

BEFORE THE INDUSTRIAL COMMISSION
OF THE STATE OF NORTH DAKOTA

IN THE MATTER OF A HEARING CALLED ON A
MOTION OF THE COMMISSION TO CONSIDER
THE APPLICATION OF CONTINENTAL OIL
COMPANY TO EXTEND THE LIMITS OF AND
AMEND THE FIELD RULES APPLICABLE TO
THE DICKINSON-HEATH POOL IN STARK
COUNTY, NORTH DAKOTA.

CASE NO. 848
ORDER NO. 920

ORDER OF THE COMMISSION

BY THE COMMISSION:

Pursuant to legal notice this cause came on for hearing at 9:30 a.m., on the 25th day of May, 1967, at Bismarck, North Dakota, before the Industrial Commission of North Dakota, hereinafter referred to as the "Commission."

NOW, on this 22 day of June, 1967, 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 pursuant to order of the Industrial Commission, the present limits of the Dickinson-Heath Pool encompass the S/2 of Section 29, all of Sections 30, 31 and 32, Township 140 North, Range 96 West, and the N/2 of Section 5, and the N/2 of Section 6, Township 139 North, Range 96 West, which area is presently on a 160-acre spacing pattern.
- (3) That the field outlines of the Dickinson-Heath Pool should be enlarged to include all of Sections 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, N/2 of 29, all of 33, 34, 35 and 36, Township 140 North, Range 96 West, Stark County, North Dakota.
- (4) That the existing spaced area of the Dickinson-Heath Pool remain on a 160-acre spacing pattern and that the area above described, for which request is made to include within the limits of said field, be divided as a separate zone and that such area as separately zoned be established on a 320-acre spacing pattern.
- (5) That the extension of the field limits to include the above described lands and the establishment and division of separate zones and the retention of the 160-acre spacing within the present field outlines, and the establishment of 320-acre spacing in the areas to be included in the proposed outline will prevent waste, will avoid the drilling of unnecessary wells and will protect correlative rights, and will result in the efficient and economical development of the pool as a whole.

(6) That the Commission has the authority under paragraph (1) section 38-08-07 of the North Dakota Century Code, to grant this request.

IT IS THEREFORE ORDERED:

(1) The Dickinson Field be and the same is hereby reclassified and redefined to include the following described tracts of land in Stark County, North Dakota, to wit:

ZONE 1

Township 140 North, Range 96 West, 5th PM

All of Sections 30, 31, and 32, and the south 1/2 of Section 29

Township 139 North, Range 96 West, 5th PM

The N/2 of Sections 5 and 6.

ZONE 2

Township 140 North, Range 96 West, 5th PM

All of Sections 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 33, 34, 35, 36, and the N/2 of Section 29.

(2) That the location of wells in Zone 1 shall conform to the pattern set forth in Commission's Order No. 609.

(3) That the spacing of wells in Zone 2 shall be one well per 320-acres with wells to be located in the SW quarter of the NW and SE quarters of each section.

(4) That this order shall cover all the Dickinson Field, as hereinabove defined, and shall continue in full force and effect until further order of the Commission.

DONE, at Bismarck, North Dakota, this 22 day of June, 1967.

THE NORTH DAKOTA INDUSTRIAL COMMISSION

William L. Guy, Governor

Helgi Johanneson
Helgi Johanneson, Attorney General

Arne Dahl, Commissioner of Agriculture



CONTINENTAL OIL COMPANY

P. O. Box 680
Casper, Wyoming 82601
July 12, 1967

Dr. Wilson M. Laird
State Geologist
North Dakota Geological Survey
University Station
Grand Forks, North Dakota 58201

Dear Dr. Laird:

We recently received Commission Order No. 920 extending the limits and amending the field rules in the Dickinson Heath Pool in Stark County, North Dakota. It appears that in defining Zone 2 on the second page of the order, Section 34 was inadvertently omitted. Also, in defining well locations, it appears that the location in the SW $\frac{1}{4}$ of the SE $\frac{1}{4}$ of each section was omitted.

Very truly yours,

W. C. Blackburn
District Manager
Casper District
Production Department



ea



THE SUPERIOR OIL COMPANY

P. O. BOX 1521

HOUSTON, TEXAS 77001

June 5, 1967

Dr. Wilson M. Laird
State Geologist
North Dakota Geological Survey
Union Station
Grand Forks, North Dakota 58201

Re: Case No. 848
Dickinson-Heath Pool
Stark County, North Dakota

Dear Dr. Laird:

At the hearing held on May 25, 1967, in captioned case, I on behalf of Superior offered to relinquish our Application to Drill at a location in the SW $\frac{1}{4}$ of Section 19, Township 140 North, Range 96 West, if so doing would aid the Commission in their deliberations on Continental's Application for 320 acre spacing. You have subsequently requested such relinquishment.

The Application to Drill dated May 1, 1967, and approved May 5, 1967, by The Superior Oil Company at the location above stated, is hereby withdrawn and relinquished. The original Application will be surrendered for cancellation upon your request.

If you require anything further in this regard please advise.

Very truly yours,

R. T. Robberson
Attorney

RTR:bd

cc: Continental Oil Company
cc: Mr. Ernest R. Fleck

R 96 W

T
140
N

T
140
N

INDUSTRIAL COMMISSION
STATE OF NORTH DAKOTA

Date: MAY 25 1967 Case No. 848

Introduced by Cardinal

Exhibit 1

Identified by clp

 PRESENT FIELD BOUNDARY
 DICKINSON FIELD



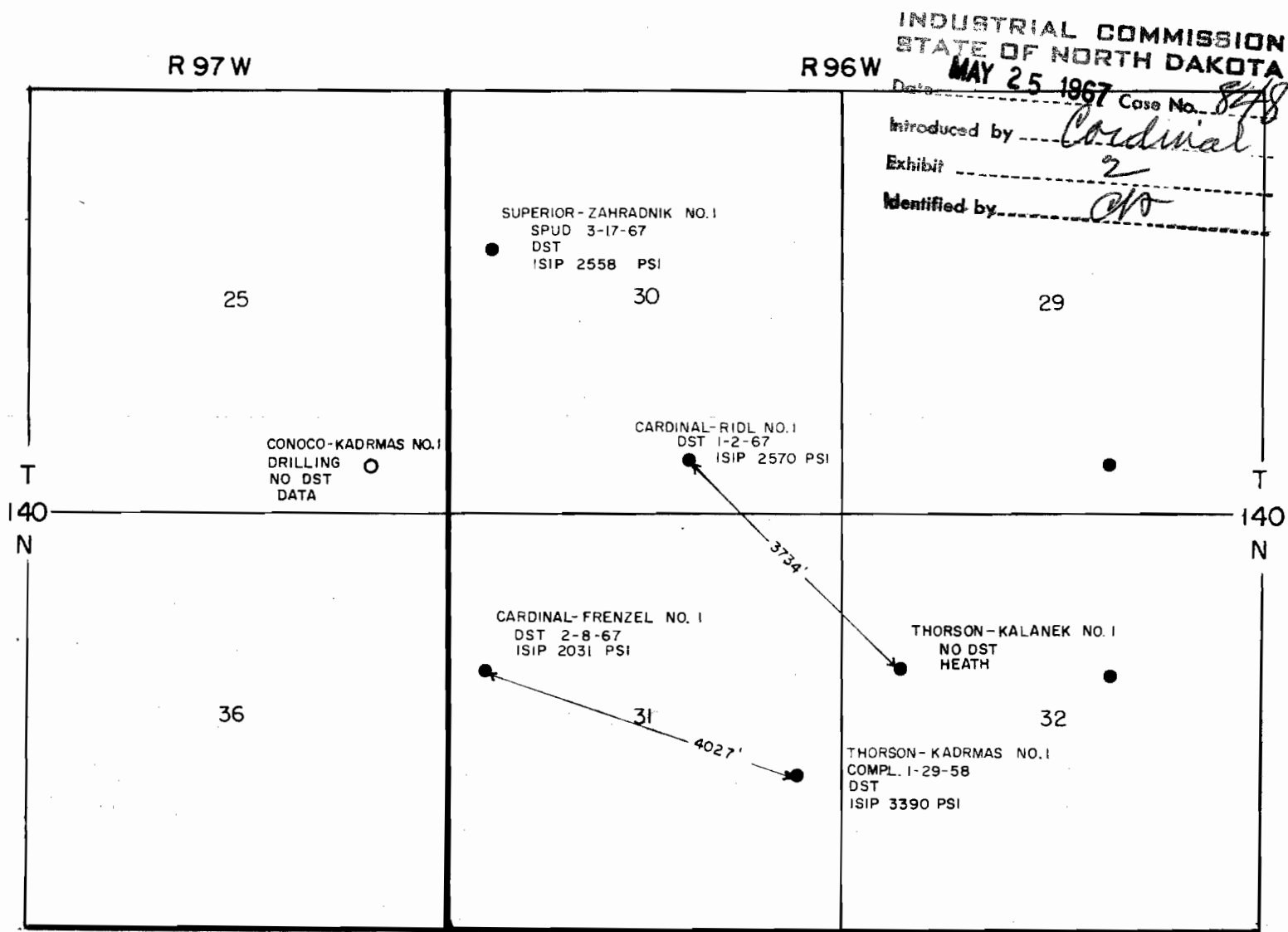
STARK COUNTY, NORTH DAKOTA

R. D. RAGLAND
MAY 19, 1967

PLAT SHOWING PRESSURE COMMUNICATION BETWEEN WELLS

HEATH RESERVOIR

DICKINSON FIELD, STARK COUNTY, NORTH DAKOTA



APPROXIMATE DISTANCE BETWEEN WELLS COMPLETED
ON 320 ACRE SPACING
PATTERN----- 3734 FEET

CARDINAL PETROLEUM COMPANY

CASE NO. 848
EXHIBIT NO. 2
MAY 25, 1967

MONTHLY PRODUCTION—BBLs OIL

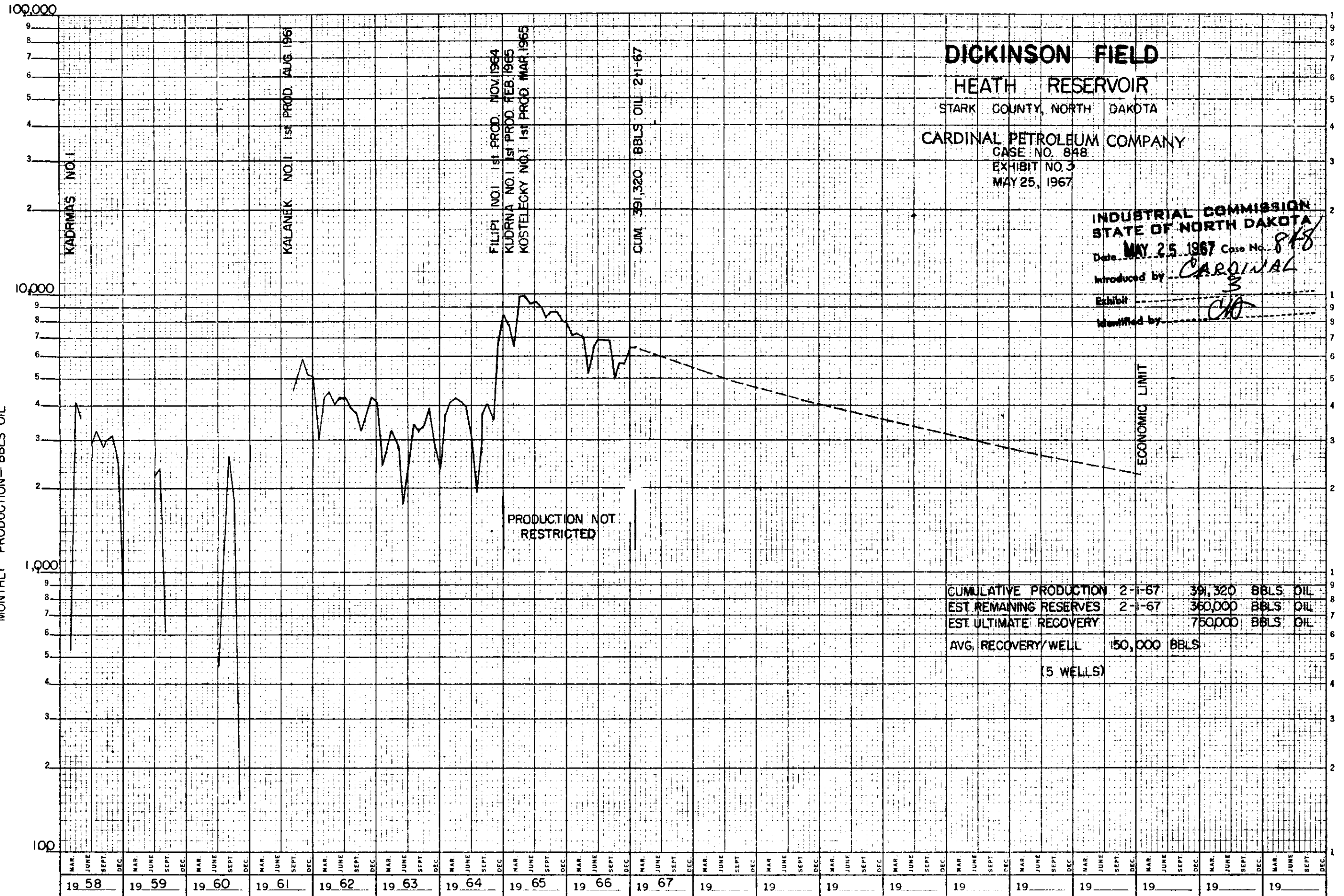


EXHIBIT NO. 4

ESTIMATED EFFECTIVE
NET PAY
HEATH RESERVOIR
DICKINSON FIELD, STARK COUNTY, NORTH DAKOTA

<u>Operator and Well</u>	<u>Location T140N-R96W</u>	<u>Net Feet Pay</u>	<u>Remarks</u>
Thornson - Kadrmas No. 1	NE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 31	10	Logs
Thornson - Kalanek No. 1	SW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 32	16	Logs
Conoco - Filipi No. 1	SW $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 29	6 *	Logs & Core
Conoco - Kudrna No. 1	SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 28	5 *	Logs & Core
Conoco - Kostelecky No. 1	SW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 33	3 *	Logs & Core
Cardinal - Ridl No. 1	SW $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 30	3 $\frac{1}{2}$ *	Logs & Core
Cardinal - Frenzel No. 1	SW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 31	13 $\frac{1}{2}$	Logs & Core
Cardinal - Filipi No. 7-32	SW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 32	5	Logs & Core
Superior - Zahradnik No. 1	SW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 30	8 *	Logs

* Wells adjacent to area considered for spacing. Avg. net pay per well - 5 feet.

INDUSTRIAL COMMISSION
STATE OF NORTH DAKOTA

Date MAY 25 1967 Case No. 848

Introduced by CARDINAL

Exhibit 4

Identified by W

Case No. 848
May 25, 1967
Cardinal Petroleum Company
RDR

EXHIBIT NO. 5

RESERVOIR DATA
HEATH RESERVOIR
DICKINSON FIELD, STARK COUNTY, NORTH DAKOTA

Ø	(Effective Porosity, 39 samples from 3 Cardinal interest wells - %)	14.2
K	(Effective Permeability, 39 samples from 3 Cardinal interest wells - md)	158
Sw	(Water Saturation, 39 samples from 3 Cardinal interest wells - % PV)	31
Scw	(Avg. Connate Water Saturation, Estimated - % PV)	20
Boi	(Reservoir Volume Factor, Official Production Statistics Report, N.D. - Res. Bbls/S.T. Bbl)	1.07
N	(Original Oil in Place, S.T. Bbls./Acre-Ft.)	824
$N = \frac{(7758) (\phi) (1 - S_{cw})}{B}$		
$N = \frac{(7758) (.142) (1 - .20)}{1.07} = 824$		
Np	(Oil Recovery, Estimated from Field Performance - S.T. Bbls/Acre-Ft)	117
Rf	(Recovery Factor, Np/N x 100 - % OIP)	14.2

INDUSTRIAL COMMISSION
STATE OF NORTH DAKOTA
Date MAY 25 1967 Case No. 848
Introduced by CARDINAL
Exhibit 5
Identified by CH

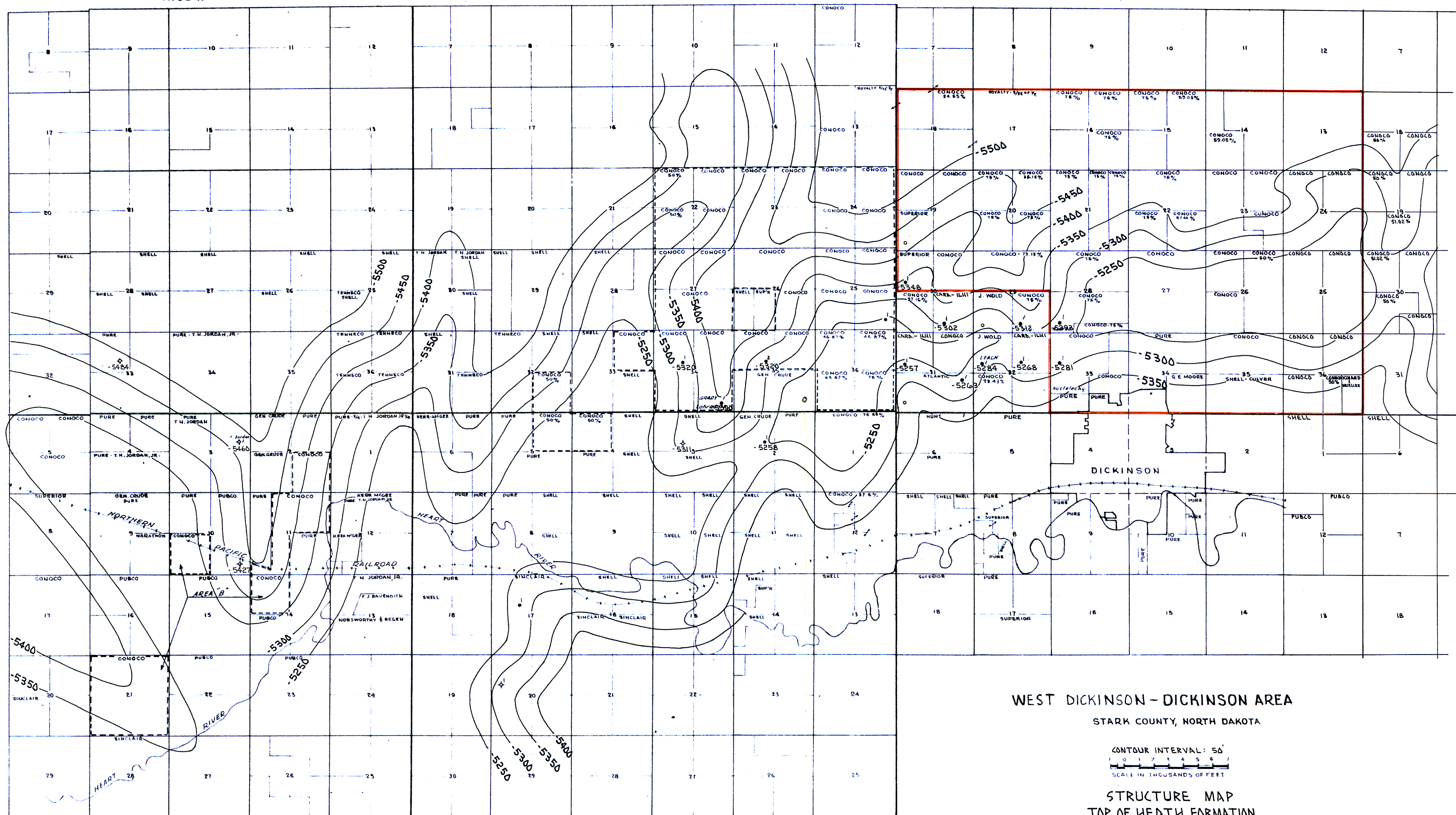
Case No. 848
May 25, 1967
Cardinal Petroleum Company
RDR

R. 98 W.

R. 97 W.

R. 96 W.

R. 95 W.

T. 140
N.T. 140
N.T. 139
N.T. 139
N.

WEST DICKINSON - DICKINSON AREA
STARK COUNTY, NORTH DAKOTA

CONTOUR INTERVAL: 50'
SCALE IN THOUSANDS OF FEET

STRUCTURE MAP
TOP OF HEATH FORMATION

INDUSTRIAL COMMISSION
STATE OF NORTH DAKOTA
Date MAY 25 1967 Case No. 548
Introduced by Conoco
Exhibit 2
Identified by CLO

R. 98 W.

R. 97 W.

R. 96 W.

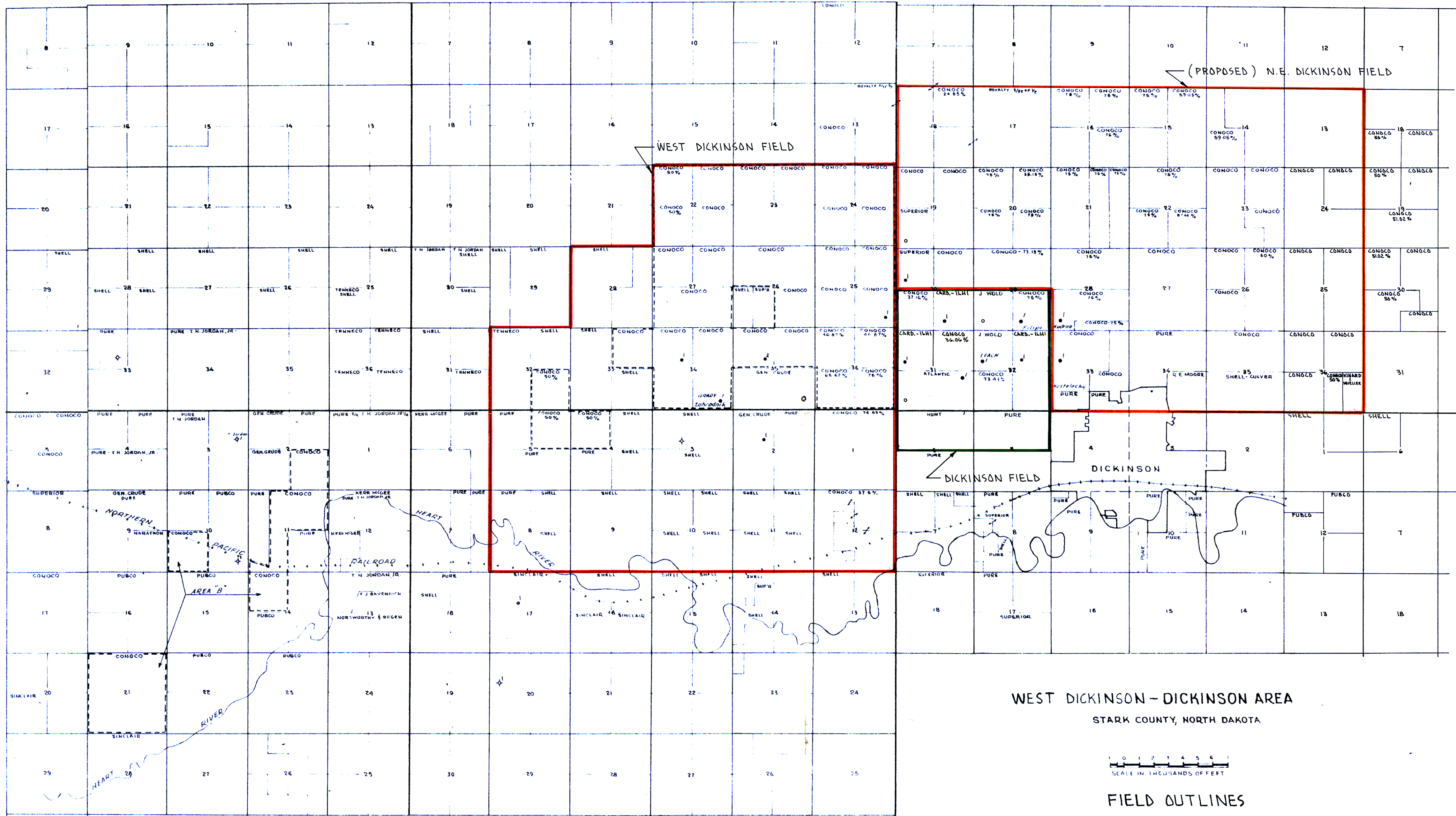
R. 95 W.

T. 140 N.

T. 140 N.

T. 139 N.

T. 139 N.



WEST DICKINSON - DICKINSON AREA
STARK COUNTY, NORTH DAKOTA

SCALE IN THOUSANDS OF FEET

FIELD OUTLINES

INDUSTRIAL COMMISSION
STATE OF NORTH DAKOTA
Date MAY 25, 1967. Case No. 848
Introduced by Conoco
Exhibit
Identified by

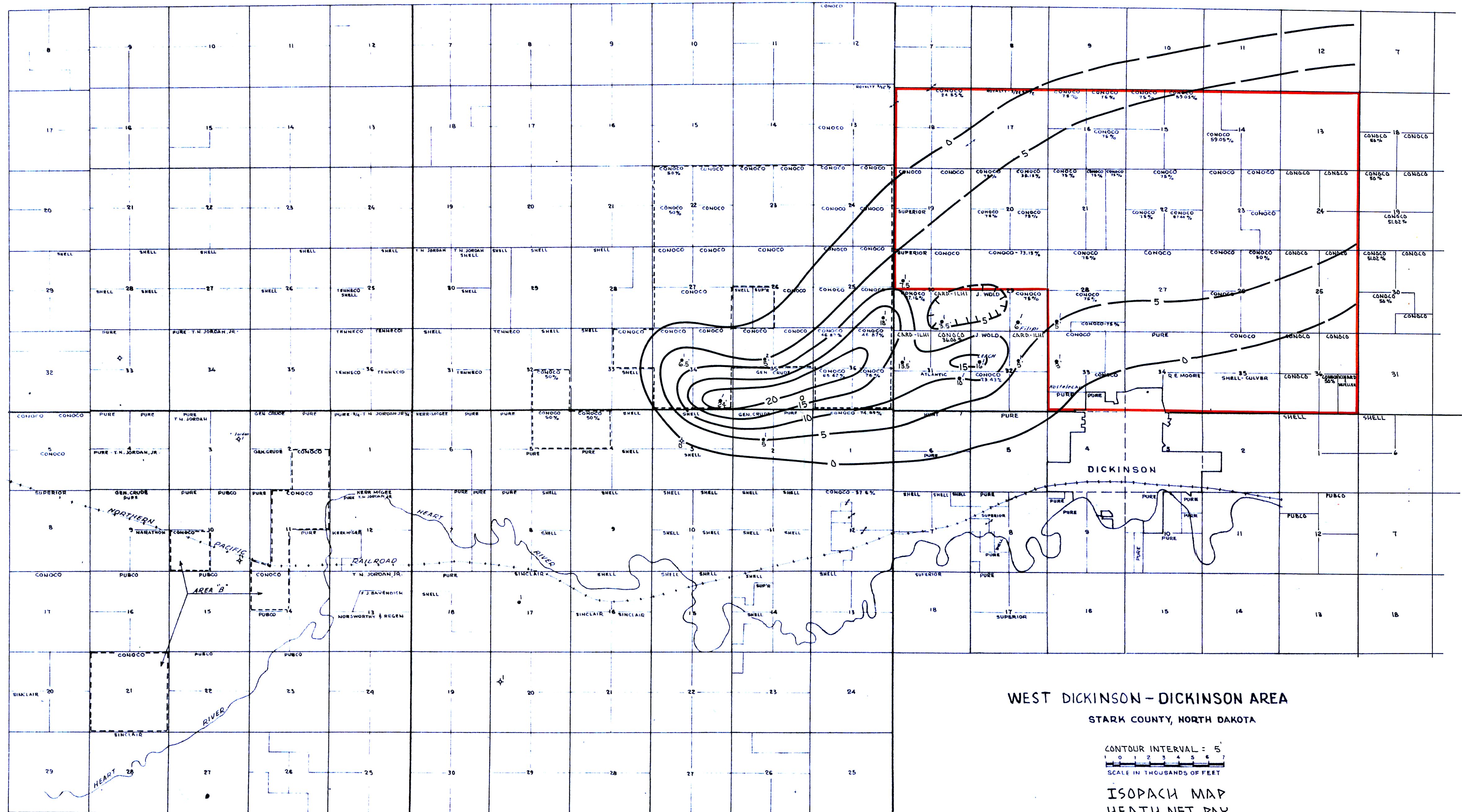
EXHIBIT 1

R. 98 W.

R. 97 W.

R. 96 W.

R. 95 W.

T. 140
N.T. 140
N.T. 139
N.T. 139
N.

WEST DICKINSON - DICKINSON AREA
STARK COUNTY, NORTH DAKOTA

CONTOUR INTERVAL = 5'
SCALE IN THOUSANDS OF FEET

ISOPACH MAP
HEATH NET PAY

INDUSTRIAL COMMISSION
STATE OF NORTH DAKOTA
Date: MAY 25, 1967 Case No. 848
Introduced by: Conoco
Exhibit: 3
Identified by: [Signature]

EXHIBIT No. 4

ELECTRIC LOGS ACROSS HEATH INTERVAL

NET PAY SHOWN

INDUSTRIAL COMMISSION
STATE OF NORTH DAKOTA
Date MAY 25 1967 Case No. 848
Introduced by Caroco
Exhibit 4
Identified by at

CARDINAL PETROLEUM COMPANY

COMPANY JACK HILL

WELL 7-32 FILIPPI, ETAL

FIELD DICKINSON

COUNTY STARK

STATE NORTH DAKOTA

LOCATION: SW NE

Other Services

A/L-M/L

SEC 32 TWP 140N RGE 96W

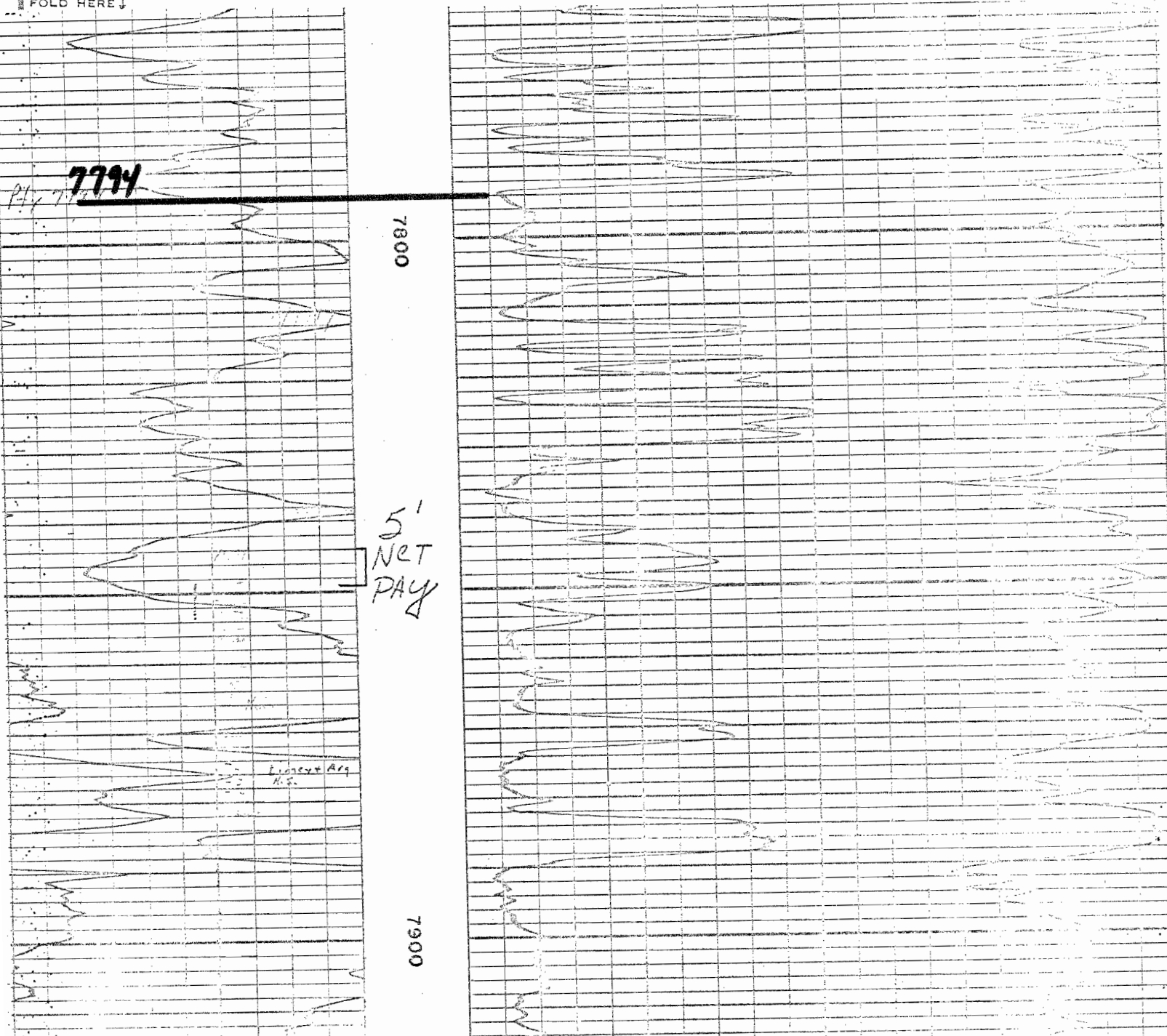
G.L. 2516

Elevations: KB 2526

K.B. 10 Fl. Above Permanent Datum

DF 2516

Date	3-3-67			
Well No.	ONE			
Depth—Diller	8030			
Depth—Logger	3028			
Bottom Logged Interval	8020			
Top Logged Interval	SURFACE			
Casing—Diller	85/8 @ 622	@		@
Casing—Logger	618			
Bit Size	7 7/8			
Type Fluid in Hole	GYP MUD			
Density and Viscosity	9.6 63			
pH and Fluid Loss	7.5 10.0cc		cc	cc
Source of Sample	FLOWLINE			
Rm @ Meas. Temp.	1.8 @ 66 °F	@		@
Rmf @ Meas. Temp.	1.3 @ 64 °F	@		@
Rmc @ Meas. Temp.	2.5 @ 60 °F	@		@
Rmc @ Surf and Rmc MEASURED	0.60 @ 198 °F	@		@
Time Since Circ.	4 HOURS			
Max. Rec. Temp. Deg. F.	198 °F			
Equip. No. and Location	L-4617-NEWCASTLE			
Recorded By	MC DONALD & LARSON			
Witnessed By	MR. ZAJIC			



FILE NO.

CARDINAL PETROLEUM COMPANY
COMPANY JACK HILL

WELL NO. 1 RUDL. FEDERAL LAND BANK

FIELD _____ DICKINSON _____

COUNTY STARK STATE NORTH DAKOTA

LOCATION:

C-SW-SE
660' FSL
1980' FEL

Other Services

SEC 30 TWP 140N RGE 96W

A/L-CAL, MFL

61 Elev. 2518

KB

KB	2528
DF	.
GL	2518

1-1-67

ONE

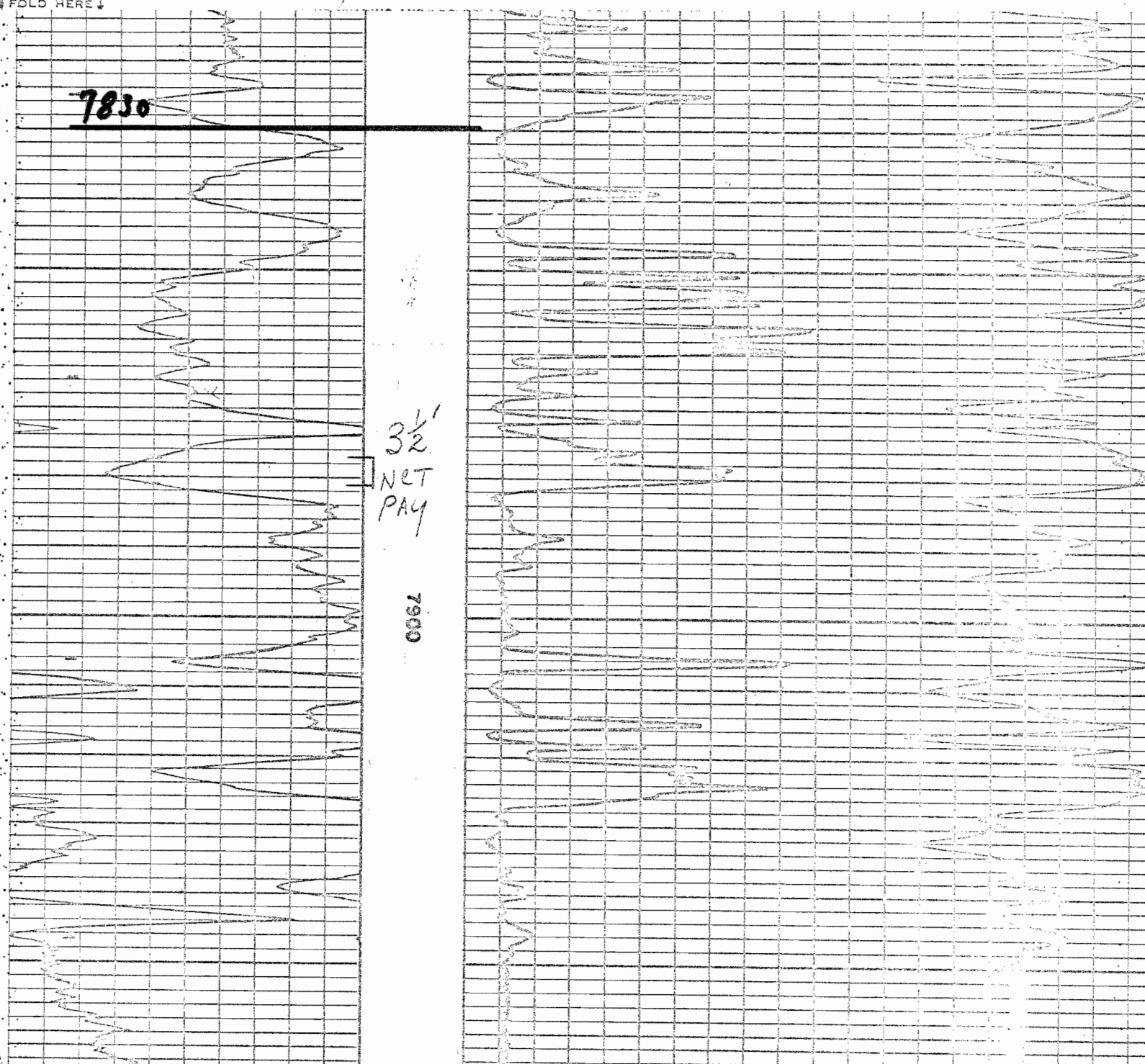
SURFACE

85/8@

7718

GYP-011.

6,5	8,4 cc
-----	--------



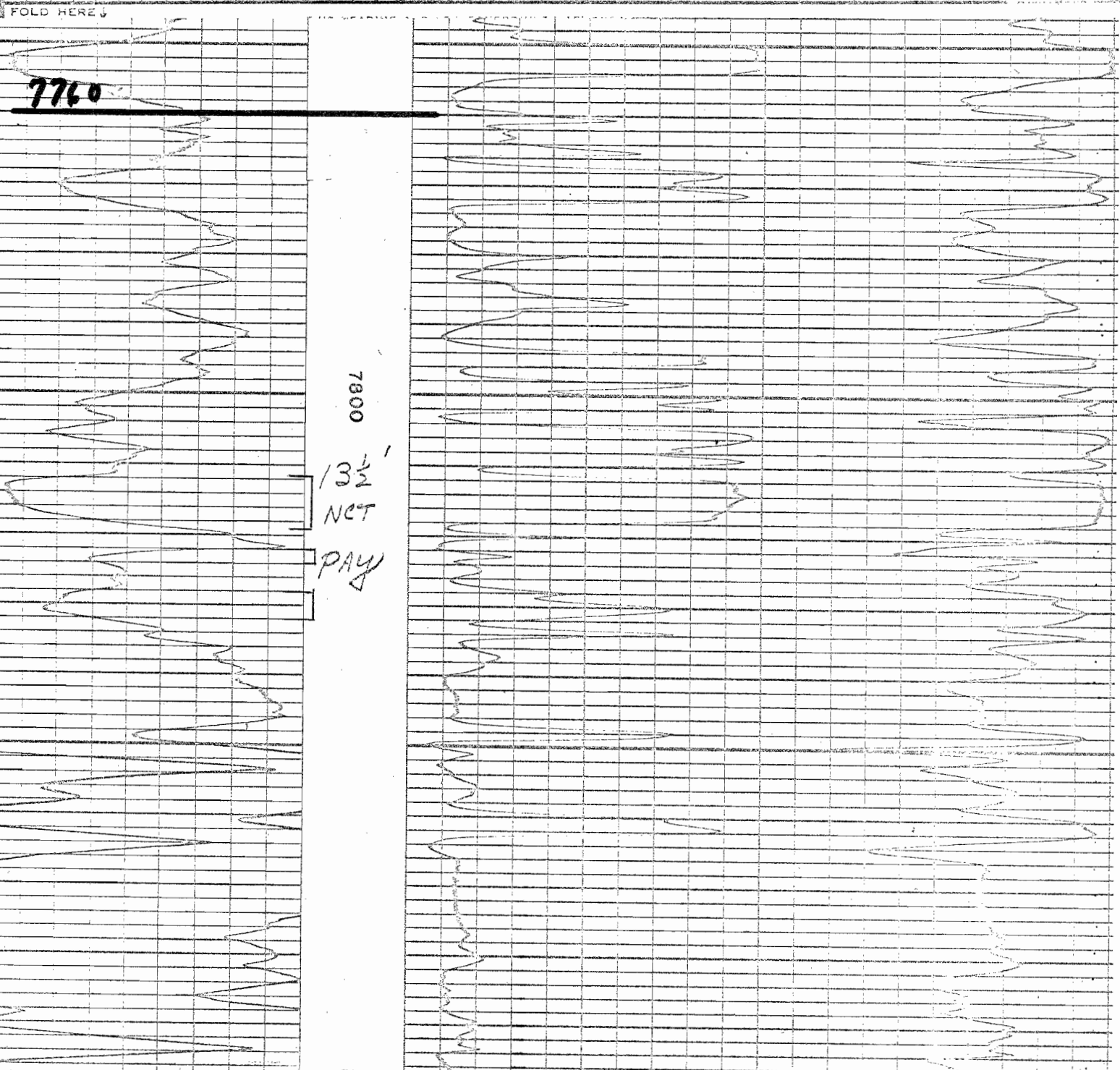
3 1/2
NET
PAY

730

FOLD HERE ↓

W. A. M. P. S. *Handwritten notes*

FILE NO.	COMPANY JACK 1411			CARDINAL PETROLEUM COMPANY		
WELL	NO. 1 FRENZEL, F. L. B.					
FIELD	DICKINSON					
COUNTY	STARK			STATE NORTH DAKOTA		
LOCATION:	SW-NW			Other Services		
SEC	31	TWP	140N	RGE	96W	A/L-M/L
Permanent Datum	G. L. Elev. 2499			KB Elevations: 2509		
Log Measured from	K. B. 10 Ft. Above Permanent Datum			DF 2499		
Drilling Measured from	K. B.			CL 2499		
Date	2-10-67					
Run No.	ONE			LWH		
Depth—Driller	8020			GNE		
Depth—Logger	8017			RECOR		
Bottom logged Interval	8009					
Top logged Interval	SURFACE					
Casing—Driller	85/8 @ 613			@		
Casing—Logger	612					
Bit Size	7 7/8					
Type Fluid in Hole	GYP MUD					
Density and Viscosity	9.3 65					
pH and Fluid Loss	7.0 9.4 cc					
Source of Sample	FLOWLINE					
Rm @ Meas. Temp.	2.3 @ 70 °F			@ °F		
Rmf @ Meas. Temp.	1.2 @ 68 °F			@ °F		
Rmc @ Meas. Temp.	2.6 @ 71 °F			@ °F		
Source of Rmf and Rmc	MEASURED			@ °F		
Rm @ BHT	0.80 @ 197 °F			@ °F		
Time Since Circ.	3 HOURS					
Max. Rec. Temp. Deg. F.	197 °F					
Equip. No. and location	1-4617 NEWCASTLE					
Recorded By	MC DONALD & LARSON					
Witnessed By	MR. ZAJIC					





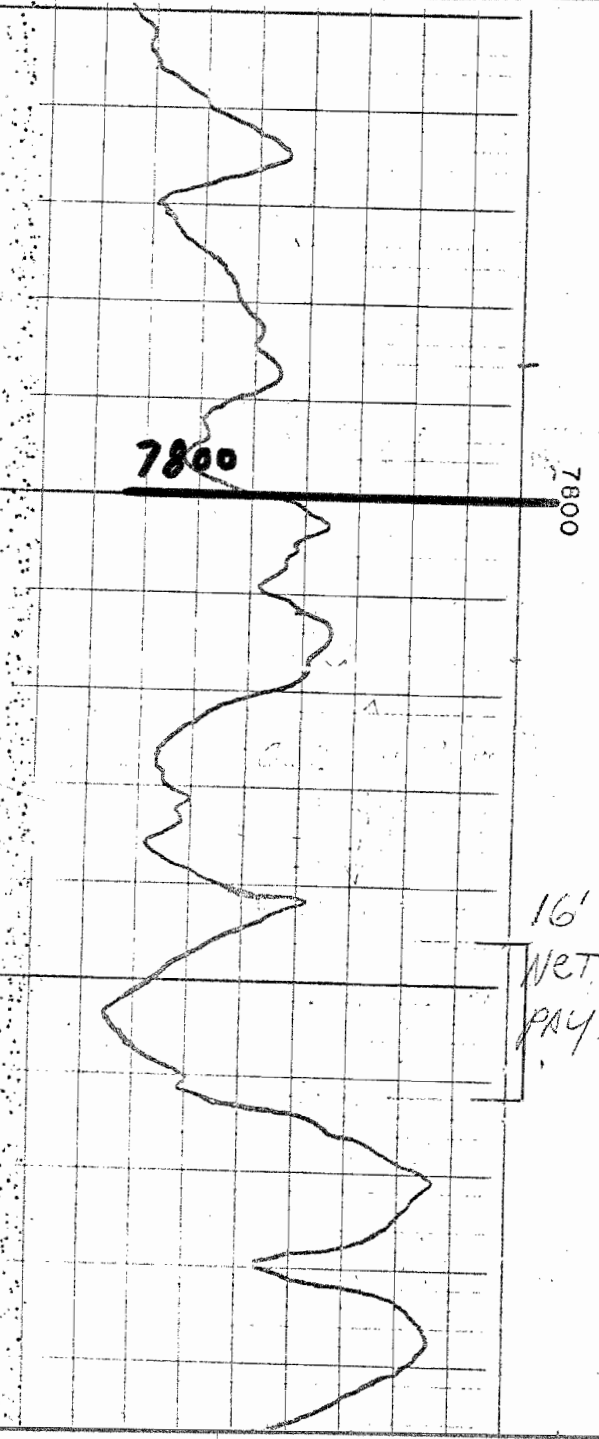
LATEROLOG
GAMMA RAY

COUNTY STARK, NORTH DAKOTA
FIELD or LOCATION SEC. 32-140N-96W
WELL KALANEK # 1
SW NW
COMPANY LEACH OIL CORP.

COMPANY LEACH OIL CORPORATION
WELL KALANEK # 1
FIELD WILDCAT
LOCATION SEC. 32-140N-96W
SW NW
COUNTY STARK
STATE NORTH DAKOTA

Location of Well
LL-GR
Well (MLL)
Special
Elevation: D.F.: 2516
K.B.: 2502
or G.L.: 2502
FILING No. 200

RUN No.	ONE
Date	8/20/57
First Reading	9099
Last Reading	0734
Feet Measured	8365
Csg. Schlum.	0734
Csg. Driller	0740
Depth Reached	9130
Bottom Driller	9100
Depth Datum	KB-14' ABOVE GL
Mud Nat.	GYP BASE
" Density	10.4
" Viscosity	60
" Resist.	52 @ 66 °F @ °F
" Res. BHT	18 @ 185 °F @ °F
" pH	- @ °F @ °F
" Wtr. Loss	5 CC 30 min. CC 30 min.
" ax. Temp. °F	185
" it Size	7 7/8"
" CGS. A0	16"
r. Rig Time	CHR
k No.	1715-GLDY
ded. By	ATWQD
	SUMMERS



[illegible]

COMPTON - 27-10-2016

[Handwritten signature]

FIELD 10/10/57

COUNTY

LOCATION	SUBJECT

STATE OF NEW YORK
IN SENATE
JANUARY 11, 1906.
REPORT
OF THE
COMMISSIONERS OF THE LAND OFFICE.
ALBANY:
J. B. LIPPINCOTT & COMPANY, PRINTERS.
1906.

Direct Services:

COUNTY...
FIELD or
LOCATION...
WELL...

COMPANY

Sec. 30 Typ. 1900 Rgs. 660

[illegible]

From

THE
OF
BY
D.F.

Glenn

101

100-443886-1

00

[illegible]

106

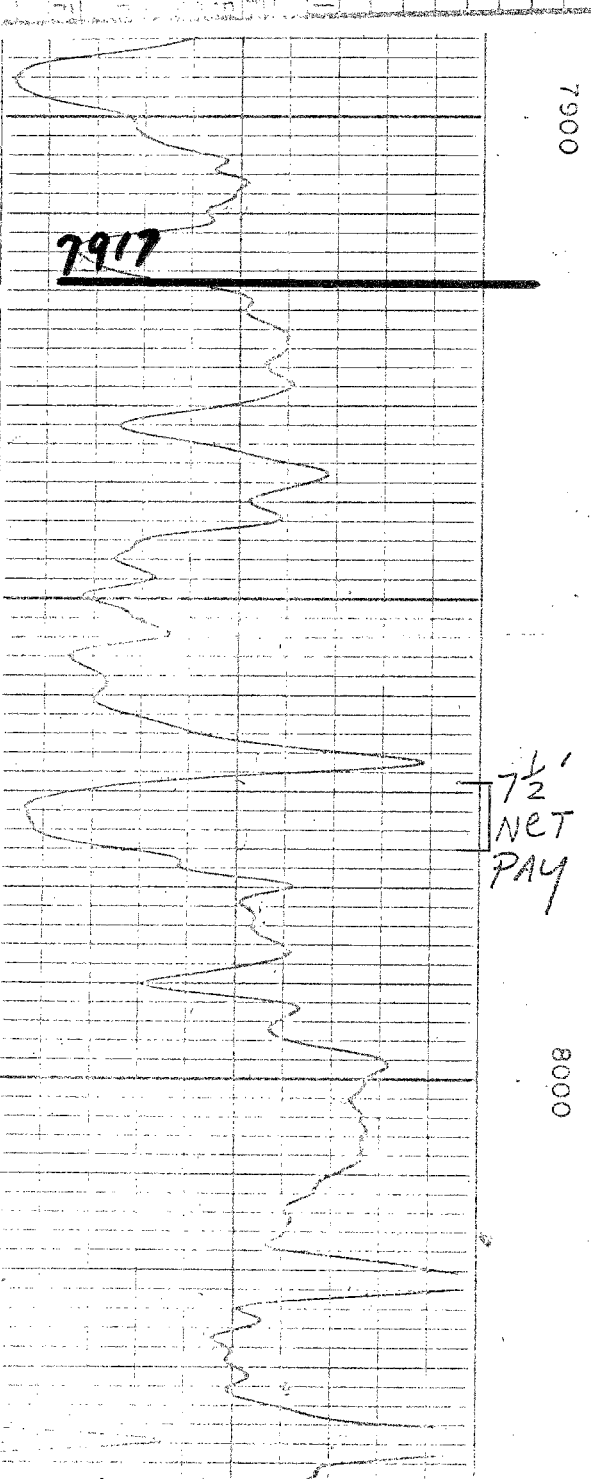
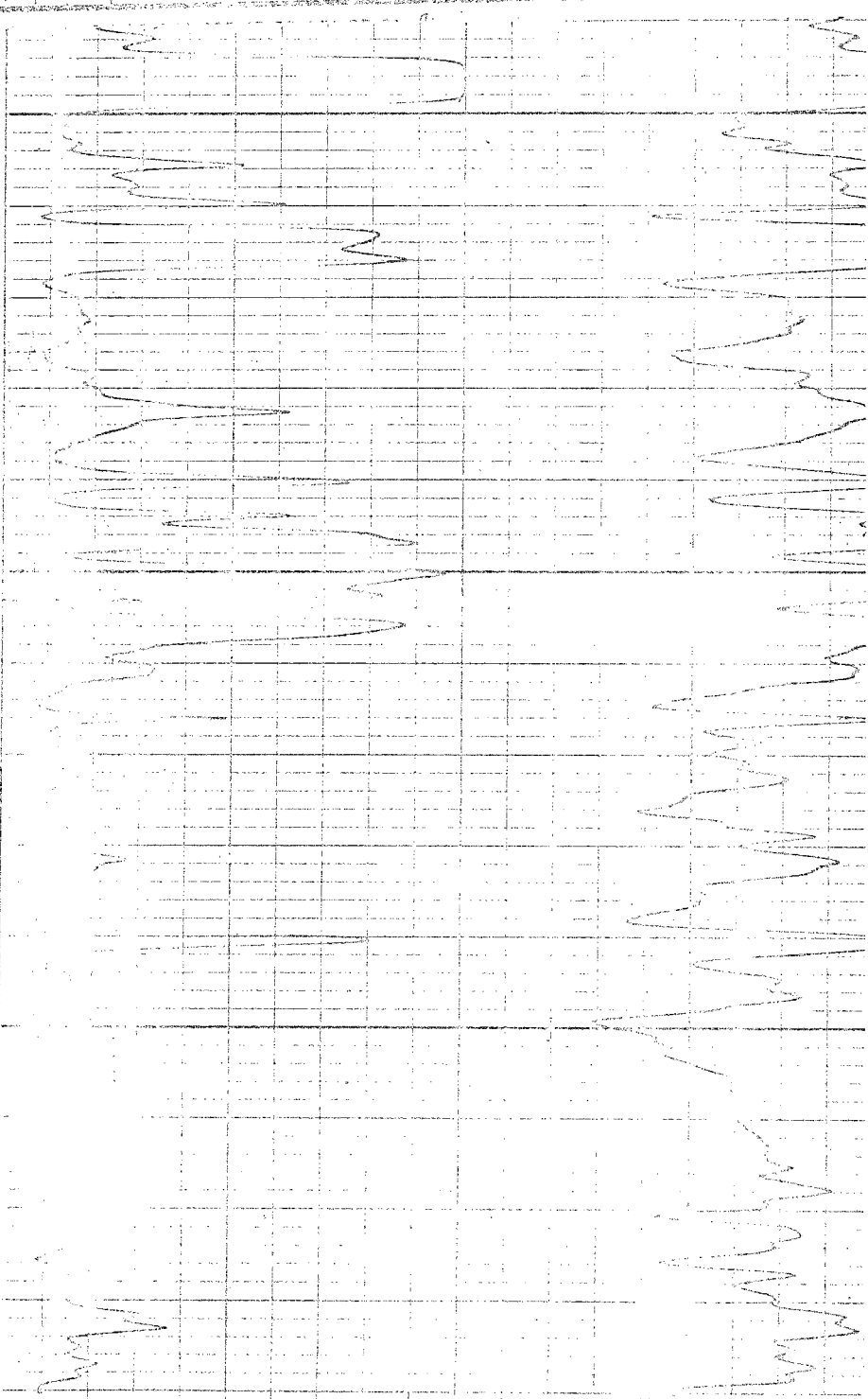
[Illegible handwritten notes]

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1000

27

Scouting



COUNTY STARK
FIELD or LOCATION WILDCAT
WELL R.L.G. #1
COMPANY SHELL OIL CO.

COMPANY SHELL OIL CO.

CONOCO-SHELL

WELL R.L.G. #1

FIELD WILDCAT

COUNTY STARK STATE NORTH DAKOTA

Location: 660' FSL - 660' FEL
SE/SE Other Services:

Sec. 34 Twp. 140N Rge. 97W NONE

Permanent Datum CHF Elev.: 2464

Log Measured From KB 11 Ft. Above Perm. Datum
Drilling Measured From KB Elev.: 2475
D.F. ---
CHF 2464

Date 11-10-66

Run No. ONE

Type Log GRN

Depth—Driller 9100

Depth—logger 9105

Bottom logged interval 9104

Top logged interval SURFACE

Type fluid in hole SALT WATER

Salinity, PPM Cl. SATURATED

Density ---

Level Full

Max rec. temp, deg F. ---

Operating rig time 3 HOURS

Recorded by NICHOLS

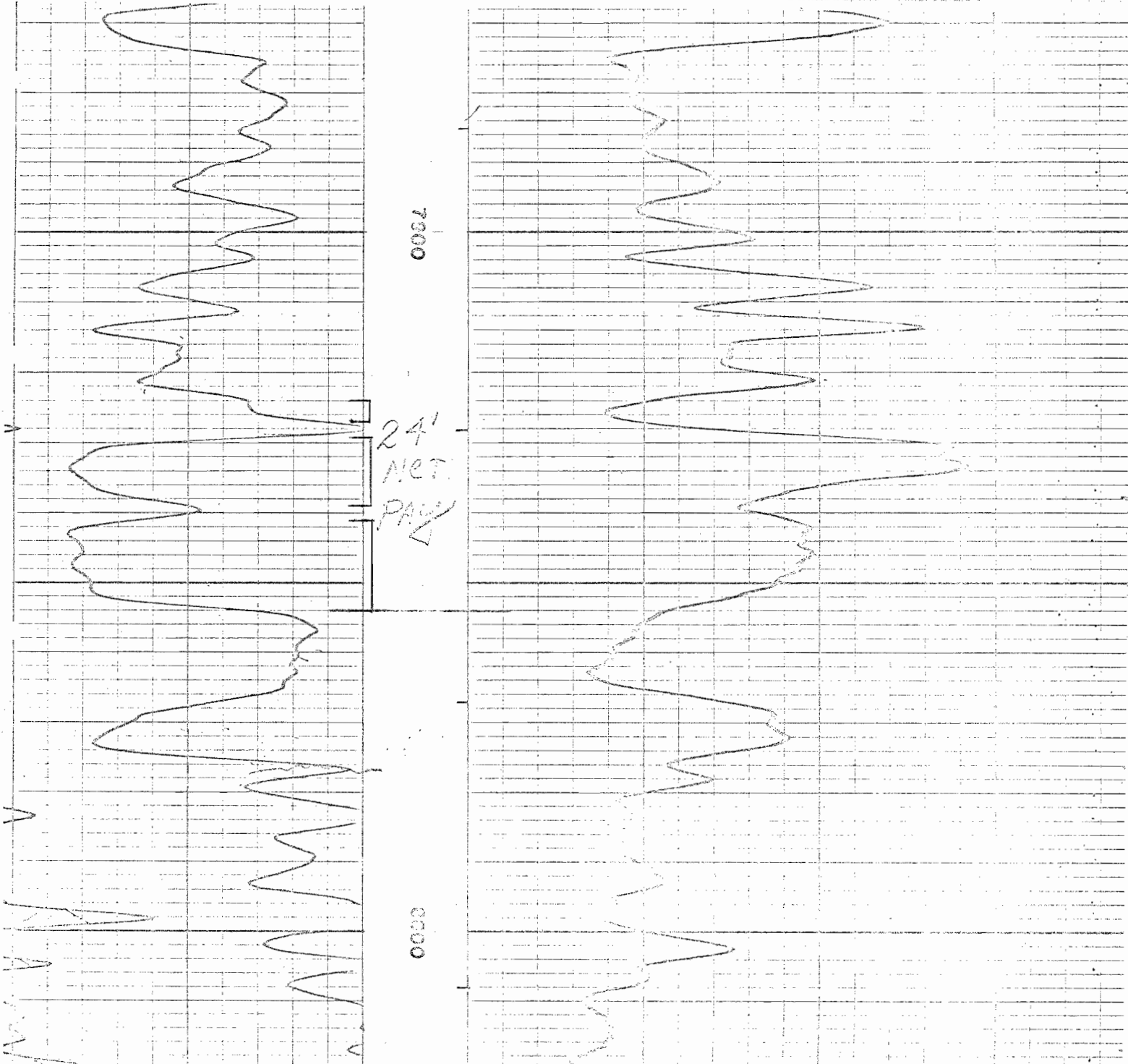
Witnessed by MR. NAGODE

BORE-HOLE RECORD

CASING RECORD

Run	Log	From	To	Size	Wgt.	From	To
ONE	7-7/8	998	TD 9110	9-5/8	17	SURF	998
				5-1/2	17	SURF	8200
				5-1/2	17		9110

7865



COUNTY STARK, N.D.
 FIELD or LOCATION WEST DICKINSON
 WELL ZANDER ANDERSON #1
 COMPANY CONTINENTAL OIL CO.

COMPANY CONTINENTAL OIL COMPANY
 WELL ZANDER ANDERSON #1
 FIELD WEST DICKINSON
 COUNTY STARK STATE NORTH DAKOTA
 LOCATION SE/NW
1980'S/N - 1980'E/W
 Sec. 34 Twp. 140N Rge. 97W
 Other Services: BSL-C

Permanent Datum: GL Elev. 2472
 Log Measured From KB 12 Ft. Above Perm. Datum
 Drilling Measured From KB

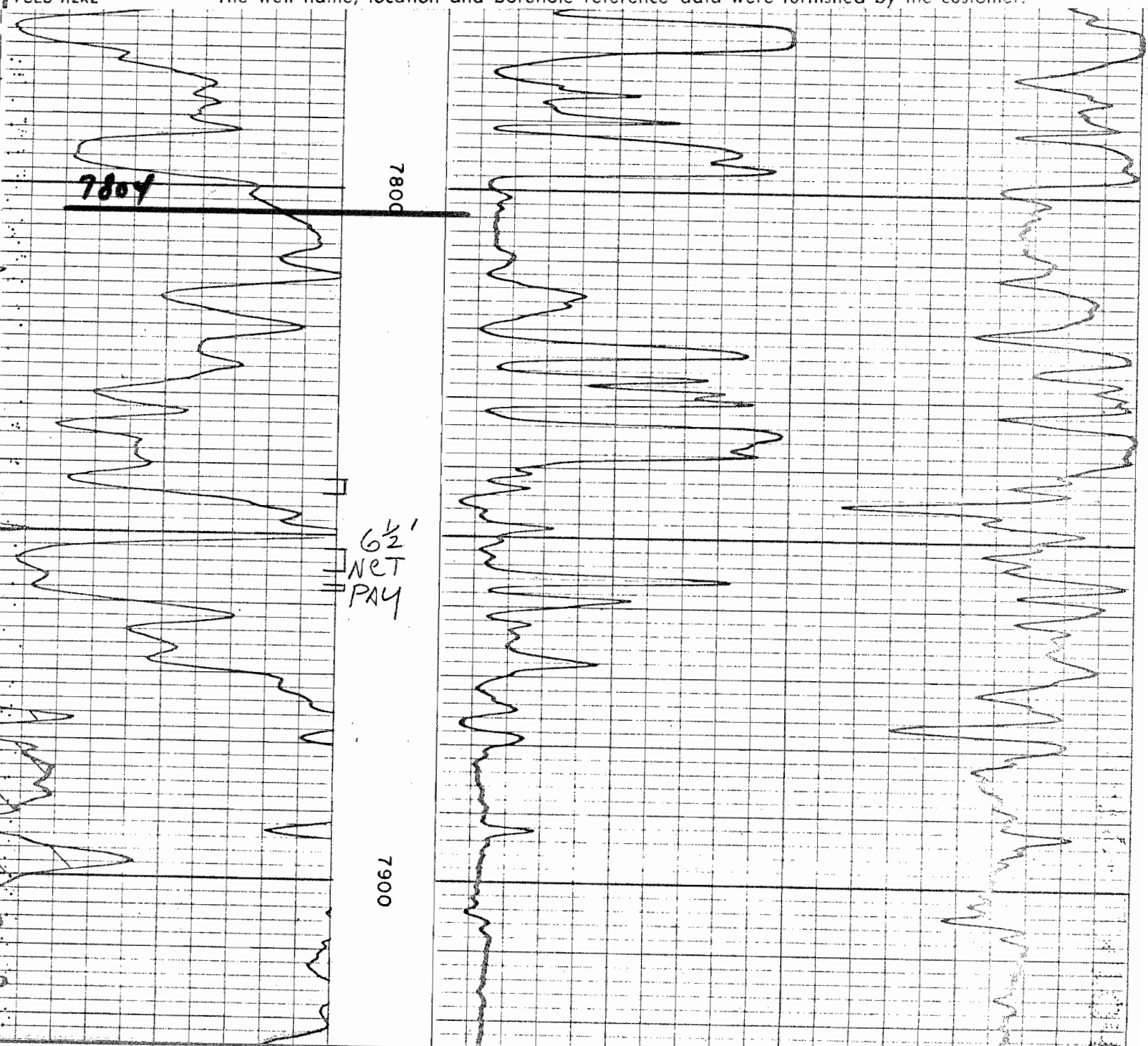
Elev.: K.B. 2484
 D.F. ---
 G.L. 2472

Date 3-13-67
 Run No. ONE
 Depth-Driller 7965
 Depth-Logger 7963
 Btm. Log Interval 7958
 Top Log Interval 614
 Casing-Driller 8-5/8" 610
 Casing-Logger 614
 Bit Size 7-7/8"
 Type Fluid in Hole SALT-SAT.

*PLA
 FRC
 GNE
 USGS (1)
 State (2)
 REW ✓
 EAA (a)
 Shell (1)*

Dens. Visc. 10.5 42
 pH Fluid Loss 6.3 10.2 ml
 Source of Sample FLOWLINE
 R_m Meas. Temp. .097 60 °F
 R_m Meas. Temp. .051 63 °F
 R_{mc} Meas. Temp. -- -- °F
 Source: R_m M R_{mc} --
 R_m BHT .034 176 °F
 Time Since Circ. 3 HOURS
 Max. Rec. Temp. 176 °F
 Equip. Location 4552 WLSTN.
 Recorded By NICHOLS - SCANNELL
 Witnessed By MR. MAIO - MR. WALKER - MR. BREWER

The well name, location and borehole reference data were furnished by the customer.



COUNTY STARK, N.D.
FIELD or LOCATION WEST DICKINSON
WELL ZAHRADNIK #2
COMPANY CONTINENTAL OIL CO

COMPANY CONTINENTAL OIL COMPANY

WELL ZAHRADNIK #2

FIELD WEST DICKINSON

COUNTY STARK STATE NORTH DAKOTA

LOCATION CENTER/SE/NW

Other Services:

Sec. 35 Twp. 140N Rge. 97W

BSL

Permanent Datum: GL, Elev. 2518

Elev. K.B. 2530

Log Measured From KB, 12 Ft. Above Perm. Datum

D.F. 2518

Drilling Measured From KB

G.L. 2518

Date 2-21-67

RLH

Run No. ONE

FRG

Depth—Driller 9116

GNE

Depth—Logger 9122

USGS

Btm. Log Interval 9117

State of OK

Top Log Interval 597

REW

Casing—Driller 8-5/8" 600

ERR

Casing—Logger 597

ERR

Bit Size 7-7/8"

Type Fluid in Hole SALT SAT. 320,000 PPM

STARCH 10% OIL

Dens. Visc. 10.4 44

ml

pH Fluid Loss 6.3 9.4 ml

ml

Source of Sample TANK

R_m Meas. Temp. .0814" 70 °F

°F

R_{nd} Meas. Temp. .0506" 70 °F

°F

R_{mc} Meas. Temp. --- " °F

°F

Source: R_{nd} R_{mc} M ---

°F

R_m " BHT .033 " 181 °F

°F

Time Since Circ. 4 HOURS

°F

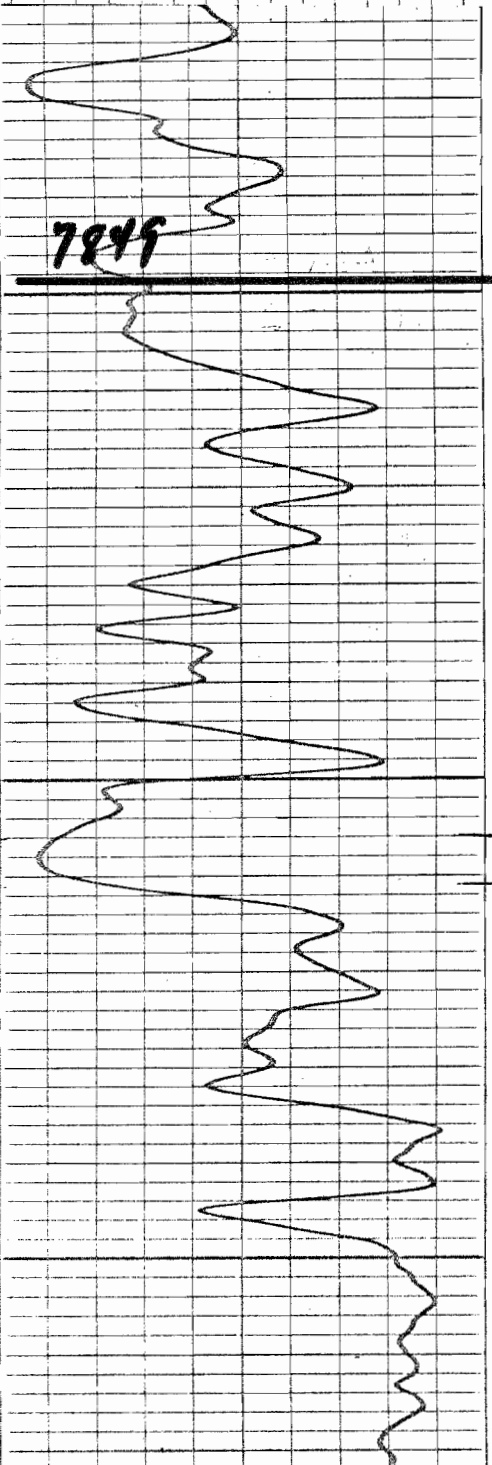
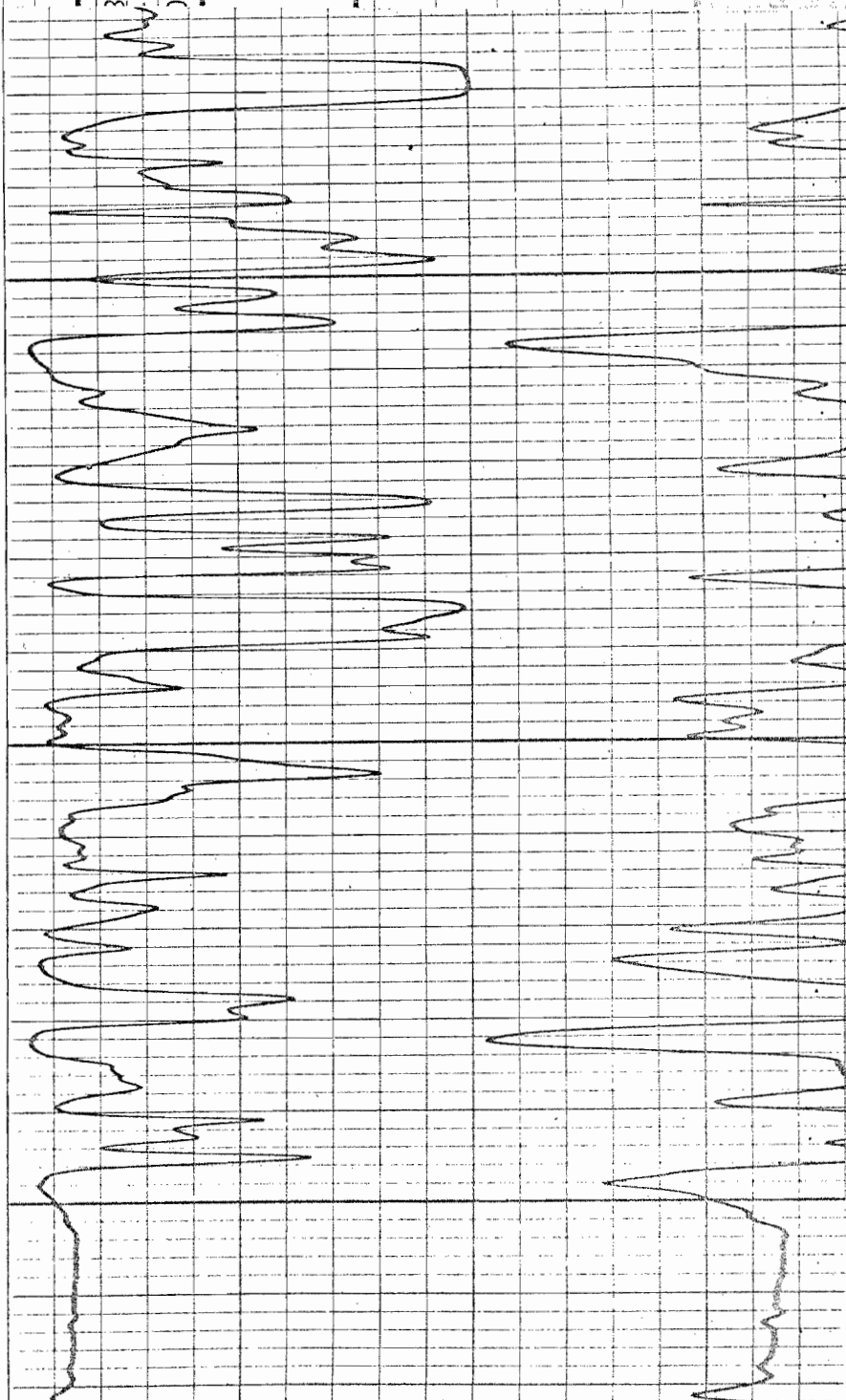
Max. Rec. Temp. 181

°F

Equip. Location 3717 WLSTN.

Recorded By NICHOLS-SCANNELL

Witnessed By MR. REAVES-MR. WALKER-MR. PATERSHALL



7300
NET
PAY

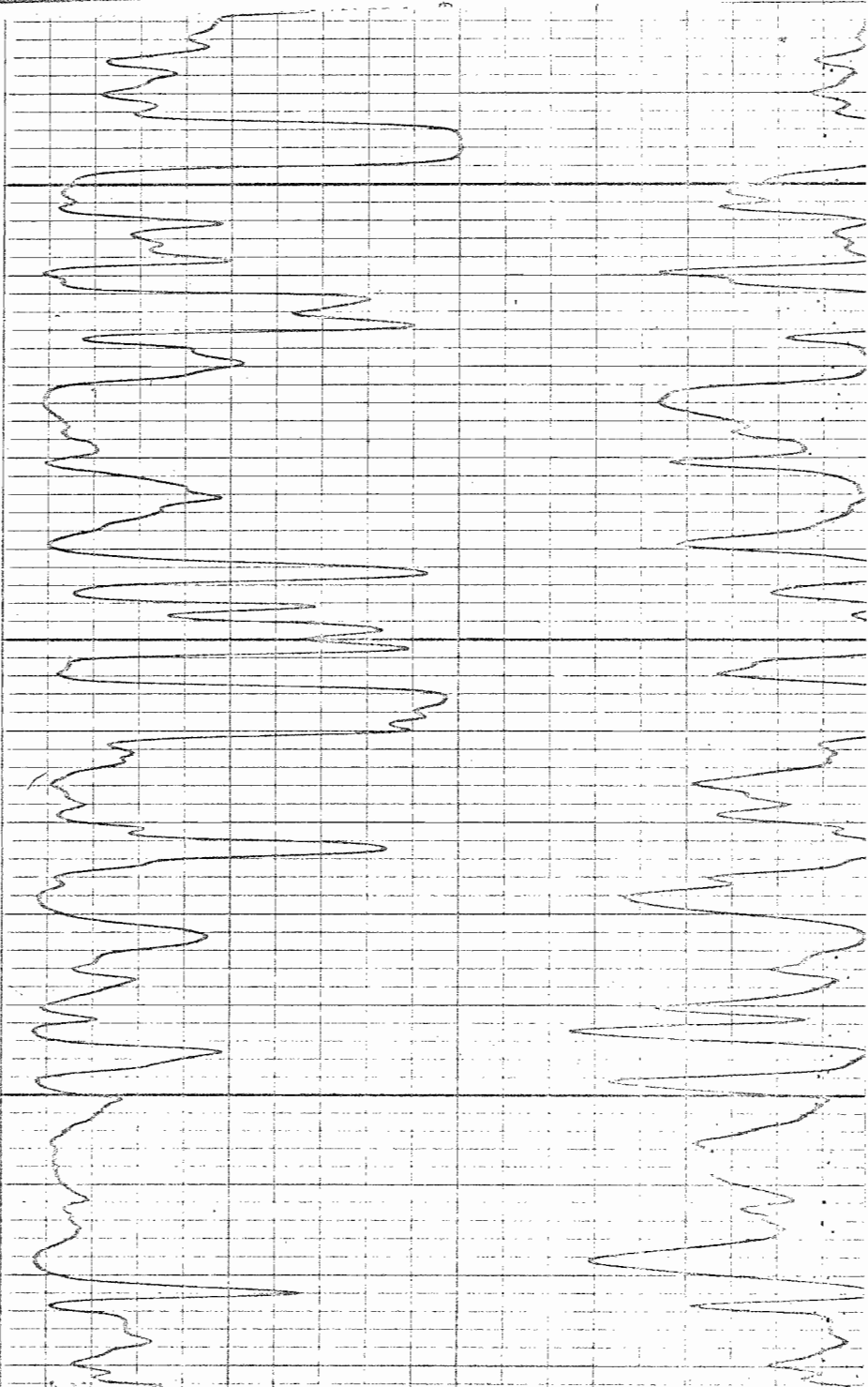
7845

STARK, N. DAK.

COUNTY STARK, N. DAK.
FIELD or LOCATION HEART RIVER
WELL STEFFAN #22-2-2
COMPANY SHELL OIL COMPANY

COMPANY SHELL OIL COMPANY
WELL STEFFAN #22-2-2
FIELD HEART RIVER FIELD
COUNTY STARK
LOCATION 1980' FNL
1980' FWL
SE/NW
Sec. 2 Twp. 139N Rge. 97W
STATE NORTH DAKOTA
Elev. 2452
Other Services:
IES, BSGR/C-1
MLL, FDC, CAL
Elev. K.B. 2464
D.F. 2452
C.I. 2452

Date	2-18-67	3-2-67	
Run No.	ONE	TWO	
Depth—Driller	7947	8890	
Depth—Logger	7913	8886	
Btm. Log Interval	7908	8881	
Top Log Interval	1034	7908	
Casing—Driller	9-5/8" 1034	9-5/8" 1034	
Casing—Logger	1034	1034	
Bit Size	8-3/4"	8-3/4"	
Type Fluid in Hole	SALT BASE	SALT BASE	
Dens.	10.1	48	10.1
Visc.	6.3	9.2 ml	6.3
PH	Fluid Loss	6.3	8.2 ml
Source of Sample	FLOWLINE	CIRC.	
R _m % Meas. Temp.	.079 @ 70 °F	.093 @ 60 °F	
R _{ut} % Meas. Temp.	.051 @ 70 °F	.048 @ 69 °F	
R _{mc} % Meas. Temp.	.099 @ 70 °F	.12 @ 168 °F	
Source: R _{ut} R _{mc}	M M	M C	
R _m % BHT	.030 @ 193 °F	.033 @ 168 °F	
Time Since Circ.	6 HOURS	3 HOURS	
Max. Rec. Temp.	193	168	
Equip. Location	3717 WLSTN	3717 WLSTN	
Recorded By	PAMPELL	BEVAN	
Witnessed By	MR. OHLICH	MR. OHLICH	



7700

7800

5' NET PAY

7722

EXHIBIT No. 5

Net Pay & Core Data Summary

INDUSTRIAL COMMISSION
STATE OF NORTH DAKOTA
Date MAY 25 1967 Case No. 848
Introduced by Leasco
Exhibit 5
Identified by [Signature]

CORE DESCRIPTION ACROSS PAY INTERVAL
Conoco-Kostelecky #1
SWNW 33-140N-96W

- 7810-7811 As above with streaks limestone, light tan, cryptocrystalline, hard.
- 7811-7812 As above, more limestone, light tan, cryptocrystalline, dense.
- 7812-7813 Conglomerate, shale, green, clayey, shale, red, limey, and inclusions limestone, light grey, microcrystalline.
- 7813-7814 Sandstone, dark brown, brown, fine-medium, friable, some firm siliceous, limey inclusions, poor-fair sorted, fair porosity, 98% stained with brown oil.
- 7814-7815 Sandstone, as above with thin streaks sandstone, red, fine-medium, clay matrix, tite.
- 7815-7816 Sandstone as 7813-7814 above.
- 7816-7817 Sandstone as above, stained as above; interbedded with 1/4" beds, sandstone, light green, white, fine-medium grained, clay matrix, poor porosity, some spotty oil, bleeding.
- 7817-7818 Sandstone, light green, as above, spotty brown oil staining and spotty bleeding.
- 7818-7819 Limestone, light green-grey, dark red mottled, microcrystalline, slight argillaceous, slight fossiliferous, dense.
- 7819-7820 Shale, dark red-brown, slightly calcareous, blocky, slickensided.

DICKINSON NET PAY & CORE DATA SUMMARY (INCLUDES WEST DICKINSON)

WELL NO.	LOG DEPTH	ZONE, TOTAL NET PAY	K	Ø
CONOCO FILIPPI #1	NO PAY	"A" (0)		
	7872-73	"B" (6')	52.0	20.5
	7873-74	"	1.6	11.2
	7874-75	"	8.4	8.2
	7875-76	"	LOST	
	7876-77	"	LOST	
	7877-78	"	LOST	
	NO PAY	"C" (0)		
CONOCO KOSTRE- ECKY #1	NO PAY	"A" (0)		
	7813-14	"B" (3')	220.0	14.7
	7814-15	"	191.0	15.3
	7815-16	"	58.0	12.9
	NO PAY	"C" (0)		
CONOCO KUDRIN #1	NO PAY	"A" (0)		
	7832-33	"B" (5')	UNCONSOL, BUT RECOVERED	
	7833-34	"	"	"
	7834-35	"	"	"
	7835-36	"	20.0	9.5
	7836-37	"	15.0	7.0
	NO PAY	"C" (0)		

Core No.	Log Depth	Zone, TOTAL NCT pay	K	φ
CARDINAL FLIP #1	NO PAY	"A" (0)		
	7944-45	"B" (5')	349.0	17.9
	7945-46	"	73.0	14.8
	7946-47	"	152.0	16.6
	7947-48	"	27.0	13.4
	7948-49	"	1.3	10.4
	NO PAY	"C" (0)		
CARDINAL RIDGE #1	NO PAY	"A" (0)		
	7877½-78	"B" (3½')	82.0	13.9
	7878-79	"	125.0	12.9
	7879-80	"	74.0	13.5
	7880-81	"	21.0	14.1
	NO PAY	"C" (0)		
CARDINAL FRENZELLE #1	7811½-12	"A" (3½')	958.0	15.9
	7812-13	"	417.0	14.9
	7813-14	"	153.0	13.0
	7814-15	"	26.0	10.0
	7815-16	"	790.0	21.5
	7816-17	"	364.0	15.9
	7817-18	"	157.0	15.2
	7818-19	"	602.0	16.3
	7822-23	"B" (6')	1.1	12.6
	7823-24		1.3	11.1
	7828-29		4.2	14.0
	7829-30		32.0	13.7
	7830-31		37.0	12.1
	7831-32		8.9	9.8
	NO PAY	"C" (0)		

WELL NO.	LOG DEFTS	ZONE, TOTAL NET PAY	K	Φ
CONOCO ZAKHONIK #1	7924-25	"A" (3')	5.2	13.4
	7925-26		74.0	11.1
	7926-27		47.0	12.3
	7929-30	"B" (8')	113.0	13.9
	7930-31	"	426.0	17.5
	7931-32	"	21.0	12.0
	7934-35	"	14.0	9.8
	7935-36	"	95.0	11.7
	7936-37	"	444.0	12.0
	7937-38	"	869.0	13.9
	7938-39	"	112.0	14.0
	7941-42	"C" (13')	LOST	
	7942-43	"	LOST	
	7943-44	"	LOST	
	7944-45	"	LOST	
	7945-46	"	LOST	
	7946-47	"	545.0	19.1
	7947-48	"	157.0	17.1
	7948-49	"	153.0	15.2
	7949-50	"	74.0	14.0
	7950-51	"	4.0	13.4
	7951-52	"	11.1	16.6
	7952-53	"	7.0	15.8
	7953-54	"	8.8	14.6

CONOCO ZAKHONIK #2	NO PAY	"A" (0)		
	7906-07	"B" (5')	4.6	12.6
	7907-08	"	173.0	14.7
	7908-09	"	85.0	12.8
	7909-10	"	46.0	17.7
	7910-11	"	1.6	14.6
	NO PAY	"C" (0)		

DATE, NAME, DEPTH	ZONE, TOTAL NET PAY	K	φ
2002-03 2 ANDERSON ANDERSON	7842-43 "A" (2')	7.4	15.2
	7843-44 "	15.0	17.6
	7852-53 "B" (4½')	40.0	12.6
	7853-54 "	691.0	16.7
	7854-55 "	691.0	14.9
	7855-55½ "	691.0	14.9
	7857-58 "	287.0	14.8
	NO PAY "C" (0)		
SHELL STEFAN	NO PAY "A" (0)		
41	7775-79 "B" (5')	NO CORE OR TEST	
	7781-82		
	NO PAY "C" (0)		
KIS/NIK #1	7824-29 "A" (?)	NO CORE AVAILABLE TO US	
	7834-38 "		
	7846-62 "B" (16')		
	NO PAY "C" (0)		
KADAMAS #1	7795-97 "A" (2')	NO CORE AVAILABLE TO US	
	7804-07 "B" (8')		
	7809-14		
	NO PAY "C" (0)		
TOTALS	<u>1025</u> 12	<u>16,134.50</u> 62	<u>869.3</u> 62
AVERAGES	8.5'	176 MD	14% φ

EXHIBIT NO. 6

CALCULATION OF BOTTOM HOLE PRESSURE GRADIENT AT DEPLETION 320 ACRE DEVELOPMENT

Basis: 10 BOPD at depletion and bottom hole pressure of 10 psi
at wellbore.

Darcys Law for radial flow at steady state conditions:

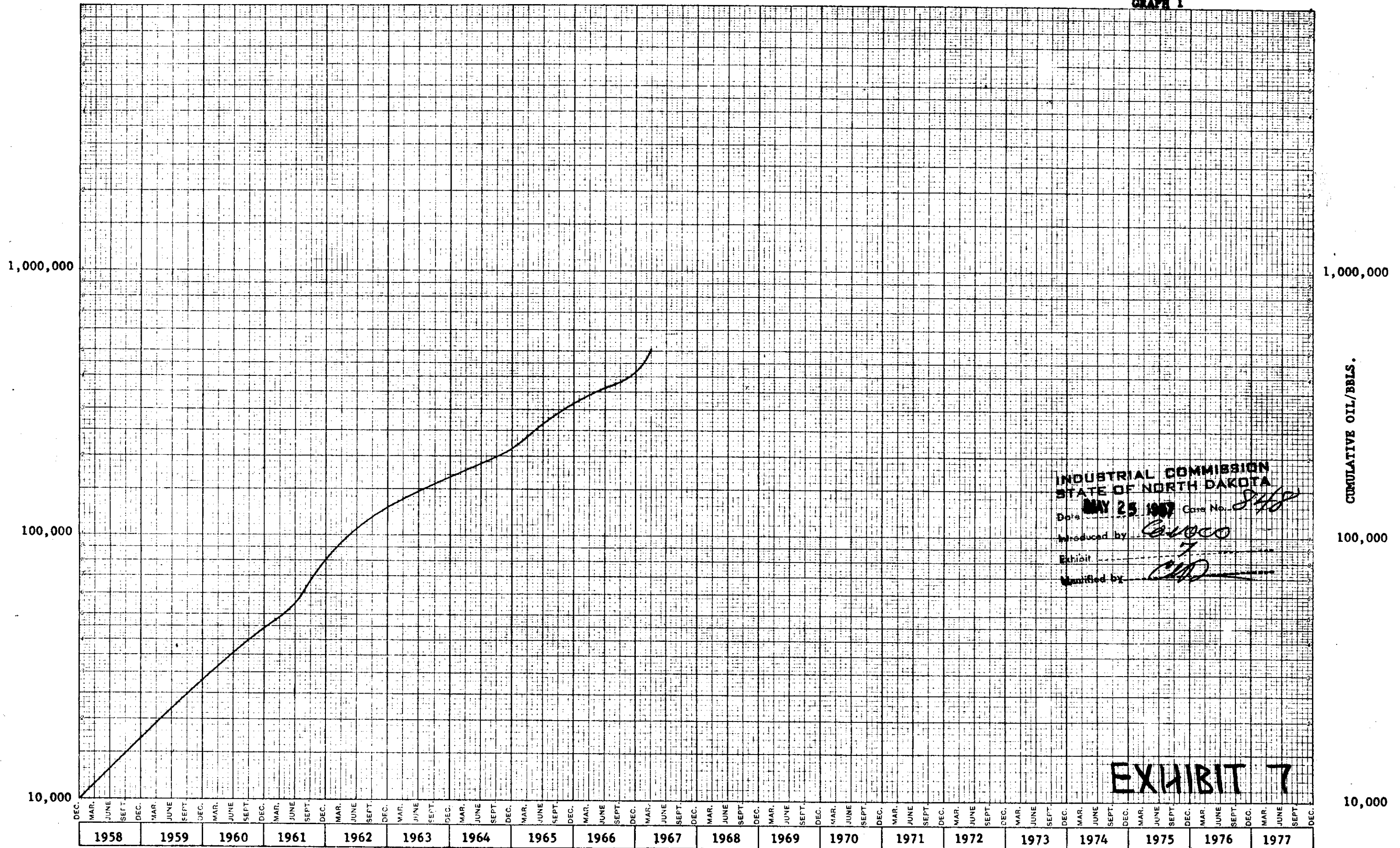
$$Q = \frac{(3.07)(H)(K)(P_e - P_w)}{(u)(B)(\log R_e/R_w)}$$

$$10 \text{ BOPD} = \frac{(3.07)(8.5')(.176 \times .25 \text{ Darcys})(P_e - 10 \text{ psi})}{(4 \text{ cp})(1)(\log 1866'/.5')}$$

$$P_e = 134 \text{ psi}$$

DICKINSON - WEST DICKINSON FIELDS
STARK COUNTY, NORTH DAKOTA
CUMULATIVE OIL PRODUCTION VS. TIME

GRAPH 1

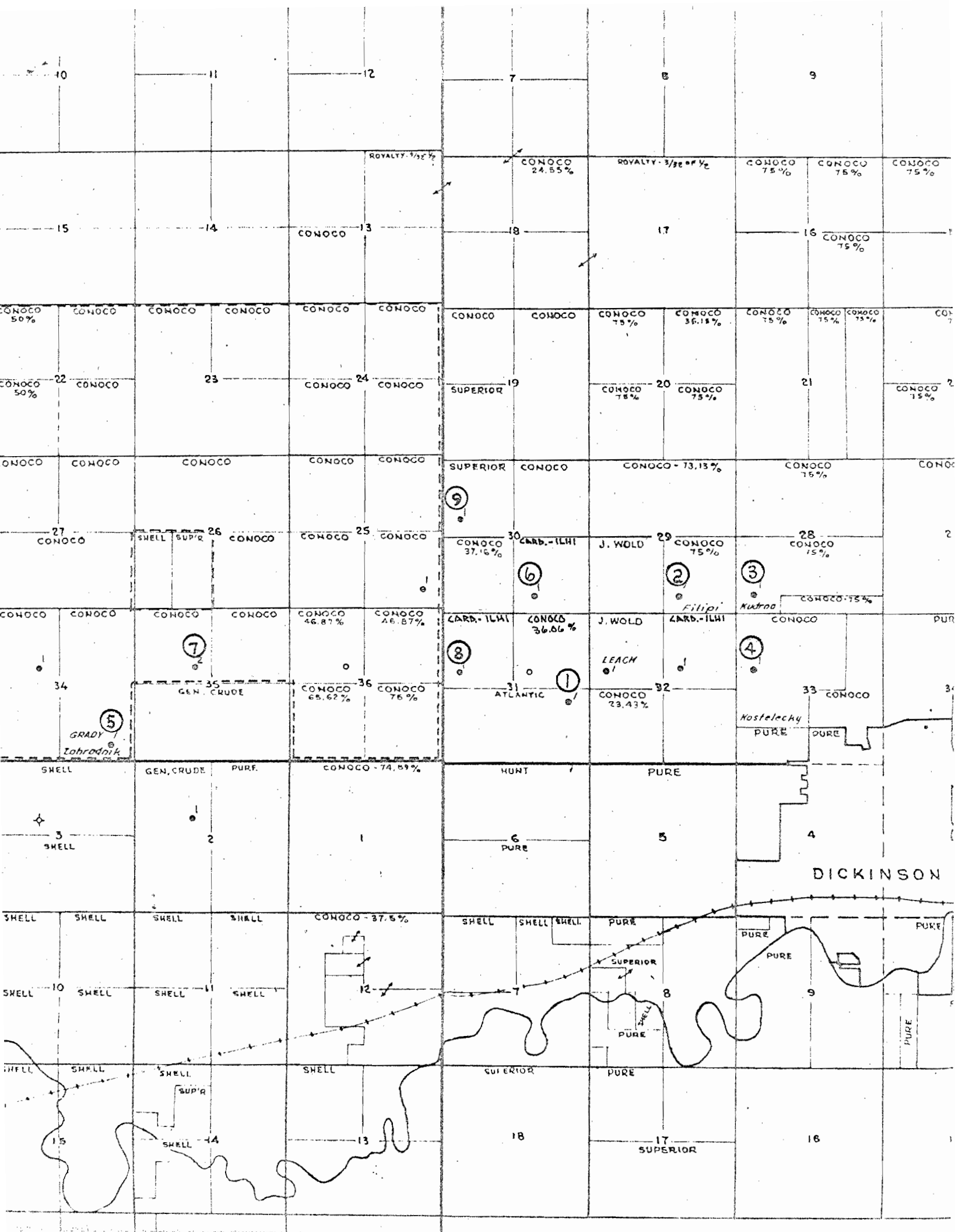


INDUSTRIAL COMMISSION
STATE OF NORTH DAKOTA
Date MAY 25 1967 Case No. 848
Introduced by GOVCO
Exhibit 7
Verified by [Signature]

EXHIBIT 7

J.K. MCKENZIE APRIL 10, 1967

NO. 41/2 TWENTY TABS B. MONTHS X 2 1/2 INCH CYCLES RATIO RULING.
CODEX BOOK COMPANY, INC. NORWOOD, MASSACHUSETTS.
PRINTED IN U. S. A.



DICKINSON - WEST DICKINSON FIELDS
STARK COUNTY, NORTH DAKOTA
BOTTOM HOLE PRESSURE (D.S. DATA)
CORRECTED FOR OIL PRODUCTION
CUMULATIVE OIL PRODUCTION

GRAPH 2

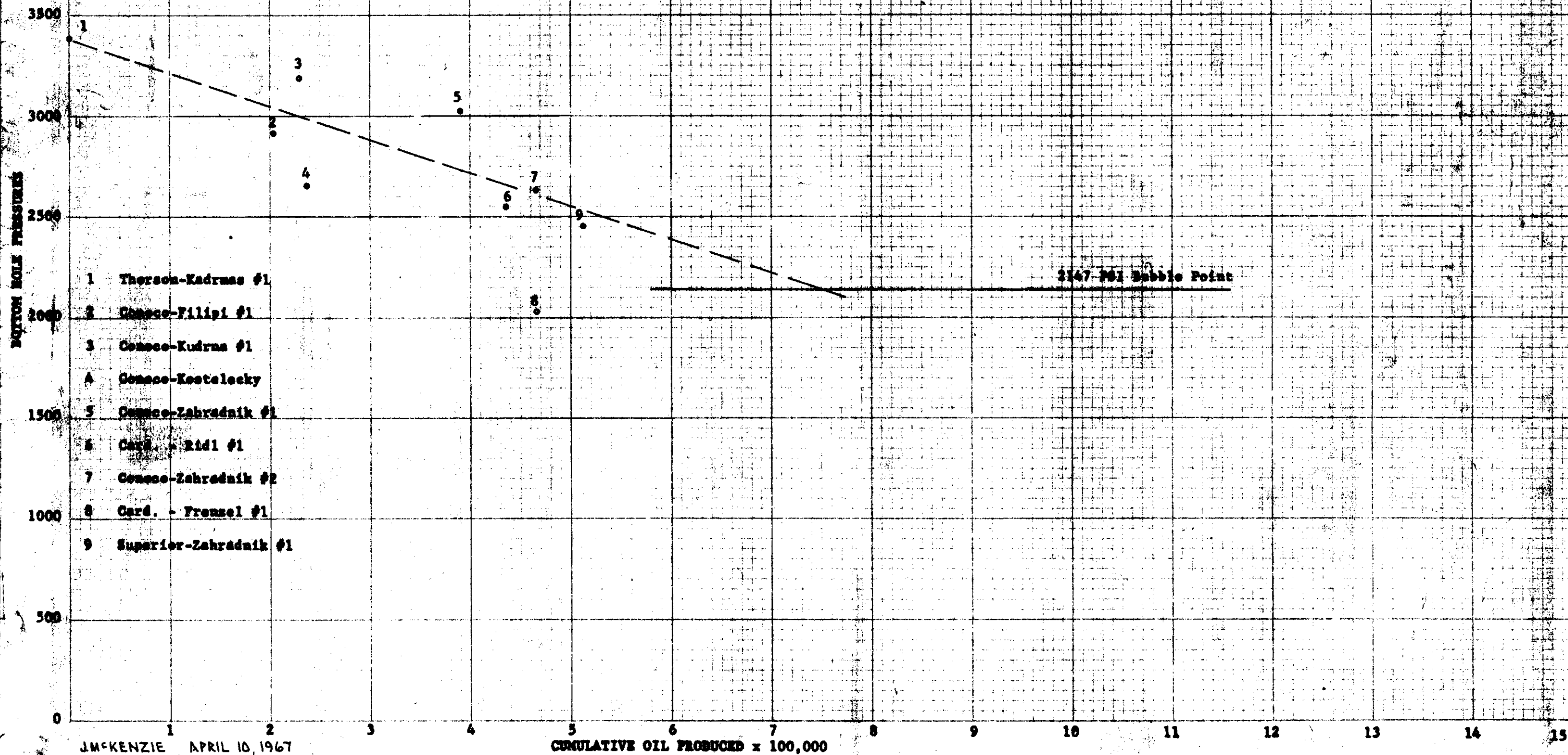
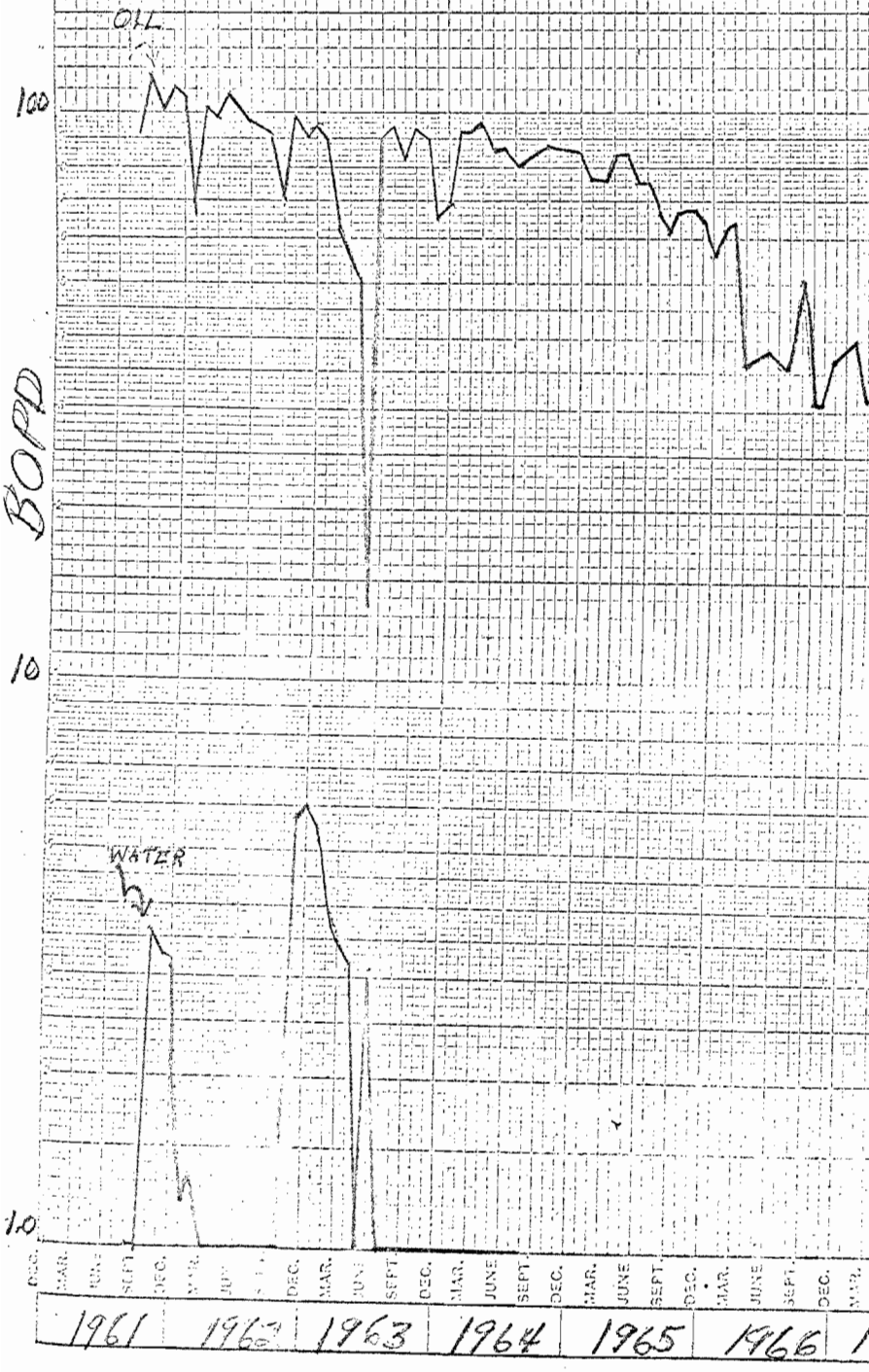


EXHIBIT No. 8

1000

KALANAK No. 1
SW-NW-Sec. 32



INDUSTRIAL COMMISSION
STATE OF NORTH DAKOTA
Date MAY 25 1967
Introduced by *COALCO*
Exhibit *848*
Identified by *848*

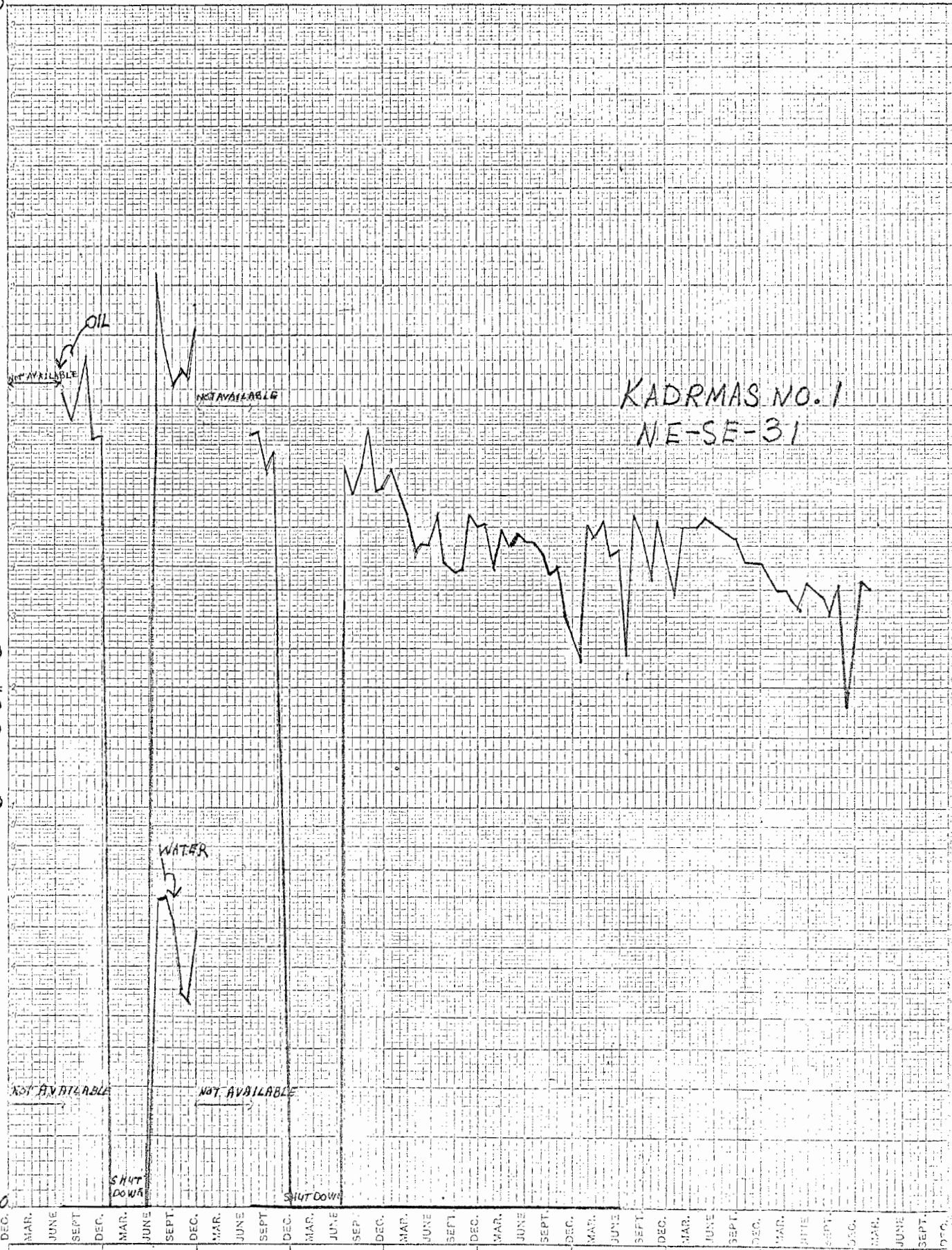
1000

BOPD

100

10

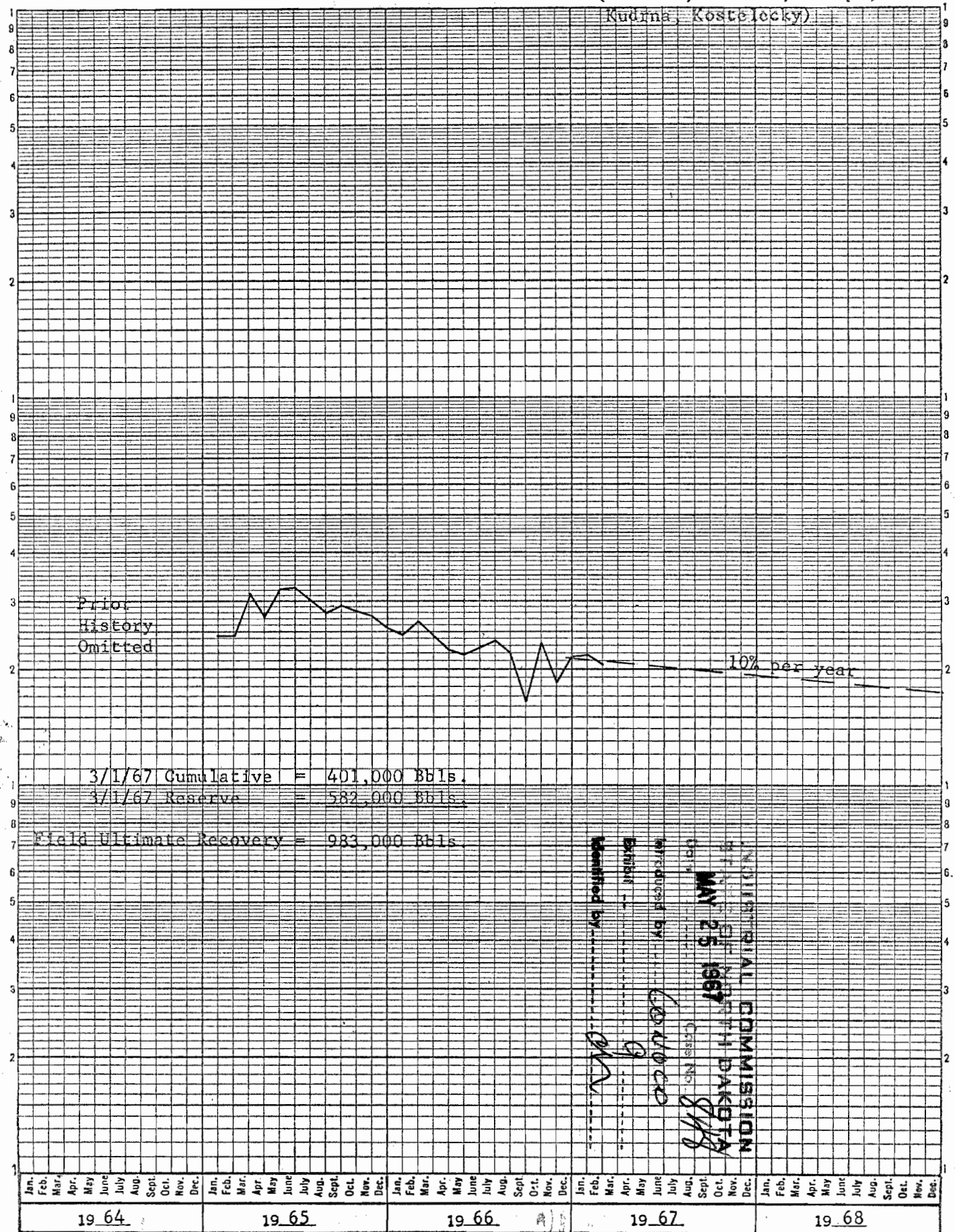
10



KADRMAS NO. 1
NE-SE-31

1958 1959 1960 1961 1962 1963 1964 1965 1966 1967

Composite Production Decline
Curve - 5 Original Wells in
Dickinson Field
(Kadmas, Kalanak, Filipi,
Kudrna, Kostelocky)



CALCULATION OF ULTIMATE
PRIMARY RECOVERY

Based on the 5 original wells in the Dickinson Field (Kadrmass, Kalanak, Filipi, Kudrna, Kostelecky). Decline curve analysis indicates ultimate recovery will be 983,000 bbls.

8 quarter sections developed (minimum drainage area) with 7.5' average net pay or 9600 acre feet.

$$\frac{983,000}{9,600} = 102 \text{ B/AF}$$

$$\phi \quad S_o \quad C \\ (7758)(.14)(.78)(.9) = 760 \text{ B/AF in place}$$

$$\text{Recovery Efficiency} = \frac{102}{760} = 13.3\%$$

EXHIBIT No. 9

CALCULATION OF RESERVES AND ECONOMICS ON 160 VS. 320 ACRE SPACING

$$\text{Recovery} = (7758) (\phi) (S_o) (C) (R.E.) (H) (\text{Area})$$

$$160 \text{ Acre Recovery} = (7758) (.14) (.78) (.9) (.133) (8.5) (160) = 138,000 \text{ bbls.}$$

Cash Flow Based on 8.5' Net Pay and 160 Acre Development:

Gross Oil Income A/Royalty	= \$2.18 x 138,000 x .875	= \$263,000
Drilling, Completion and Equipment Cost		-\$160,000
Production Taxes and Operating Costs Over 6 Yr. Life		-\$69,000
Federal Income Tax		<u>-\$13,000</u>

Undiscounted Profit	\$21,000
---------------------	----------

$$320 \text{ Acre Recovery} = (7758) (.14) (.78) (.9) (.133) (8.5) (320) = 276,000 \text{ bbls.}$$

Cash Flow Based on 8.5' Net Pay and 320 Acre Development:

Gross Oil Income A/Royalty	= \$2.18 x 276,000 x .875	= \$526,000
Drilling, Completion and Equipment Cost		-\$160,000
Production Taxes and Operating Costs Over 6 Yr. Life		-\$83,000
Federal Income Tax		<u>-\$86,000</u>

Undiscounted Profit	\$197,000
---------------------	-----------

CALCULATION OF RESERVES AND ECONOMICS FOR 5' PAY ON 160 ACRE SPACING

$$\text{Recovery} = (7758) (\phi) (S_o) (C) (R.E.) (H) (\text{Area})$$

$$160 \text{ Acre Recovery} = (7758) (.14) (.78) (.9) (.133) (5) (160) = 81,000 \text{ bbls.}$$

Gross Oil Income A/Royalty	= \$2.18 x 81,000 x .875	= \$154,000
Drilling, Completion and Equipment Cost		- \$160,000
Production Taxes and Operating Costs Over 6 Yr. Life		- \$ 62,000
Federal Income Tax (Credit)		<u>+ \$ 16,000</u>

Loss	\$ 52,000
------	-----------

PAYOUT STATEMENT ON THE THREE CONTINENTAL
OPERATED DICKINSON WELLS
(Filipi #1, Kudrna #1, Kostelecky #1)

Cumulative Expenses to April 1, 1967:

Expense Intangibles and Lease Cost	\$244,454
Material	169,972
Operating Costs and Production Taxes	<u>95,192</u>
Total Expenses	\$509,618

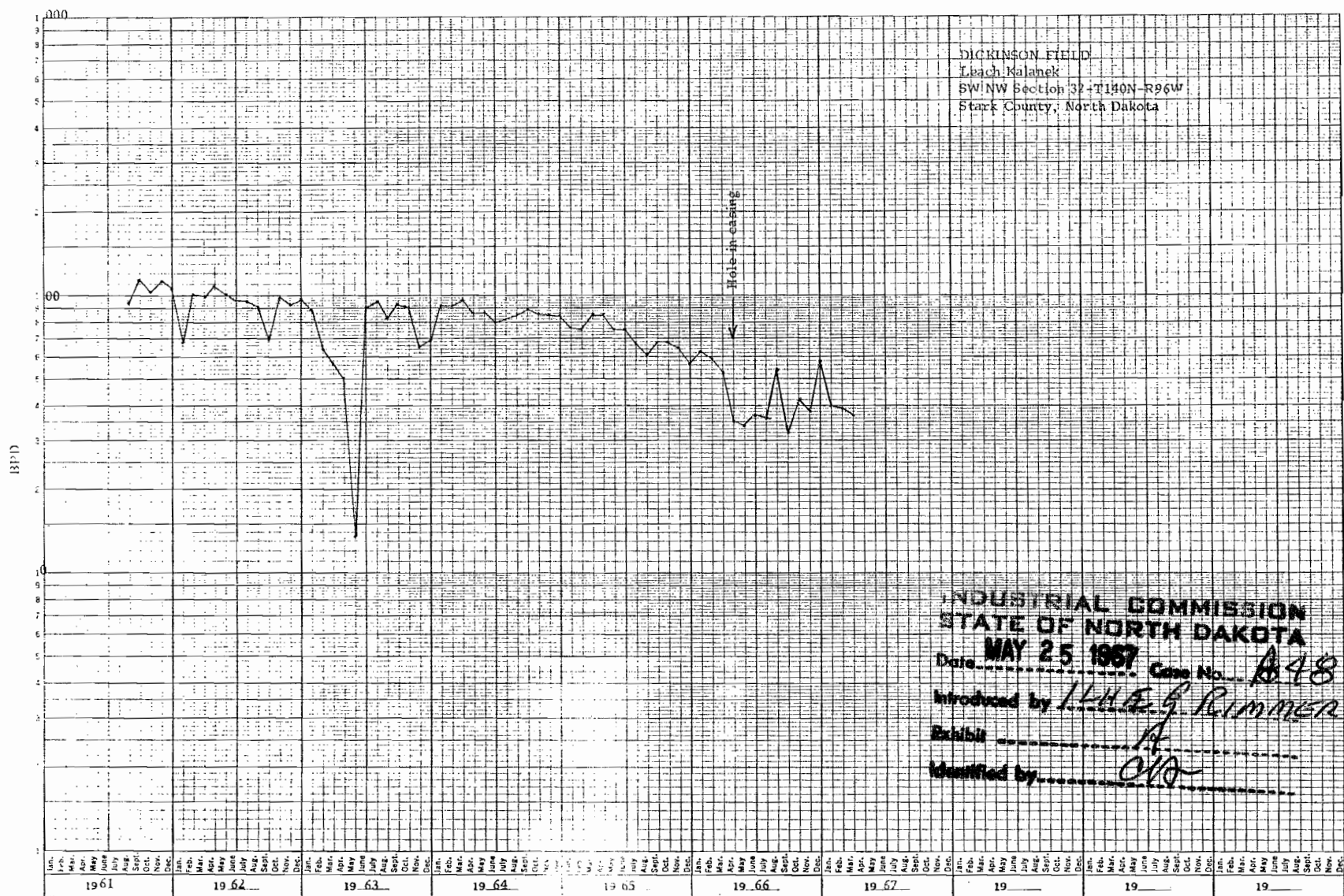
Revenue from Oil Sales to April 1, 1967: \$194,906

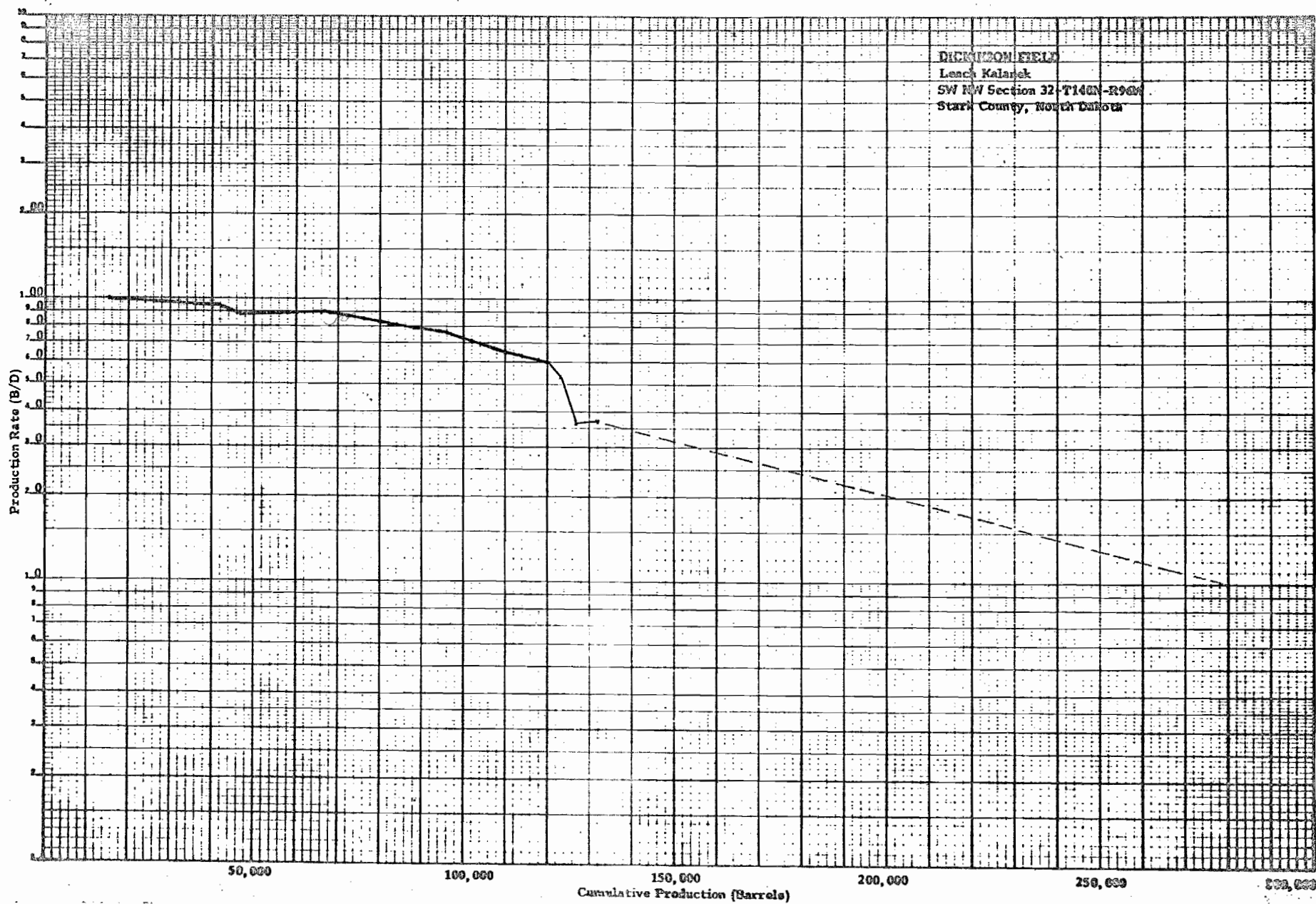
Cumulative Loss = \$314,712

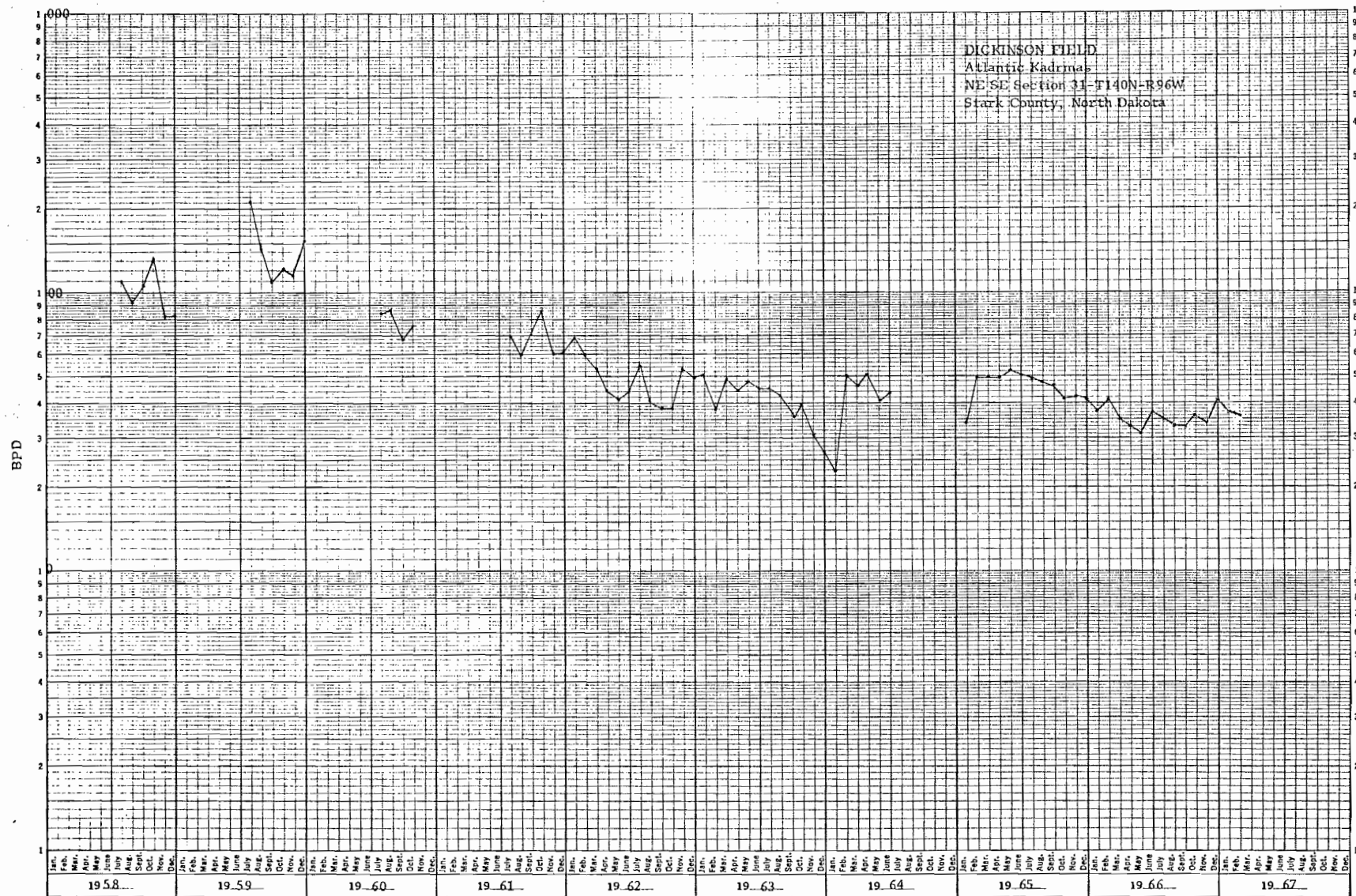
9

Average Net Income After Operating Costs Over Past Months = \$2300/month.

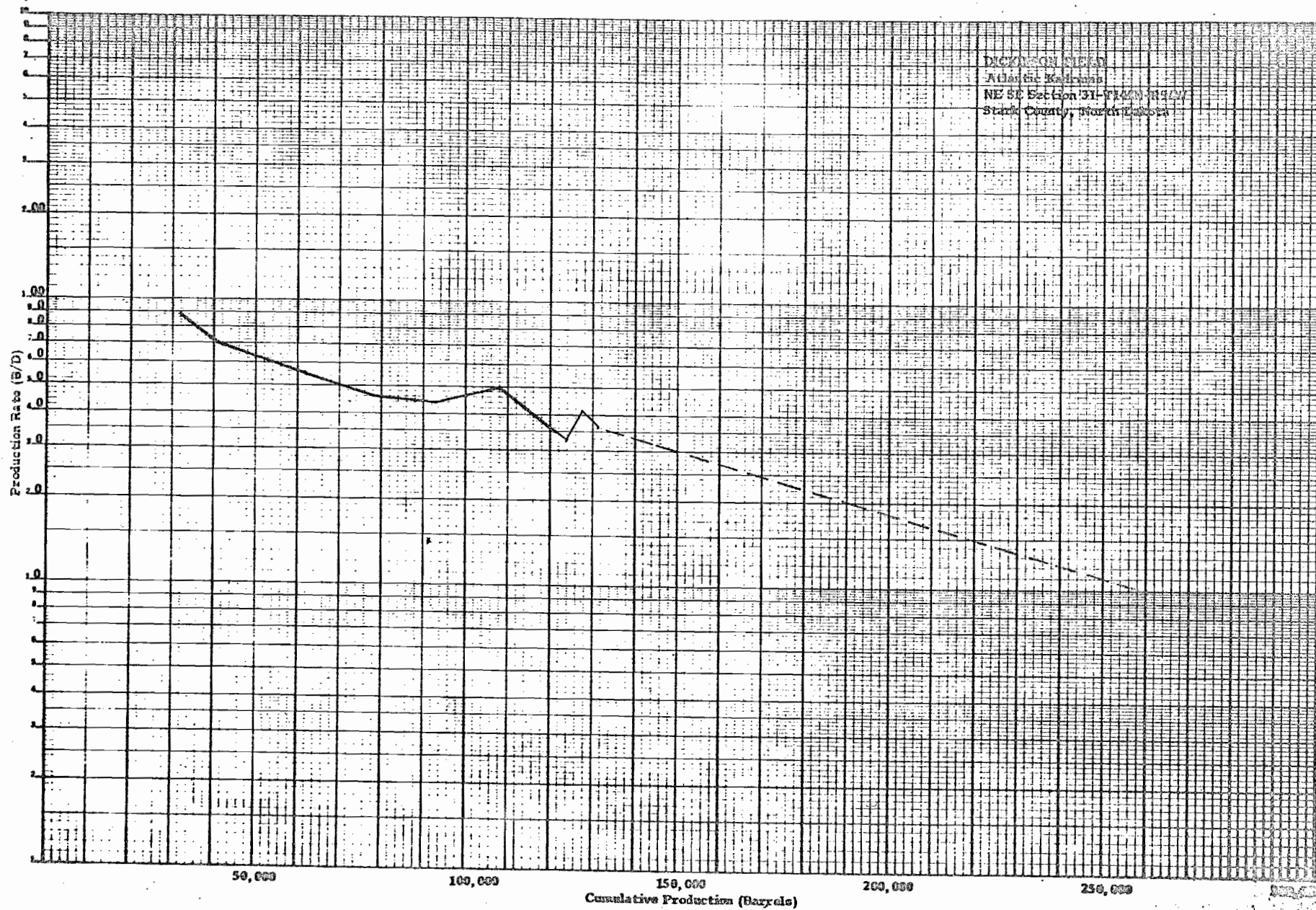
<u>\$314,712</u>	=	137 months	=	11.4 years of production at no decline from present rates just to get money back.
2300				

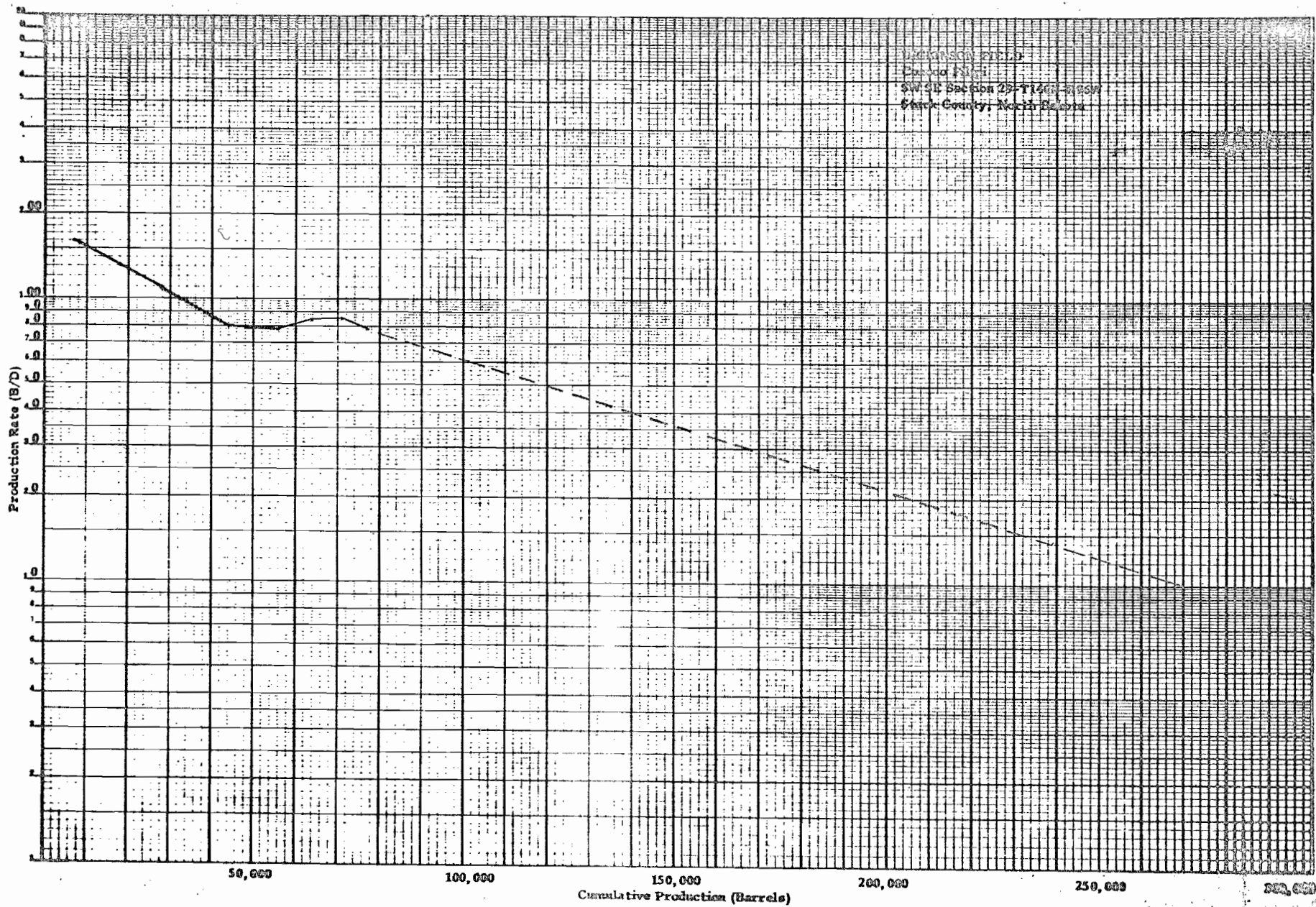




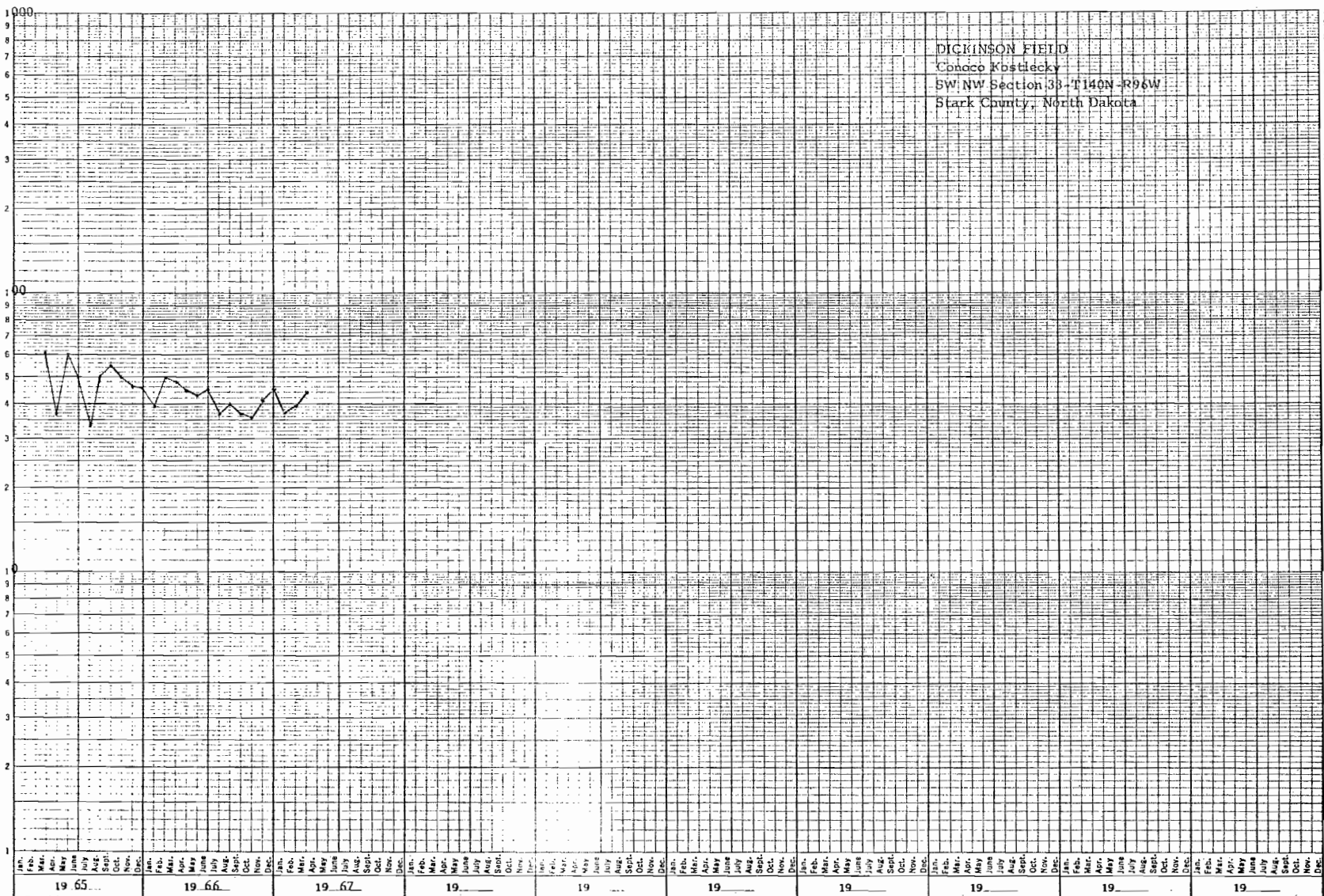


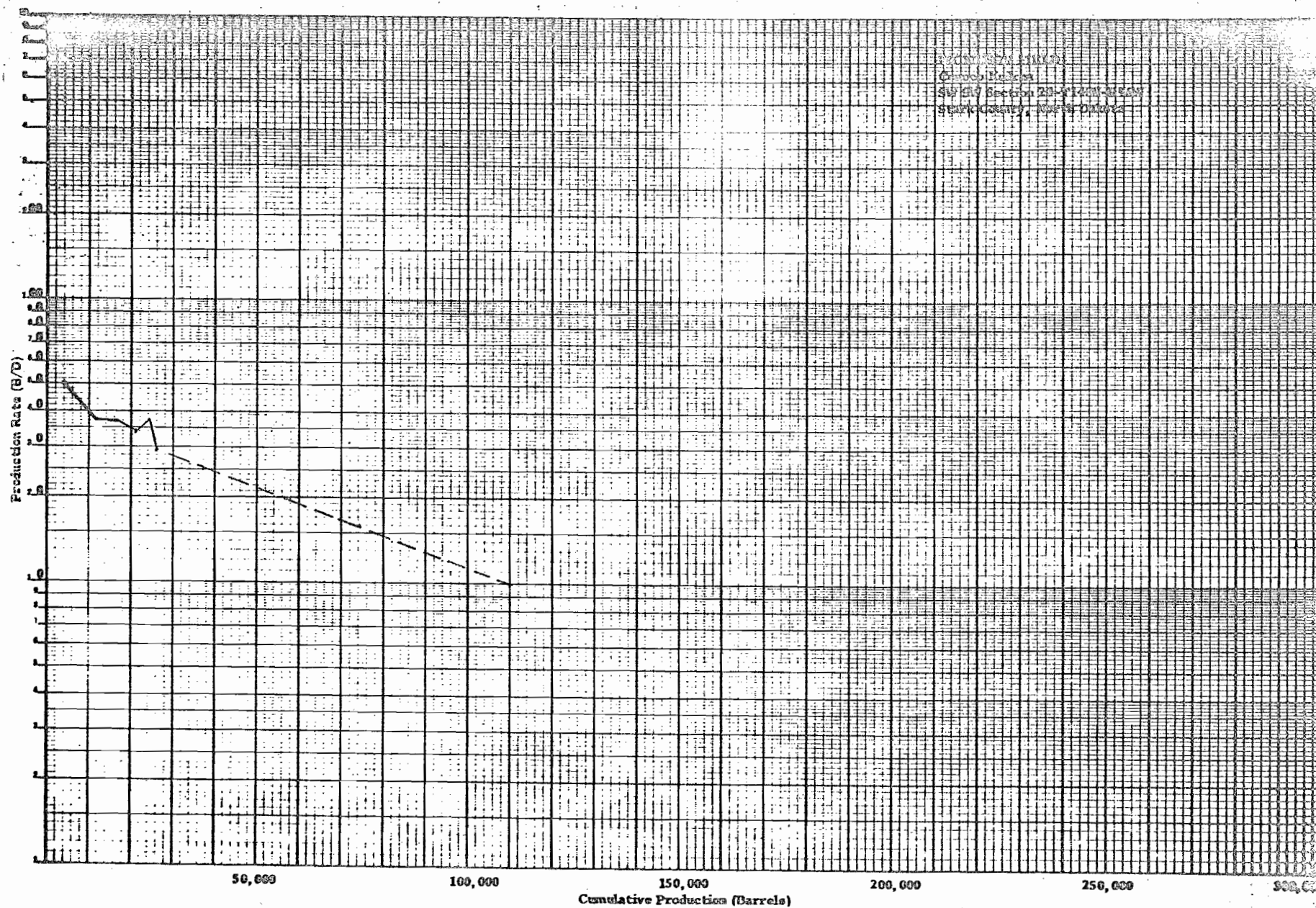
DICKINSON FIELD
Atlantic Refining
NE 3/4 Section 31-T14N-R12W
Stark County, North Dakota





BPD





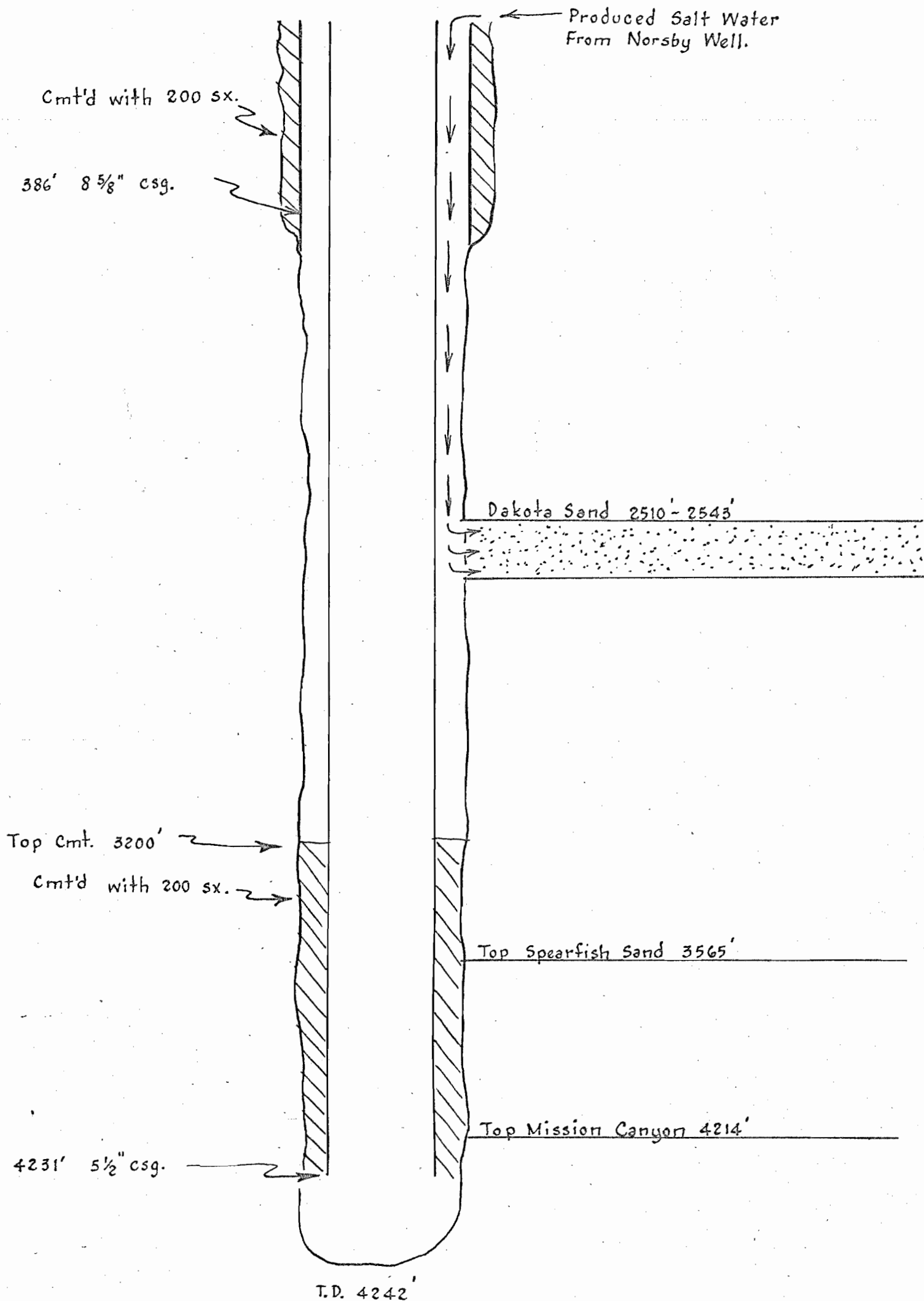
PROPOSED S.W.D. SYSTEM

NORSBY #1

SW/SW Sec. 5 -T.158 N.-R.80W.

McHenry County, N.D.

844



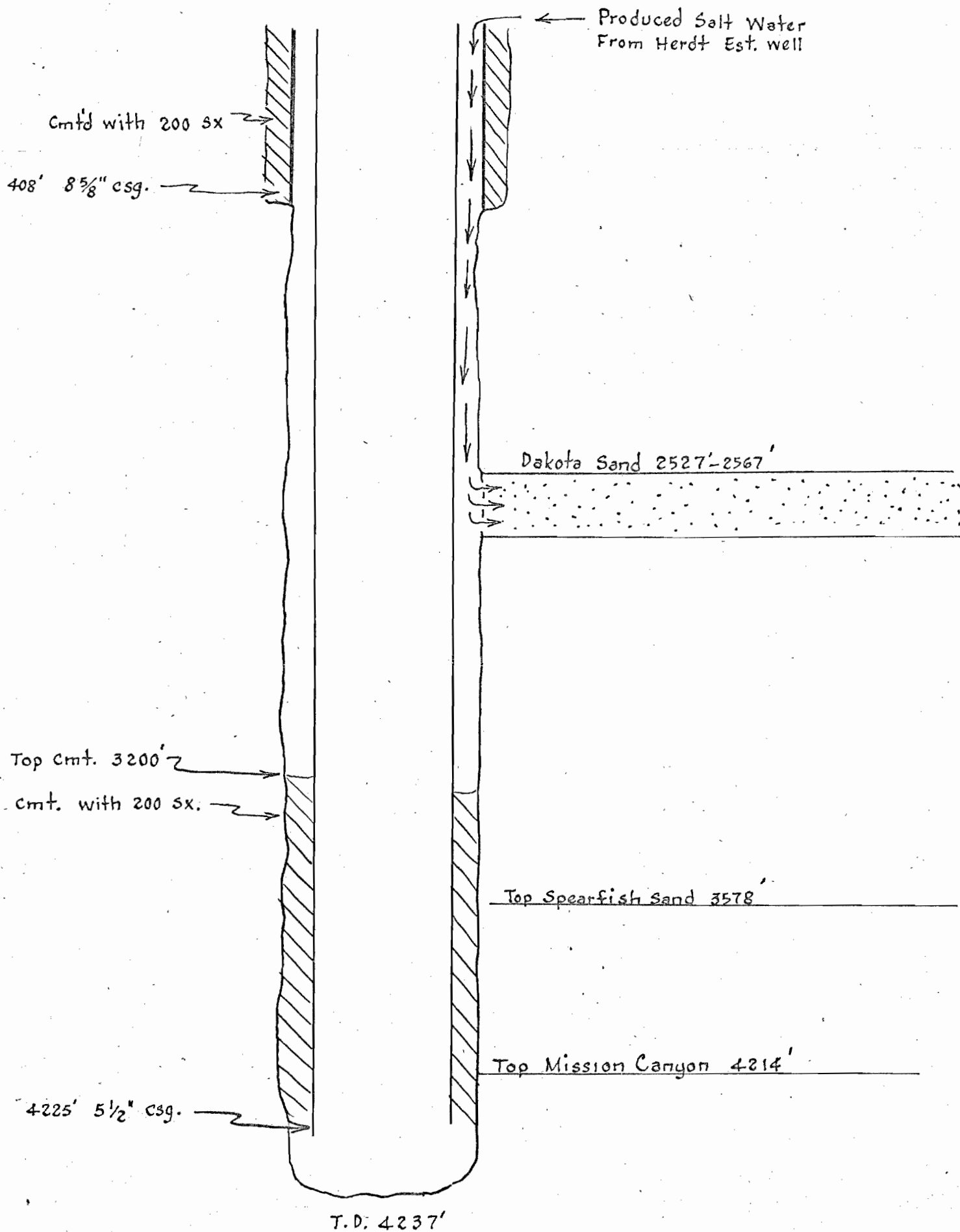
PROPOSED S.W.D. SYSTEM

Herd Estate #1

NE/SE Sec. 6 - T.158 N. - R. 80 W.

Mc Henry County, N.D.

847





SHELL OIL COMPANY

1700 BROADWAY
DENVER, COLORADO 80202



May 18, 1967

Subject: Application of Continental to
Extend Limits and Amend Rules
to Dickinson-Heath Pool,
Stark County, North Dakota

Dr. Wilson M. Laird
State Geologist
North Dakota Industrial Commission
University Station
Grand Forks, North Dakota

Dear Dr. Laird:

This letter will serve to inform you and the Industrial Commission that Shell Oil Company, as a leaseholder of lands in the area, supports and endorses the testimony as presented by Continental Oil Company.

Shell Oil Company respectfully requests that the application be granted as applied for.

Respectfully Submitted,

SHELL OIL COMPANY

By 
J. W. Zoller
Division Production Manager
Rocky Mountain Division

THE SUPERIOR OIL COMPANY

P. O. BOX 1521
HOUSTON, TEXAS 77001

May 3, 1967



State Geologist
North Dakota Geological Survey
University Station
Grand Forks, North Dakota 58201

Re: Dickinson Area
Stark County, North Dakota

Dear Sir:

Reference is made to Order 609 in Case 566, (1963), of the Industrial Commission of North Dakota establishing 160 acre drilling and spacing units in all or parts of Sections 29, 30, 31 and 32, Township 40 North, Range 96 West, and Sections 5 and 6, Township 39 North, Range 96 West, Stark County.

I have been informed that Continental Oil Company has recently filed with the Commission an application to extend that Spacing Order to include the area north and east of the spaced area including the $N\frac{1}{2}$ of Section 30, Township 40 North, Range 69 West, and to change the size of the units to 320 acres. Superior is presently in the process of completing a producing oil well in the approximate center of the $SW\frac{1}{4}NW\frac{1}{4}$ of Section 30. In all probability that well will be completed and put on production prior to the date on which Continental's application will be heard by the Commission. In that event, under your existing procedure, the $NW\frac{1}{4}$ of Section 30 would automatically be covered by and included in the current Order 609. Unless the $NW\frac{1}{4}$ of Section 30 were eliminated from the current Spacing Order Section 30 could not be spaced on the basis of 320 acres. To the extent that it includes the $N\frac{1}{2}$ of Section 30, Superior opposes the Continental application.

The Superior Oil Company hereby requests that Order 609 be expanded to include the $N\frac{1}{2}$ of Section 30 in conformity with the 160-acre spacing pattern now established. We will appear before the Commission at the hearing on Continental's application and support this request in an appropriate manner.

The purpose of this letter is to inform you of Superior's position in this matter in order that the notice published in connection

Page 2.
State Geologist
re: Dickinson Area
May 3, 1967

with the Continental application may be sufficiently broad to permit the granting of Superior's request.

Very truly yours,

A handwritten signature in black ink, appearing to read "R. T. Robberson". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

R. T. Robberson
Attorney

RTR:bd

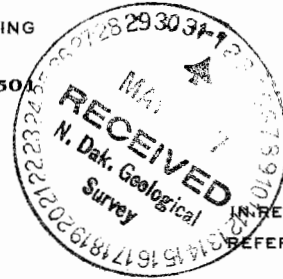
cc: Continental Oil Company
Attn: R. E. Tate
3203 Third Ave. North
Billings, Montana

FLECK, SMITH, MATHER, STRUTZ, MAYER & STEWART

LAWYERS
SUITE 200, PROFESSIONAL BUILDING
P. O. BOX 1436
BISMARCK, NORTH DAKOTA 58501

ERNEST R. FLECK
F. J. SMITH
RUSSELL R. MATHER
WM. A. STRUTZ
THOMAS A. MAYER
JOHN C. STEWART

April 28, 1967



TELEPHONE
701-223-6565

8837

Dr. Wilson Laird
State Geologist
University Station
Grand Forks, North Dakota

Re: Our File No. 8837

Dear Dr. Laird:

We enclose herewith original and one copy of Application of Continental Oil Company to extend the limits of and amend the field rules applicable to the Dickinson-Heath Pool in Stark County, North Dakota.

Very truly yours,

FLECK, SMITH, MATHER, STRUTZ,
MAYER & STEWART


ERNEST R. FLECK

ERF.jn
Enclosures

cc: Mr. Gerald VandeWalle

PETITION

26 signatures

We, the undersigned landowners and Royalty owners of the Dickinson Field and the proposed North-East Dickinson Field respectfully petition the North Dakota State Industrial Commission not to change the present spacing and to provide spacing based on no greater acreage than 160 acres per well.

Respectfully submitted,

1. Paul Krenzler Dickinson
2. Ludwig Filipin R#3 Dickinson
3. Walter Green Jr R#4 Dickinson 2nd
4. Joe Kadman Jr R#3 Dickinson ND
5. Rudolph Pagonik Jr R#4 Dickinson ND
6. Franklin Pagonik R#4 Dickinson ND
7. Wm O. Busch R#1 Dickinson ND
8. Ray Thomas 1607 6th St W Dickinson ND
9. Bob Kadman R#3, Box 116 Dickinson ND
10. J. E. Ridel 621-2nd Dickinson ND
11. Lillian M. Ridel Dickinson ND
12. _____
13. _____
14. _____
15. _____

PETITION

We, the undersigned landowners and Royalty owners of the Dickinson Field and the proposed North-East Dickinson Field respectfully petition the North Dakota State Industrial Commission not to change the present spacing and to provide spacing based on no greater acreage than 160 acres per well.

Respectfully submitted,

1. Joe V. Bidd Dickinson
2. Joseph W. Vogel Dickinson
3. Frank T. Kainershot Dickinson 228-W 5 St
4. Frank Filipi 327 4th Ave E. Dickinson ND
5. Harry V. Kostecky Dickinson ND Dak R3.
6. Fesuk A. Kudon Dickinson ND, Dak.
7. Gilbert Newman Dickinson ND Dak.
8. Louis Karstap Dickinson ND Dak.
9. Agnes Karstap Dickinson ND B R R 1
10. Jack Leeper Dickinson ND Dak
11. Joseph Steffan Dickinson ND Dak
12. Marie Pazanek Dickinson ND Dak
13. Rudolph Pazanek Dickinson ND Dak.
14. Joseph D. Zastup Dickinson ND Dak.
15. Newell Mark Dickinson ND Dak

THIS FORM MUST BE FILLED OUT AND HANDED TO THE CLERK IN
ATTENDANCE AT THE HEARING

STATE INDUSTRIAL COMMISSION

STATE OF NORTH DAKOTA

APPEARANCE

Place _____ Date MAY 25 1967 Docket No. 848

_____ vs. _____

Name W. A. Ihli

Address P.O. Box 341 - Billings, Montana

Appearing for Jack Ihli & Associates

THIS FORM MUST BE FILLED OUT AND HANDED TO THE CLERK IN
ATTENDANCE AT THE HEARING

STATE INDUSTRIAL COMMISSION

STATE OF NORTH DAKOTA

APPEARANCE

Place Bismarck Date MAY 25 1967 Docket No. 848

Name Ernest M. Fleck vs. _____

Address Box 1436, Bismarck, N.D.

Appearing for Conoco

THIS FORM MUST BE FILLED OUT AND HANDED TO THE REPORTER IN
ATTENDANCE AT THE HEARING

STATE INDUSTRIAL COMMISSION

STATE OF NORTH DAKOTA

APPEARANCE

Place Bismarck, N.D. Date MAY 25 1967 Docket No. 848

Name William R. Pearce vs. _____

Address Bismarck, N.D.

Appearing for Cardinal Petroleum Co.

STATE OF NORTH DAKOTA

ss

AFFIDAVIT OF
MAILING

COUNTY OF GRAND FORKS

I, Clarence B. Folsom, Jr., being first duly sworn upon oath, depose and say: That I am over twenty-one years of age; that on the 28 day of June, 1967, I enclosed in separate envelopes true and correct copies of the attached Order No. 920 of the North Dakota State Industrial Commission, and deposited the same in the United States Post Office at the University Station, University of North Dakota, Grand Forks, North Dakota, with postage thereon fully paid, directed to: listed below

all of whom filed written appearances at the hearing of the Industrial Commission on Case No. 848.

Mr. J. A. Ihli, P. O. Box 341, Billings, Montana 59103
Mr. Ernest Fleck, Box 1436, Bismarck, North Dakota 58502
Mr. William Pearce, Box 400, Bismarck, North Dakota 58502


(Signature of person mailing
Order and preparing Affidavit)

Subscribed and sworn to before
me this 28th day of June, 1967.

Clara B. Langdon
Notary Public, Grand Forks County, North Dakota

My Commission expires July 1, 1971

1
2 BEFORE THE INDUSTRIAL COMMISSION
3 STATE OF NORTH DAKOTA

4 IN THE MATTER OF THE APPLI-)
5 CATION OF CONTINENTAL OIL)
6 COMPANY TO EXTEND THE LIMITS)
7 OF AND AMEND THE FIELD RULES) A P P L I C A T I O N
8 APPLICABLE TO THE DICKINSON-)
9 HEATH POOL IN STARK COUNTY,)
10 NORTH DAKOTA.)

11 ** * **

12 COMES NOW the Applicant, Continental Oil Company, and res-
13 pectfully petitions as follows:

14 I.

15 Continental Oil Company is the owner of oil and gas lease-
16 hold estates in the area of the Dickinson-Heath Pool in Stark County,
17 North Dakota.

18 II.

19 That pursuant to order of the Industrial Commission, the
20 limits of the Dickinson-Heath Pool encompass the S $\frac{1}{2}$ of Section 29,
21 the S $\frac{1}{2}$ of Section 30, all of Sections 31 and 32, Township 140 North,
22 Range 96 West, and the N $\frac{1}{2}$ of Section 5, the N $\frac{1}{2}$ of Section 6, Township
23 139 North, Range 96 West, which area is presently on a 160-acre spac-
24 ing pattern.

25 III.

26 That this Applicant requests that the field outlines of the
27 Dickinson-Heath Pool be enlarged to include all of Sections 7, 8, 9,
28 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26,
29 27, 28, N $\frac{1}{2}$ of 29, N $\frac{1}{2}$ of 30, all of 33, 34, 35 and 36, Township 140
30 North, Range 96 West, Stark County, North Dakota.

31 IV.

32 That this Applicant further requests that the existing
33 spaced area of the Dickinson-Heath Pool consisting of four sections,
34 remain on a 160-acre spacing pattern and that the area above described,
35 for which request is made to include within the limits of said field,
36 be divided as a separate zone and that such area as separately zoned
be established on a 320-acre spacing pattern.

37 V.

38 That the extension of the field limits to include the above
39 described lands and the establishment and division of separate zones
40 and the retention of the 160-acre spacing within the present field
41 outlines, and the establishment of 320-acre spacing in the areas to
be included in the proposed outline will prevent waste, will avoid

1
2 the drilling of unnecessary wells and will protect correlative rights,
3 and will result in the efficient and economical development of the
4 pool as a whole.

5 WHEREFORE this Applicant prays that the matter be set for
6 hearing at the May meeting of the Industrial Commission of the State
7 of North Dakota, and that after such hearing the Commission issue its
8 order granting the application aforesaid.

9 Dated this 28th day of April, 1967.

10 CONTINENTAL OIL COMPANY

11 FLECK, SMITH, MATHER, STRUTZ,
12 MAYER & STEWART

13 Attorneys for Continental Oil
14 Company

15 Suite 200, Professional Building
16 Bismarck, North Dakota

17 By:

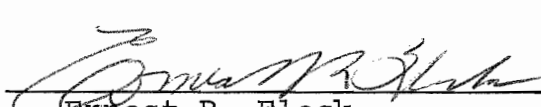
18 
Ernest R. Fleck

19 STATE OF NORTH DAKOTA)

20) ss

21 COUNTY OF BURLEIGH)

22 Ernest R. Fleck, being first duly sworn on oath, deposes
23 and says that he is one of the attorneys for the Applicant herein
24 named; that he has read the above and foregoing application, knows
25 the contents thereof and that the same is true to the best of his
26 knowledge, information and belief.

27 
Ernest R. Fleck

28 Subscribed and sworn to before me this 28th day of April, 1967

29 (S E A L)

30 

31 Phyllis Porter, Notary Public
32 Burleigh County, North Dakota
33 My Commission Expires: 4-9-71

AFFIDAVIT OF PUBLICATION

STATE OF NORTH DAKOTA, }
County of Burleigh. } ss

Judith Thomas- - - - - , being duly sworn,
says that she is a clerk of The Bismarck Tribune and that the
annexed printed copy of

Notice of Publication. North Dakota Industrial
Commission.
was taken from The Bismarck Tribune, a daily newspaper, which
during the whole time of publication of said notice hereinafter
stated, has been, and was printed and published in the City of
Bismarck, County of Burleigh, and State of North Dakota. That
the said notice was published in said newspaper on the following
dates: 5/11

in each and every issue of the full number thereof, commencing
on the 11th - - - day of May - - - - - 19 67, and
ending on the 11th - - - day of May - - - - - 1967 -
upon which days or times of publication aforesaid the said news-
paper was regularly published.

Subscribed and sworn to before me this 12th - - - day of
May - - - - - , A. D. 19 67.

Notary Public, Burleigh County, N. D.

My commission expires March 7, 1972

Cost of Publication, \$ 11.20

ML-33

JOHN ENRMANTRAUT
Notary Public, BURLEIGH CO., N. DAK.
My Commission Expires MARCH 7, 1972

NOTICE OF PUBLICATION N.D. INDUSTRIAL COMMISSION BISMARCK, NORTH DAKOTA

The State of North Dakota by
its Industrial Commission hereby
gives notice pursuant to law and
the rules and regulations of said
Commission promulgated there-
under of the following public
hearing to be held at 9:30 a.m.
on 25 May 1967 in the Hearing
Room, State Capitol, in Bismarck,
North Dakota.

STATE OF NORTH DAKOTA

All named parties and persons
having any right, title, interest,
or claim in the following cases
and notice to the public. CASE
NO. 847: On a motion of the Com-
mission to consider the applica-
tion of Apache Corporation for
permission to dispose of salt
water produced with crude oil
in the Pratt Field, McHenry
County, North Dakota, by inject-
ing said water into the Dakota-
Lakota Formations through the
casing-tubing annulus in its No.
1 Herdt Estate and No. 1 Norsby
wells located in NE SE Section
6 and SW SW Section 5, respec-
tively, in Township 158 North,
Range 80 West, McHenry County,
North Dakota. CASE NO. 848: On
a motion of the Commission to
consider the application of Con-
tinental Oil Company to extend
the limits of and amend the field
rules applicable to the Dickinson-
Heath Pool in Stark County,
North Dakota. CASE NO. 849: On
a motion of the Commission to
consider the application of Con-
tinental Oil Company for an order
pooling all interests in the S/2
of Section 25, Township 140
North, Range 97 West, Stark
County, North Dakota, for the
development and operation of the
spacing unit, located in the West
Dickinson - Heath Pool. OLD
CASE CASE NO. 844: (cont'd)
On a motion of the Commission
to consider the application of
Mule Creek Oil Company, Inc.,
a Delaware Corporation, P. O.
Box 1355, Billings, Montana, to
amend the field rules for a por-
tion of the Rocky Ridge-Heath
Pool in Billings County, North
Dakota permitting the drilling of
a well in the approximate cen-
ter of either quarter quarter
section of an 80-acre spacing unit,
and further permitting a toler-
ance of 200 feet from the center
of the quarter quarter section for
topographical or geological con-
ditions.

N.D. INDUSTRIAL COMMISSION
William L. Guy, Governor
5/11

NOTICE OF PUBLICATION
N.D. INDUSTRIAL COMMISSION
BISMARCK, NORTH DAKOTA

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 9:30 a.m. on 25 May 1967, in the Hearing Room, State Capitol, in Bismarck, North Dakota.

STATE OF NORTH DAKOTA TO:

All named parties and persons having any right, title, interest, or claim in the following cases and notice to the public. CASE NO. 848: On a motion of the Commission to consider the application of Continental Oil Company to extend the limits of and amend the field rules applicable to the Dickinson-Heath Pool in Stark County, North Dakota. CASE NO. 849: On a motion of the Commission to consider the application of Continental Oil Company for an order pooling all interests in the S-2 of Section 25, Township 140 North, Range 97 West, Stark County, North Dakota, for the development and operation of the spacing unit located in the West Dickinson-Heath Pool.

N.D. INDUSTRIAL COMMISSION
William L. Guy, Governor
(May 10, 1967)

CERTIFICATE OF PUBLICATION

THE DICKINSON PRESS
Dickinson, North Dakota

STATE OF NORTH DAKOTA, }

County of Stark.

Ed Hauck, of said state and county, being first duly sworn, on oath says: That he is the Advertising Mgr. 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 Notice of

Publication

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 10

day of May A. D. 1967, and ending on the 10

day of May A. D. 1967, both inclusive.

Sworn to and subscribed to before me this 11th day of

May A. D. 1967

CAROLYN NECKELS

Notary Public, STARK COUNTY, N. DAK.
My Commission Expires AUGUST 10, 1973