (NW¼NE¼) of Section 31, Township 140 North, Range 96 West, Stark County, North Dakota ("Section 31").

2.

That Conoco is the owner of an interest in the oil and gas leasehold estate in the Northwest Quarter of the Northwest Quarter (NW¼NW¼) of Section 5, Township 139 North, Range 96 West, Stark County, North Dakota ("Section 5").

3.

That such lands are within the boundaries of the Dickinson Field and within the boundary of the proposed Dickinson-Lodgepole Unit.

4.

That Conoco is the operator of various wells located within the boundaries of the Dickinson Field, Stark County, North Dakota and will be the operator for the proposed Dickinson-Lodgepole Unit.

5.

That pursuant to Chapter 43-02-05 of the North Dakota Administrative Code, Conoco is desirous of converting the Frenzel No. 79 well located in the Northwest Quarter of the Northeast Quarter (NW¼NE¼) of Section 31 and the Dickinson State No. A-83 well located in the Northwest Quarter of the Northwest Quarter (NW¼NW¼) of Section 5 for the purposes of utilizing said wells for the injection of fluids into the proposed Dickinson-Lodgepole unitized formation.

6.

That attached herewith and marked Exhibit A are two plats showing the location of the proposed injection wells, all other producing wells, abandoned producers and dry holes in the Dickinson Field area.

7.

That attached herewith as Exhibit B is a list of all surface owners with the area of review to each of which will be mailed a copy of this application.

8.

That Conoco requests that the Commission enter its order authorizing the underground injection of fluids into the proposed Dickinson-Lodgepole unitized formation in the Frenzel No. 79 well located in the Northwest Quarter of the Northeast Quarter (NW $\frac{1}{4}$ NE $\frac{1}{4}$ ) of Section 31, Township 140 North, Range 96 West and the Dickinson State No. A-83 well located in the Northwest Quarter of the Northwest Quarter (NW $\frac{1}{4}$ NW $\frac{1}{4}$ ) of Section 5, Township 139 North, Range 96 West, Dickinson Field, Stark County, North Dakota, pursuant to Chapter 43-02-05 of the North Dakota Administrative Code and providing such other and further relief as the Commission deems necessary.

**WHEREFORE**, applicant requests that the matter be set for hearing at the regular Commission hearing on June 22, 1994 and that thereafter the Commission issue its Order granting the relief requested and such other and further relief as the Commission may deem appropriate.

**DATED** this *10th* day of May, 1994.



PEARCE & DUBICK

By

  
LAWRENCE BENDER

Attorneys for Applicant

Conoco Inc.

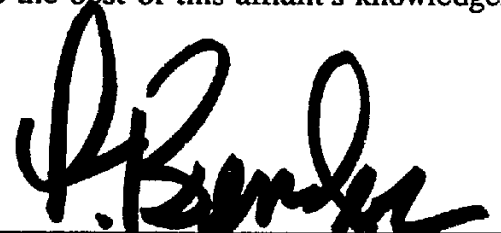
314 East Thayer Avenue

Post Office Box 400

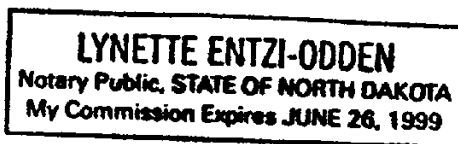
Bismarck, North Dakota 58502

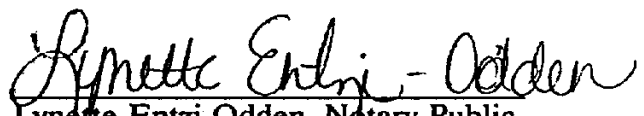
STATE OF NORTH DAKOTA )  
 ) ss.  
COUNTY OF BURLEIGH )

LAWRENCE BENDER, being first duly sworn on oath, deposes and says that he is the attorney for the applicant named herein, that he has read the foregoing application, knows the contents thereof, and that the same is true to the best of this affiant's knowledge, and belief.

  
LAWRENCE BENDER

Subscribed and sworn to before me this 10th day of May, 1994.



  
Lynette Entzi-Odden, Notary Public  
Burleigh County, North Dakota  
My Commission Expires: 6-26-99

**SURFACE OWNERS WITHIN 1/4 MILE  
OF FRENZEL 79 WELL**

**Township 140 North, Range 96 West  
Section 30: SE1/4  
Stark County, North Dakota**

Arthur J. Ridl and Dorothy A. Ridl  
Route 1, Box 160  
Dickinson, ND 58601

Joel L. Lupo and Josann M. Lupo  
Route 1, Box 164  
Dickinson, ND 58601

County of Stark, North Dakota  
Box 130  
Dickinson, ND 58601

City of Dickinson  
c/o Ed Karsky, City Engineer  
P.O. Box 1037  
Dickinson, ND 58601

**SURFACE OWNERS WITHIN 1/4 MILE  
OF FRENZEL 79 WELL**

**Township 140 North, Range 96 West  
Section 31: SE1/4  
Stark County, North Dakota**

Douglas J. Kadrmas  
2314 25-1/2 Avenue South  
Fargo, ND 58103

Mildred J. Kadrmas and Joseph J. Kadrmas  
1030 4th Avenue West  
Dickinson, ND 58601

County of Stark, North Dakota  
Box 130  
Dickinson, ND 58601

City of Dickinson  
c/o Ed Karsky, City Engineer  
P.O. Box 1037  
Dickinson, ND 58601

**SURFACE OWNERS WITHIN 1/4 MILE  
OF FRENZEL 79 WELL**

**Township 140 North, Range 96 West**  
**Section 30: SW1/4**  
**Section 31: N1/2**  
**Stark County, North Dakota**

Lester Frenzel and Marlene Frenzel,  
Joint Tenants  
Route 1, Box 161  
Dickinson, ND 58601

County of Stark, North Dakota  
Box 130  
Dickinson, ND 58601

City of Dickinson  
c/o Ed Karsky, City Engineer  
P.O. Box 1037  
Dickinson, ND 58601

**SURFACE OWNERS WITHIN 1/4 MILE  
OF FRENZEL 79 WELL**

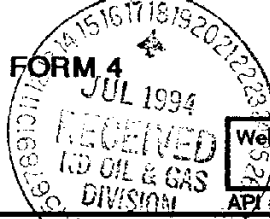
**Township 140 North, Range 96 West**  
**Section 29: SW1/4**  
**Section 32: W1/2**  
**Stark County, North Dakota**

North Dakota State University  
Dickinson Experiment Station  
P.O. Box 5435  
Fargo, ND 58105

County of Stark, North Dakota  
Box 130  
Dickinson, ND 58601

City of Dickinson  
c/o Ed Karsky, City Engineer  
P.O. Box 1037  
Dickinson, ND 58601

SUNDRY NOTICES AND REPORTS ON WELLS - FORM 4  
INDUSTRIAL COMMISSION OF NORTH DAKOTA  
OIL AND GAS DIVISION  
SFN 5749 (2-92)



Well File Number  
13554

API #: 33-089-00403

PLEASE READ INSTRUCTIONS ON BACK OF FORM

☒ Notice of Intent

Approximate Start Date 07-19-94

☐ Report of Work Done

Date Work Completed

☐ Drilling Prognosis

☐ Redrilling or Repair

☐ Casing or Liner

☐ Plug Well

☐ Supplemental History

☐ Temporarily Abandon

☒ Spill Report

☐ Shooting

☐ Acidizing

☐ Fracture Treatment

☐ Change Producing Method

☐ Reclamation

☐ Other CONVERT TO INJECTION

Well Name and Number

DICKINSON-LODGEPOLE UNIT NO. 79

Footages

900' FNL, 1800' FEL

Qtr-Qtr

NW NE

Section

31

Township

140 N

Range

96 W

Field

DICKINSON

Pool

LODGEPOLE

County

STARK

24 HOUR PRODUCTION RATE

BEFORE

AFTER

Oil

Oil

Water

Water

Gas

Gas

TEST DATES:

Name of Contractor

TO BE DETERMINED

Address

City

State

Zip Code

DETAILS OF WORK

CONOCO IS REQUESTING APPROVAL TO CONVERT SUBJECT WELL TO INJECTION.

PLEASE SEE THE ATTACHED PROCEDURE.

Company

CONOCO INC.

Address

800 WERNER COURT

City

CASPER

State

WY

Zip Code

82601

By

*E. Leon Grant*

Date

07-13-94

Title

E. LEON GRANT, SHEAR DIRECTOR

Telephone Number

(307) 261-7800

FOR OFFICE USE ONLY

☐ Received

☐ Approved

Date

By

Title

# DICKINSON LODGEPOLE UNIT No.79

## CONVERT TO WATER INJECTION

Field: Dickinson

Location: 900' FNL, 1,800' FEL, Section 31, (NW SE)  
T140N, R96W, Stark County, ND (surface location)

Elevation: GL=2,501' KB=2,515'

Depths: TD=10,274' MD PBTD=10,227' MD

Casing:

Surface: 8 $\frac{1}{2}$ ", 24 lb/ft, J-55, ST&C 0'-2,284'

Lead: 1097 cuft Halliburton Lite @ 12.1 ppg,  $\frac{1}{4}$  lb/sx Flocele, 2% CaCl<sub>2</sub>  
Tail: 287.5 cuft Class "G" @ 15.8 ppg,  $\frac{1}{4}$  lb/sx Flocele, 2% CaCl<sub>2</sub>

Cement Top=Surface (returns)

Production: 5 $\frac{1}{2}$ ", 17 lb/ft, L-80, BTC 0'-8,079'  
5 $\frac{1}{2}$ ", 23 lb/ft, TCA-80 HC, LT&C 8,079'-8,736'  
5 $\frac{1}{2}$ ", 20 lb/ft, L-80, LT&C 8,736'-10,271'

DV @ 9,778' FC @ 10,176' FS @ 10,269'

1<sup>st</sup> Stage Lead: 156 cuft Class "G" @ 15.6 ppg, 35% SSA-1, .3% CFR-3, .5% Halad-024, .3% HR-5,  $\frac{1}{4}$  lb/sx Flocele, .4% Versaset

2<sup>nd</sup> Stage Cap: 115 cuft Class "G" @ 15.8 ppg, .2% LWL, .075 gps CFA-S, .0375 gps HC-2  
Foam: 178.2 cuft Class "G" @ 15.8 ppg, .2% LWL, 1.5% CFA-S, .75% HC-2, 760 scf/bbl N<sub>2</sub>  
Foam: 212.8 cuft Class "G" @ 15.8 ppg, .2% LWL, 1.5% CFA-S, .75% HC-2, 360 scf/bbl N<sub>2</sub>  
Tail: 414 cuft Class "G" @ 15.8 ppg, .2% LWL

Cement Top=4,000' (CBL/PET)

Spud Date: 8-21-93

Objective: Convert to a water injection well, run a step rate test, and an injection profile survey.

Notes:

1. All depths in this procedure are measured depths from KB unless noted otherwise. This well was sidetracked and the kick-off point is @ 8,931'.

2. MSDS for all chemicals used in this procedure must be available on location for inspection. An inventory of all chemicals used should be submitted to SHEAR in the Casper Office at job completion.
3. There should be a short "marker" joint of casing @ 9,914' and 10,064'.

Recommended Procedure:

1. MIRU pulling unit, BOP, pit, power swivel, and tanks (2). Load the tanks with clean Dakota water (kill and rate test water). Hold a pre-job safety meeting.
2. Kill the well, ND wellhead and NU BOP.
3. Release the Baker "EA" packer and POOH with the 27/8" tubing.
4. Pick up fishing tools and RIH to fish perforating guns. TOF @ 10,157' (see attached drawing of fish). POOH with fish. **TREAT AS A LIVE GUN UNTIL CHECKED.** Call HLS and notify that their equipment is out of the hole.
5. RIH with a SN, cementing packer, and 27/8" tubing. Set the packer @ 9,900'.
6. Squeeze the Lodgepole from 10,050' to 10,107' as follows:
  1. Establish an injection rate with 10 bbls of fresh water. **Do not exceed 1000 psi or 2 bpm.**
  2. Pump 150 sacks of Class "G" cement with 35% S-8 silica flour, 0.6% FL-62, 0.2% R-3 retarder, and 1/2 lb/sx Celloflake @ 15.6 ppg.
  3. Flush with water as required to clear the packer of cement.
7. Attempt to achieve a squeeze.
8. Ensure the tubing is clear of cement and allow the cement to set overnight with pressure applied.
9. Release the packer and POOH.
10. TIH with 4 1/2" bit, casing scraper, drill collars, and 27/8" tubing and drill out the cement.
11. Pressure test the casing and squeeze to 3000 psi for 15 minutes. Continue on in the hole and drill out float joints from 10,190' to 10,265'. **Do not drill out the float shoe @ 10,269'.**
12. Retest the casing to 3000 psi for 15 minutes, pickle the tubing with 1000 gallons of 15% HCl with additives, and load the hole with clean Dakota water. POOH.
13. MIRU Schlumberger and hold a pre-job safety meeting

14. RIH with a 4" X 10' casing perforating gun loaded 4 spf, 90° or 120° phasing, 22 gram charge, 0.5 EHD, and 13½" penetration by API RP 43 Section I.
15. Correlate to the open hole logs and perforate the Lodgepole from 10,260' to 10,250'. POOH.
16. Rig up Conoco wireline unit and run in the hole and get a 15 minute static bottom hole pressure. POOH and RD.
17. TIH with 30' perforating gun loaded as in step 14.
18. Correlate and perforate from 10,250' to 10,220'. POOH.
19. TIH with 30' perforating gun loaded as in step 14.
20. Correlate and perforate from 10,220' to 10,190' (total perforated interval should be 10,190' to 10,260'). POOH and RD Schlumberger.
21. RIH with a Baker "SAP" Tool with a 5' treating interval.
22. Acidize the perforated interval from 10,260' to 10,190' in 5' increments with 500 gallons of 15% HCl with additives per setting. Do not exceed 2½ bpm rate or 1500 psi plus "SAP" opening pressure. POOH.
23. RIH with SN, Baker "R-3" packer and 2⅞" tubing.
24. Pump packer fluid per Cary Hays' recommendation.
25. Set the packer @ 10,140' with 20,000 lbs set down. ND BOP and NU wellhead.
26. Conduct MIT witnessed by the NDIC. RDMO pulling unit.
27. Ensure both 400 bbl tanks are loaded with clean Dakota water and MIRU BJ Services and HLS.
28. RU HLS and run a pre-injection base line temperature survey (ensure at least 12 hours since the last fluid was pumped).
29. Run step rate injection test as follows while continuously recording the pressure:
  1. Establish a 1 bpm rate and pump for 10 minutes once a stable rate is achieved (well will probably be on a vacuum).
  2. Increase the rate to 3 bpm and pump for 10 minutes once rate stabilizes (possible treating pressure of 150 psi).
  3. Increase the rate to 5 bpm and pump for 10 minutes once rate stabilizes (possible treating pressure of 1250 psi).

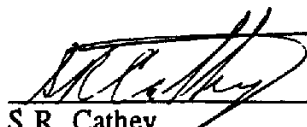
30. Run injection profile survey using HLS while injecting at a rate of 2 bpm.
31. RD HLS and BJ Services and send the results of the survey to the Casper Office.

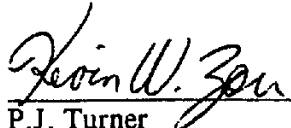
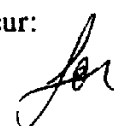
Acid Requirements Step 12

1000 gallons of 15% HCl acid  
4 gallons of CI-25 corrosion inhibitor (4gpt for 4 hrs @ 230°F)

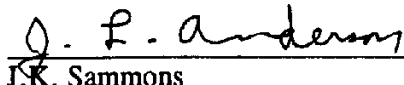

Acid Requirements Step 22

7,000 gallons of 15% HCl acid  
28 gallons of CI-25 corrosion inhibitor (4 gpt for 4 hrs @ 230°F)  
35 gallons of Ferrotrol 300L iron sequestrant (5 gpt for 3000 mg/l)  
7 gallons of NE-2 non-emulsifier (1 gpt)  
7 gallons of NE-22 non-emulsifier (1 gpt)

Prepared by:  Date: 7/12/94  
S.R. Cathey  
Staff Engineer

Concur:  Date: 7/13/94  
 P.J. Turner  
Lodgepole Team Leader

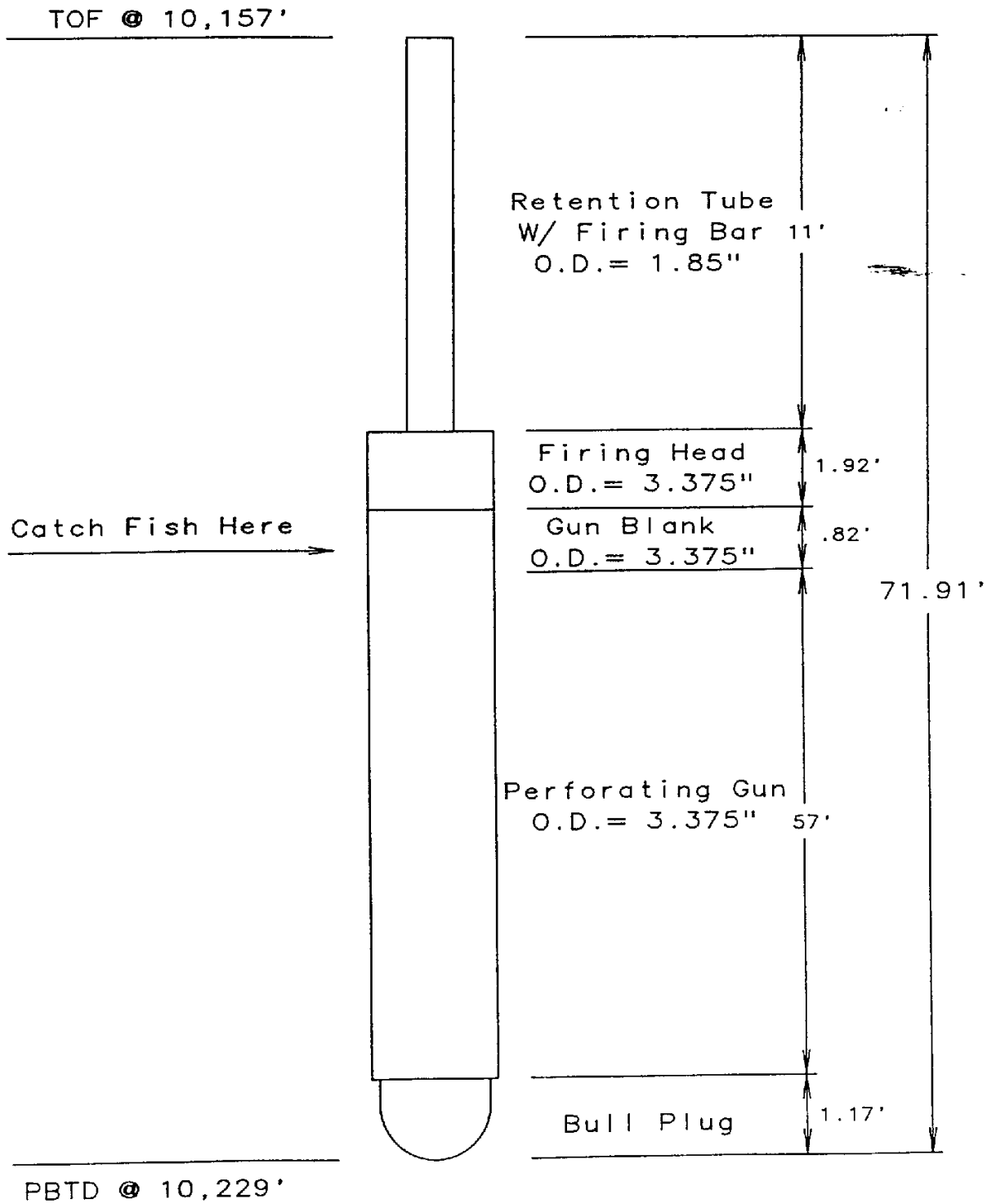
JDC VERBAL TO SRC Date: 7/12/94  
J.D. Cope  
Production Foreman

Approved by:  Date: 7/13/94  
 J.K. Sammons  
Operations Manager

cc: JKS, RWH, KWZ, DAP, IRG, AKF, PJT, SRC, Well File, Jim Cope-Dickinson



# DLU #79 FISH



STATE OF NORTH DAKOTA

COUNTY OF BURLEIGH

## AFFIDAVIT OF MAILING

I, Donna Bauer, being duly sworn upon oath, depose and say: That on the 21st day of June 1994, I enclosed in separate envelopes true and correct copies of the attached Order No. 6863 of the North Dakota Industrial Commission, and deposited the same with the United States Postal Service in Bismarck, North Dakota, with postage thereon fully paid, directed to the following persons, all of whom appeared at the hearing of the Industrial Commission in Case No. 5936 :

Mr. John Morrison  
Fleck, Mather & Strutz Ltd.  
P. O. Box 2798  
Bismarck, ND 58502

Mr. Lawrence Bender  
Pearce & Durick  
P. O. Box 400  
Bismarck, ND 58502

Mr. Doug Kadrmas  
2314 25 $\frac{1}{2}$  Ave. S.  
Fargo, ND 58103

Mr. Frank R. Howell  
Hunt Petroleum Corp.  
3400 Thanksgiving Tower  
Dallas, TX 75201

Mr. Robert O. Wefald  
2800 N. Washington St.  
P. O. Box One  
Bismarck, ND 58502-0001

Ms. Martha Sundry  
ARS Control Account Ltd. Part.  
P. O. Box 22854  
Denver, CO 80222

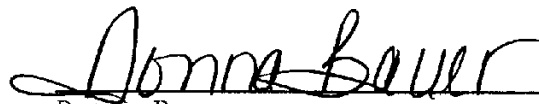
Mr. Clyde W. Jones  
P. O. Drawer 1267  
Parker, CO 80134

Mr. Gary D. Kalanek  
3754 Kingston Dr.  
Bismarck, ND 58501


Mr. R. Joe Starrett  
Huntington Resources Inc.  
8086 S. Yale  
Suite 228  
Tulsa, OK 74136

Mr. Ernest Gomez  
Geologist  
3609 S. Wadsworth  
Suite 500  
Denver, CO 80235

Ms. Joan Schmidt  
RR1 Box 140  
Dickinson, ND 58601

  
Donna Bauer  
Oil & Gas Division

On this 21<sup>st</sup> day of June, 1994, before me personally appeared Donna Bauer to me known as the person described in and who executed the foregoing instrument and acknowledged that she executed the same as her free act and deed.

  
Eric Roberson  
Notary Public  
State of North Dakota County of Burleigh  
My Commission expires 11-3-98

Page 2  
Affidavit of Mailing  
June 21, 1994

Mr. P. J. Turner  
Conoco Inc.  
800 Werner Court  
Casper, WY 82601

Mr. Jerry Hyrkas  
Conoco Inc.  
800 Werner Court  
Casper, WY 82601

Mr. Kevin Zorn  
Conoco Inc.  
800 Werner Court  
Casper, WY 82601

Mr. Stephen Bressler  
Placid Oil Co.  
1601 Elm St.  
Suite 3800  
Dallas, TX 75201

Mr. R. Kevin Preston  
P. O. Box 22066  
Denver, CO 80222

Mr. Jimmy D. Campbell  
1601 Elm St.  
Suite 3800  
Dallas, TX 75201

Mr. Greg Mohl  
Conoco Inc.  
800 Werner Court  
Casper, WY 82601

BEFORE THE INDUSTRIAL COMMISSION  
OF THE STATE OF NORTH DAKOTA

CASE NO. 5936

IN THE MATTER OF THE APPLICATION OF  
CONOCO INC. FOR AN ORDER OF THE  
COMMISSION AUTHORIZING THE  
CONVERSION OF THE FRENZEL NO. 79 WELL,  
LOCATED IN THE NW¼ OF THE NE¼ OF  
SECTION 31, TOWNSHIP 140 NORTH, RANGE  
96 WEST, AND THE DICKINSON STATE NO. A-  
83 WELL LOCATED IN THE NW¼NW¼ OF  
SECTION 5, TOWNSHIP 139 NORTH, RANGE 96  
WEST, DICKINSON FIELD, STARK COUNTY,  
NORTH DAKOTA, FOR THE INJECTION OF  
FLUIDS IN THE PROPOSED DICKINSON-  
LODGEPOLE UNITIZED FORMATION  
PURSUANT TO CHAPTER 43-02-05 OF THE  
NORTH DAKOTA ADMINISTRATIVE CODE,  
AND PROVIDING SUCH OTHER AND  
FURTHER RELIEF AS THE COMMISSION  
DEEMS NECESSARY.

AMENDED APPLICATION OF CONOCO INC.

COMES NOW the applicant, Conoco Inc. ("Conoco"), and respectfully shows the North Dakota  
Industrial Commission ("Commission") as follows:

1.

That Conoco is the owner of an interest in the oil and gas leasehold estate in the Northwest  
Quarter of the Northeast Quarter (NW¼NE¼) of Section 31, Township 140 North, Range 96 West, Stark  
County, North Dakota ("Section 31").

2.

That Conoco is the owner of an interest in the oil and gas leasehold estate in the Northwest Quarter of the Northwest Quarter (NW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>) of Section 5, Township 139 North, Range 96 West, Stark County, North Dakota ("Section 5").

3.

That such lands are within the boundaries of the Dickinson Field and within the boundary of the proposed Dickinson-Lodgepole Unit.

4.

That Conoco is the operator of various wells located within the boundaries of the Dickinson Field, Stark County, North Dakota and will be the operator for the proposed Dickinson-Lodgepole Unit.

5.

That pursuant to Chapter 43-02-05 of the North Dakota Administrative Code, Conoco is desirous of converting the Frenzel No. 79 well located in the Northwest Quarter of the Northeast Quarter (NW<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub>) of Section 31 and the Dickinson State No. A-83 well located in the Northwest Quarter of the Northwest Quarter (NW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>) of Section 5 for the purposes of utilizing said wells for the injection of fluids into the proposed Dickinson-Lodgepole unitized formation.

6.

That attached herewith and marked Exhibit A are two plats showing the location of the proposed injection wells, all other producing wells, abandoned producers and dry holes in the Dickinson Field area.

7.

That attached herewith as Exhibit B is a list of all surface owners with the area of review to each of which will be mailed a copy of this application.

8.

That Conoco requests that the Commission enter its order authorizing the underground injection of fluids into the proposed Dickinson-Lodgepole unitized formation in the Frenzel No. 79 well located in the Northwest Quarter of the Northeast Quarter (NW $\frac{1}{4}$ NE $\frac{1}{4}$ ) of Section 31, Township 140 North, Range 96 West and the Dickinson State No. A-83 well located in the Northwest Quarter of the Northwest Quarter (NW $\frac{1}{4}$ NW $\frac{1}{4}$ ) of Section 5, Township 139 North, Range 96 West, Dickinson Field, Stark County, North Dakota, pursuant to Chapter 43-02-05 of the North Dakota Administrative Code and providing such other and further relief as the Commission deems necessary.

**WHEREFORE**, applicant requests that the matter be set for hearing at the regular Commission hearing on June 22, 1994 and that thereafter the Commission issue its Order granting the relief requested and such other and further relief as the Commission may deem appropriate.

**DATED** this *10th* day of May, 1994.

PEARCE & DURICK

By \_\_\_\_\_  
LAWRENCE BENDER  
Attorneys for Applicant  
Conoco Inc.  
314 East Thayer Avenue  
Post Office Box 400  
Bismarck, North Dakota 58502

STATE OF NORTH DAKOTA     )  
  ) ss.  
COUNTY OF BURLEIGH        )

LAWRENCE BENDER, being first duly sworn on oath, deposes and says that he is the attorney for the applicant named herein, that he has read the foregoing application, knows the contents thereof, and that the same is true to the best of this affiant's knowledge, and belief.

\_\_\_\_\_  
LAWRENCE BENDER

Subscribed and sworn to before me this *10th* day of May, 1994.

\_\_\_\_\_  
Lynette Entzi-Odden, Notary Public  
Burleigh County, North Dakota  
My Commission Expires: 6-26-99



APPLICATION FOR FLUID INJECTION - FORM 14  
INDUSTRIAL COMMISSION OF NORTH DAKOTA  
OIL AND GAS DIVISION  
SFN 18669 (3-92)

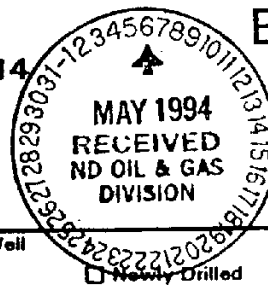


EXHIBIT 21

600 East Boulevard  
Bismarck, ND 58505

PLEASE READ INSTRUCTIONS ON BACK OF FORM BEFORE COMPLETING.

Type of Project <input checked="" type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Saltwater Disposal <input type="checkbox"/> Gas Storage		Type of Injection Well <input checked="" type="checkbox"/> Converted <input type="checkbox"/> Newly Drilled <input type="checkbox"/> Commercial	
Name of Operator Conoco Inc.		Address 800 Werner Ct., Casper, WY 82601	
Well Name and Number State a No. 83		Field or Unit Dickinson Field, Lodgepole Unit	

SURFACE LOCATION				
Qtr.-Qtr. NW NW	Section 5	Township 139N	Range 96W	County Stark
Distance From (N) (S) Section Line 660' FNL		Distance From (E) (W) Section Line 660' FWL		

BOTTOM HOLE LOCATION				
Qtr.-Qtr. NW NW	Section 5	Township 139N	Range 96W	County Stark
Distance From (N) (S) Section Line 660' FNL		Distance From (E) (W) Section Line 660' FWL		

Geologic Name of Injection Zone Lodgepole		Injection Interval 9860' - 9926'	
Geologic Name of Confining Zone Lodgepole		Thickness 575'	
Bottom Hole Fracture Pressure of the Confining Zone 6902		Gradient 0.7	
Estimated Average Injection Rate and Pressure 2000 b/d @ 200 psi		Estimated Maximum Injection Rate and Pressure 4000 b/d @ 2500 psi	
Geologic Name of Lowest Known Fresh Water Zone Fox Hills		Depth to Base 2100	
Total Depth of Well 10,080		Logs Run on Well GR/DIL/Sonic/CNL/FDC/RFT/UBI/CBL	

CASING, TUBING, AND PACKER DATA

NAME OF STRING	SIZE	WEIGHT (LBS/FT.)	SETTING DEPTH	SACKS OF CEMENT	TOP OF CEMENT	TOP DETERMINED BY
Surface	8 5/8"	24	2150	967 cu ft	Surface	Full Returns (Visual)
Intermediate						
Long String	5 1/2"	17	8110'			
	5 1/2"	23	8717'			
	5 1/2"	20	10077'	841 cu ft	5500'	CBL

	TOP	BOTTOM	SACKS OF CEMENT
Liner			

	TYPE
Tubing	2 7/8" 4.7# 9815'

Packer: Setting Depth 9815'	Model Baker R3	<input checked="" type="checkbox"/> Compression <input type="checkbox"/> Permanent <input type="checkbox"/> Tension
--------------------------------	-------------------	--

FOR STATE USE ONLY

Permit Number and Well File Number	
UIC Number	Approval Date
By	
Title	



I hereby swear or affirm that the information herein provided is true, complete and correct as determined from all available records.

Signature <i>E. Leon Grant</i> E. Leon Grant	Title	Date 6 May 94
STATE OF <u>Wyoming</u>	DEBORAH J. ESTES COUNTY OF NATRONA My Commission Expires July 21, 1996	NOTARY PUBLIC STATE OF WYOMING Notary Seal
COUNTY OF <u>Natrona</u>		
On <u>May 6, 1994</u> , <u>E. Leon Grant</u> , known to me to be the person described in and who executed the foregoing instrument, personally appeared before me and acknowledged that (s)he executed the same as a free act and deed.		
<i>Deborah J. Estes</i> Notary Public	My Commission Expires <u>July 21, 1996</u>	

### INSTRUCTIONS

1. If an injection well is to be drilled, an Application For Permit To Drill - SFN 4615 (Form 1) also must be completed and accompanied by a plat prepared by a registered surveyor and a drilling fee.
2. Attach a plat detailing the location, name and operator of all wells in the area of review (1/4 mile radius). Include: injection wells, producing wells, plugged wells, abandoned wells, drilling wells, dry holes and water wells.
3. Attach a tabulation of data on all wells in area of review that penetrated the proposed injection zone. Include: well type, downhole schematic, date drilled, location and depth.
4. Attach a quantitative analysis from a state approved laboratory of fresh water from the two nearest fresh water wells.
5. Attach a quantitative analysis from a state approved laboratory of a representative sample of water to be injected.
6. Describe the lithology of the proposed injection zone and confining zone.
7. Attach all available logging and test data on the well concerning the proposed injection zone that has not been previously submitted.
8. Briefly describe the proposed injection program.
9. Attach a list identifying all source wells.
10. Attach schematic drawings of the system including surface and subsurface wellbore construction.
11. List the needed corrective action on wells penetrating the injection zone in the area of review.
12. Include a description of land ownership within the area of review.
13. Attach a certificate of notification to land owners in area of review and include letter sent.
14. Attach a Sundry Notice - SFN 5749 (Form 4) detailing the proposed procedure.
15. Read sections 43-02-05-04 of the oil and gas regulations to insure that this application is complete.
16. The original and four copies of this application and attachments shall be filed with the Industrial Commission, Oil and Gas Division.

PEARCE & DURICK

ATTORNEYS AT LAW

THIRD FLOOR

314 EAST THAYER AVENUE

P. O. BOX 400

BISMARCK, NORTH DAKOTA 58502

TELEPHONE (701) 223-2890

FAX (701) 223-7865

OF COUNSEL  
HARRY J. PEARCE

WILLIAM R. PEARCE 1910-1978  
WILLIAM P. PEARCE  
PATRICK W. DURICK  
B. TIMOTHY DURICK  
CHRISTINE A. HOGAN  
JOEL W. GILBERTSON  
LAWRENCE A. DOPSON  
GARY R. THUNE  
DAVID E. REICH  
JEROME C. KETTLESON  
LARRY L. BOSCHKE  
LAWRENCE BENDER  
JANET D. SEAWORTH  
MICHAEL F. MCMAHON  
STEPHEN D. EASTON

May 13, 1994



Mr. Mark Bohrer  
North Dakota Industrial Commission  
Oil and Gas Division  
600 E. Boulevard  
Bismarck, ND 58505

NDIC CASE NO. 5936

Dear Mr. Bohrer:

Please find enclosed herewith an AFFIDAVIT OF PAUL E. SCHULZ to supplement the record for NDIC Case No. 5936.

If you should have any questions, please advise.

Sincerely,

LAWRENCE BENDER

LB/leo

Enclosure

cc: Mr. Paul Schulz - (w/o enc.)

**BEFORE THE INDUSTRIAL COMMISSION  
OF THE STATE OF NORTH DAKOTA**

CASE NO. \_\_\_\_\_



IN THE MATTER OF THE APPLICATION OF  
CONOCO INC. FOR AN ORDER OF THE  
COMMISSION AUTHORIZING THE  
CONVERSION OF THE FRENZEL WELL NO. 79,  
LOCATED IN THE NW¼ OF THE NE¼  
OF SECTION 31, TOWNSHIP 140 NORTH,  
RANGE 96 WEST, AND THE DICKINSON  
STATE NO. A-83 WELL, LOCATED IN THE  
NW¼NW¼ OF SECTION 5, TOWNSHIP 139 NORTH,  
RANGE 96 WEST, DICKINSON  
FIELD, STARK COUNTY, NORTH DAKOTA,  
FOR THE INJECTION OF FLUIDS IN THE  
PROPOSED DICKINSON-LODGEPOLE  
UNITIZED FORMATION PURSUANT TO  
CHAPTER 43-02-05 OF THE NORTH DAKOTA  
ADMINISTRATIVE CODE, AND PROVIDING  
SUCH OTHER AND FURTHER RELIEF AS  
THE COMMISSION DEEMS NECESSARY

**AFFIDAVIT OF PAUL E. SCHULZ**

STATE OF WYOMING       )  
                                  )  
COUNTY OF NATRONA    )

Paul E. Schulz, being first duly sworn, upon his oath deposes and states

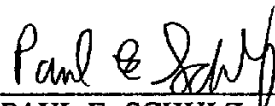
- 1) That he is employed by Conoco Inc. as a Senior Conservation Advisor in its Casper, Wyoming office.
- 2) Conoco Inc. is the operator and working interest owner of wells located within the Dickinson Field, Stark County, North Dakota. Conoco Inc.'s mailing address is as follows:

Conoco Inc.  
800 Werner Court  
Casper, Wyoming 82601

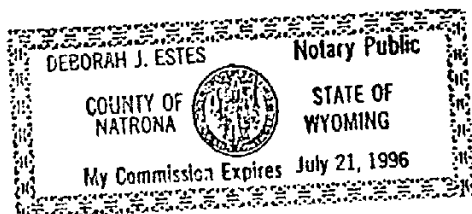
- 3) Attached as Exhibit 1 is a plat showing the proposed boundaries of the Dickinson Lodgepole Unit. Shown on the plat is the location of all Lodgepole formation producing wells contained within the proposed unit.
- 4) Attached as Exhibit 2 is a topographic plat showing a portion of the lands both contained by and adjacent to the proposed Dickinson Lodgepole Unit. Shown on the map are two circles of one-quarter mile radius centered on both the surface and bottomhole locations of the Frenzel No. 79 well. The lands within the boundaries of these circles constitute the "area of review" for this application, as defined by Commission Rule 43-02-05-01 (1).
- 5) Attached as Exhibit 3 is a topographic plat showing a portion of the lands both contained by and adjacent to the proposed Dickinson Lodgepole Unit. Shown on the map is a circle of one-quarter mile radius centered on the Dickinson State No. A-83 well. The lands within the boundaries of this circle constitute the "area of review" for this application, as defined by Commission Rule 43-02-05-01 (1).
- 6) One well, the Frenzel No. 79 well, is located within the "area of review" identified for the Frenzel No. 79 well. Attached as Exhibit 4 is a table containing the pertinent well history and construction data on the Frenzel No. 79 well, in accordance with Commission Rule 43-02-05-04 (1c).
- 7) One well, the Dickinson State No. A-83 well, is located within the "area of review" identified for the Dickinson State No. A-83 well. Attached as Exhibit 5 is a table containing the pertinent well history and construction data on the Dickinson State No. A-83 well, in accordance with Commission Rule 43-02-05-04 (1c).
- 8) Attached as Exhibit 6 is a table showing the average and maximum estimated injection rates and pressures for both the Frenzel No. 79 and Dickinson State No. A-83 wells.
- 9) Both the Frenzel No. 79 and Dickinson State No. A-83 wells will serve as Lodgepole formation injection wells for the proposed Dickinson Lodgepole Unit. Water for injection will be supplied by the Dickinson Heath Sand Unit Well No. 62. To this end, Well No. 62 will be converted to a Dakota formation water supply well.
- 10) Attached as Exhibit 7 is a standard analysis of the Dakota formation water obtained from the Dickinson Heath Sand Unit Well No. 44. This sample is representative of the Dakota formation water quality observed throughout the Dickinson Field. An analysis of the Dakota formation water obtained from the Dickinson Heath Sand Unit Well No. 62 will be submitted to the North Dakota Industrial Commission following completion of the conversion work.
- 11) Attached as Exhibits 8 & 9 are standard analyses of the water obtained from the "Art Riddle" and "Joe Lupo" fresh water supply wells, respectively. The aforementioned fresh water wells are located near the Frenzel No. 79 well.
- 12) Attached as Exhibits 10 & 11 are standard analyses of the water obtained from the "ND Research University" and "U of ND Corral" fresh water supply wells, respectively. The aforementioned fresh water wells are located near the Dickinson State No. A-83 well.
- 13) The lowest known source of fresh water in the Dickinson Field is the Fox Hills formation, located at a depth of approximately 2,100'.

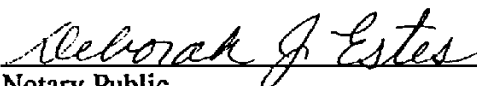
- 14) The injection interval for both the Frenzel No. 79 and Dickinson State No. A-83 wells will be the Lodgepole formation. The Lodgepole formation is a limestone mound ranging in thickness from zero to 310 feet. The actual Lodgepole injection interval in Well No. 79 will extend from 10,190' - 10,260', while the injection interval for Well No. A-83 will extend from 9,860' - 9,926'. Both injection intervals are below the oil/water contact identified for the Lodgepole reservoir. The porous limestone reservoir portion of the Lodgepole formation is completely encased within an impermeable limestone seal. This seal functions as the confining interval for the injection interval.
- 15) Attached as Exhibit 12 & 13 are schematic diagrams of the proposed completion of the Frenzel No. 79 and Dickinson State No. A-83 wells, respectively, as Lodgepole formation injection wells.
- 16) Attached as Exhibits 14 & 15 are schematic diagrams of the proposed wellhead and injection facilities for both the Frenzel No. 79 and Dickinson State No. A-83 wells.
- 17) Attached as Exhibit 16 is a section of the Frenzel No. 79 dual laterolog, showing the Lodgepole formation interval from 10,190' - 10,260' into which water will be injected.
- 18) Attached as Exhibit 17 is a section of the Dickinson State No. A-83 dual laterolog, showing the Lodgepole formation interval from 9,860' - 9,926' into which water will be injected.
- 19) The estimated fracture pressure for the Lodgepole formation in the Dickinson Field is approximately 6,902 psig. This value yields a fracture gradient of 0.7 psi/ft.
- 20) Attached as Exhibit 18 is a list containing both the names and mailing addresses of all landowners located within the "area of review" of the Frenzel No. 79 well.
- 21) Attached as Exhibit 19 is a list containing both the names and mailing addresses of all landowners located within the "area of review" of the Dickinson State "A" No. 83 well.
- 17) Attached as Exhibits 20 & 21 are completed Commission Form 14 for the Frenzel No. 79 well and Dickinson State No. A-83 wells, respectively. Please note that remedial procedures will be performed on both wells prior to their being placed on injection. Revised Form 14s reflecting the results of these remedial procedures will be submitted once the work has been completed.

DATED this 9th day of May, 1994.

  
\_\_\_\_\_  
PAUL E. SCHULZ

Subscribed and sworn to before me this 9th day of May, 1994.



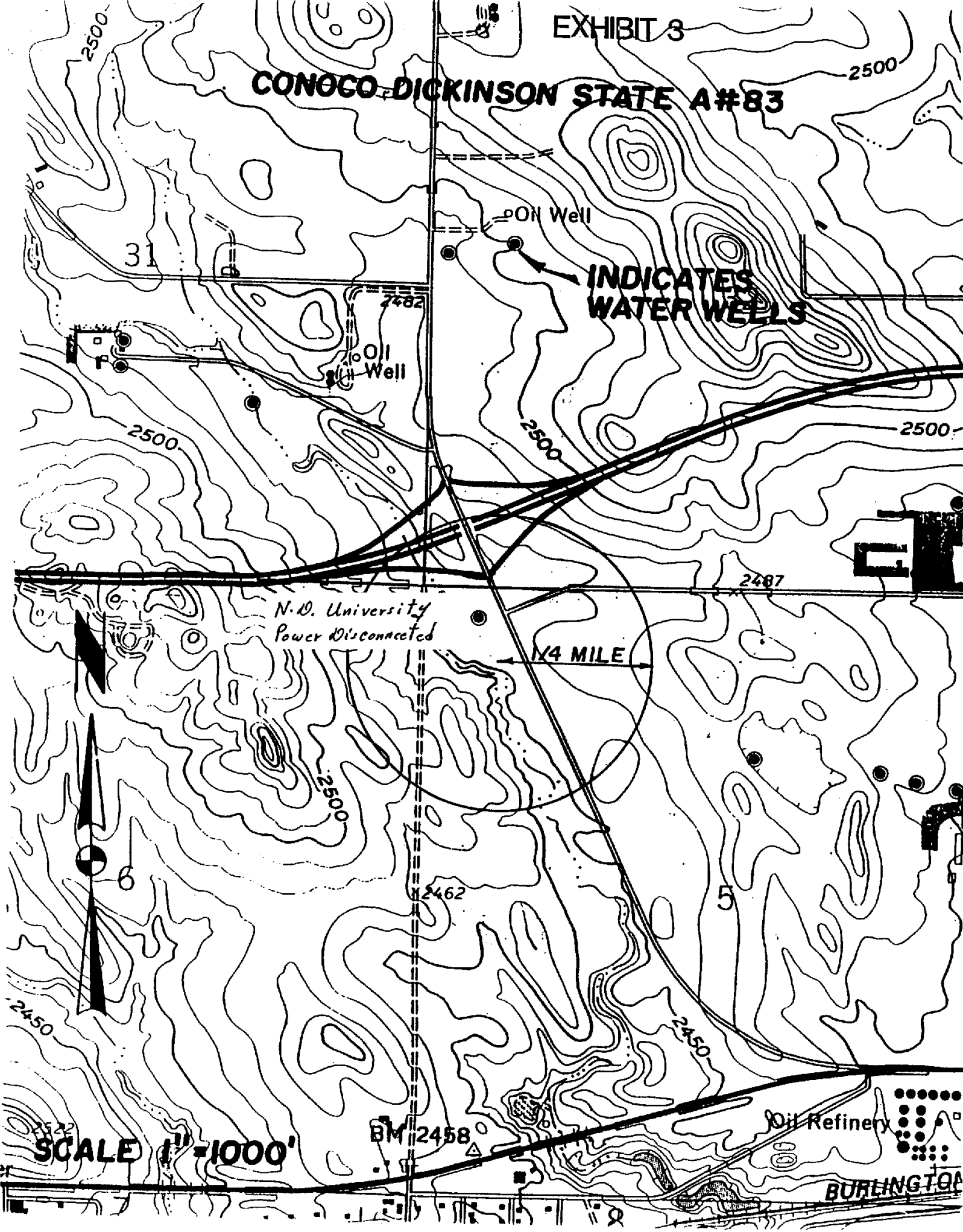
  
\_\_\_\_\_  
Notary Public

County of Natrona

My Commission Expires: July 21, 1996

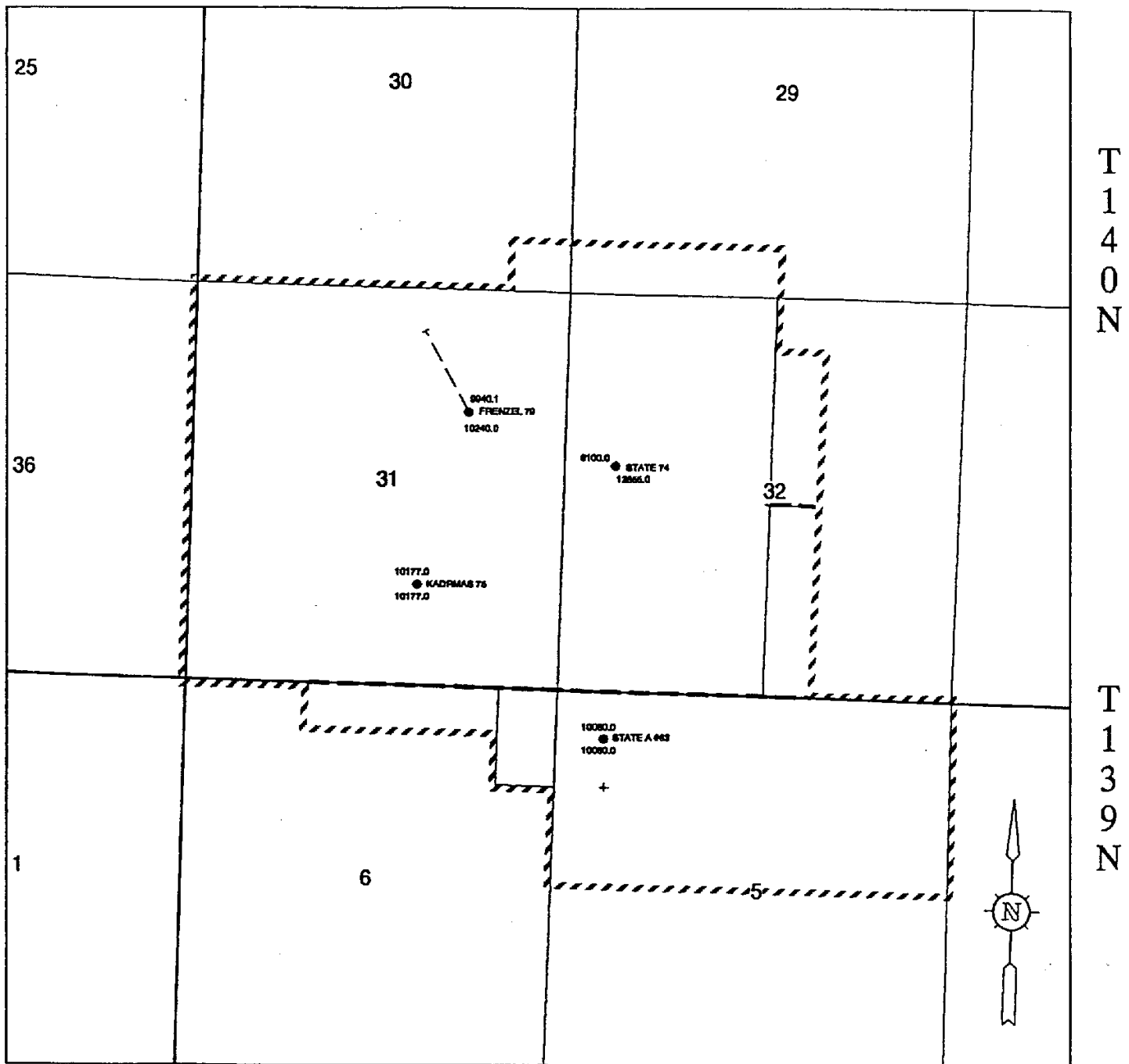
EXHIBIT 3

# CONOCO DICKINSON STATE A#83



R 97 W

R 96 W



----- Unit Boundary

Scale  
1000'

# DICKINSON LODGEPOLE UNIT

Stark Co., North Dakota

CONOCO INC.  
Exhibit No. 1

# EXHIBIT 10

## ASTRO-CHEM SERVICE LABORATORY

4102 2nd Ave. West

Williston, North Dakota 58801

Phone 701-572-7355

P. O. Box 972

### WATER ANALYSIS REPORT

SAMPLE NUMBER W-92-4027

DATE OF ANALYSIS 11-27-92

COMPANY Conoco, Inc.

CITY Dickinson

STATE ND

WELL NAME AND/OR NUMBER ND Research University

DATE RECEIVED 11-24-92

DST NUMBER

SAMPLE SOURCE Well Closest to Dickinson State #74

LOCATION

OF SEC.

TWN.

RANGE

COUNTY

FORMATION

DEPTH

DISTRIBUTION Cary Hays - Dickinson, ND

RESISTIVITY @ 77°F = 10.072 Ohm-Meters

pH = 7.66

SPECIFIC GRAVITY @ 77°F = 1.000

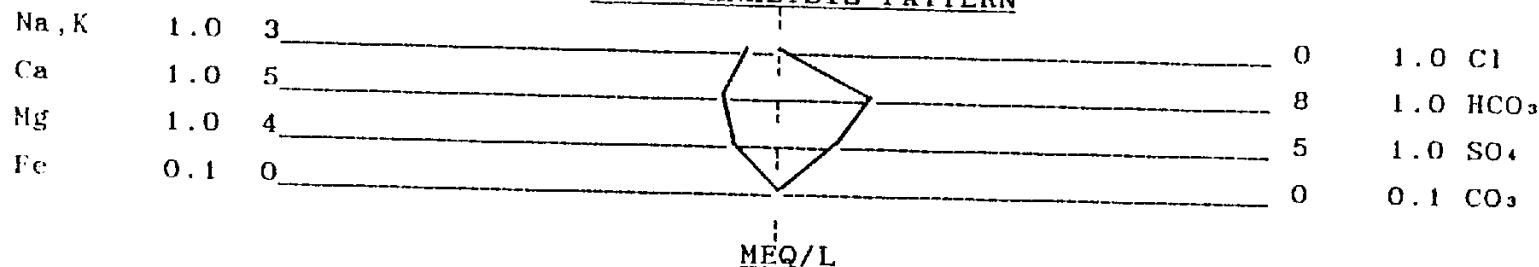
H<sub>2</sub>S = Neg

TOTAL DISSOLVED SOLIDS (CALCULATED) = 968 mg/L ( 968 ppm)

SODIUM CHLORIDE (CALCULATED) = 10 mg/L ( 10 ppm)

CATION	MEQ/L	mg/L	ANION	MEQ/L	mg/L
CALCIUM	4.6	91	CHLORIDE	0.2	6
MAGNESIUM	4.1	46	CARBONATE	0.0	0
SODIUM	3.3	75	BICARBONATE	8.0	488
IRON	0.0	0.0	SULFATE	5.2	251
CHROMIUM	0.0	0.0	NITRATE	0.0	3
BARIUM	0.0	0.0			
POTASSIUM	0.2	8			

### WATER ANALYSIS PATTERN



REMARKS Conductivity = 1217 µmhos/cm



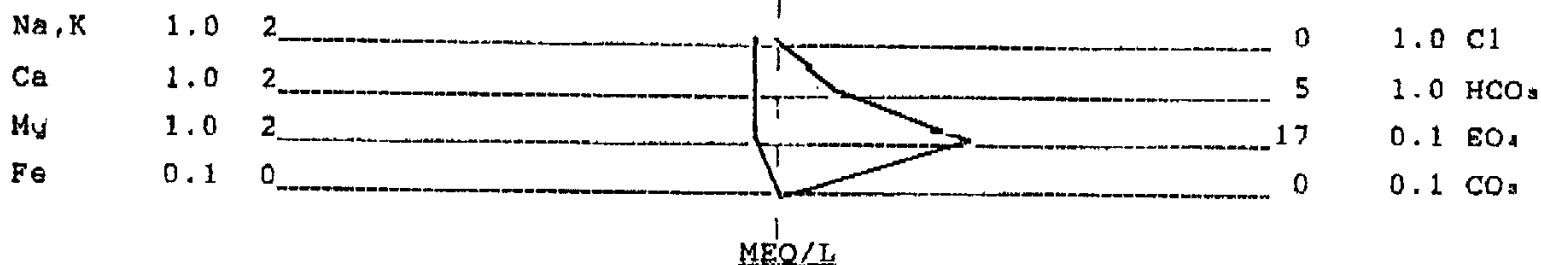
4102 2nd Ave. West

**ASTRO-CHEM LAB, INC.**Williston, North Dakota 58802-0972  
P.O. Box 972

Phone: (701) 572-7355

WATER ANALYSIS REPORTSAMPLE NUMBER W-94-0994DATE OF ANALYSIS 4-18-94COMPANY Conoco, Inc.CITY DickinsonSTATE NDWELL NAME AND/OR NUMBER U. of ND @ CorrelDATE RECEIVED 4-15-94DST NUMBERCAMPLE SOURCE WellLOCATIONOF SEC.TWN.RANGECOUNTYFORMATIONDEPTHDISTRIBUTION Cary Hays - Dickinson, NDRESISTIVITY @ 77°F = 18.518 Ohm-MeterspH = 8.22SPECIFIC GRAVITY @ 77°F = 0.994H+S = NegTOTAL DISSOLVED SOLIDS (CALCULATED) = 487 mg/L ( 490 ppm)SODIUM CHLORIDE (CALCULATED) = 7 mg/L ( 7 ppm)

CATION	MEQ/L	mg/L	ANION	MEQ/L	mg/L
CALCIUM	2.2	44	CHLORIDE	0.1	4
MAGNESIUM	2.4	27	CARBONATE	0.0	0
SODIUM	1.5	35	BICARBONATE	4.7	287
IRON	0.0	0.1	SULFATE	1.7	79
CHROMIUM	0.0	0.0	NITRATE	0.0	3
BARIUM	0.0	0.0			
POTASSIUM	0.2	7			

WATER ANALYSIS PATTERNREMARKS

## EXHIBIT 7

## SATHÉ ANALYTICAL LABORATORY, INC.

301 W. 2ND STREET

P.O. BOX 1527  
WILLISTON, ND. 58801

701-572-3632

## WATER ANALYSIS REPORT

OPERATOR: CONOCO INC.

DATE: 10-24-91

WELL NO. DHSU #44

LAB NO.: W-91-2924

FIELD: not listed

FORMATION: Dakota

COUNTY: Stark

INTERVAL: Production

STATE: ND

DST #: none

LOC: not listed

SAMPLE Production Water

CATIONS	MG/L	MEQ/L	ANIONS	MG/L	MEQ/L
SODIUM	3400.0	147.9	CHLORIDE	4728.8	133.4
CALCIUM	100.0	5.0	CARBONATE	0.0	0.0
MAGNESIUM	12.0	1.0	BICARBONATE	799.4	13.1
IRON	0.7	0.0	SULFATE	341.2	7.1
POTASSIUM	15.0	0.4	NITRATE	4.7	0.1
BARIUM	0.0	0.0			
CHROMIUM	0.0	0.0			

SPECIFIC GRAVITY @ 77°F

1.005 FH

7.67

RESISTIVITY @ 77°F, ohm-meters

0.742 NA CL (Calc.)

7797.7

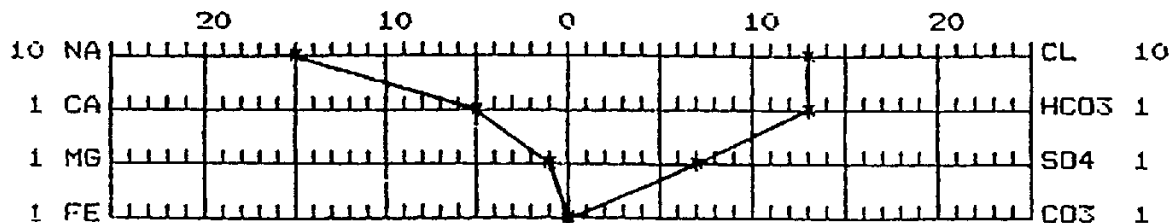
TOTAL DISSOLVED SOLIDS (Calc.) MG/L

9401.8

HYDROGEN SULFIDE

NEG

## WATER ANALYSIS PATTERN - MEQ/L



REMARKS - Sample received on 10-23-91 from Cary Hays -- Dickinson ND

## DISTRIBUTION OF RESULTS

Cary Hays -- Dickinson ND - 2 copies

10000

## EXHIBIT 5

### OFFSET WELL DATA

Well Name: Dickinson State No. A-83

Well Location: 660' FNL, 660' FWL, Section 5, T169N, R96W,  
Stark County, North Dakota

Date Drilled: October - November, 1993

TD: 10,080'

Completion Interval: Lodgepole Formation, 9,800' - 9,807' (Existing perforations)

Surface Casing (Type & Setting Depth): 8-5/8", 24#, J-55, ST&C, 0' - 2,150'

Surface Casing Cement Job (Amount, Estimated Top): 772 Cu.ft of Halliburton Lite, followed  
by 195 cu.ft of Class G, Cement to  
surface

Production Casing (Type & Setting Depth): 5-1/2", 17#, 23# & 20#, L-80 & TCA-80, 0' - 10,077'

Production Casing Cement Job (Amount, Estimated Top): DV Tool @ 9,482'  
1st Stage: 140 cu.ft of Class G  
2nd Stage: 115 cu.ft. of Class G,  
followed by 115 cu.ft. of Class G foam  
(9.5 ppg), 149 cu.ft. of Class G foam  
(12.5 ppg) and 322 cu.ft. of Class G  
Cement top = 5,500'

# **EXHIBIT 6**

## **INJECTION RATES AND PRESSURES FRENZEL NO. 79 & DICKINSON STATE NO. A-83 WELLS**

	<u>Injection Pressure, Psig</u>	<u>Injection Rate, BWPD</u>
Average	200	2,000
Maximum	2,500	4,000

**NOTE: INJECTION RATES AND PRESSURES ARE ASSUMED TO  
BE IDENTICAL FOR BOTH THE FRENZEL NO. 79 &  
DICKINSON STATE NO. A-83 WELL**

# STATE "A" 83

T.139 N. - R.96 W., SEC. 5  
660' FNL & 660' FWL  
STARK CO., NORTH DAKOTA

KB= 2467'  
GL= 2453'

8 5/8", 24#/ft. @ 2150'

2 7/8" Tubing

TOC @ 5500'

DV Tool @ 9482'

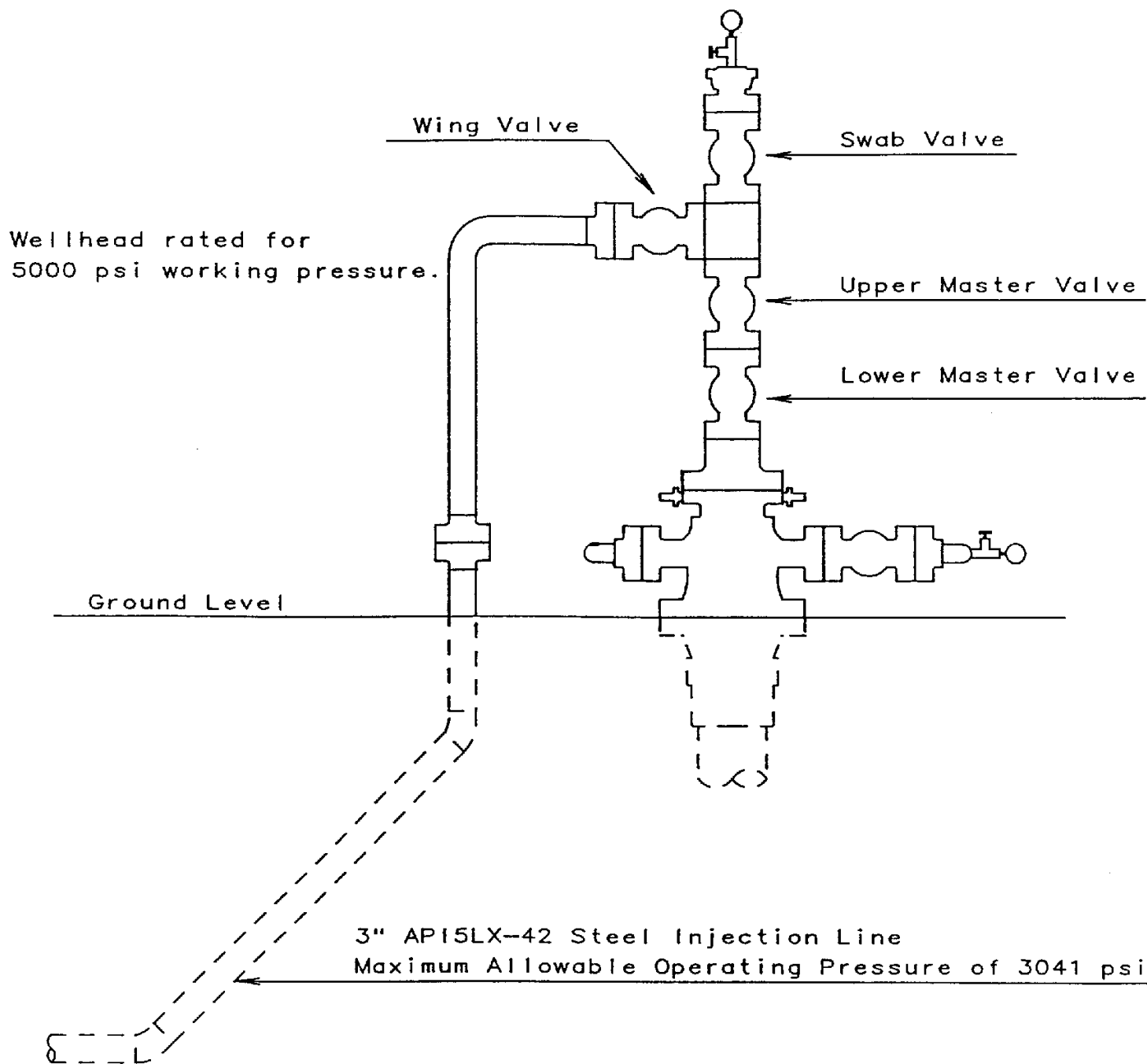
Lodgepole 9800' - 9807'  
Squeezed

Injection Packer @ 9815'

Lodgepole 9,860' - 9,926'

PBTD @ 9974'  
5 1/2" @ 10,077'  
TD @ 10,080'

EXHIBIT 13

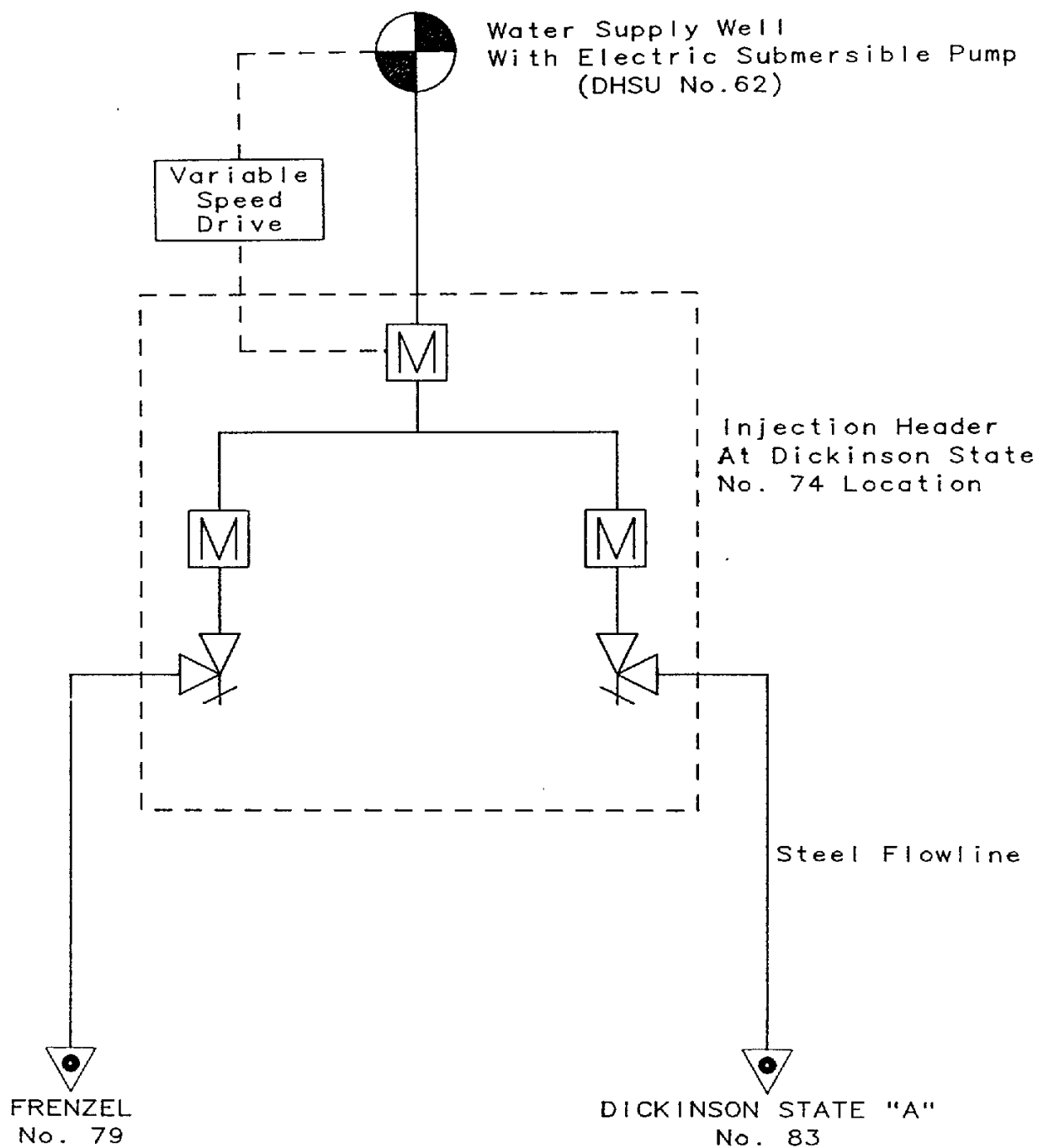


## EXHIBIT 14



CASPER DIVISION

LODGEPOLE INJECTION  
WELLHEAD



METER



ADJUSTABLE CHOKE



INJECTION WELL

inj-syst

## EXHIBIT 15



CASPER DIVISION

INJECTION SYSTEM  
PROCESS FLOW



BEFORE THE INDUSTRIAL COMMISSION  
OF THE STATE OF NORTH DAKOTA

CASE NO. \_\_\_\_\_

IN THE MATTER OF THE APPLICATION OF  
CONOCO INC. FOR AN ORDER OF THE  
COMMISSION AUTHORIZING THE  
CONVERSION OF THE FRENZEL NO. 79  
WELL, LOCATED IN THE SW¼ OF THE NE¼  
OF SECTION 31, TOWNSHIP 140 NORTH,  
RANGE 96 WEST, AND THE DICKINSON  
STATE NO. A-83 WELL LOCATED IN THE  
NW¼NW¼ OF SECTION 5, TOWNSHIP 139  
NORTH, RANGE 96 WEST, DICKINSON  
FIELD, STARK COUNTY, NORTH DAKOTA,  
FOR THE INJECTION OF FLUIDS IN THE  
PROPOSED DICKINSON-LODGEPOLE  
UNITIZED FORMATION PURSUANT TO  
CHAPTER 43-02-05 OF THE NORTH DAKOTA  
ADMINISTRATIVE CODE, AND PROVIDING  
SUCH OTHER AND FURTHER RELIEF AS  
THE COMMISSION DEEMS NECESSARY.

AFFIDAVIT OF SERVICE BY MAIL

STATE OF NORTH DAKOTA     )  
  ) ss.  
COUNTY OF BURLEIGH     )

Lyn Entzi, being first duly sworn, deposes and says that on the *6th* day of May, 1994,  
she served the attached:

APPLICATION OF CONOCO INC.

by placing a true and correct copy thereof in an envelope addressed as follows:

See attached Exhibit A

and depositing the same, with postage prepaid, in the United States mail at Bismarck, North  
Dakota.

# EXHIBIT A

## STATE A #83 WELL

State of North Dakota  
State Highway Department  
608 East Boulevard  
Bismarck, ND 58505

North Dakota Board of University  
and School Lands  
P.O. Box 5523  
Bismarck, ND 58502-5523

Elizabeth Bowers  
2930 Curlew St.  
San Diego, CA 92110

Shirley Jean Larkin  
462 South Lake Dr.  
Watertown, SD 57201

William H. Walton, Trustee  
3127 Highway 87-F  
Billings, MT 59101

James W. Hoffman  
554 Pinto Way  
Eugene, OR 97401

John A. Hoffman  
24608 Christina Lane  
Nova, MI 48375

David E. Hoffman  
c/o H.R.I. Inc.  
Suite 202, 16990 Dallas Parkway  
Dallas, TX 75248

William R. Hoffman  
200 Greenridge Drive, #113  
Lake Oswego, OR 97035

Robert Walton  
118 3rd Avenue West  
Dickinson, ND 58601

Benjamin Deeble  
437 Eddy Avenue  
Missoula, MT 59801

Julia Reynolds  
3160 Meadowgrove  
San Diego, CA 92110

Victoria Raynor  
9451 East Carlton Oaks Drive  
San Tee, CA 92071

Victor B. Walton  
P.O. Box 1146  
LaMesa, CA 91944

**EXHIBIT 19**

**MAILING LIST  
DICKINSON STATE NO. A-83 WELL**

Elizabeth Bowers  
2930 Curlew Street  
San Diego, California 92110

City of Dickinson  
c/o Ed Karsky, City Engineer  
P.O. Box 1037  
Dickinson, North Dakota 58601

James W. Hoffman  
554 Pinto Way  
Eugene, Oregon 97401

William R. Hoffman  
200 Greenridge Drive, #113  
Lake Oswego, Oregon 97035

North Dakota Board of University  
and School Lands  
P.O. Box 5523  
Bismarck, North Dakota 58502-5523

Victoria Raynor  
9451 East Carleton Oaks Drive  
San Tee, California 92071

County of Stark, North Dakota  
Box 130  
Dickinson, North Dakota 58601

Robert Walton  
118 3rd Avenue West  
Dickinson, North Dakota 58601

William H. Walton, Trustee  
3127 Highway 87-F  
Billings, Montana 59101

Benjamin Deeble  
437 Eddy Avenue  
Missoula, Montana 59801

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c/o H.R.I. Inc.  
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24608 Christina Lane  
Nova, Michigan 48375

Shirley Jean Larkin  
4462 South Lake Drive  
Watertown, South Dakota 57201

North Dakota State University  
Dickinson Experimental Station  
P.O. Box 5435  
Fargo, North Dakota 58105

Julia Reynolds  
3160 Meadowgrove  
San Diego, California 92110

State of North Dakota  
State Highway Department  
608 East Boulevard  
Bismarck, North Dakota 58505

Victor B. Walton  
P.O. Box 1146  
LaMesa, California 91944

**BEFORE THE INDUSTRIAL COMMISSION  
OF THE STATE OF NORTH DAKOTA**

CASE NO. \_\_\_\_\_

**IN THE MATTER OF THE APPLICATION OF  
CONOCO INC. FOR AN ORDER OF THE  
COMMISSION AUTHORIZING THE  
CONVERSION OF THE FRENZEL NO. 79  
WELL, LOCATED IN THE SW¼ OF THE NE¼  
OF SECTION 31, TOWNSHIP 140 NORTH,  
RANGE 96 WEST, AND THE DICKINSON  
STATE NO. A-83 WELL LOCATED IN THE  
NW¼NW¼ OF SECTION 5, TOWNSHIP 139  
NORTH, RANGE 96 WEST, DICKINSON  
FIELD, STARK COUNTY, NORTH DAKOTA,  
FOR THE INJECTION OF FLUIDS IN THE  
PROPOSED DICKINSON-LODGEPOLE  
UNITIZED FORMATION PURSUANT TO  
CHAPTER 43-02-05 OF THE NORTH DAKOTA  
ADMINISTRATIVE CODE, AND PROVIDING  
SUCH OTHER AND FURTHER RELIEF AS  
THE COMMISSION DEEMS NECESSARY.**

**APPLICATION OF CONOCO INC.**

COMES NOW the applicant, Conoco Inc. ("Conoco"), and respectfully shows the  
North Dakota Industrial Commission ("Commission") as follows:

1.

That Conoco is the owner of an interest in the oil and gas leasehold estate in the  
Southwest Quarter of the Northeast Quarter (SW¼NE¼) of Section 31, Township 140  
North, Range 96 West, Stark County, North Dakota ("Section 31").

2.

That Conoco is the owner of an interest in the oil and gas leasehold estate in the Northwest Quarter of the Northwest Quarter (NW¼NW¼) of Section 5, Township 139 North, Range 96 West, Stark County, North Dakota ("Section 5").

3.

That such lands are within the boundaries of the Dickinson Field and within the boundary of the proposed Dickinson-Lodgepole Unit.

4.

That Conoco is the operator of various wells located within the boundaries of the Dickinson Field, Stark County, North Dakota and will be the operator for the proposed Dickinson-Lodgepole Unit.

5.

That pursuant to Chapter 43-02-05 of the North Dakota Administrative Code, Conoco is desirous of converting the Frenzel No. 79 well located in the Southwest Quarter of the Northeast Quarter (SW¼NE¼) of Section 31 and the Dickinson State No. A-83 well located in the Northwest Quarter of the Northwest Quarter (NW¼NW¼) of Section 5 for the purposes of utilizing said wells for the injection of fluids into the proposed Dickinson-Lodgepole unitized formation.

6.

That attached herewith and marked Exhibit A are two plats showing the location of the proposed injection wells, all other producing wells, abandoned producers and dry holes in the Dickinson Field area.

7.

That attached herewith as Exhibit B is a list of all surface owners with the area of review to each of which will be mailed a copy of this application.

8.

That Conoco requests that the Commission enter its order authorizing the underground injection of fluids into the proposed Dickinson-Lodgepole unitized formation in the Frenzel No. 79 well located in the Southwest Quarter of the Northeast Quarter (SW $\frac{1}{4}$ NE $\frac{1}{4}$ ) of Section 31, Township 140 North, Range 96 West and the Dickinson State No. A-83 well located in the Northwest Quarter of the Northwest Quarter (NW $\frac{1}{4}$ NW $\frac{1}{4}$ ) of Section 5, Township 139 North, Range 96 West, Dickinson Field, Stark County, North Dakota, pursuant to Chapter 43-02-05 of the North Dakota Administrative Code and providing such other and further relief as the Commission deems necessary.

**WHEREFORE**, applicant requests that the matter be set for hearing on June 8, 1994 and that thereafter the Commission issue its Order granting the relief requested and such other and further relief as the Commission may deem appropriate.

**DATED** this *6th* day of May, 1994.

PEARCE & DURICK

By

  
LAWRENCE BENDER

Attorneys for Applicant

Conoco Inc.

314 East Thayer Avenue

Post Office Box 400

Bismarck, North Dakota 58502

STATE OF NORTH DAKOTA )

) ss.

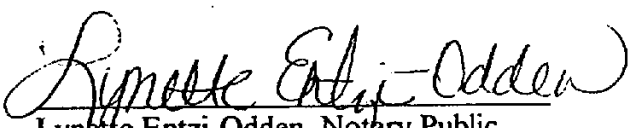
COUNTY OF BURLEIGH )

LAWRENCE BENDER, being first duly sworn on oath, deposes and says that he is the attorney for the applicant named herein, that he has read the foregoing application, knows the contents thereof, and that the same is true to the best of this affiant's knowledge, and belief.

  
LAWRENCE BENDER

Subscribed and sworn to before me this 6th day of May, 1994.

LYNETTE ENTZI-ODDEN  
Notary Public, STATE OF NORTH DAKOTA  
My Commission Expires JUNE 26, 1999

  
Lynette Entzi-Odden, Notary Public  
Burleigh County, North Dakota  
My Commission Expires: 6-26-99

**BEFORE THE INDUSTRIAL COMMISSION  
OF THE STATE OF NORTH DAKOTA**

CASE NO. \_\_\_\_\_

IN THE MATTER OF THE APPLICATION OF  
CONOCO INC. FOR AN ORDER OF THE  
COMMISSION AUTHORIZING THE  
CONVERSION OF THE FRENZEL NO. 79  
WELL, LOCATED IN THE NW¼ OF THE NE¼  
OF SECTION 31, TOWNSHIP 140 NORTH,  
RANGE 96 WEST, AND THE DICKINSON  
STATE NO. A-83 WELL LOCATED IN THE  
NW¼NW¼ OF SECTION 5, TOWNSHIP 139  
NORTH, RANGE 96 WEST, DICKINSON  
FIELD, STARK COUNTY, NORTH DAKOTA,  
FOR THE INJECTION OF FLUIDS IN THE  
PROPOSED DICKINSON-LODGEPOLE  
UNITIZED FORMATION PURSUANT TO  
CHAPTER 43-02-05 OF THE NORTH DAKOTA  
ADMINISTRATIVE CODE, AND PROVIDING  
SUCH OTHER AND FURTHER RELIEF AS  
THE COMMISSION DEEMS NECESSARY.



**AFFIDAVIT OF SERVICE BY MAIL**

STATE OF NORTH DAKOTA     )  
  ) ss.  
COUNTY OF BURLEIGH     )

Lyn Entzi, being first duly sworn, deposes and says that on the *10th* day of May, 1994, she served the attached:

AMENDED APPLICATION OF CONOCO INC.

by placing a true and correct copy thereof in an envelope addressed as follows:


See attached Exhibit A

and depositing the same, with postage prepaid, in the United States mail at Bismarck, North Dakota.



  
LYN ENTZI-ODDEN

Subscribed and sworn to before me this *10th* day of May, 1994.

  
ROSALINDE KIENZLE, Notary Public  
Burleigh County, North Dakota  
My Commission expires: 05-23-95

**ROSALINDE K. KIENZLE**  
**Notary Public STATE OF NORTH DAKOTA**  
**My Commission Expires MAY 23, 1995**

BEFORE THE INDUSTRIAL COMMISSION  
OF THE STATE OF NORTH DAKOTA

CASE NO. \_\_\_\_\_

IN THE MATTER OF THE APPLICATION OF CONOCO INC. FOR AN ORDER OF THE COMMISSION AUTHORIZING THE CONVERSION OF THE FRENZEL NO. 79 WELL, LOCATED IN THE NW¼ OF THE NE¼ OF SECTION 31, TOWNSHIP 140 NORTH, RANGE 96 WEST, AND THE DICKINSON STATE NO. A-83 WELL LOCATED IN THE NW¼NW¼ OF SECTION 5, TOWNSHIP 139 NORTH, RANGE 96 WEST, DICKINSON FIELD, STARK COUNTY, NORTH DAKOTA, FOR THE INJECTION OF FLUIDS IN THE PROPOSED DICKINSON-LODGEPOLE UNITIZED FORMATION PURSUANT TO CHAPTER 43-02-05 OF THE NORTH DAKOTA ADMINISTRATIVE CODE, AND PROVIDING SUCH OTHER AND FURTHER RELIEF AS THE COMMISSION DEEMS NECESSARY.



AMENDED APPLICATION OF CONOCO INC.

COMES NOW the applicant, Conoco Inc. ("Conoco"), and respectfully shows the North Dakota Industrial Commission ("Commission") as follows:

1.

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2.

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3.

That such lands are within the boundaries of the Dickinson Field and within the boundary of the proposed Dickinson-Lodgepole Unit.

4.

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5.

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7.

That attached herewith as Exhibit B is a list of all surface owners with the area of review to each of which will be mailed a copy of this application.

8.

That Conoco requests that the Commission enter its order authorizing the underground injection of fluids into the proposed Dickinson-Lodgepole unitized formation in the Frenzel No. 79 well located in the Northwest Quarter of the Northeast Quarter (NW $\frac{1}{4}$ NE $\frac{1}{4}$ ) of Section 31, Township 140 North, Range 96 West and the Dickinson State No. A-83 well located in the Northwest Quarter of the Northwest Quarter (NW $\frac{1}{4}$ NW $\frac{1}{4}$ ) of Section 5, Township 139 North, Range 96 West, Dickinson Field, Stark County, North Dakota, pursuant to Chapter 43-02-05 of the North Dakota Administrative Code and providing such other and further relief as the Commission deems necessary.

**WHEREFORE**, applicant requests that the matter be set for hearing at the regular Commission hearing on June 22, 1994 and that thereafter the Commission issue its Order granting the relief requested and such other and further relief as the Commission may deem appropriate.

**DATED** this *10th* day of May, 1994.

PEARCE & DUBICK

By

  
LAWRENCE BENDER

Attorneys for Applicant

Conoco Inc.

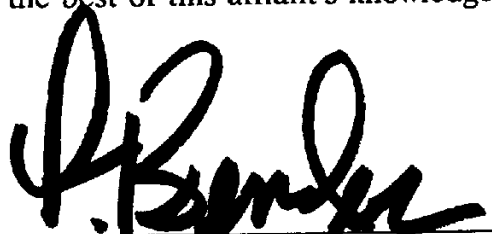
314 East Thayer Avenue

Post Office Box 400

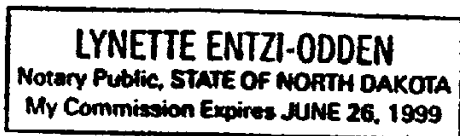
Bismarck, North Dakota 58502

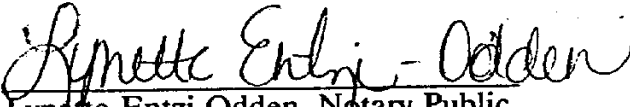
STATE OF NORTH DAKOTA   )  
  ) ss.  
COUNTY OF BURLEIGH     )

LAWRENCE BENDER, being first duly sworn on oath, deposes and says that he is the attorney for the applicant named herein, that he has read the foregoing application, knows the contents thereof, and that the same is true to the best of this affiant's knowledge, and belief.

  
LAWRENCE BENDER

Subscribed and sworn to before me this 10th day of May, 1994.



  
Lynette Entzi-Odden, Notary Public  
Burleigh County, North Dakota  
My Commission Expires: 6-26-99

**SURFACE OWNERS WITHIN 1/4 MILE  
OF STATE A #83 WELL**

**Township 139 North, Range 96 West  
Section 5: NW1/4  
Stark County, North Dakota**

State of North Dakota for the use and  
benefit of the State Highway Department  
608 East Boulevard  
Bismarck, ND 58505

County of Stark, North Dakota  
Box 130  
Dickinson, ND 58601

City of Dickinson  
c/o Ed Karsky, City Engineer  
P.O. Box 1037  
Dickinson, ND 58601

North Dakota Board of University and School Lands  
P.O. Box 5523  
Bismarck, ND 58502-5523

North Dakota State University  
Dickinson Experiment Station  
P.O. Box 5435  
Fargo, ND 58105

**SURFACE OWNERS WITHIN 1/4 MILE  
OF STATE A #83 WELL**

**Township 139 North, Range 96 West**  
**Section 6: NE1/4**  
**Stark County, North Dakota**

**CONTINUATION**

Elizabeth Bowers  
2930 Curlew Street  
San Diego, CA 92110

Benjamin Deeble  
437 Eddy Avenue  
Missoula, MT 59801

Shirley Jean Larkin  
462 South Lake Drive  
Watertown, SD 57201

Julia Reynolds  
3160 Meadowgrove  
San Diego, CA 92110

William H. Walton, Trustee  
3127 Highway 87-F  
Billings, MT

Victoria Raynor  
9451 East Carlton Oaks Drive  
San Jose, CA 92071

James W. Hoffman  
554 Pinto Way  
Eugene, OR 97401

Victor B. Walton  
P.O. Box 1146  
La Mesa, CA 91944

John A. Hoffman  
24608 Christina Lane  
Novi, MI 48375

State of North Dakota for the use and  
benefit of the State Highway Department  
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Bismarck, ND 58505

David E. Hoffman  
c/o H.R.I. Inc.  
Suite 202, 16990 Dallas Parkway  
Dallas, Texas 75248

County of Stark, North Dakota  
Box 130  
Dickinson, ND 58601

William R. Hoffman  
200 Greenridge Drive, #113  
Lake Oswego, OR 97035

City of Dickinson  
c/o Ed Karsky, City Engineer  
P.O. Box 1037  
Dickinson, ND 58601

Robert Walton  
118 3rd Avenue West  
Dickinson, ND 58601

**SURFACE OWNERS WITHIN 1/4 MILE  
OF STATE A #83 WELL**

**Township 140 North, Range 96 West  
Section 31: SE1/4  
Stark County, North Dakota**

State of North Dakota for the use and  
benefit of the State Highway Department  
608 East Boulevard  
Bismarck, ND 58505

County of Stark, North Dakota  
Box 130  
Dickinson, ND 58601

City of Dickinson  
c/o Ed Karsky, City Engineer  
P.O. Box 1037  
Dickinson, ND 58601

Douglas J. Kadrmas  
2314 25-1/2 Avenue South  
Fargo, ND 58103

Mildred J. Kadrmas and Joseph J. Kadrmas  
1030 4th Avenue West  
Dickinson, ND 58601



**SURFACE OWNERS WITHIN 1/4 MILE  
OF STATE A #83 WELL**

**Township 140 North, Range 96 West  
Section 32: SW1/4  
Stark County, North Dakota**

State of North Dakota for the use and  
benefit of the State Highway Department  
608 East Boulevard  
Bismarck, ND 58505

County of Stark, North Dakota  
Box 130  
Dickinson, ND 58601

City of Dickinson  
c/o Ed Karsky, City Engineer  
P.O. Box 1037  
Dickinson, ND 58601

North Dakota Board of University and School Lands  
P.O. Box 5523  
Bismarck, ND 58502-5523

North Dakota State University  
Dickinson Experiment Station  
P.O. Box 5435  
Fargo, ND 58105

**SUNDRY NOTICES AND REPORTS ON WELLS – FORM 4**  
INDUSTRIAL COMMISSION OF NORTH DAKOTA  
OIL AND GAS DIVISION  
SFN 5749 (2-92)

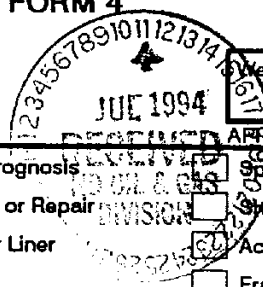
PLEASE READ INSTRUCTIONS ON BACK OF FORM

☒ Notice of Intent  
Approximate Start Date \_\_\_\_\_

☐ Report of Work Done  
Date Work Completed \_\_\_\_\_

☐ Drilling Prognosis  
☐ Redrilling or Repair  
☐ Casing or Liner  
☐ Plug Well  
☐ Supplemental History  
☐ Temporarily Abandon

☐ Spill Report  
☐ Shooting  
☒ Acidizing  
☐ Fracture Treatment  
☐ Change Producing Method  
☐ Reclamation  
☒ Other CONVERT TO INJECTION



Well File Number  
13598

APP: 33-089-00409

Well Name and Number  
DICKINSON LODGEPOLE UNIT WELL NO. 83

Footages 660' FNL, 660' FWL	Qtr - Qtr NW NW	Section 5	Township 139 N	Range 96W
Field DICKINSON	Pool LODGEPOLE	County STARK		

24 HOUR PRODUCTION RATE	
BEFORE	AFTER
Oil	Oil
Water	Water
Gas	Gas

TEST DATES:

Name of Contractor \_\_\_\_\_

Address _____	City _____	State _____	Zip Code _____
---------------	------------	-------------	----------------

**DETAILS OF WORK**

PLEASE SEE THE ATTACHED PROCEDURE TO CONVERT SAID WELL TO INJECTION

ANY QUESTIONS PERTAINING TO THIS PROCEDURE SHOULD BE DIRECTED TO STEVE CATHEY AT (307) 261-7877

Company CONOCO INC.		
Address 800 WERNER COURT		
City CASPER	State WY	Zip Code 82601
By <i>E. Leon Grant</i>	Date 07-08-94	
Title E. LEON GRANT, SHEAR DIRECTOR	Telephone Number (307) 261-7800	

FOR OFFICE USE ONLY

<input type="checkbox"/> Received	<input type="checkbox"/> Approved
Date _____	
By _____	
Title _____	

# DICKINSON LODGEPOLE UNIT No.83

## CONVERT TO WATER INJECTION

**Field:** Dickinson

**Location:** 660' FNL, 660' FWL, Section 5, (NW NW)  
T139N, R95W, Stark County, ND

**Elevation:** GL=2,453' KB=2,467'

**Depths:** TD=10,077' PBTD=9,989'

**Casing:**

**Surface:** 8 5/8", 24 lb/ft, J-55, ST&C 0'-2,150'

**Lead:** 772 cuft Halliburton Lite @ 12.7 ppg, 2% CaCl, 1/4 lb/sx Flocele  
**Tail:** 195 cuft Class "G" @ 15.8 ppg, 1% CaCl, 1/4 lb/sx Flocele

**Cement Top=Surface (returns)**

**Production:** 5 1/2", 17 lb/ft, L-80, BTC 0'-8,110'  
5 1/2", 23 lb/ft, TCA-80 HC, LT&C 8,110'-8,717'  
5 1/2", 20 lb/ft, L-80, LT&C 8,717'-10,077'

**DV @ 9,484' FC @ 9,989' FS @ 10,077'**

**1<sup>st</sup> Stage** **Lead:** 140 cuft Class "G" @ 15.6 ppg, 35% SSA-1, .4% Versaset, .3% CFR-3, .5% Halad-024, .2% HR-5, 1/4 lb/sx Flocele

**2<sup>nd</sup> Stage** **Cap:** 115 cuft Class "G" @ 15.8 ppg, .8% LWL, 1.5% CFA-S, .75% HC-2  
**Foam:** 115 cuft Class "G" @ 15.8 ppg, .2% LWL, 1.5% CFA-S, .75% HC-2, 760 scf/bbl N<sub>2</sub>, (9.5 ppg foam slurry)  
**Foam:** 149.5 cuft Class "G" @ 15.8 ppg, .2% LWL, 1.5% CFA-S, .75% HC-2, 360 scf/bbl N<sub>2</sub>, (12.5 ppg foam slurry)  
**Tail:** 322 cuft Class "G" @ 15.8 ppg, .2% LWL

**Cement Top= 5,500'**

**Spud Date:** 10-20-93

**Objective:** Convert to a water injection well, run a step rate test, and an injection profile survey.

**Notes:**

1. All depths in this procedure are KB unless noted otherwise.

2. MSDS for all chemicals used in this procedure must be available on location for inspection. An inventory of all chemicals used should be submitted to SHEAR in the Casper Office at job completion.
3. There should be a short "marker" joint of casing @ 9,870' and 9,662'.

Recommended Procedure:

1. MIRU pulling unit, BOP, pit, power swivel, and tanks (2). Load the tanks with clean Dakota water (kill and rate test water). Hold a pre-job safety meeting.
2. Kill the well, release the Baker "R-3" packer, and POOH with 2 $\frac{7}{8}$ " tubing, packer, and perforating equipment. **TREAT AS A LIVEGUN UNTIL CHECKED.** Call HLS and notify that their equipment is out of the hole.
3. RIH with a SN, cementing packer, and 2 $\frac{7}{8}$ " tubing. Set the packer @ 9,650'.
4. MIRU BJ Services and hold a pre-job safety meeting.
5. Squeeze the Lodgepole from 9,800' to 9,807' as follows:
  1. Establish an injection rate with 10 bls of fresh water. Do not exceed 1000 psi or 2 bpm.
  2. Pump 25 sacks of Class "G" cement with 35% S-8 silica flour, 0.6% FL-62 fluid loss additive, and 0.2% R-3 retarder @ 15.6 ppg.
  3. Flush with water as required to clear the packer of cement.
6. Attempt to achieve a squeeze.
7. Ensure the tubing is clear of cement and allow the cement to set overnight with pressure applied.
8. Release the packer and POOH.
9. TIH with 4 $\frac{1}{2}$ " bit, casing scraper, drill collars, and 2 $\frac{7}{8}$ " tubing and drill out the cement.
10. Pressure test the casing and squeeze to 3000 psi for 15 minutes, pickle the tubing with 1000 gal. of 15% HCl with additives, and load the hole with clean Dakota water. POOH.
11. MIRU Schlumberger and hold a pre-job safety meeting.
12. RIH with a 4" X 6' casing perforating gun loaded 4 spf, 90° or 120° phasing, 22 gram charge, 0.5" EHD and 13 $\frac{1}{2}$ " penetration by API RP 43 Section I.
13. Correlate to the open hole logs and perforate the Lodgepole from 9,926' to 9,920'. POOH.

14. Rig up Conoco wireline unit and run in the hole and get a 15 minute static bottom hole pressure. POOH and RD.
15. TIH with 30' of perforating gun loaded as in Step 12.
16. Correlate and perforate from 9,920' to 9,890'. POOH.
17. TIH with 30' of perforating gun loaded as in Step 12.
18. Correlate and perforate from 9,890' to 9,860' (total perforated interval should be 9,860' to 9,926'). POOH and RD Schlumberger.
19. RIH with a Baker "SAP" Tool with a 5' treating interval.
20. Acidize the perforated interval from 9,926' to 9,860' in 5' increments with 500 gals. of 15% HCl with additives per setting. Do not exceed 2½ bpm rate or 1500 psi plus "SAP" opening pressure. POOH.
21. RIH with SN, Baker "R-3" packer, and 2⅞" tubing.
22. Pump packer fluid per Cary Hays' recommendation.
23. Set packer @ 9,815' with 20,000 lbs set down. ND BOP and NU wellhead.
24. Conduct MIT witnessed by the NDIC. RDMO pulling unit.
25. Ensure both 400 bbl tanks are loaded with clean Dakota water and MIRU BJ Services and HLS.
26. RU HLS and run a pre injection base line temperature survey (ensure at least 12 hours since the last fluid was pumped).
27. Run step rate injection test as follows while continuously recording the pressure:
  1. Establish a 1 bpm rate and pump for 10 minutes once a stable rate is achieved (well will probably be on a vacuum).
  2. Increase rate to 3 bpm and pump for 10 minutes once rate stabilizes (possible treating pressure of 150 psi).
  3. Increase rate to 5 bpm and pump for 10 minutes once rate stabilizes (possible treating pressure of 1250 psi).
28. Run injection profile survey using HLS while injecting at a rate of 2 bpm.
29. RD HLS and BJ Services and send the results of the surveys to the Casper Office.

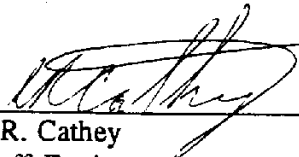
Acid Requirements Step 10

1000 gallons of 15% HCl acid  
4 gallons of CI-25 corrosion inhibitor (4 gpt for 4 hrs @ 230°F)

Acid Requirements Step 20

6600 gallons of 15% HCl acid  
27 gallons of CI-25 corrosion inhibitor (4 gpt for 4 hrs @ 230°F)  
33 gallons of Ferrotrol 300L iron sequestrant (5 gpt for 3000 mg/l)  
7 gallons of NE-2 non-emulsifier (1 gpt)  
7 gallons of NE-22 non-emulsifier (1 gpt)


Prepared by:

  
S.R. Cathey  
Staff Engineer

Date:

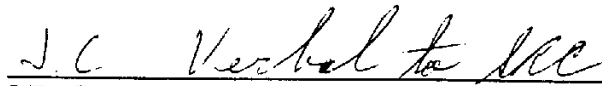
7/8/94

Concur:

  
P.V. Turner  
Lodgepole Team Leader

Date:

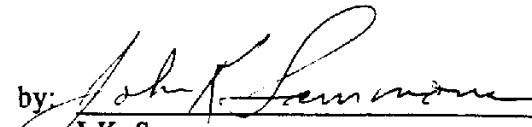
7/8/94

  
J.D. Cope  
Production Foreman

Date:

7/8/94

Approved by:

  
J.K. Sammons  
Production Manager

Date:

7/8/94

cc: JKS, RWH, KWZ, IRG, AKF, TJG, PJT, SRC, Well File, Jim Cope-Dickinson

16 86 100  
 11 21 100  
 06 24 100  
 25 44  
 5-24-94  
 6/6/94

# THE BISMARCK TRIBUNE

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5-13-94	NOTICE OF PUBL 27	01352330	RT	0001		1	49L	.53	25.44	25.44
<p><b>NOTICE OF PUBLICATION</b>  <b>NORTH DAKOTA</b>  <b>INDUSTRIAL COMMISSION</b>  <b>BISMARCK, NORTH DAKOTA</b>          The State of North Dakota by its Industrial Commission hereby gives notice pursuant to law and the rules and regulations of said Commission promulgated thereunder of the following public hearing to be held at 9:00 a.m. on June 8, 1994, Brynild Haugland Room, State Capitol, Bismarck, the Com- ta. For the purpose of this hearing, the Com- mission, any member thereof acting as Examiner, or an Examiner appointed by the Commission will receive testimony and exhibits.</p> <p><b>ATTENTION PERSONS WITH DISABILI- TIES:</b> If you plan to attend the hearing and will need special facilities or assistance relating to a disability, please contact the North Dakota Industrial Commission at 701- 224-3722 by May 25, 1994.</p> <p><b>STATE OF NORTH DAKOTA TO:</b>          All named parties and persons having any right, title, interest, or claim in the following cases and notices to the public. <b>CASE NO. 5936.</b> ON A MOTION OF THE COMMISSION TO CONSIDER THE APPLICATION OF CONOCO INC. FOR AN ORDER AUTHO- RIZING THE CONVERSION OF THE FRENZEL #79 WELL, LOCATED IN THE NW NE OF SECTION 31, T.140N., R.96W., AND THE DICKINSON STATE #A-83 WELL LOCATED IN THE NW NW OF SECTION 5, T.139N., R.96W., DICKINSON FIELD, STARK COUNTY, NORTH DAKOTA, FOR THE INJECTION OF FLUIDS IN THE PROPOSED DICKINSON-LODGEPOLE UNITIZED FORMATION PURSUANT TO CHAPTER 43-02-05 OF THE NORTH DAKO- TA ADMINISTRATIVE CODE, AND PRO- VIDING SUCH OTHER AND FURTHER RELIEF AS THE COMMISSION DEEMS NECESSARY.</p> <p>Signed by,          Edward T. Schafer, Governor          Chairman, ND Industrial Commission          5/13 - 9259</p>										
<p><b>AFFIDAVIT OF PUBLICATION</b>  <b>STATE OF NORTH DAKOTA</b>          County of Burleigh } ss          BEFORE ME, A NOTARY PUBLIC FOR THE STATE OF NORTH DAKOTA, PERSONALLY APPEARED <u>Clota Martin</u> WHO, BEING DULY SWORN, DEPOSES AND SAYS THAT HE IS THE CLERK OF THE BISMARCK TRIBUNE COMPANY, AND THAT THE ABOVE PUBLICATIONS <u>Notice of Pub</u> WERE MADE THROUGH THE AFORESAID NEWSPAPER AT THE DATES SHOWN. <u>5/13</u> SIGNED <u>Clota Martin</u> SWORN AND SUBSCRIBED TO BEFORE ME THIS <u>18</u> DAY OF <u>May</u> 19 <u>94</u></p> <p><u>Patricia J. Nelson</u>          Notary Public in and for the State of North Dakota, Residing at Bismarck</p>										

**PATRICIA J. NELSON**

Notary Public, STATE OF NORTH DAKOTA  
 My Commission Expires NOV. 23, 1997

**PAYMENT TERMS**  
 Due 10th of month following charges

Thank You! **AMOUNT DUE** 25.44

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NORTH DAKOTA INDUSTRIAL  
COMMISSION  
BISMARCK, NORTH DAKOTA**

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Signed by,  
Edward T. Schafer, Governor  
Chairman, ND  
Industrial Commission  
(Published May 13, 1994)

**CERTIFICATE OF PUBLICATION  
THE DICKINSON PRESS  
Dickinson, North Dakota**

**STATE OF NORTH DAKOTA,**

**County of Stark.**

Belle L. Krank

of said state and county, being first duly sworn, on oath says: That she is the bookkeeper- of the Dickinson Press, Inc., publisher of **THE DICKINSON PRESS**, a daily newspaper of general circulation, printed and published at Dickinson, in said county and state, and has been such during the time hereinafter mentioned; and that advertisement headed

Legal--Notice Of Publication Case No. 5936

\$27.03

a printed copy of which is hereunto annexed, was printed and published in **The Dickinson Press**, and in the regular and entire issue of each and every number 1 consecutive weeks, commencing on the 13 day of May A.D. 1994, and ending on the 13 day of May A.D., 1994, both inclusive.

Belle L. Krank

Sworn to and subscribed to before me this 13th day of

May

A.D. 1994

Marilyn Wanner

**MARILYN WANNER**  
Notary Public, STARK COUNTY, N. DAK.  
My Commission Expires APRIL 28, 2000