Case No
6712

Large Exhibits

Form 9-331C
(May 1963)

SUBMIT IN TRIPLICATE*
(Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R1425.

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. TYPE OF WORK	DRILL [X] DEEPEN [ ] PLUG BACK [ ]
b. TYPE OF WELL	OIL WELL [X] GAS WELL [ ] OTHER SINGLE ZONE [X] MULTIPLE ZONE [ ]
2. NAME OF OPERATOR	Sun Oil Company
3. ADDRESS OF OPERATOR	2525 NW Expressway, Oklahoma City, OK 73112
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*) AT SURFACE	1660' FSL & 1600' FEL (SE SE)
AT PROPOSED PROD. ZONE	Same
5. LEASE DESIGNATION AND SERIAL NO.	USA - 407 NM - 0606
6. IF INDIAN, ALLOTTEE OR TRIBE NAME	N/A
7. UNIT AGREEMENT NAME	N/A
8. FARM OR LEASE NAME	New Mexico-Federal "N"
9. WELL NO.	#2
10. FIELD AND POOL, OR WILDCAT	Basin - Dakota
11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA	Sec. 6 - T 32N-R 12W
12. COUNTY OR PARISH	San Juan
13. STATE	New Mexico
14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*	10.2 Miles North-Northeast of Farmington, New Mexico
15. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drlg. unit line, if any)	1000'
16. NO. OF ACRES IN LEASE	320
17. NO. OF ACRES ASSIGNED TO THIS WELL	320
18. DISTANCE FROM PROPOSED LOCATION* TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT.	2460'
19. PROPOSED DEPTH	6,900'
20. ROTARY OR CABLE TOOLS	Rotary
21. ELEVATIONS (Show whether DF, RT, GR, etc.)	6982' GR
22. APPROX. DATE WORK WILL START*	July 30, 1979

PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
12¼" +/-10"	8-5/8" New 9" New	24#K55 ST&C 24#K55 ST&C	350' 6,900'	250 sx Class "A" W/additives. 1st Stage: 825sx Lite W/ additives + 100 sx Class"A" W/ additives + 2nd Stage: 1300sx 50-50 Poz W/additives

1) Drill 12¼" hole and set 8-5/8" surface casing to 350' with good returns.
2) Log B.O.P. checks in daily drill reports and drill 7-7/8" hole to 6,900'.
3) Run tests if warranted and run 4½" casing if productive.
4) Run logs, as needed, and perforate and stimulate as needed.

EXHIBITS ATTACHED:

"A"	Location & Elevation Plat	"G"	Drill Pad Layout, Cut-Fill Cross-Section & Production Facilities
"B"	The Ten-Point Compliance Program	"H"	Drill Rig Layout
"C"	The Blowout Preventer Diagram	"I"	Fracturing Program Layout
"D"	The Multi-Point Requirements for A.P.D.		
"E"	Access Road Map to Location		
"F"	Radius Map of Field		

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout preventer program, if any.

24. SIGNED [signature] TITLE District Drilling Engineer DATE June 11, 1979

(This space for Federal or State office use)

PERMIT NO. _____ APPROVAL DATE _____

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

Exhibit 1
Case 6712

NOTICE OF APPROVAL
TO OPERATOR GRANTED
Pending Approval

RECEIVED
JUN 14 1979

*See Instructions On Reverse Side

U.S. GEOLOGICAL SURVEY
DENVER, COLORADO

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use "APPLICATION FOR PERMIT—" for such proposals.)

1. OIL WELL [ ] GAS WELL [X] OTHER

2. NAME OF OPERATOR: Sun Oil Company

3. ADDRESS OF OPERATOR: 2525 Northwest Expressway, Oklahoma City, OK 73112

4. LOCATION OF WELL: 850' FSL & 1135' FEL

14. PERMIT NO.

15. ELEVATIONS (Show whether DF, RT, GR, etc.): 6042' GR

5. LEASE DESIGNATION AND SERIAL NO.: USA - NM-0607

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: N/A

7. UNIT AGREEMENT NAME: N/A

8. FARM OR LEASE NAME: New Mexico - Federal "N"

9. WELL NO.: 6-E

10. FIELD AND POOL, OR WILDCAT: Basin-Dakota

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: Sec. 6-T30N-R13W

12. COUNTY OR PARISH: San Juan

13. STATE: New Mexico

Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:			SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF	PULL OR ALTER CASING		WATER SHUT-OFF	REPAIRING WELL
FRACTURE TREAT	MULTIPLE COMPLETE		FRACTURE TREATMENT	ALTERING CASING
SHOOT OR ACIDIZE	ABANDON*		SHOOTING OR ACIDIZING	ABANDONMENT*
REPAIR WELL	CHANGE PLANS		(Other)	

(Other) Revise Application to Drill X

(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)

Based on requirements to protect a fresh water aquifer (Ojo Alamo) at a depth of approximately 780', we propose to increase the amount of cement used on the upper stage cement job from 1200 sxs 50-50 Pozmix plus additives to 1300 sxs. This will bring the calculated top of cement on the 4-1/2" production string to 650'. A temperature survey will be run to confirm the top of cement.

Attached per your request is 4-1/2" casing design data sheet for the subject well. For wells in this depth and pressure range, Sun Oil Company utilizes minimum design factors of 1.6 for tension, 1.0 for burst and .85 for collapse in the portion of the casing covered by cement for a distance of 1000' above the casing shoe. Above that point a 1.0 collapse design factor is utilized. Also note collapse calculations are performed assuming no internal hydrostatic pressure.

18. I hereby certify that the foregoing is true and correct

SIGNED: R.L. Hanes TITLE: Dist. Drilling Engineer DATE: August 13, 1979

(This space for Federal or State office use)

APPROVED BY: TITLE: DATE:

CONDITIONS OF APPROVAL, IF ANY:

*See Instructions on Reverse Side

NEW MEXICO OIL CONSERVATION COMMISSION

WELL LOCATION AND ACREAGE DEDICATION PLAT

All distances must be from the outer boundaries of the Section

Operator			Lease		Well No.
Sun Oil Company			Rio Alamo Federal "K"		6E
Unit Letter	Section	Township	Range	County	
D	6	30 N.	12 W.	San Juan	
Actual Footage Location of Well:					
1130 feet from the South line and 1135 feet from the East line					
Ground Level Elev.	Producing Formation		Pool		Dedicated Acreage:
6153	Basin-Dakota		Basin-Dakota		320 Acres

1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.

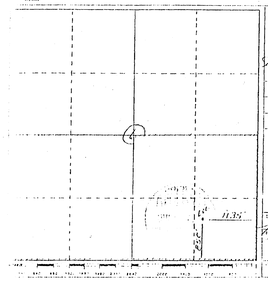
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).

3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?

☐ Yes ☐ No If answer is "yes," type of consolidation _____

If answer is "no" list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) _____

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission.



CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.

Name: Georje Lépsanotes

Position: Vice-President

Company: Powers Elevation

Date: July 20, 1979

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

Date Surveyed: JULY 17, 1979

Registered Professional Engineer and/or Land Surveyor

Certificate No. 3950

A

AZTEC 1-A
HOLDER
SEC. 6 T30N R12W
EL. 5923DF

SUN OIL CO.-6
N.M. FEDERAL "N"
SEC.6 T30N R12W
EL. 5977DF

SEA LEVEL

Comp. 9-25-64
T.D. 6872
P.B. 6844

Pf 2/6662-6714
4/6720-6737
SWF 96,000 gal + 22,000 lb
IPF 3,045 MCF 48/64" ch

Comp. 12-28-60
T.D. 6895
P.B. 6859

Pf 2/6660-66
2/6678-86
2/6696-6700
2/6706-22
2/6728-46
2/6796-6822
Frac 45,500 gal wtr
+ 45,500 lb sd
IPF 9,038 MCFPD 3/4

NORTH

SUN OIL CO.-6
N.M. FEDERAL "N"
SEC.6 T30N R12W
EL. 5977DF

SUN OIL CO.-4
N.M. FEDERAL "N"
SEC. 7 T30N R12W
EL. 6008DF

SKELLY

UPPER GALLUP

LOWER GALLUP

SANASTEE

MANCOS SHALE

GREENHORN LS

GRANEROS SH

DAKOTA

MORRISON FM

30 lb
" ch

- Comp. 12-28-60
T.D. 6895
P.B. 6859

Pf 2/6660-66
2/6678-86
2/6696-6700
2/6706-22
2/6728-46
2/6756-6822
Frac 45,500 gal w/fr
+45,500 lb sd
IPF 9,088 MCFPD 3/4" ch

Comp. 11-24-60
T.D. 6970
P.B. ?

Pf 4/6706-19
6725-36
6756-60
6773-85
6850-60
SWF 80,000 gal + 8
IP CAOF 3,800 MCF

LINE OF SECTION
SCALE: 1" = 1000'

R11W R10W
T31N
T30N
A A'

NORTH

SUN OIL CO.-4
N.M. FEDERAL "N"
SEC. 7 T30N R12W
EL. 6008DF

SUN OIL CC
N.M. FEDERA
SEC. 7 T30N
EL. 5937

SKELLY

UPPER GALLUP

LOWER GALLUP

SANASTEE

MANCOS SHALE

GREENHORN LS

GRANEROS SH

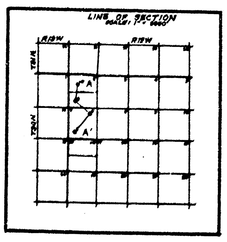
DAKOTA

MORRISON FM

Comp. 11-24-60
T.D. 6870
P.B. ?

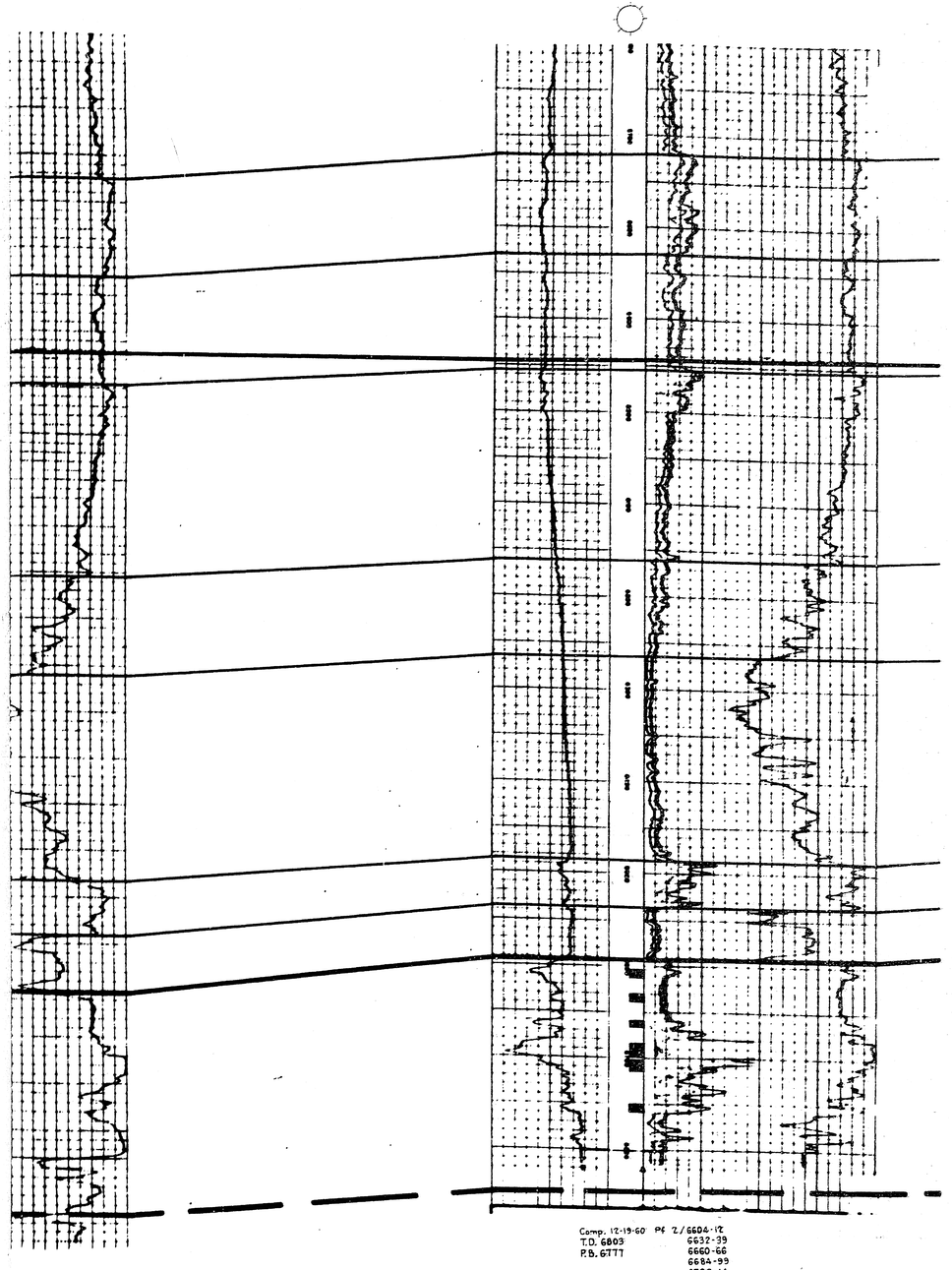
P: 4/6706-18
6725-36
6756-60
6773-85
6850-60
SWF 80,000 gal + 80,000 lb
IP CAOF 3,800 MCFPD 3/4" ch

Comp. 12-19-60
T.D. 6803
P.B. 6777



SUN OIL CO.-5
N.M. FEDERAL "N"
SEC. 7 T30N R30W
EL. 5937DF

A'



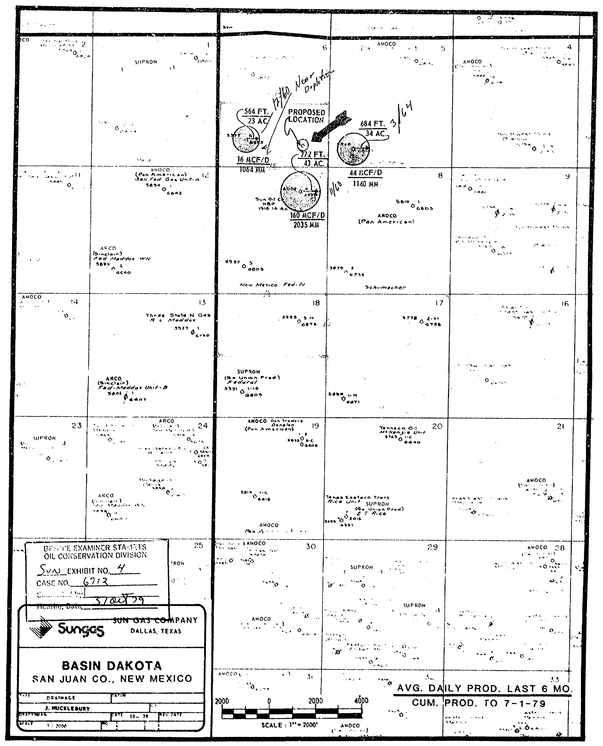
Comp. 12-19-60
T.D. 6803
P.B. 6777

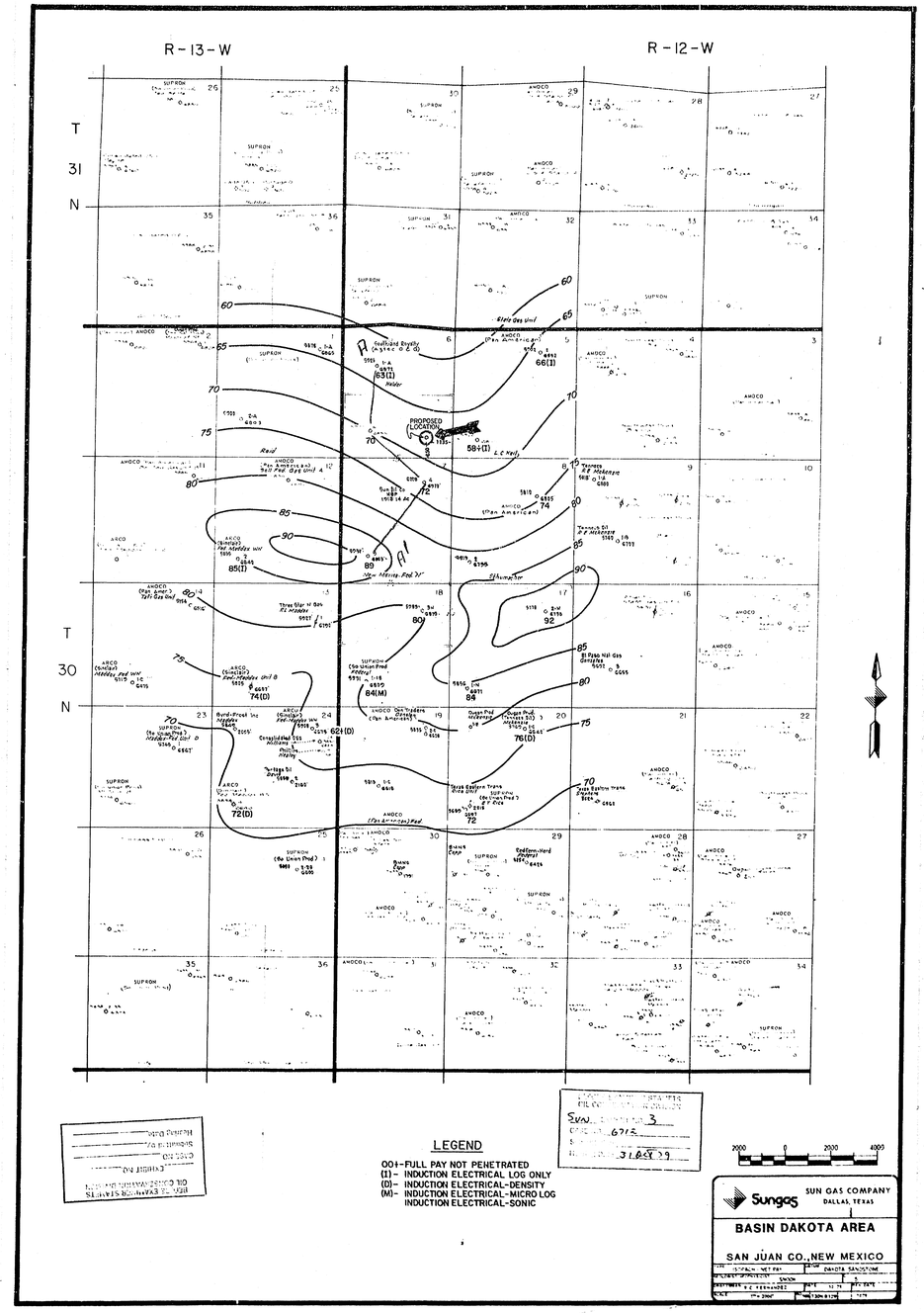
PF 2/6604-12
6632-39
6660-66
6684-99
6703-14
6752-59
Frac. 80,000 gal w/lr
+ 80,000 lb sd
IPF 3,321 MCFPD 3/4"ch

,000 lb
PD 4/4"ch

STRUCTURAL CROSS SECTION
SAN JUAN COUNTY, NEW MEXICO
BASIN DAKOTA FIELD

VERTICAL SCALE: 2"=100' GEOLOGY BY: G.J. HOWARD


PROPOSED LOCATION
554 FT.
23 AC
772 FT.
43 AC
684 FT.
34 AC
16 MCF/D
1063 MM
44 MCF/D
1140 MM
160 MCF/D
2035 MM
AMOCO
SUPRON
ARCO
Schumacher
New Mexico Fed-N
SUPRON (Blanco Mesa Verde)
AMOCO (Pan American)
ARCO (Bradley) Fed Navajo Unit-B
Texas Eastern Trans Corp
SUPRON (Basin Dakota)
BEFORE EXAMINER STAMETS
OIL CONSERVATION DIVISION
SUN EXHIBIT NO. 4
CASE NO. 6712
Hearing Date 7 Aug 79
Sunoco
SUN GAS COMPANY
DALLAS, TEXAS
BASIN DAKOTA
SAN JUAN CO., NEW MEXICO
DRAWN
J. MUCKLEBURY
DATE 10-79
SCALE 1" = 2000'
2000 0 2000 4000
AVG. DAILY PROD. LAST 6 MO.
CUM. PROD. TO 7-1-79



BEFORE EXAMINER STAMETS
OIL CONSERVATION DIVISION
SUN EXHIBIT NO. 3
CASE NO. 6712
Submitted by
Hearing Date 31 Oct 79

LEGEND

OO+-FULL PAY NOT PENETRATED
(I)- INDUCTION ELECTRICAL LOG ONLY
(D)- INDUCTION ELECTRICAL-DENSITY
(M)- INDUCTION ELECTRICAL-MICRO LOG
INDUCTION ELECTRICAL-SONIC

Sungas SUN GAS COMPANY
DALLAS, TEXAS

BASIN DAKOTA AREA

SAN JUAN CO., NEW MEXICO

ISOPACH - NET PAY
DAKOTA SANDSTONE

A

AZTEC 1-A
HOLDER
SEC. 6 T30N R12W
EL. 5923DF

SUN OIL CO.-6
N.M. FEDERAL "N"
SEC.6 T30N R12W
EL. 5977DF

SEA LEVEL

Comp. 9-25-64
T.D. 6872
P.B. 6844

Pf 2/6662-6714
4/6720-6737
SWF 96,000 gal + 22,000 lb
IPF 3,045 MCF 48/64" ch

Comp. 12-28-60
T.D. 6895
P.B. 6853

Pf 2/6660-66
2/6678-86
2/6696-6700
2/6706-22
2/6728-46
2/6796-6822
Frac 45,500 gel wtr
+45,500 lb sd
IPF 9,088 MCFPD 3/4"

NORTH

SUN OIL CO.-6
N.M. FEDERAL "N"
SEC.6 T30N R12W
EL. 5977DF

SUN OIL CO.-4
N.M. FEDERAL "N"
SEC. 7 T30N R12W
EL. 6008DF

SKELLY

UPPER GALLUP

LOWER GALLUP

SANASTEE

MANCOS SHALE

GREENHORN LS

GRANEROS SH

DAKOTA

MORRISON FM

.000 lb
4.4" ch

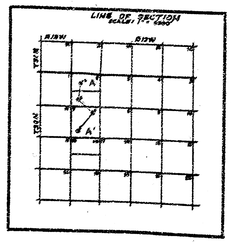
Comp. 2-28-60
T.D. 6895
P.B. 6859

Pf 7/6660-66
2/6678-86
2/6696-6700
2/6706-22
2/6728-46
2/6756-6822
Frac 45,500 gal wtr
+ 45,500 16 sd
IPF 3,088 MCFPD 3/4" ch

Comp. 11-24-60
TD 6870
P.B. ?

Pf 4/6708-18
6725-36
6756-60
6773-85
6850-60
SWF 80,000 gal + 8
IP CAOF 3,800 MCF

LINE OF SECTION
SCALE: 1" = 1000'



NORTH

SUN OIL CO.-4
N.M. FEDERAL "N"
SEC. 7 T30N R12W
EL. 6008DF

SUN OIL CO
N.M. FEDERA
SEC. 7 T30N
EL. 5937I

SKELLY

UPPER GALLUP

LOWER GALLUP

SANASTEE

MANCOS SHALE

GREENHORN LS

GRANEROS SH

DAKOTA

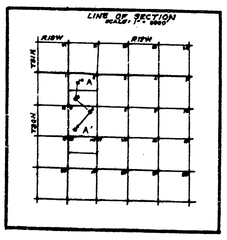
MORRISON FM

Comp. 11-24-60
T.D 6970
P.B. ?

Pf 4/6706-19
6725-36
6756-60
6773-85
6850-60
SWF 80,000 gal + 80,000 lb
IP CAOF 3,800 MCFPD 3/4"ch

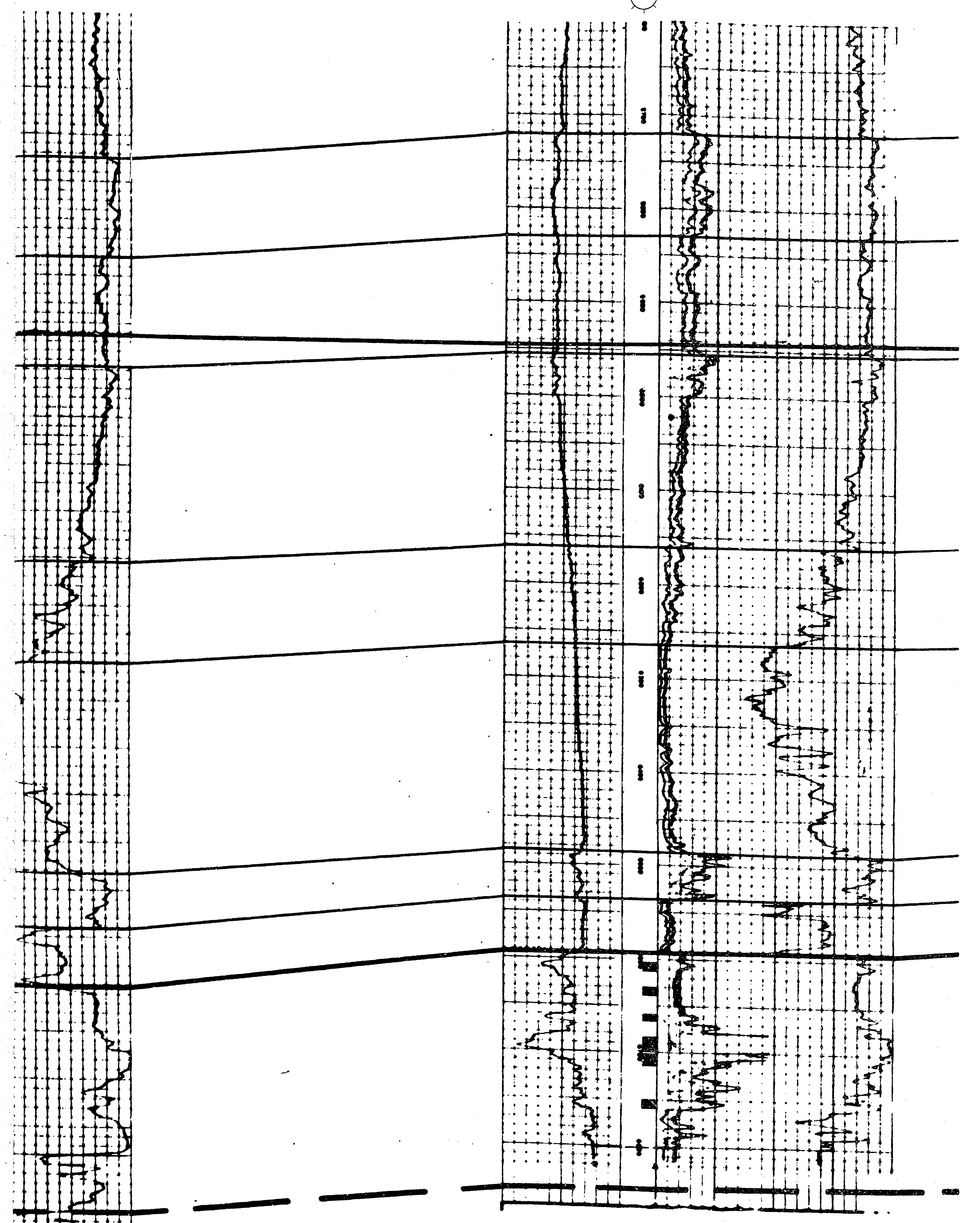
Comp. 12-19-60 F
T.D. 6803
P.B. 6777

ch



A'

SUN OIL CO.-5
N.M. FEDERAL "N"
SEC. 7 T30N R30W
EL. 5937DF



Comp. 12-19-60
T.D. 6803
P.B. 6777

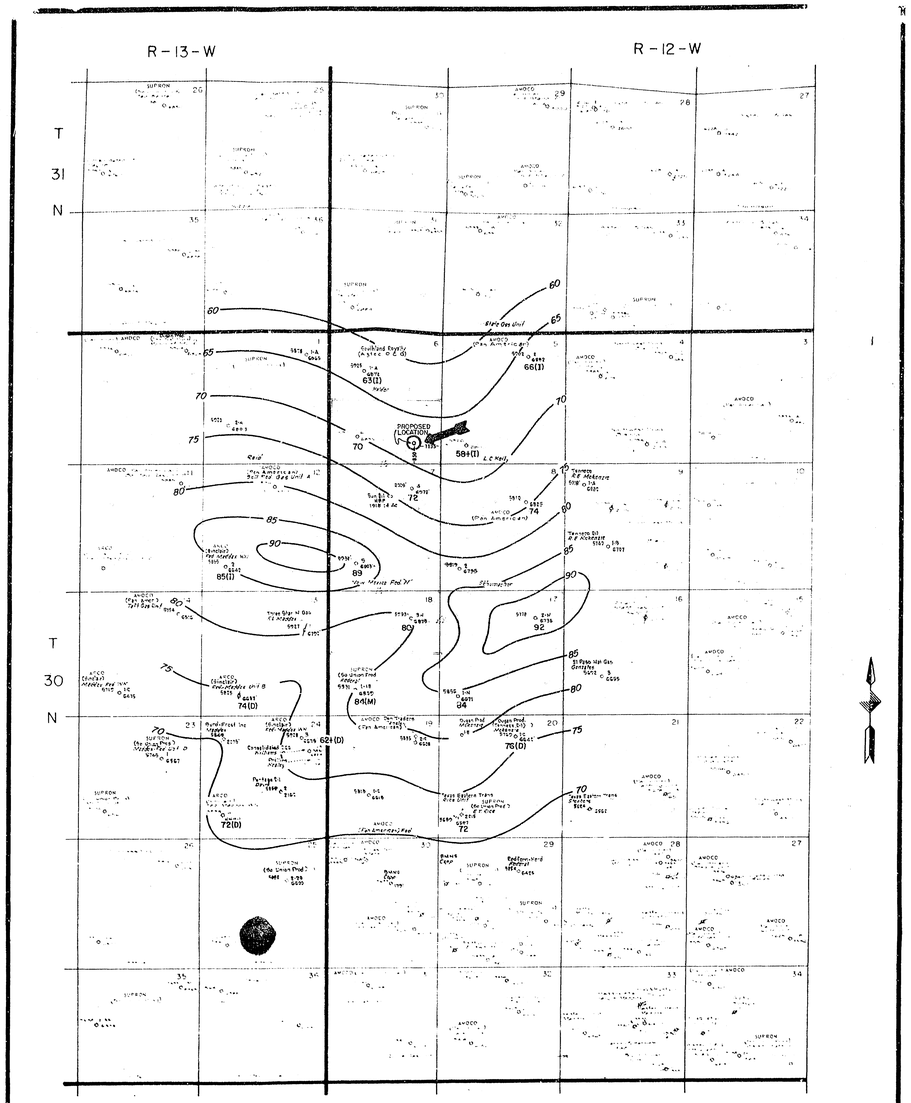
Pf 2/6604-12
6632-39
6660-66
6684-99
6703-14
6752-59
Frac 80,000 gel wtr
+ 80,000 lb sd
IPF 3,321 MCFPD 3/4"ch

)0,000 lb
PD 3/4"ch

Exhibit 2
Case 6712

STRUCTURAL CROSS SECTION
SAN JUAN COUNTY, NEW MEXICO
BASIN DAKOTA FIELD

VERTICAL SCALE: 2"=100' GEOLOGY BY: G.J. HOWARD
HORIZONTAL SCALE: 1"=500'



LEGEND

00+-FULL PAY NOT PENETRATED
(I)- INDUCTION ELECTRICAL LOG ONLY
(D)- INDUCTION ELECTRICAL-DENSITY
(M)- INDUCTRON ELECTRICAL-MICRO LOG
INDUCTION ELECTRICAL-SONIC

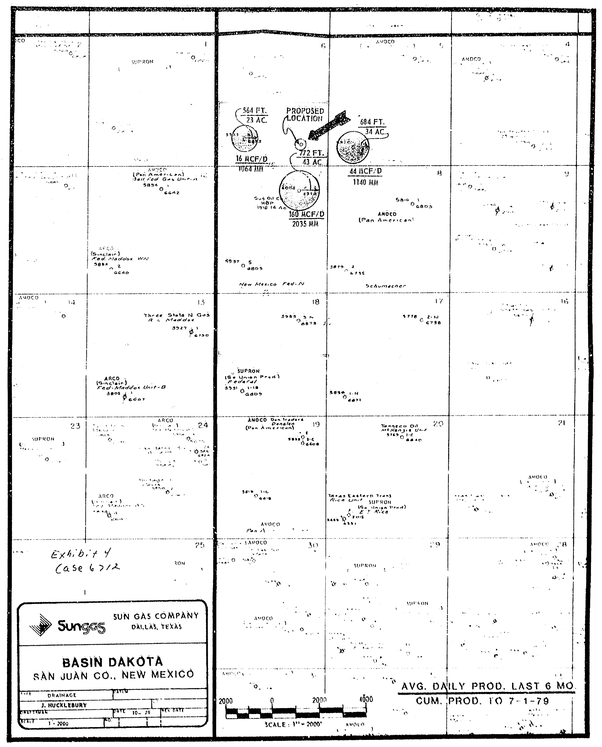
Exhibit 3
case 6712

2000 0 2000 4000

Sungas SUN GAS COMPANY
DALLAS, TEXAS

BASIN DAKOTA AREA

SAN JUAN CO., NEW MEXICO


564 FT.
73 AC.
PROPOSED LOCATION
684 FT.
34 AC.
712 FT.
43 AC.
16 MCF/D
1064 MH
44 MCF/D
1140 MH
100 MCF/D
2035 MH
Exhibit 4
Case 6312
Sungas
SUN GAS COMPANY
DALLAS, TEXAS
BASIN DAKOTA
SAN JUAN CO., NEW MEXICO
DRAWN
J. HUCKLEBURY
DATE 10-78
SCALE 1"=2000'
AVG. DAILY PROD. LAST 6 MO.
CUM. PROD. 10-1-78
2000 0 2000 4000
SCALE: 1"=2000'

DRAINAGE ESTIMATE
SUN'S NEW MEXICO FEDERAL "M" NO. 6
BASIN DAKOTA FIELD
SEC. 6-20N-12W
SAN JUAN COUNTY
NEW MEXICO

1. VOLUMETRIC*

$$Vb\ Ac\text{-}ft = \frac{G}{43560\ (\emptyset)\ (1\text{-}Sw)\ (Bg)} \qquad Bg = 35.35\ \frac{P}{T}\ (z)$$

Where:

Vb = Ac-Ft — Sw = Water Sat., %
P = Porosity, % — G = Gas Prod., SCF**
Tc= RH (131 + 460), 591°R — P/Z= (Init'l), 2624
H = Avg Net Thickness, 70 ft.

$$Vb\ (Ac\text{-}ft) = \frac{1.0636 \times 10^9}{43560\ (.15)\ (1\text{-}.10)\ (168.91)} \qquad Bg = \frac{35.35\ (2624)}{591} = \frac{}{}$$

Ac-ft = 1606.2 — Bg = 168.91

Acres Drained = (1606.2) ÷ (70) = 22.94

2. EQUIV. DRAINAGE RADIUS

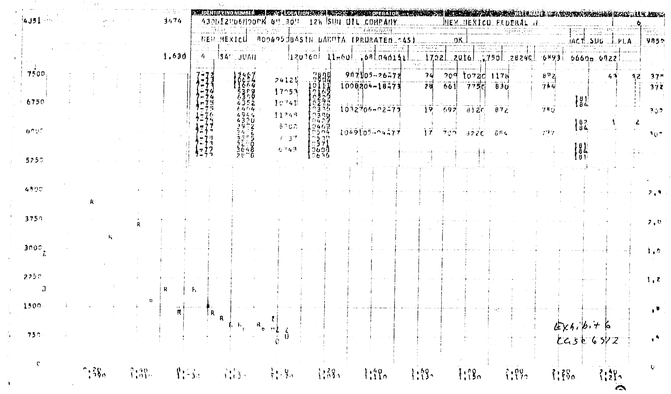
Radius, ft = $\sqrt{(43560)\ (Acres)}$

Radius, ft = $\sqrt{(43560)\ (102.97)}$

Radius, ft = 566.0 ft

*Applied Petroleum Reservoir Engineering, Craft and Hawkins, Pgs. 24-27
**Natural Gas Well Prod. Hist., Pamphlets 71-79

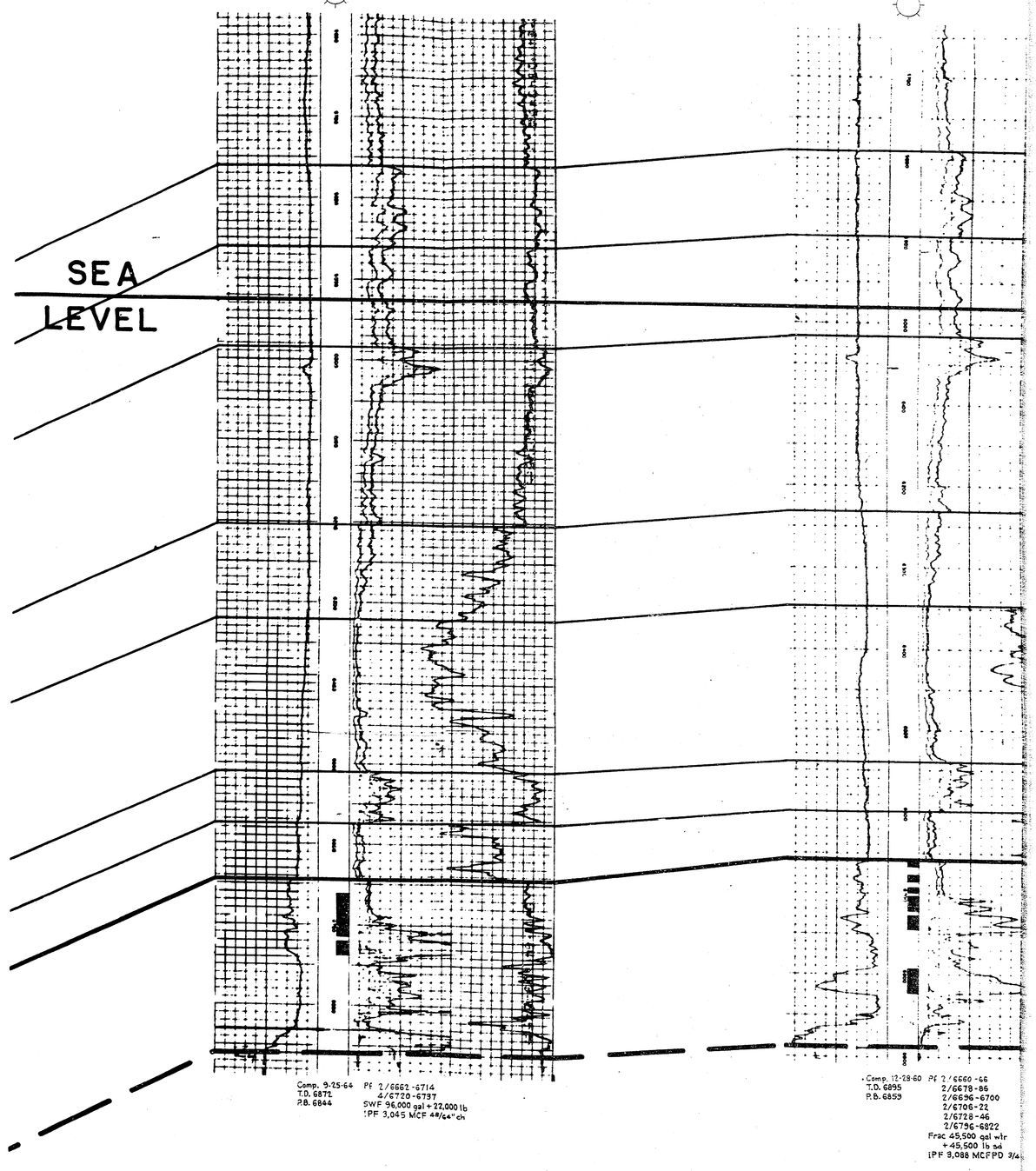
Ex 6, b, + 5
Case 6312


EX4,6,7,6
EG3,6,5,Z

A

AZTEC 1-A
HOLDER
SEC. 6 T30N R12W
EL. 5923DF

SUN OIL CO.-6
N.M. FEDERAL "N"
SEC.6 T30N R12W
EL. 5977DF



Comp. 9-25-64
T.D. 6872
P.B. 6844
Pf 2/6662-6714
4/6720-6737
SWF 96,000 gal + 22,000 lb
IPF 3,045 MCF 48/64" ch

Comp. 12-28-60
T.D. 6895
P.B. 6859
Pf 2/6660-66
2/6678-86
2/6696-6700
2/6706-22
2/6728-46
2/6796-6822
Frac 45,500 gal wtr
+45,500 lb sd
IPF 3,088 MCFPD 3/4

NORTH

SUN OIL CO.-6
N.M. FEDERAL "N"
SEC.6 T30N R12W
EL. 5977DF

SUN OIL CO.-4
N.M. FEDERAL "N"
SEC. 7 T30N R12W
EL. 6008DF

SKELLY

UPPER GALLUP

LOWER GALLUP

SANASTEE

MANCOS SHALE

GREENHORN LS

GRANEROS SH

DAKOTA

MORRISON FM

,000 lb
:e* ch

· Comp. 12-28-60
T.D. 6895
P.B. 6859

Pf 2/6660-66
2/6678-86
2/6696-6700
2/6706-22
2/6728-46
2/6796-6822
Frac 45,500 gal w/tr
+45,500 lb sd
IPF 3,088 MCFPD 3/4" ch

Comp. 11-24-60
T.D. 6970
P.B. ?

Pf 4/6706-19
6725-36
6756-60
6775-85
6850-60
SWF 80,000 gal + 80
IP CAOF 3,800 MCF

LINE OF SECTION
SCALE: 1"= 1000'

R13W R12W
T31N
T30N
A
A'

NORTH

SUN OIL CO.-4
N.M. FEDERAL "N"
SEC. 7 T30N R12W
EL. 6008DF

SUN OIL CC
N.M. FEDERA
SEC. 7 T30N
EL. 5937I

SKELLY

UPPER GALLUP

LOWER GALLUP

SANASTEE

MANCOS SHALE

GREENHORN LS

GRANEROS SH

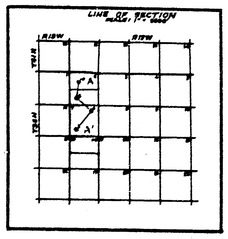
DAKOTA

MORRISON FM

Comp. 11-24-60
T.D. 6970
P.B. ?

P: 4/6708-19
6725-36
6756-60
6773-85
6850-60
SWF 80,000 gal + 80,000 lb
IP CAOF 3,800 MCFPD 3/4"ch

Comp. 12-19-60
T.D. 6809
P.B. 6777



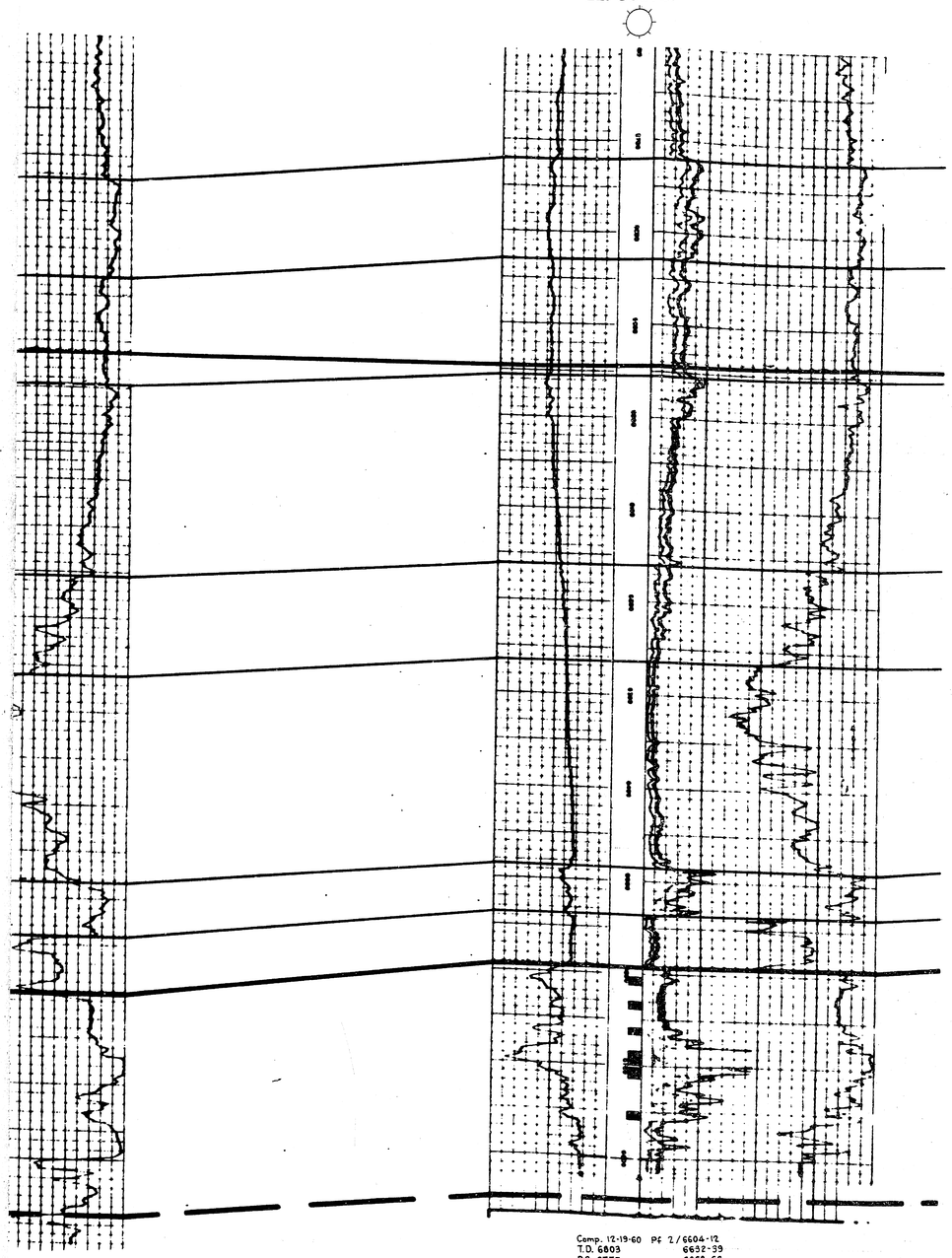
SUN OIL CO.-5

N.M. FEDERAL "N"

SEC. 7 T30N R30W

EL. 5937DF

A'



Comp. 12-19-60
T.D. 6803
P.B. 6777

Pf 2/6604-12
6632-39
6660-66
6684-99
6703-14
6752-59

Frac 80,000 gal wtr
+ 80,000 lb sd

IPF 3,321 MCFPD 3/4" ch

,000 lb
PD 3/4"ch

EXHIBIT C
CASE 6212

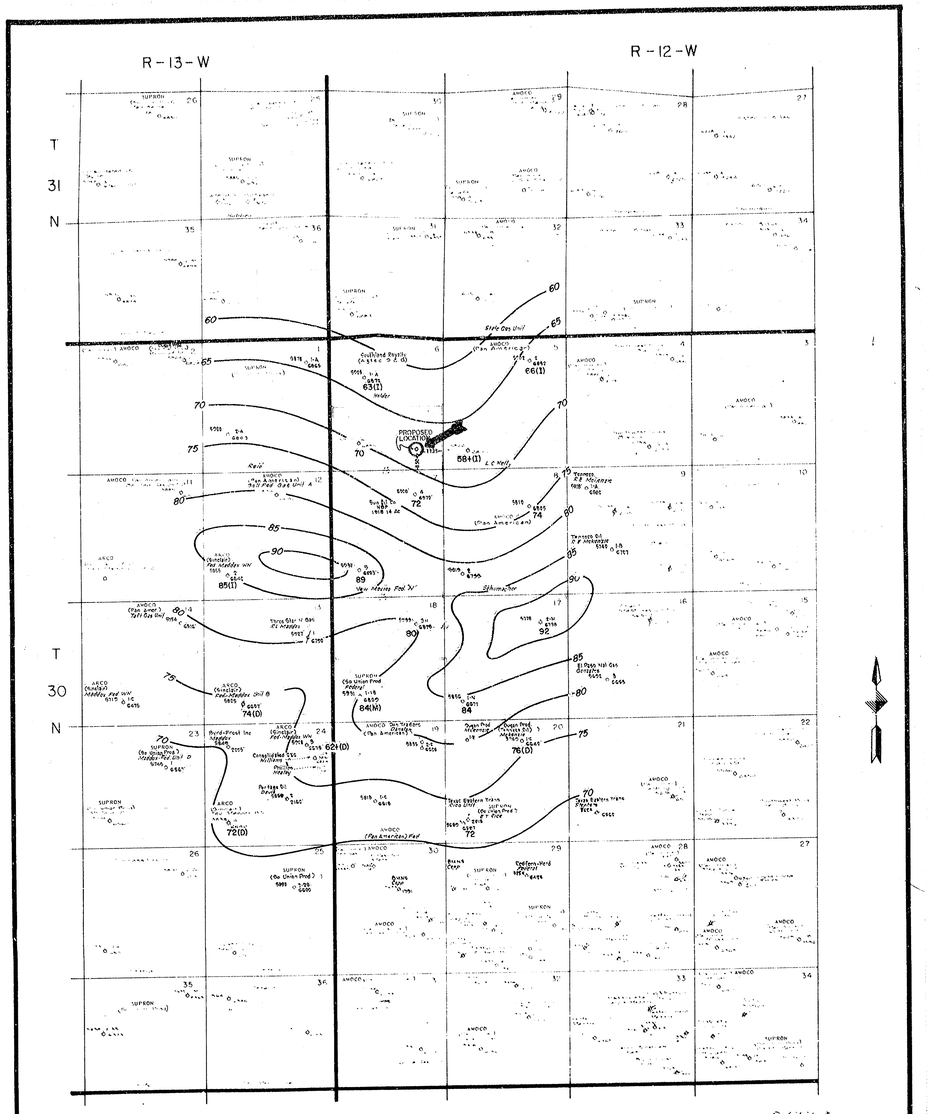
STRUCTURAL CROSS SECTION

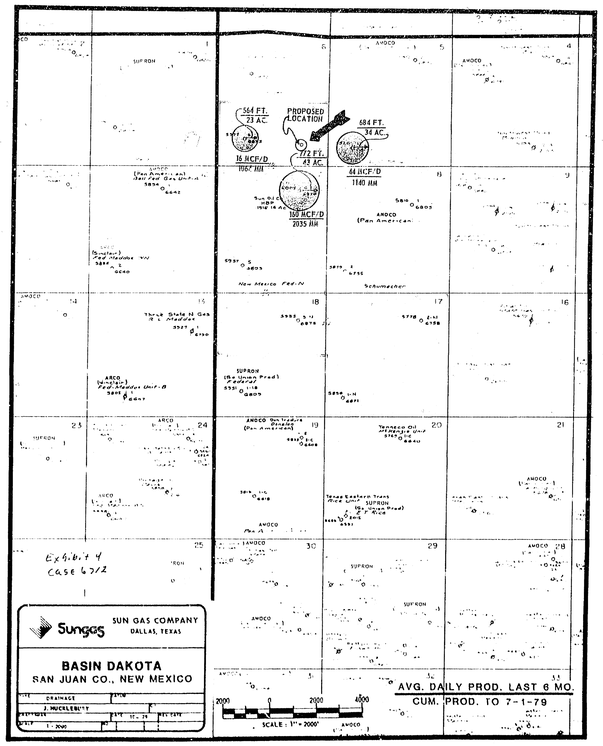
SAN JUAN COUNTY, NEW MEXICO

BASIN DAKOTA FIELD

VERTICAL SCALE: 2"=100' GEOLOGY BY: G.J. HOWARD

HORIZONTAL SCALE: 1"=500'


R-13-W
R-12-W
T 31 N
T 30 N
PROPOSED LOCATION
Exhibit 3
Case 6314
LEGEND
004-FULL PAY NOT PENETRATED
(I)- INDUCTION ELECTRICAL LOG ONLY
(D)- INDUCTION ELECTRICAL-DENSITY
(M)- INDUCTION ELECTRICAL-MICRO LOG
INDUCTION ELECTRICAL-SONIC
2000 0 2000 4000
Sungas
SUN GAS COMPANY
DALLAS, TEXAS
BASIN DAKOTA AREA
SAN JUAN CO., NEW MEXICO


564 FT.
23 AC.
PROPOSED
LOCATION
772 FT.
43 AC.
684 FT.
34 AC.
16 MCF/D
1067 MM
44 MCF/D
1140 MM
100 MCF/D
2035 MM
SUPRON
AMOCO
ARCO
Exhibit 4
Case 672
Sunoco
SUN GAS COMPANY
DALLAS, TEXAS
BASIN DAKOTA
SAN JUAN CO., NEW MEXICO
DRAWN
J. MUCKLEROY
SCALE 1" = 2000'
2000 0 2000 4000
SCALE : 1" = 2000'
AVG. DAILY PROD. LAST 6 MO.
CUM. PROD. TO 7-1-79

DRAINAGE ESTIMATE
SUN'S NEW MEXICO FEDERAL "N" NO. 6
BASIN DAKOTA FIELD
SEC. 6-30N-12W
SAN JUAN COUNTY
NEW MEXICO

1. VOLUMETRIC*

$$Vb\ Ac\text{-}Ft = \frac{G}{43560\ (\beta)\ (1\text{-}Sw)\ (Bg)}$$

$$Bg = 35.35\ \frac{P}{(T)\ (Z)}$$

Where:

Vb = Ac-Ft
β = Porosity, 15%
Tsc= BHT (131 + 460), 591°R
H = Avg Net Thickness, 70 Ft
Sw = Water Sat., 40%
G = Gas Prod., SCF**
P/Z= (Initial), 2824

$$Vb\ (Ac\text{-}Ft) = \frac{1.0536 \times 10^9}{43560\ (.15)\ (1\text{-}.40)\ (168.91)} \qquad Bg = \frac{35.35\ (2824)}{591}$$

Ac-Ft = 1606.2 Bg = 168.91

Acres Drained = (1606.2) ÷ (70) = 22.94

2. EQUIV. DRAINAGE RADIUS

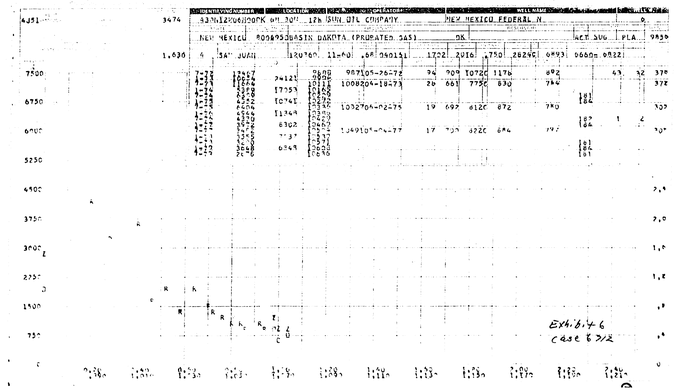
Radius, Ft = $\sqrt{(43560)\ (Acres)}$

Radius, Ft = $\sqrt{(43560)\ (22.94)}$

Radius, Ft = 564.0 Ft

*Applied Petroleum Reservoir Engineering, Craft and Hawkins, Pgs. 24-27
**Natural Gas Well Prod. Hist., Dwights 7-1-79

Exhibit 5
Case 6012


4251
3474
NEW MEXICO FEDERAL N
NEW MEXICO 30045952 BASIN DAKOTA (PRORATED GAS)
SAN JUAN
1,636
7500
6750
6000
5250
4500
3750
3000
2250
1500
750
0
EX 4.8.4.6
case 8 of 2