Case Number.

4140

Application

Transcripts.

Small Exhibits

ETC.

BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
EXHIBIT NO. I
CASE NO. 4139 - 4140

EXHIBIT NO. I

DATA FOR
PROPOSED MILNESAND (SAN ANDRES) UNIT
WATERFLOOD PROJECT

OIL CONSERVATION COMMISSION HEARING
CASE NO. 4140

MAY 21, 1969

UNION TEXAS PETROLEUM

MIDLAND DISTRICT

Case Number 4140
Date: May 21, 1969

G E N E R A L

Pertinent Exhibit(s)

OPERATOR Union Texas Petroleum

PROJECT Milnesand (San Andres) Unit Waterflood — 1A

POOL Milnesand San Andres

LOCATION OF PROJECT Located in Township 8 South, Ranges 34 and 35 East approximately four miles west of the town of Milnesand, Roosevelt County, New Mexico.

NUMBER OF WELLS IN PROJECT 115 San Andres formation completions — 1A

UNIT AND PROJECT AREA 5370.18 acres — 1A

OTHER WATERFLOOD PROJECTS IN POOL The Pan American Horton Pressure Maintenance Project is located on the southeast edge of the field.

G E O L O G I C A L A N D R E S E R V O I R D A T A

RESERVOIR The San Andres Dolomite — 1B

DEPTH Approximately 4550' to pay zones.

PRODUCTIVE ZONES Three porous dolomite zones located approximately 750' below the top of the San Andres formation.

NET PAY The average net pay thickness is approximately 46'.

Case Number 4140
Date: May 21, 1969

Pertinent Exhibit(s)

DESCRIPTION OF RESERVOIR ROCK San Andres dolomite, fine to medium crystalline, brown, with pinpoint to vuggy porosity.

STRUCTURE The field is on the nose of a local anticline plunging to the southeast at the rate of approximately 100 feet per mile. 1C

RESERVOIR LIMITS The productive limits of the field are defined by a reduction in porosity and permeability on the east and west edges, water to the southeast and gas on the north and northwest.

AVERAGE POROSITY OF NET PAY 6.13%

AVERAGE PERMEABILITY OF NET PAY 6 mds.

P R I M A R Y O P E R A T I O N S

DATE OF FIRST PRODUCTION July, 1958

TOTAL NUMBER OF WELLS DRILLED 115 San Andres in project Area 1A

CUMULATIVE PRODUCTION, 3-1-69 4,391,395 1D-1E

Case Number 4140
Date: May 21, 1969

Pertinent Exhibit(s)

REMAINING PRIMARY RESERVES, 3-1-69 1,247,760

AVERAGE DAILY OIL PRODUCTION PER WELL, Feb., 1969 6.1 Bbls. 1D-1E

ORIGINAL RESERVOIR PRESSURE 1650 (estimated)

OIL GRAVITY 29° API

DRIVE MECHANISM Solution gas drive

STAGE OF DEPLETION The project area is approximately 78% depleted of primary oil reserves

ESTIMATED OIL RECOVERY THROUGH PRIMARY OPERATIONS 5,639,155

W A T E R F L O O D O P E R A T I O N S

PROPOSED PATTERN Inverted Nine Spot 1A

NUMBER OF INPUT WELLS 28 1A

INITIAL INJECTION RATES Up to 700 barrels of water per day per input well

ESTIMATED INJECTION PRESSURES Maximum of 2000 psi at the well head. The injection plant will be designed for 2500 psi maximum pressure

PLAN OF INJECTION Inject into the pay zone through plastic coated tubing and below a packer 1F-1G

SOURCE OF INJECTION WATER Water produced from the Devonian formation in the Crossroads Field.

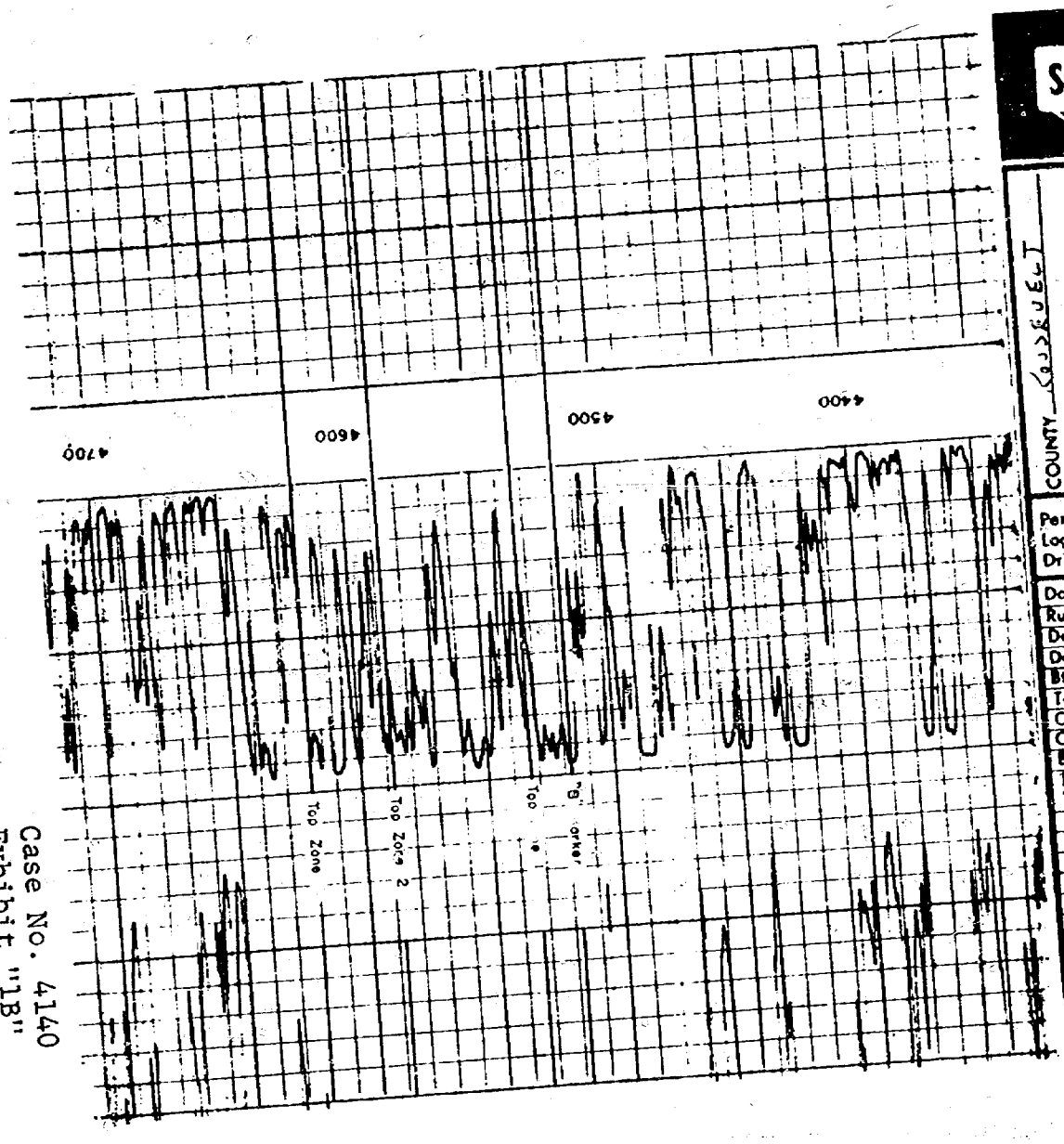
Case Number 4140
Date: May 21, 1969

Pertinent
Exhibit(s)

TYPE OF WATER Saline. The Devonian water containes approximately 37,000 ppm. chloride.

TREATMENT OF WATER Chemical treatment for scale and corrosion mitigation will be used as deemed necessary.

ADDITIONAL OIL RECOVERY ANTICIPATED A minimum of 4,229,400 barrels, an amount equal to 75% of the estimated ultimate primary oil recovery in the unit area.



SCHLUMBERGER

LATEROLOG

SCHLUMBERGER WELL SURVEYING CORPORATION
Houston, Texas

COMPANY Cities Service Oil Company

WELL ~~CSO~~ #1 Gov. "J" (2)

FIELD Milnesand

COUNTY Roosevelt STATE New Mexico

LOCATION 660' FSL 1980' FWL

Sec. 5 Twp. 8 S Rge. 35 E

Other Services: SGR - MLL

Permanent Datum: Ground Level Elev. 4243

Log Measured From KB 9 Ft. Above Perm. Datum

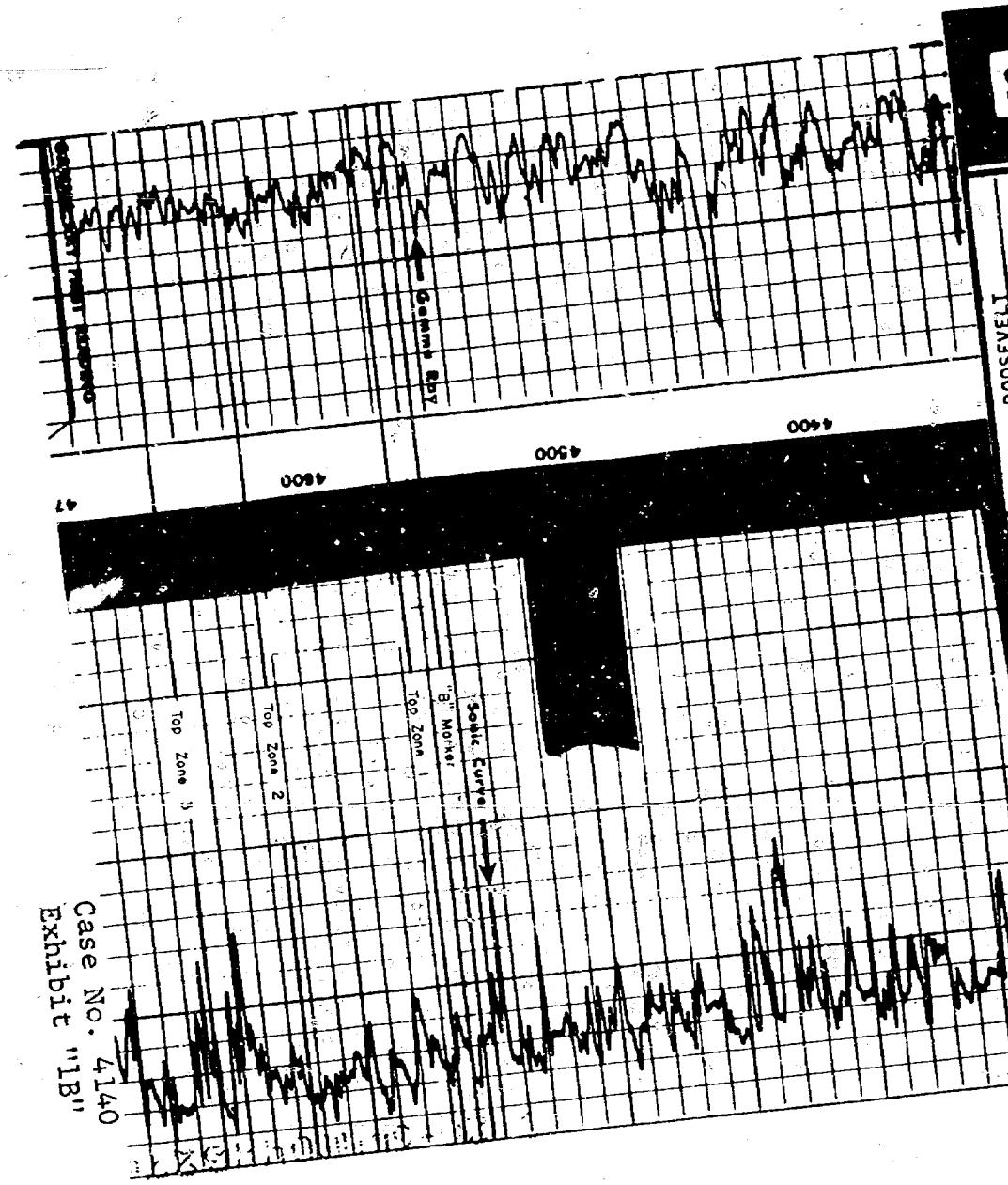
Drilling Measured From KB

Elev.: K.B. 4252 D.F. 4251 G.L. 4243

Date	11-17-64
Run No.	ONE
Depth—Driller	4740
Depth—Logger	4734
Btm. Log Interval	4739
Top Log Interval	3800
Casing—Driller	8 5/8" @ 410
Casing—Logger	—
Bit Size	7 7/8
Type Fluid in Hole	SALT GEL STARCH
Dens. / Visc.	10.4 / 34
pH / Fluid Loss	N.A. / 10.8 ml
Source of Sample	CIRCULATED
R_m @ Meas. Temp.	.061 @ 65 °F
R_{mf} @ Meas. Temp.	.047 @ 67 °F
R_{mc} @ Meas. Temp.	.103 @ 67 °F
Source: R_{mf} / R_{mc}	M / M
R_m @ BHT	.04 @ 121 °F
Time Since Circ.	5 Hours
Max. Rec. Temp.	121 °F
Equip. / Location	9-556 / Hobbs
Recorded By	VANN
Witnessed By	NABORS-ALLISON

FIELD PRINT THANKS

Case No. 4140
Exhibit "1B"



SCHLUMBERGER

SONIC LOG - GAMMA RAY

WITH CALIPER

SCHLUMBERGER WELL SURVEYING CORPORAT
Houston Texas

COMPANY CITIES SERVICE OIL COMPANY

WELL PATE "A" # 6 (4)

FIELD MILNESAND

COUNTY ROOSEVELT STATE NEW MEXICO

LOCATION 1980' FROM N/L
660' FROM E/L

Sec. 7 Twp. 8S Rge. 35E

Other Services:
LL, MLL

Elev.: K.B. 4250
D.F. 4249
G.L. 4240

Permanent Datum: GL , Elev. 4240
Log Measured From KB 10 Ft. Above Perm. Datum
Drilling Measured From KB

COMPANY CITIES SERVICE OIL
WELL PATE "A" # 6
FIELD or LOCATION MILNESAND
COUNTY ROOSEVELT

Date	5-23-64										
Run No.	ONE										
Depth—Driller	4720										
Depth—Logger	4716										
Btm. Log Interval	4709										
Top Log Interval	0			@		@		@			
Casing—Driller	8 5/8@ 425										
Casing—Logger	-										
Bit Size	7 7/8"										
Type Fluid in Hole	SALT GEL, STARCH										
Dens. Visc.	10.9 37				mf		mf		mf		mf
pH Fluid Loss	6.0 16 ml										
Source of Sample	CIRC.			@ °F		@ °F		@ °F		@ °F	
R_m @ Meas. Temp.	.049 @ 93 °F			@ °F		@ °F		@ °F		@ °F	
R_{mf} @ Meas. Temp.	.035 @ 91 °F			@ °F		@ °F		@ °F		@ °F	
R_{mc} @ Meas. Temp.	.078 @ 91 °F										
Source: R_{mf} R_{mc}	M M			@ °F		@ °F		@ °F		@ °F	
R_m @ BHT	.042 @ 110 °F				°F		°F				
Time Since Circ.	3 HOURS				°F						
Max. Rec. Temp.	110 °F										
Equip. Location	2519 HOBBS										
Recorded By	BROWN										
Witnessed By	MADDRS										

Case No. 4140
Exhibit "1B"

PAN GEO ATLAS CORP.

PGAC Acoustic-Gamma Ray Log

FILE NO.

COMPANY SOCONY MOBIL OIL COMPANY

WELL JACOBS FEDERAL # 6 (14)

FIELD MILNESANDS (SAN ANDRES)

COUNTY ROOSEVELT STATE NEW MEXICO

LOCATION: 660 FS & EL

SEC 19 TWP 8-S RGE 35-E

Other Services: LL-3

Permanent Datum G.L. Elev. 4212

Log Measured from K.B. 11.8 Ft. Above Permanent Datum

Drilling Measured from K.B.

Elevations: KB 4223.8, DF 4222.8, GL 4212

Date	11-28-64
Run No.	ONE
Total Depth Driller	4800
Total Depth PGAC	4792
Bottom Logged Interval	4786
Casing Driller	370
Casing PGAC	368
Footage Logged	A-2386
Mud Type	SALT BRINE
Density / Visc.	10.4 / 41
Max. Temp. (F)	106
Rec. To Rec. Spacing	1'
Trans. To Rec. Spcg.	4'
Logging Instrument	TS-135-TELB-40-2
Equip. No.	ES-114
Recorded By	HAY
Witnessed By	MR. RIVERS

DUPLICATE

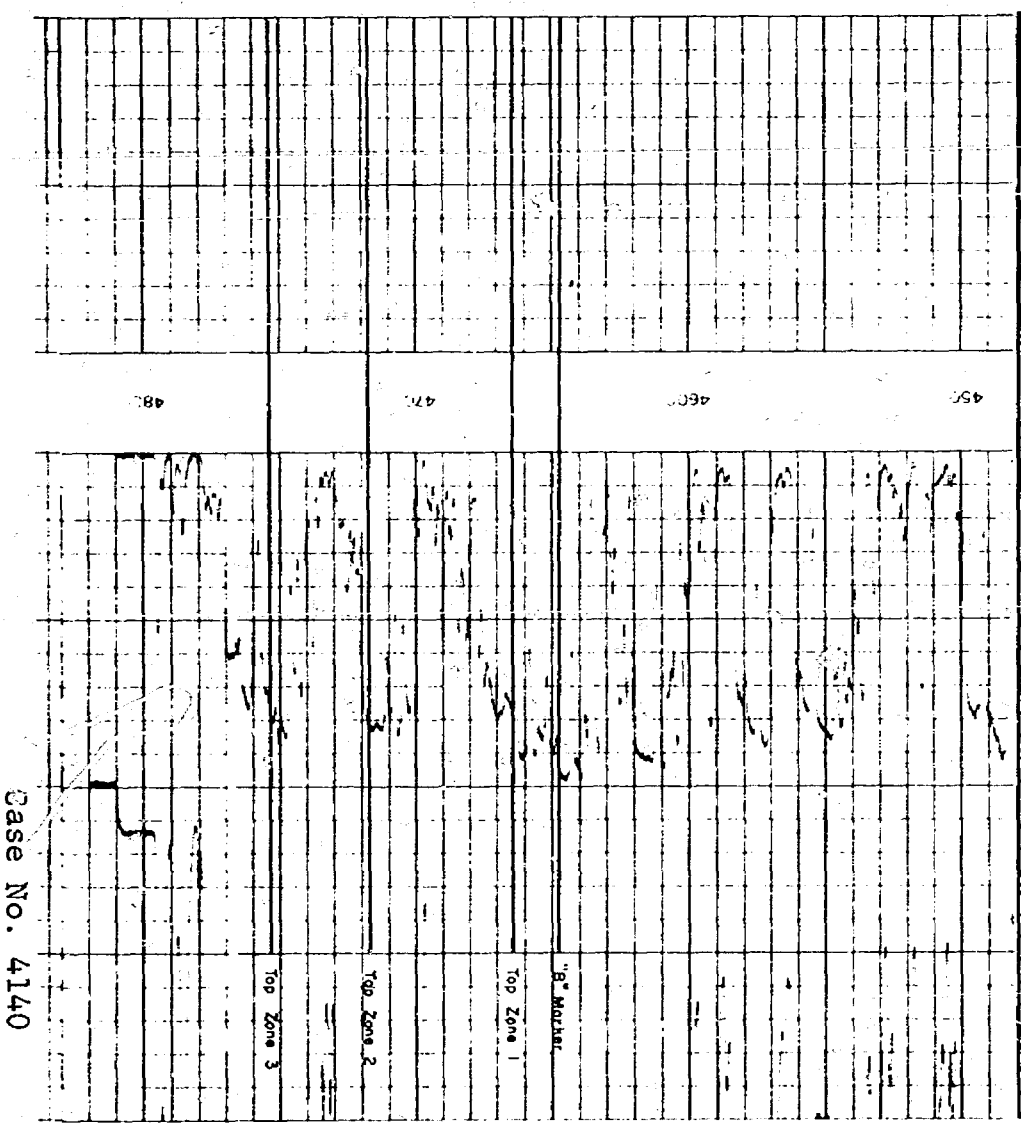
BORE HOLE RECORD

Bit Size	From	To
7 7/8	370	4800

CASING RECORD

Csg. Size	Csg. Wt.	From	To
8 5/8		SURFACE	370

Case No. 4140
Exhibit "1B"



PAN GEO ATLAS CORP.

PGAC *Laterolog Survey*

FILE NO.

COMPANY Secany Mobil Oil Co.

WELL Jacobs Federal #9 114

FIELD Milnesand (San Andres)

COUNTY Roosevelt STATE New Mexico

LOCATION: 660' FSL & 1980 FWL

SEC 20 TWP 8-S RGE 35-E

Other Services
APL
A/G/C
MLL

Permanent Datum G.L. Elev.

Log Measured from K.B. 10 Ft. Above Permanent Datum

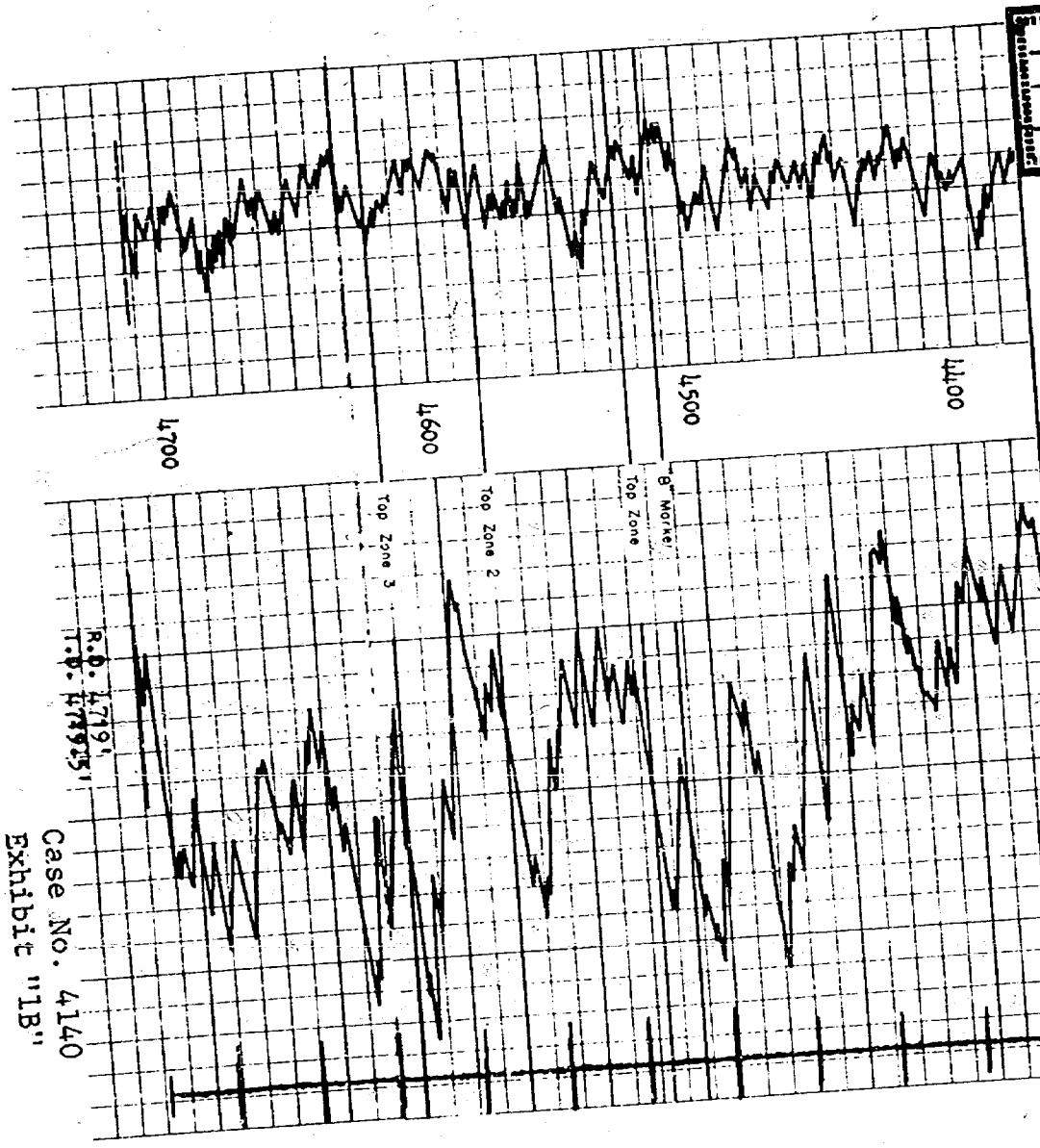
Drilling Measured from K.B.

Elevations:
KB 4213
DF 4212
GL 4203

Date	1-10-66			
Run No.	one			
Depth—Driller	4800			
Depth—Logger	4802			
Bottom Logged Interval	4796			
Top Logged Interval	3400			
Casing—Driller	8 5/8 @ 370	@	@	@
Casing—Logger	Not Detected			
Bit Size	7 7/8			
Type Fluid in Hole	Salt Brine			
Density and Viscosity	10.1 34			
pH and Fluid Loss	8 Not Controlled	cc	cc	cc
Source of Sample	Circulated			
Rm @ Meas. Temp.	.032 @ 60 °F	@ °F	@ °F	@ °F
Rmf @ Meas. Temp.	.022 @ 60 °F	@ °F	@ °F	@ °F
Rmc @ Meas. Temp.	.042 @ 60 °F	@ °F	@ °F	@ °F
Source of Rmf and Rmc	measured			
Rm @ BHT	.018 @ 106° °F	@ °F	@ °F	@ °F
Time Since Circ.	6 hrs			
Max. Rec. Temp. Deg. F.	106° °F	°F	°F	°F
Equip. No. and Location	GL-35 Hobbs			
Recorded By	Lewis-Foreyde			
Witnessed By	Mr. Rivers			

FIELD PRINT

Case No. 4140
Exhibit "1B"



GO RADIOACTIVITY LOG

COMPANY EL CHORRO EXPLORATION, INC.

WELL JACOBS FED. #6

FIELD MILNESANO

COUNTY ROOSEVELT STATE NEW MEXICO

Location:

Sec. Twp. Rge.

Other Services:
PERFORATION LOG

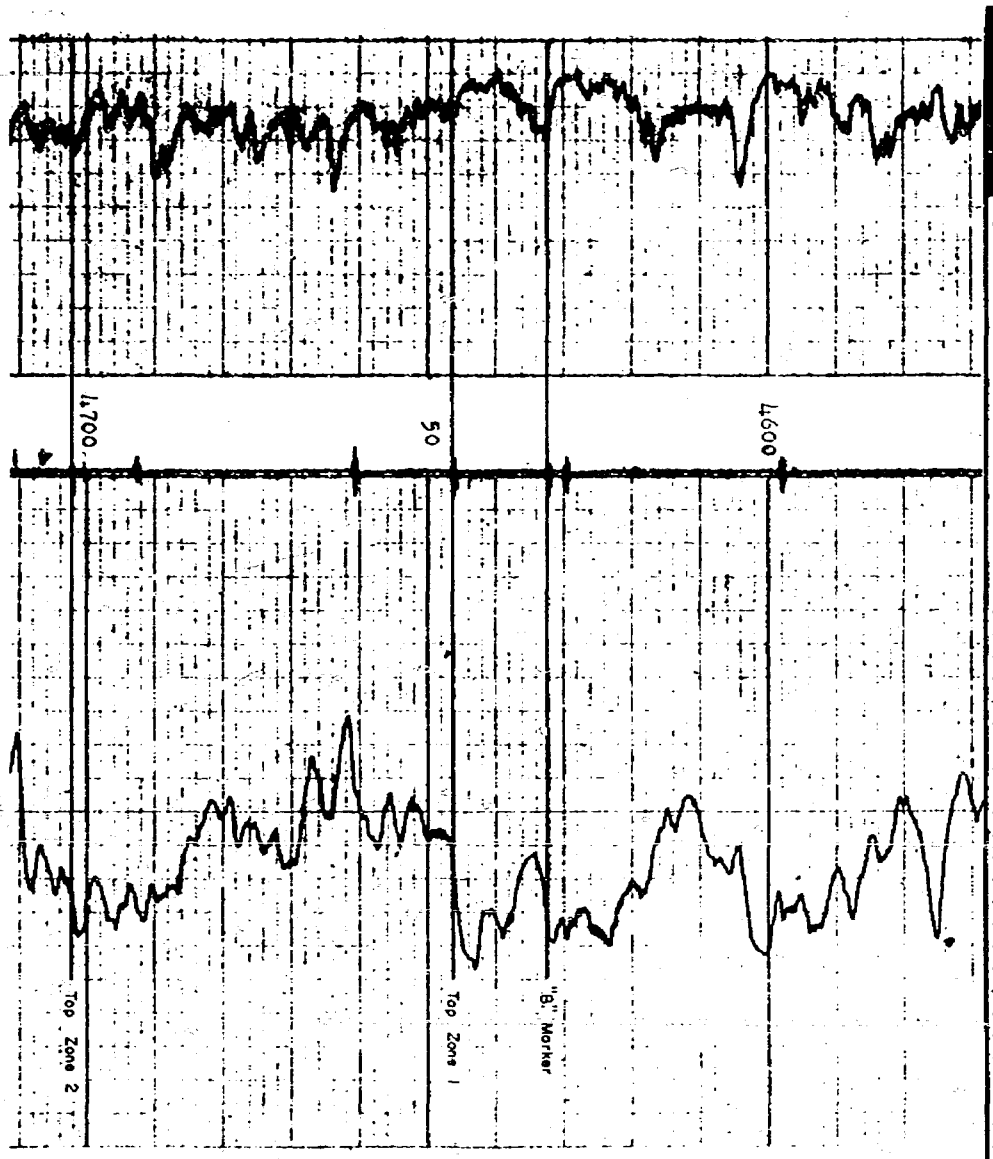
Permanent Datum: GROUND LEVEL, Elev.
Log measured from G.L. 10' ft above perm. datum
Drilling measured from K.B.

Elev.: K.B.
D.F.
G.L. 4251

Date	5-5-62
Run No.	ONE
Type Log	GR-NU
Depth—Driller	4721'
Depth—Logger	4719.5'
Bottom logged interval	4719'
Top logged interval	209'
Type fluid in hole	WATER
Salinity, PPM Cl.	FRESH
Density	8.5#
Level	209'
Max. rec. temp., deg F.	
Operating rig time	3 HRS.
Recorded by	SEAY
Witnessed by	HARRELL

RUN No.	BORE-HOLE RECORD Bit	From	To	CASING RECORD Size	Wgt.	From	To
1	7-7/8"	SURF.	T.D.	4½"	10.6	SURF.	T.D.

Case No. 4140
Exhibit "1B"



THE WESTERN COMPANY

GAMMATRON

Simultaneous Nuclear Log

FILING NO. 66421

COMPANY EL CHORRO EXPLORATION, INC.

WELL JACOBS FEDERAL #16

FIELD MILNESAND-SAN ANDRES

COUNTY ROOSEVELT STATE NEW MEXICO

LOCATION: 1654.5'FWL-990'FSL

OTHER SERVICES

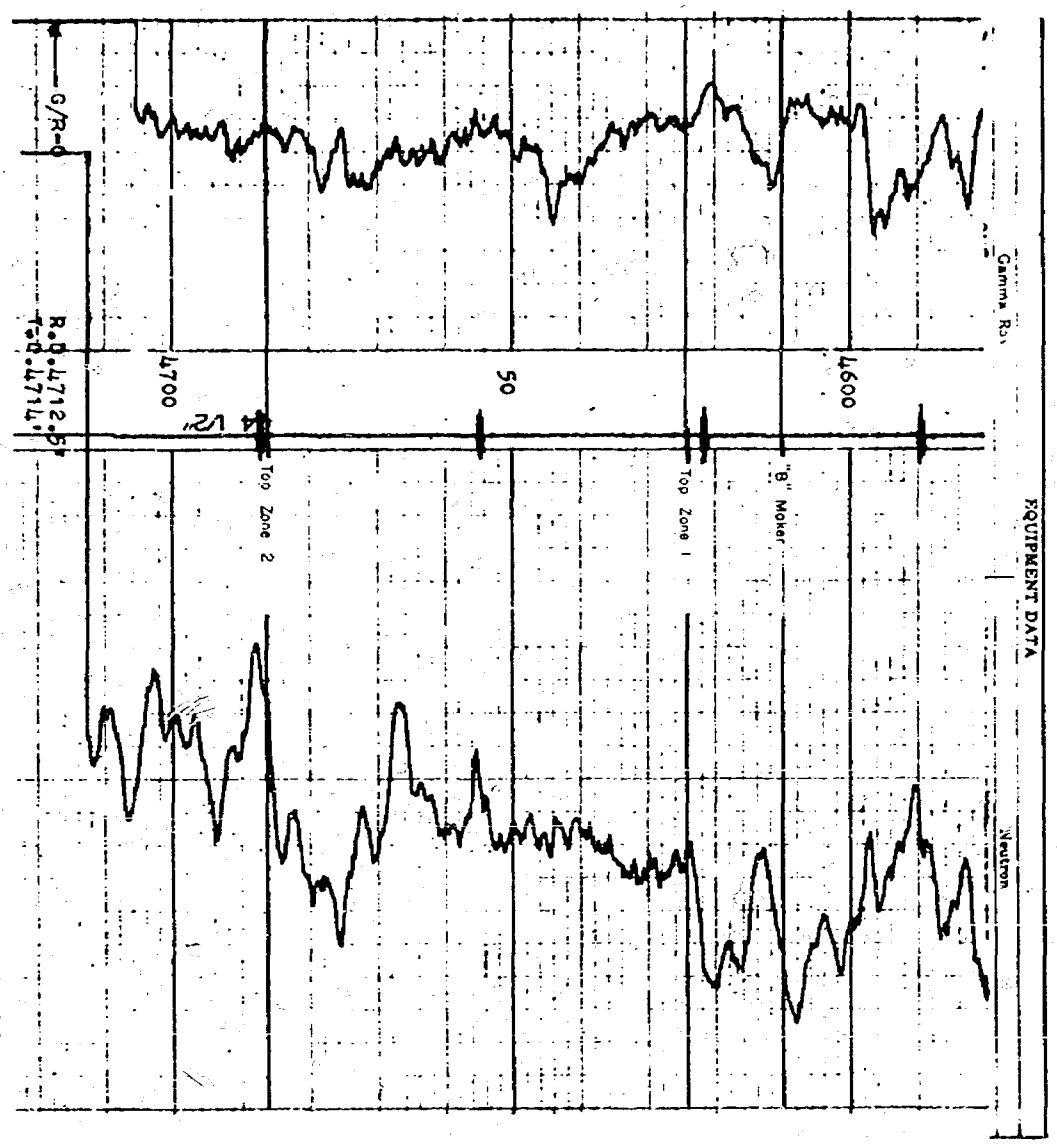
SEC. 19 TWP. 8S RGE. 35E

ELEVATIONS: KB 4239.5, DF, GL 4231

PERMANENT DATUM GROUND LEVEL ELEV. 4231		
LOG MEASURED FROM 8.5 FT. ABOVE PERMANENT DATUM		
DRILLING MEASURED FROM K.D.B.		
DATE	5/31/64	5/31/64
RUN NO.	1-NW.	1-NW
TYPE LOG	GAMMA RAY	NEUTRON
DEPTH—DRILLER	4727	4727
DEPTH—LOGGER	4722	4722
BOTTOM LOGGED INTERVAL	4713	4720.5
TOP LOGGED INTERVAL	4000	4000
TYPE FLUID IN HOLE	WATER	WATER
SALINITY PPM CL		
DENSITY		
LEVEL	FULL	FULL
MAX. REC. TEMP. DEG. F		
OPR. RIG TIME	2 HRS.	2 HRS.
RECORDED BY	JAMES	
WITNESSED BY	MR. LANDUSKY	

RUN NO.	BIT	BORE HOLE RECORD FROM	BORE HOLE RECORD TO	CASING RECORD SIZE	CASING RECORD WGT.	CASING RECORD FROM	CASING RECORD TO
				4½		SURF	4830

Case No. 4140
Exhibit "1B"



EQUIPMENT DATA

Case No. 4140
Exhibit "1B"

THE WESTERN COMPANY

Gammatron

COMPANY EL CHORRO EXPLORATION, INC.

WELL JACOBS FEDERAL # 17

FIELD MILNESAND (SAN ANDRES)

COUNTY ROOSEVELT STATE NEW MEXICO

Location: 2310'FNL & 990'FEL
SEC.19, TWP.8S, RGE.35E

Other Services:

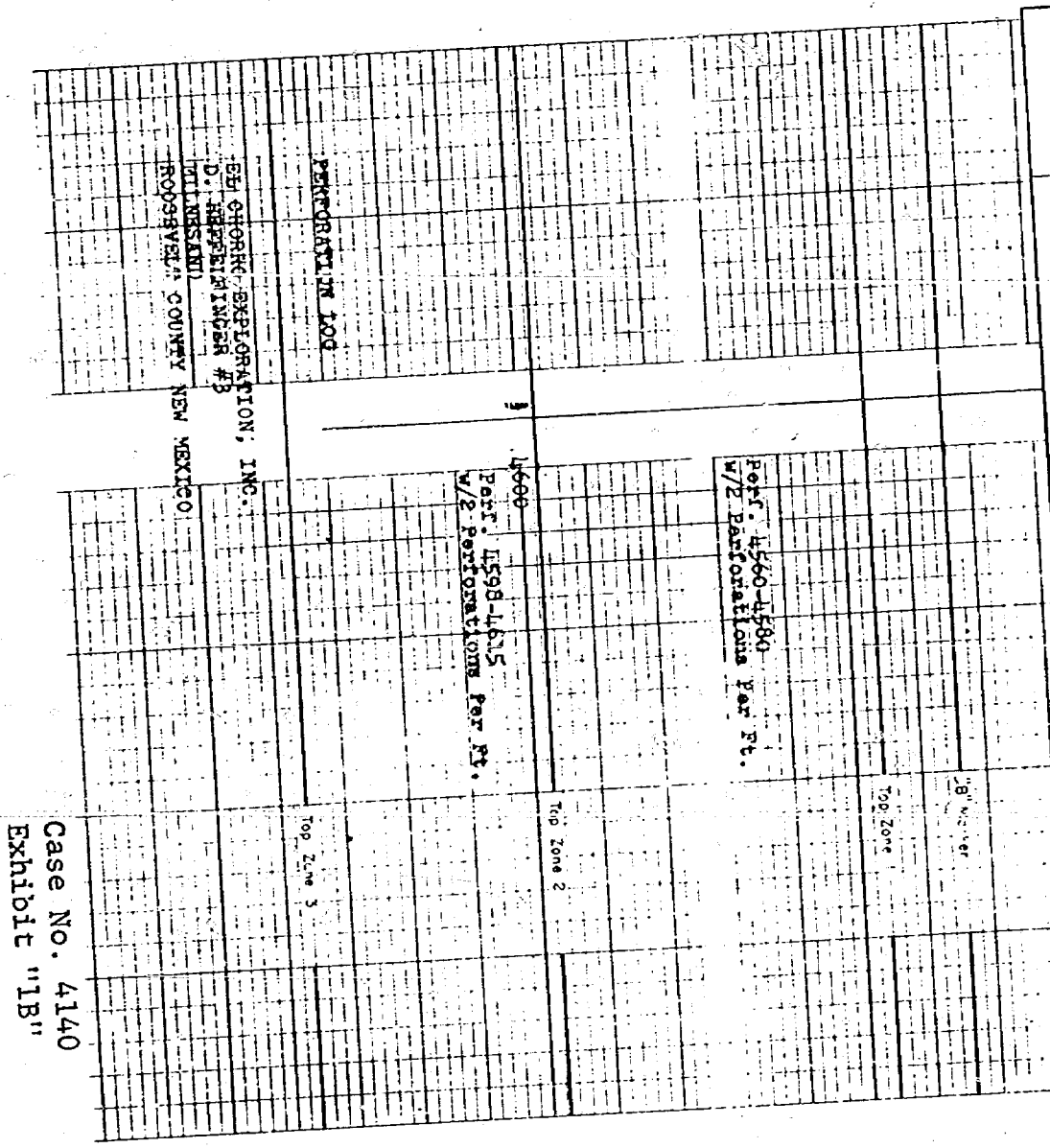
86476

Permanent Datum: GROUND LEVEL, Elev. 4231
Log measured from 8.5 ft above perm. datum
Drilling measured from K.B.

Elev.: K.B. 4239.5
D.F.
G.L. 4231

Date	8-21-64	8-21-64
Run No.	ONE	ONE
Type Log	GAMMA-RAY	NEUTRON
Depth—Driller	4714	4714
Depth—Logger	4714	4714
Bottom logged interval	4705	4712.5
Top logged interval	3900	3900
Type fluid in hole	WATER	WATER
Salinity, PPM Cl.		
Density		
Level	FULL	FULL
Max. rec. temp., deg F.		
Operating rig time		
Recorded by	CARROLL	
Witnessed by	MR. SPEARS	

RUN No.	BORE-HOLE RECORD Bit	From	To	CASING RECORD Size	Wgt.	From	To
				4½"		SURF.	T.D.



Case No. 4140
Exhibit "1B"

Well Perforators, Inc.
P. O. BOX 5014 ABILENE, TEXAS

Radioactivity Log

COMPANY El Chorro Exploration, Inc.

WELL D. Heffelfinger #3

FIELD Milnesand

COUNTY Roosevelt STATE New Mexico

Location: 1980' FNL & 1980' FWL
Sec. 18
T-8-S - R- 35 - E
Sec. Twp. Rge.

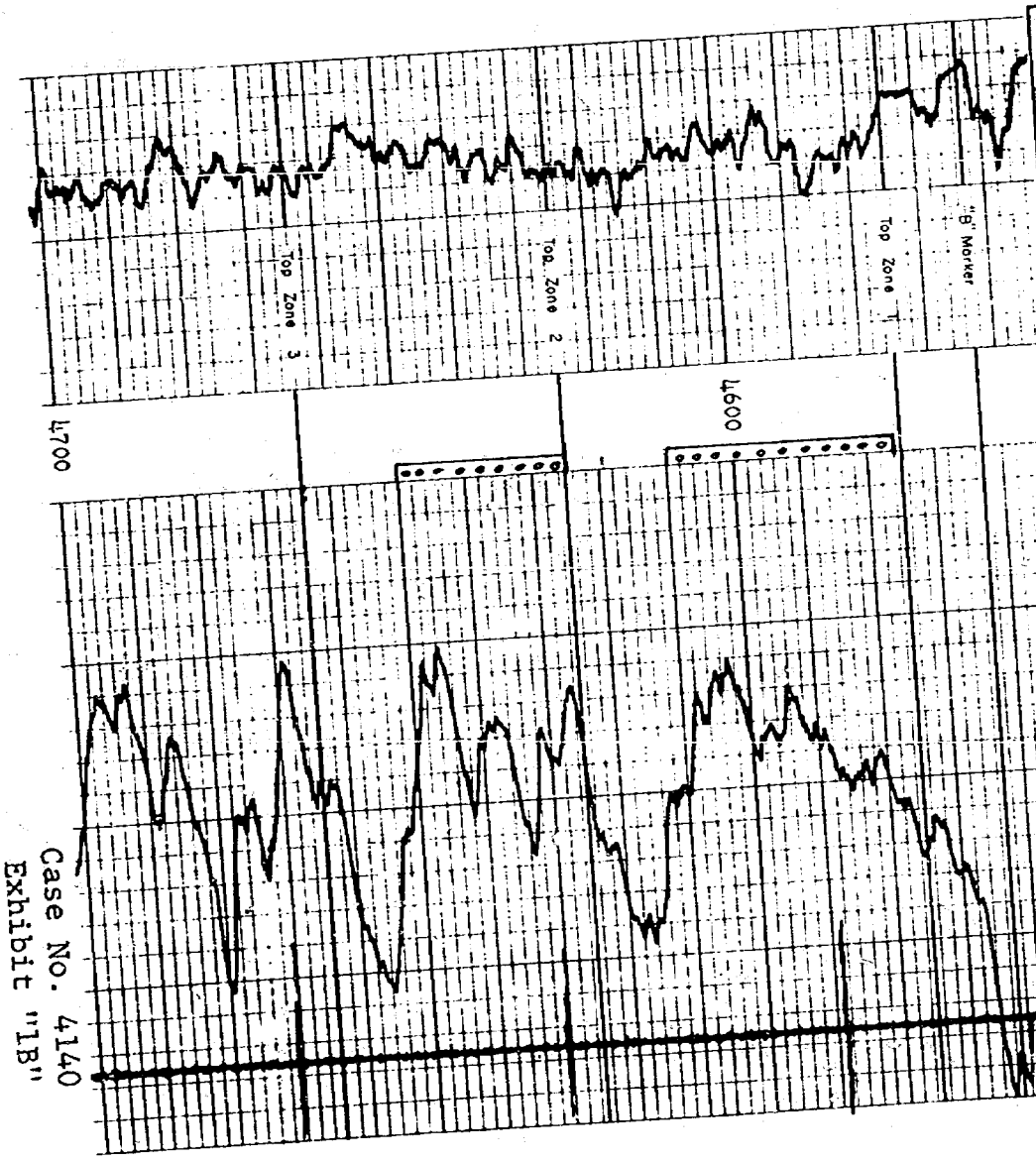
Other Services:

Permanent Datum: K. B. 12' Above G. L. Elev.
Log measured from ft above perm. datum
Drilling measured from

Elev.: K.B. 4244
D.F.
G.L. 4232

Date	7-16-62
Run No.	
Type Log	Porforation
Depth—Driller	
Depth—Logger	
Bottom logged interval	
Top logged interval	
Type fluid in hole	Water & Oil
Salinity, PPM Cl.	
Density	
Level	1700
Max. rec. temp., deg F.	
Operating rig time	
Recorded by	Morris
Witnessed by	Spears

RUN No.	BORE-HOLE RECORD Bit	From	To	CASING RECORD Size	Wgt.	From	To
				7 7/8			



Well Perforators, Inc.
P. O. BOX 5014 ABILENE, TEXAS

Radioactivity Log

COMPANY El Chorro Exploration, Inc.

WELL D. Hefflefinger #4

FIELD Milnesand San Andres

COUNTY Roosevelt STATE New Mexico

Location: 1980' FNL & 660' FEL Sec. 18 T-8-S R-35-E

Other Services:

Sec. ___ Twp. ___ Rge. ___

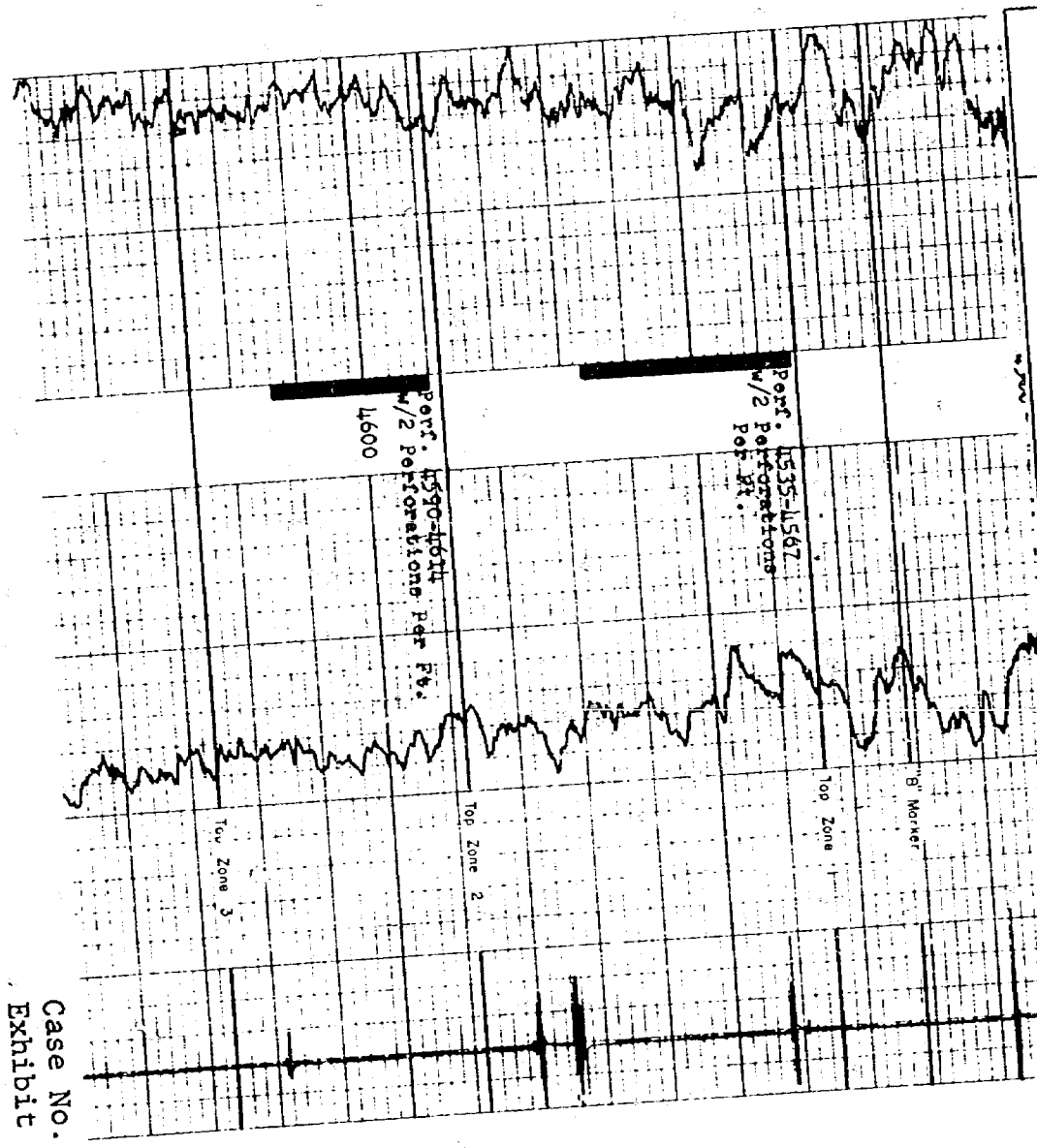
Permanent Datum: 12' Above G. L. Elev. ___
Log measured from ___ ft above perm. datum
Drilling measured from ___

Elev.: K.B. 4240
D.F.
G.L. 4228

Date	8-9-62	8-9-62
Run No.	One	One
Type Log	Gamma Ray	Neutron
Depth—Driller	4850+	4850+
Depth—Logger	4798	4798
Bottom logged interval	4788	4796
Top logged interval	4192	4200
Type fluid in hole	Water	Water
Salinity, PPM Cl		
Density		
Level	870	870
Max. rec. temp., deg F.		
Operating rig time		
Recorded by	Gregg	Gregg
Witnessed by	Spears	Spears

RUN No.	BORE-HOLE RECORD Bit	From	To	CASING RECORD Size	Wgt.	From	To
	9 7/8			7 5/8			

Case No. 4140
Exhibit "1B"



Well Perforators, Inc.

P. O. BOX 5014 ABILENE, TEXAS

Radioactivity Log

COMPANY El Chorro Exploration, Inc.

WELL A. R. Haley #5

FIELD Milnesand

COUNTY Roosevelt STATE New Mexico

Location:

Sec. Twp. Rge.

Other Services:

Permanent Datum: 12' Above G. L. Elev.

Log measured from ft above perm. datum

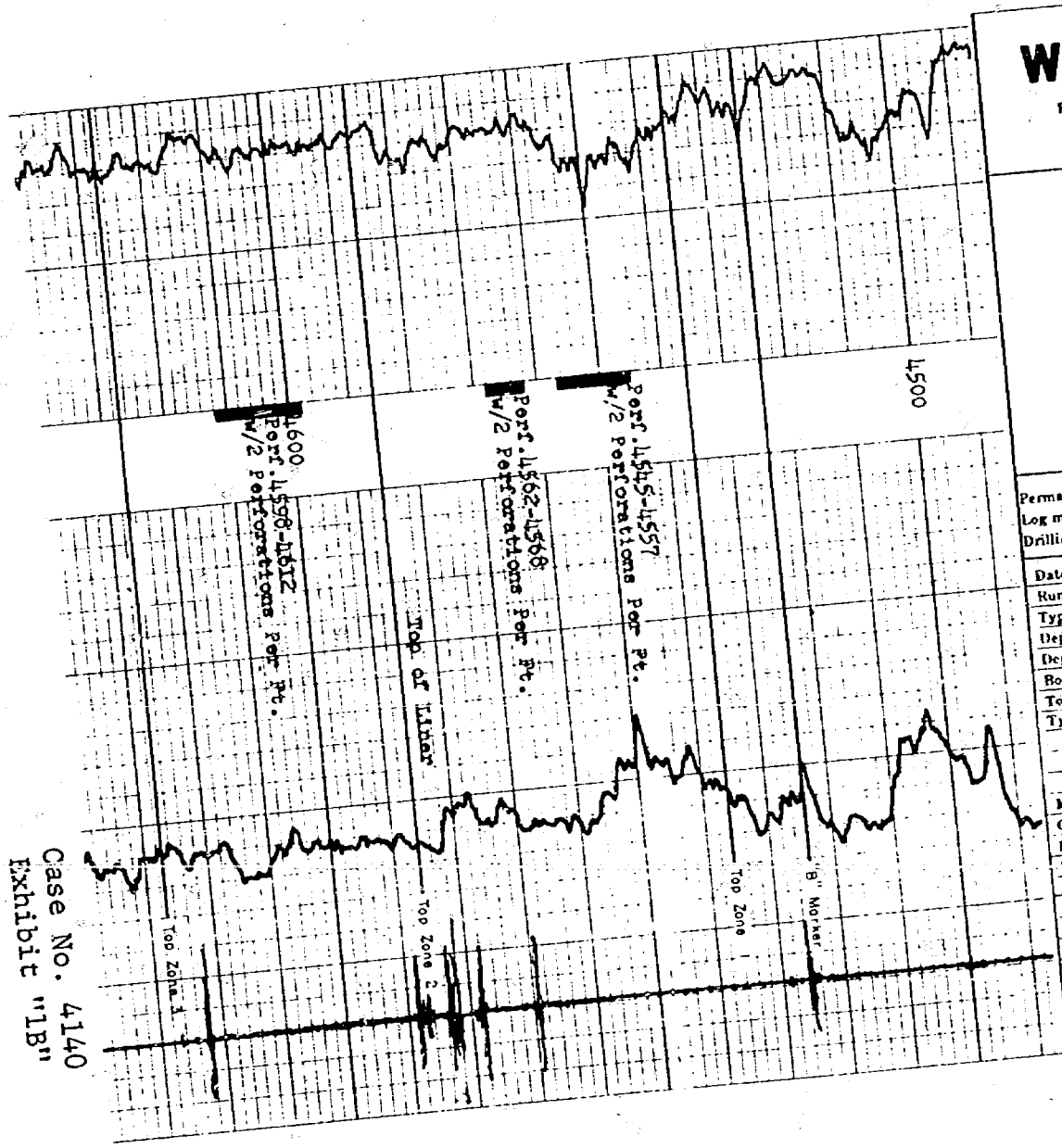
Drilling measured from

Elev.: K.B. 4248
D.F. 4247
G.L. 4236

Date	6-20-62
Run No.	One
Type Log	Gamma Ray
Depth—Driller	4951
Depth—Logger	4950
Bottom logged interval	4300
Top logged interval	Oil
Type fluid in hole	
Salinity, PPM Cl.	
Density	1000
Level	
Max. rec. temp. deg F.	
Operating rig time	
Recorded by	Morris
Witnessed by	Speers

RUN No.	BORE-HOLE RECORD Bit	From	To	CASING RECORD Size	Wgt.	From	To
				7 5/8	26.40		

Case No. 4140
Exhibit "12"



Case No. 4140
Exhibit "1B"

Well Perforators, Inc.
P. O. BOX 5014 ABILENE, TEXAS

Radioactivity Log

COMPANY El Chorro Exploration, Inc.

WELL A. R. Haley Well #6

FIELD Milnesend San Andres

COUNTY Roosevelt STATE New Mexico

Location: SE/SW Sec. 13 - T.8S R-34E

Sec. Twp. Rge.

Other Services:

Permanent Datum: 11 Above G. L. Elev. ft above perm. datum

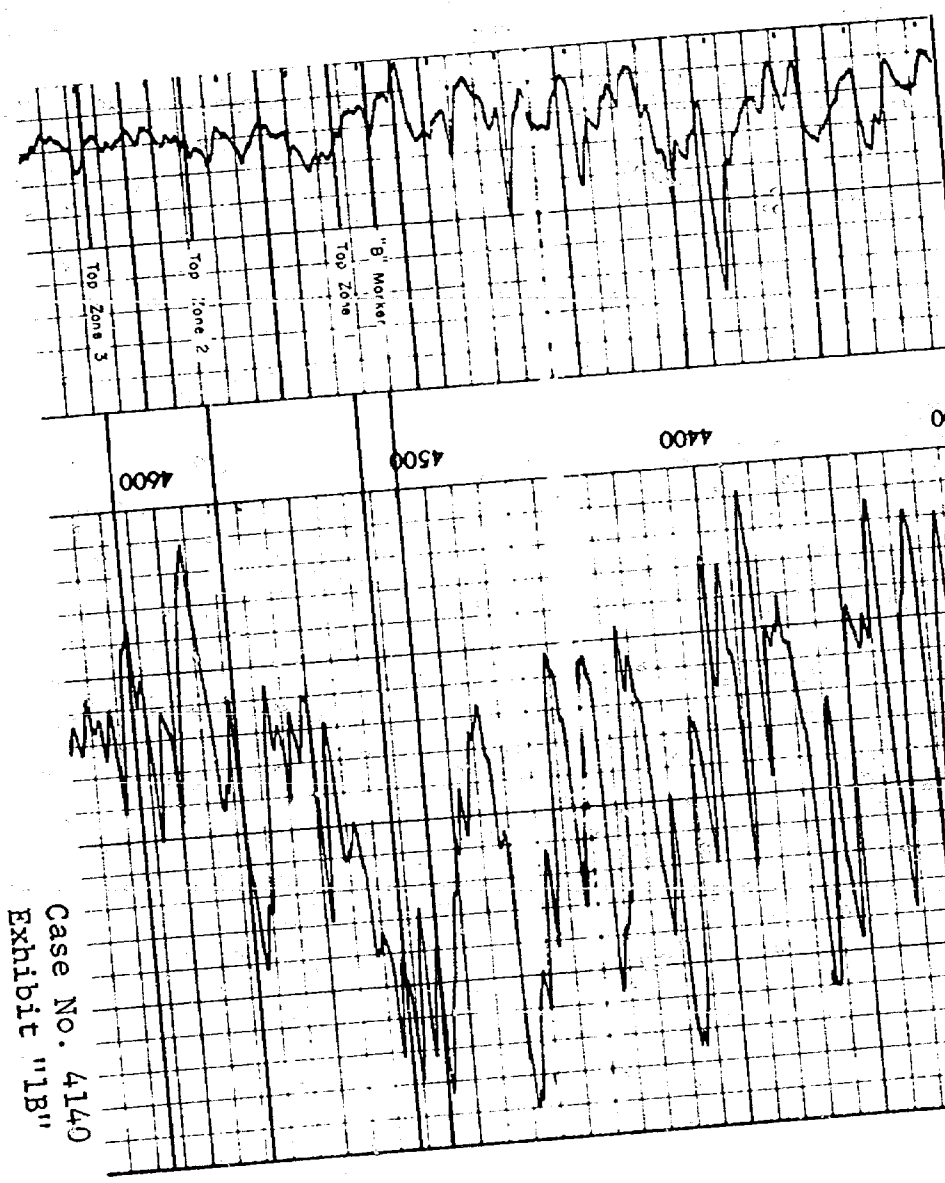
Log measured from

Drilling measured from

Elev.: K.B. 4262
D.F.
G.L. 4251

Date	8-4-62
Run No.	One
Type Log	Gamma Ray
Depth—Driller	9200+
Depth—Logger	9100 (Plug)
Bottom logged interval	4700
Top logged interval	4350
Type fluid in hole	
Salinity, PPM Cl.	
Density	
Level	
Max. rec. temp., deg F.	
Operating rig time	
Recorded by	Gregg
Witnessed by	Spoars

RUN No.	BORE-HOLE RECORD Bit	From	To	CASING RECORD Size	Wgt.	From	To
	9 7/8&7 3/4			7 5/8&5½			



WELEX

RADIOACTIVITY LOG

COMPANY LARIO OIL & GAS COMPANY

WELL FEDERAL # 3-A

FIELD MILNESAND (SAN ANDRES)

COUNTY ROOSEVELT STATE NEW MEXICO

Location 660'FSL 660'FEL

Sec. 14 Twp 8-S Rge 34-E

Other Services:

Permanent Datum Ground Level Elev. 4259

Log Measured from K. B. 8 Ft. Above Perm. Datum

Drilling Measured From Kelly Bushing

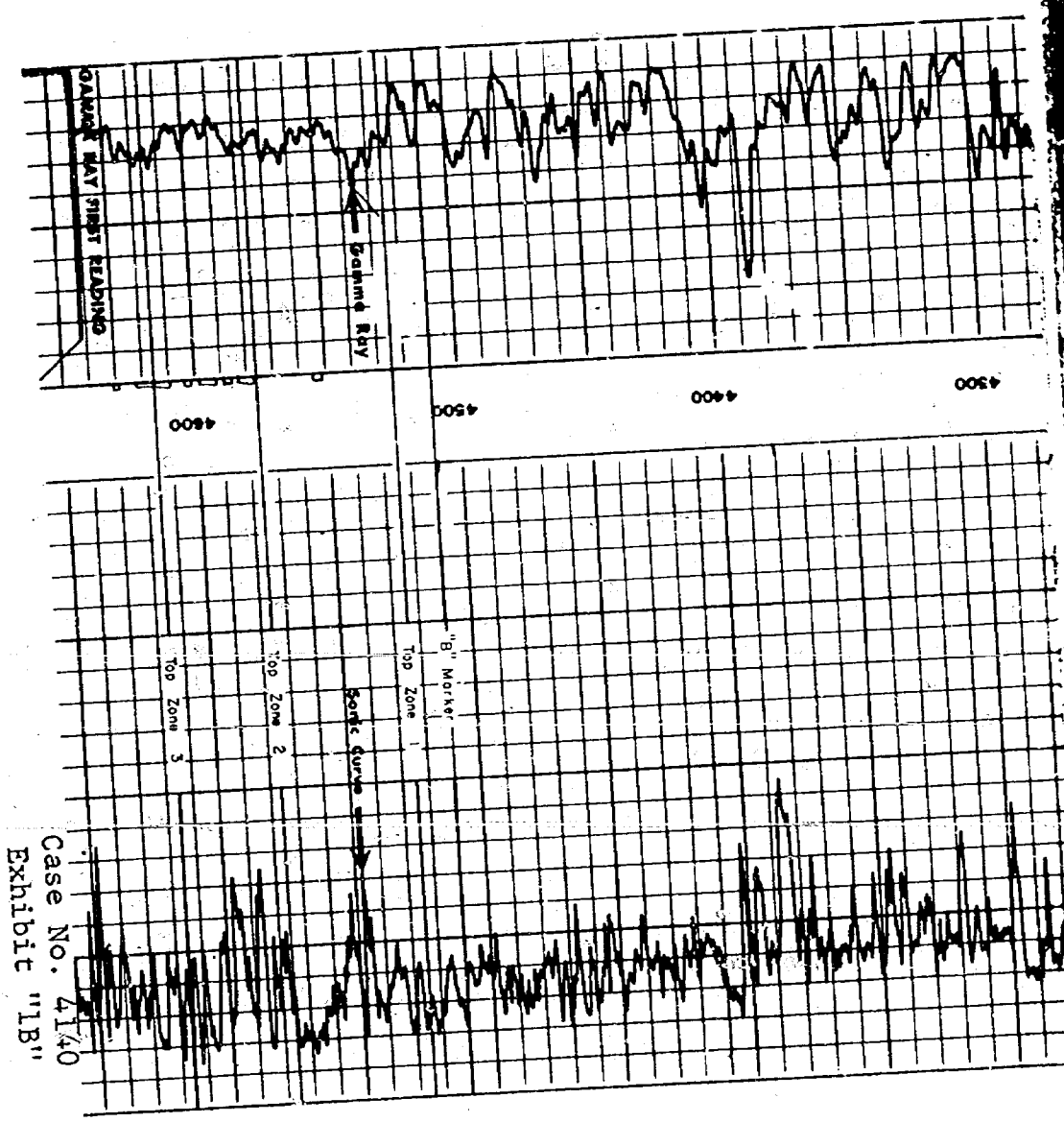
Elev.: K.B. 4267
D.F. 4266
G.L. 4259

Data	7-25-63	7-25-63
Run No.	- One -	- One -
Type Log	Gamma	Neutron
Depth—Driller	4680	4680
Depth—Welex	4680	4680
Bottom Logged Interval	4670	30
Top Logged Interval	20	Mud
Type Fluid in Hole	Mud	
Salinity, PPM Cl.		
Density	Full	Full
Level	103°	103°
Max. rec. temp., deg. F.	2 Hrs.	
Operating Rig Time	B. L. Harris	
Recorded By	Mr. Brock	
Witnessed by		

RUN No.	BORE-HOLE RECORD Bit	From	To	CASING RECORD Size	Wgt.	From	To
	12-1/4"	0	385	8-5/8"		0	385
	7-7/8"	385	4680				

(10)

Case No. 4140
Exhibit "1B"



Case No. 4140
Exhibit "1B"

SCHLUMBERGER — **SONIC LOG**

COMPANY SUNRAY MID-CONTINENT OIL COMPANY
WELL NEW MEXICO FEDERAL "F" # 4
FIELD MILNESAND
LOCATION SEC. 13-8S-34E
COUNTY ROOSEVELT
STATE NEW MEXICO

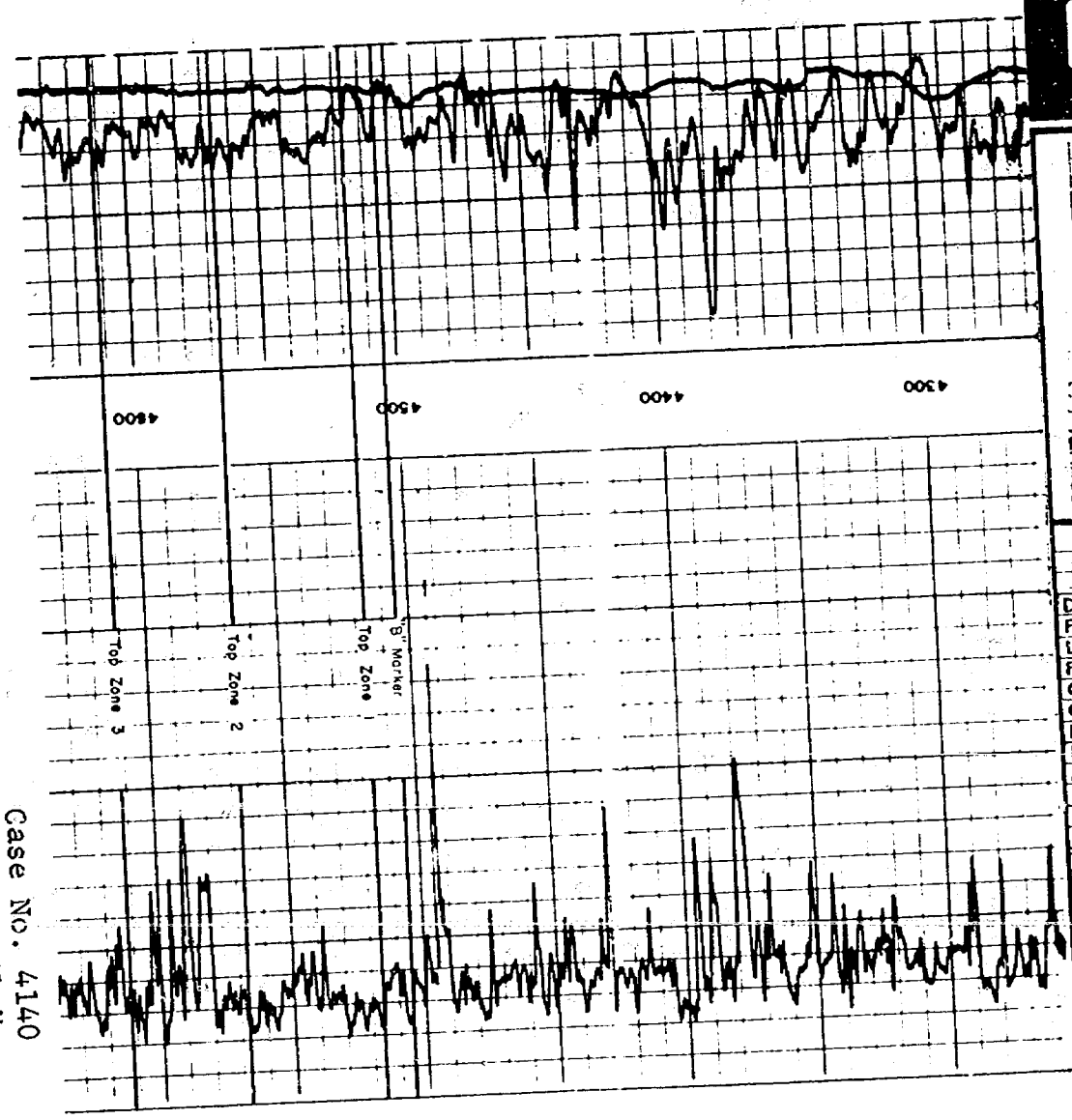
Other Surveys: NONE

Location of Well: 2050' FROM N/L, 660' FROM E/L

Elevation: K.B.: D.F. 4245 G.L.:

Log Depths Measured From KB 9 Ft. above GL

RUN No.	ONE			
Date	11-28-61			
First Reading	4663			
Last Reading	0			
Feet Measured	4663			
Csg. Schlum.	-			
Csg. Driller	8 5/8"@ 360			
Depth Reached	4670			
Bottom Driller	4665			
Mud Nat.	SALT GEL			
Dens. | Visc.	10.1 @ 35 °F	@ °F	@ °F	
Mud Resist.	@ °F	@ °F	@ °F	
" Res. BHT	@ °F	@ °F	@ °F	
" pH	4.0 @ °F	CC 30 min @ °F	CC 30 min @ °F	
" Wtr. Loss	15.2 CC 30 min @ °F			
" Rmf				
Bit Size	6¾"			
Spacing:		To	To	
T 3 R. 3 R.	CSG To 3500	To	To	
T 3 R. 1 R.	3500 To TD			
Opr. Rig Time	3 HOURS			
Truck No.	2527-HOBBS			
Recorded By	DAVIS			
Witness	BURGER			



SCHLUMBERGER — **SONIC LOG**

COMPANY SUNRAY MIDCONTINENT OIL COMPANY

WELL NEW MEXICO FEDERAL F #6

FIELD MILNESAND

LOCATION SE-NW-SE

COUNTY ROOSEVELT

STATE NEW MEXICO

Other Surveys

Location of Well
1980' FNWL

8

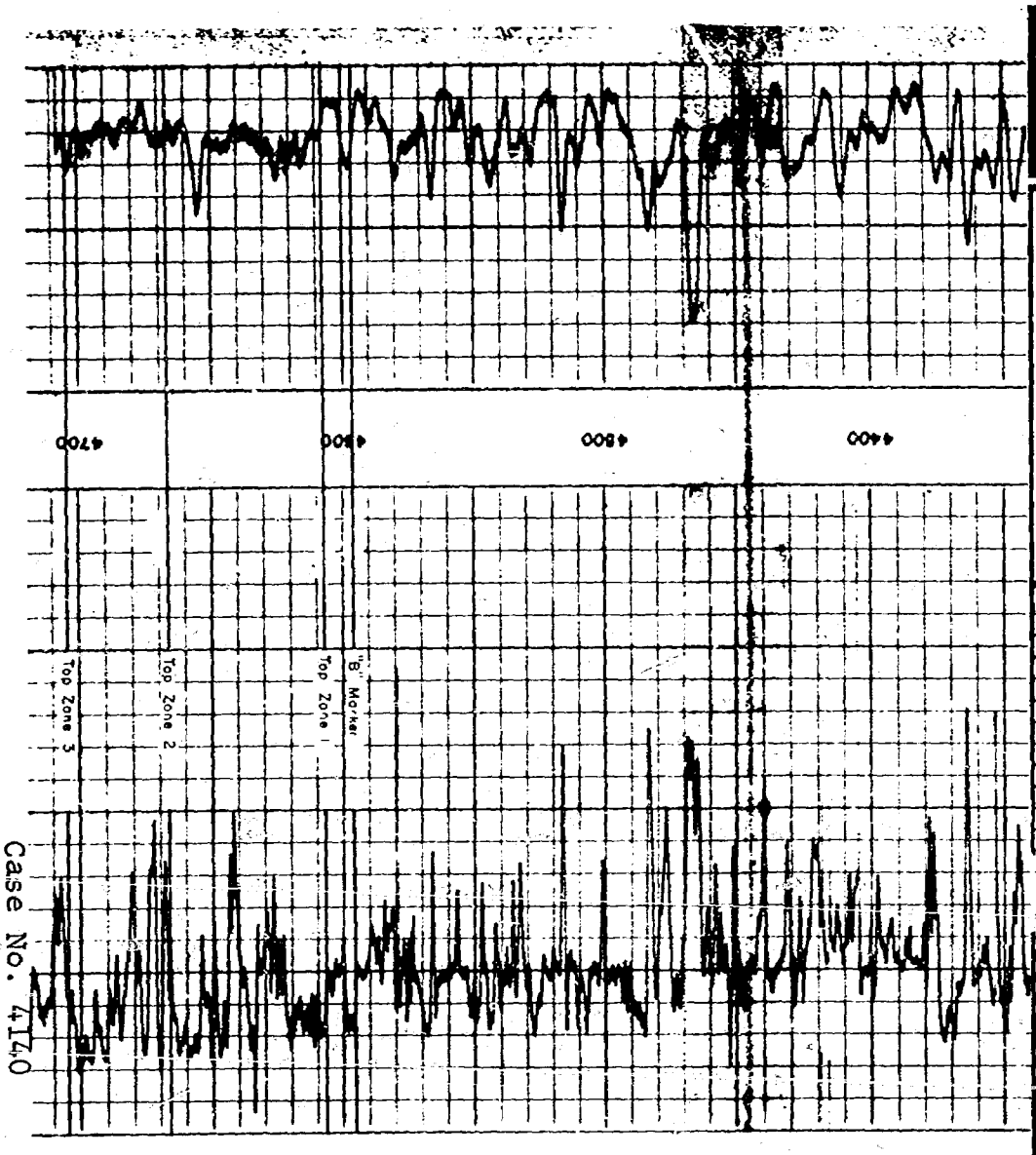
Elevation: K.B.: 4257
D.F.: 4256
or G.L.: 4246

Log Depths Measured From KB — 10 Ft. above GL

RUN No.	ONE			
Date	3-2-62			
First Reading	4679			
Last Reading	0			
Feet Measured	4679			
Csg. Schlum.	360			
Csg. Driller	362			
Depth Reached	4685			
Bottom Driller	4685			
Mud Not.	SALT GEL STARCH			
Dens. | Visc.	10.5 | 39	@ °F	@ °F	@ °F
Mud Resist.	.055 @ 72 °F	@ °F	@ °F	@ °F
" Res. BHT	.042 @ 92 °F	@ °F	@ °F	@ °F
" pH	5	CC 30 min	CC 30 min	CC 30
" Wtr. Loss	18.4	@ °F	@ °F	@
" Rmf				
Bit Size	6 3/4			
Spacing:				
T. 3 R. 1 R:	T.D. To 3700	To	To	To
T. 3 R. 2 R.	3700 To	To	To	To
Opr. Rig Time	3 Hrs.			
Truck No.	3701-HOBBS			
Recorded By	OWEN			
Witness	GORDON - BURGER - BOND			

COUNTY — FIELD or LOCATION — WELL — COMPANY

Case No. 4140
Exhibit "1B"



Case No. 4140
Exhibit "1B"

SCHLUMBERGER — **SONIC LOG**

SCHLUMBERGER WELL SURVEYING CORPORATION

COMPANY SUNRAY DX OIL COMPANY

WELL NEW MEXICO FEDERAL F-13

FIELD MILNESAND

LOCATION SEC 24 TWP 8-S R 34 E

COUNTY ROOSEVELT

STATE NEW MEXICO

COUNTY | FIELD or LOCATION | WELL | COMPANY

Other Surveys: LL, MLL

Location of Well: 990' FNL 660' FEL

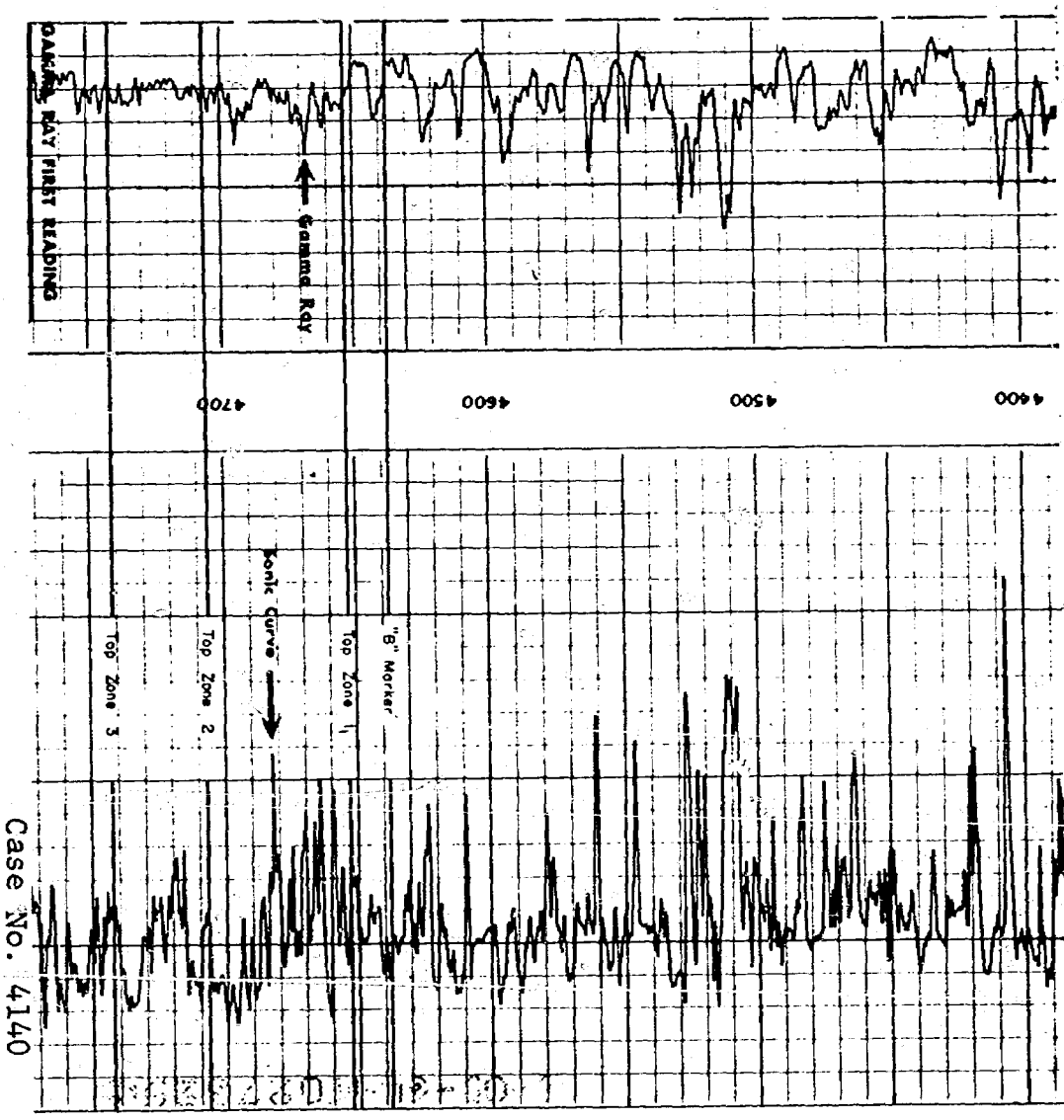
12

T. Berger

Elevation: K.B.: Est D.F.: 4242 or G.L.:

Log Depths Measured From K.B. 9 Ft. above G.L.

RUN No.	I		
Date	12-25-62		
First Reading	4726		
Last Reading	100		
Feet Measured	4626		
Csg. Schlum.			
Csg. Driller	357		
Depth Reached	4732		
Bottom Driller	4730		
Mud Nat.	SALT GEL		
Dens. | Visc.	10.1 | 41		
Mud Resist.	.07 @ 58 °F	@ °F	@ °F
" Res. BHT	.04 @ 102 °F	@ °F	@ °F
" pH	@ °F	@ °F	@ °F
" Wtr. Loss	11 CC 30 min	CC 30 min	CC 30 min
" Rmf	.055 @ 58 °F	@ °F	@ °F
Bit Size	7 7/8		
Spacing R₁ / R₂	66 To T.D.	To	To
T R₁ R₂	To	To	To
Opr. Rig Time	3 HRS		
Truck No.	2526 HOBBS		
Recorded By	WENDLAND		
Witness	MERRY-BURGER		



Case No. 4140
Exhibit "1B"

SCHLUMBERGER

SONIC LOG - GAMMA RAY

WITH SALIFE

SCHLUMBERGER WELL SURVEYING CORPORATION
Houston, Texas

COMPANY SUNRAY DX OIL COMPANY SDX Hobbs

WELL NEW MEXICO FEDERAL F # 17 DRY

FIELD MILNESAND SAN ANDRES (14)

COUNTY ROOSEVELT STATE NEW MEXICO

COUNTY ROOSEVELT
FIELD or LOCATION MILNESAND SAN ANDRES
WELL N.M.FED.F # 17
COMPANY SUNRAY DX OIL CO.

LOCATION 660' FROM S/L
660' FROM E/L

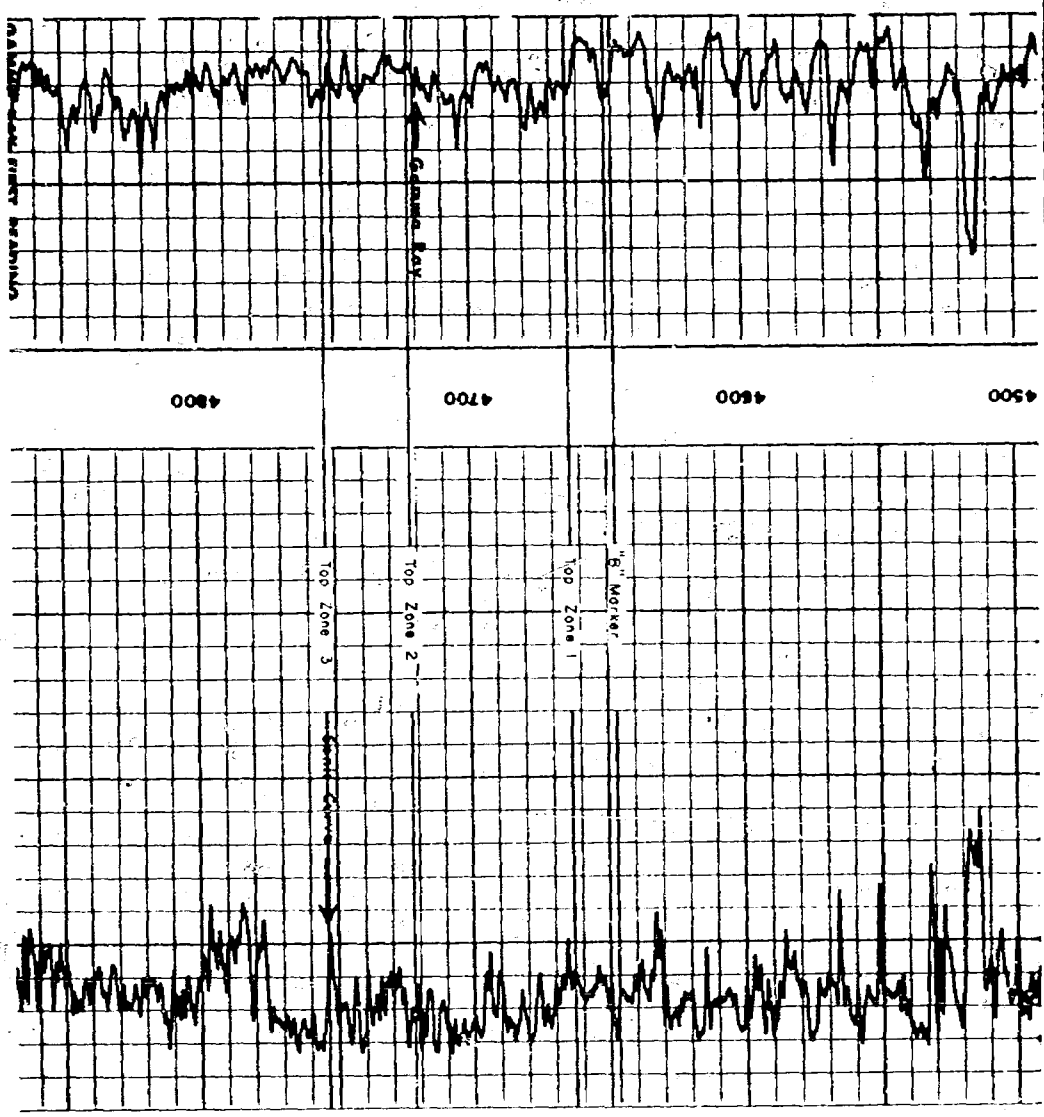
Sec. 24 Twp. 8S Rge. 34E

Other Services:
LL, MLL

Permanent Datum: GL , Elev.
Log Measured From KB 10.4 Ft. Above Perm. Datum
Drilling Measured From KB 10.4' ABOVE PERM. DATA

Elev.: K.B.
EST. D.F. 4240
G.L.

Date	1-24-64										
Run No.	ONE										
Depth—Driller	4791										
Depth—Logger	4794										
Btm. Log Interval	4790										
Top Log Interval	50										
Casing—Driller	@ 270		@			@			@		
Casing—Logger	-										
Bit Size	7 7/8"										
Type Fluid in Hole	SALT GEL										
Dens. | Visc.	10.3	42									
pH | Fluid Loss		20 ml			ml			ml			ml
Source of Sample	PIT										
R_m @ Meas. Temp.	.057 @ 76 °F		@	°F		@	°F		@	°F	
R_{mf} @ Meas. Temp.	.049 @ 76 °F		@	°F		@	°F		@	°F	
R_{mc} @ Meas. Temp.	- @ °F		@	°F		@	°F		@	°F	
Source: R_{mf} R_{mc}	M | -										
C_m @ BHT	.056 @ 91 °F		@	°F		@	°F		@	°F	
Time Since Circ.											
Max. Rec. Temp.	91 °F			°F			°F			°F	
Equip. | Location	2519 | HOBBS										
Recorded By	WENDLAND										
Witnessed By	MOBERLY										



SONIC LOG - GAMMA RAY

SCHLUMBERGER

SCHLUMBERGER WELL SURVEYING CORPORATION
Houston, Texas

COMPANY SUNRAY DX OIL COMPANY

WELL N.M. FEDERAL "F" # 20

FIELD MILNESAND

COUNTY ROOSEVELT STATE NEW MEXICO

LOCATION 990' FROM S/L
330' FROM E/L

Sec. 25 Twp. 8S Rge. 34E

Other Services:
LL, MLL

(18)

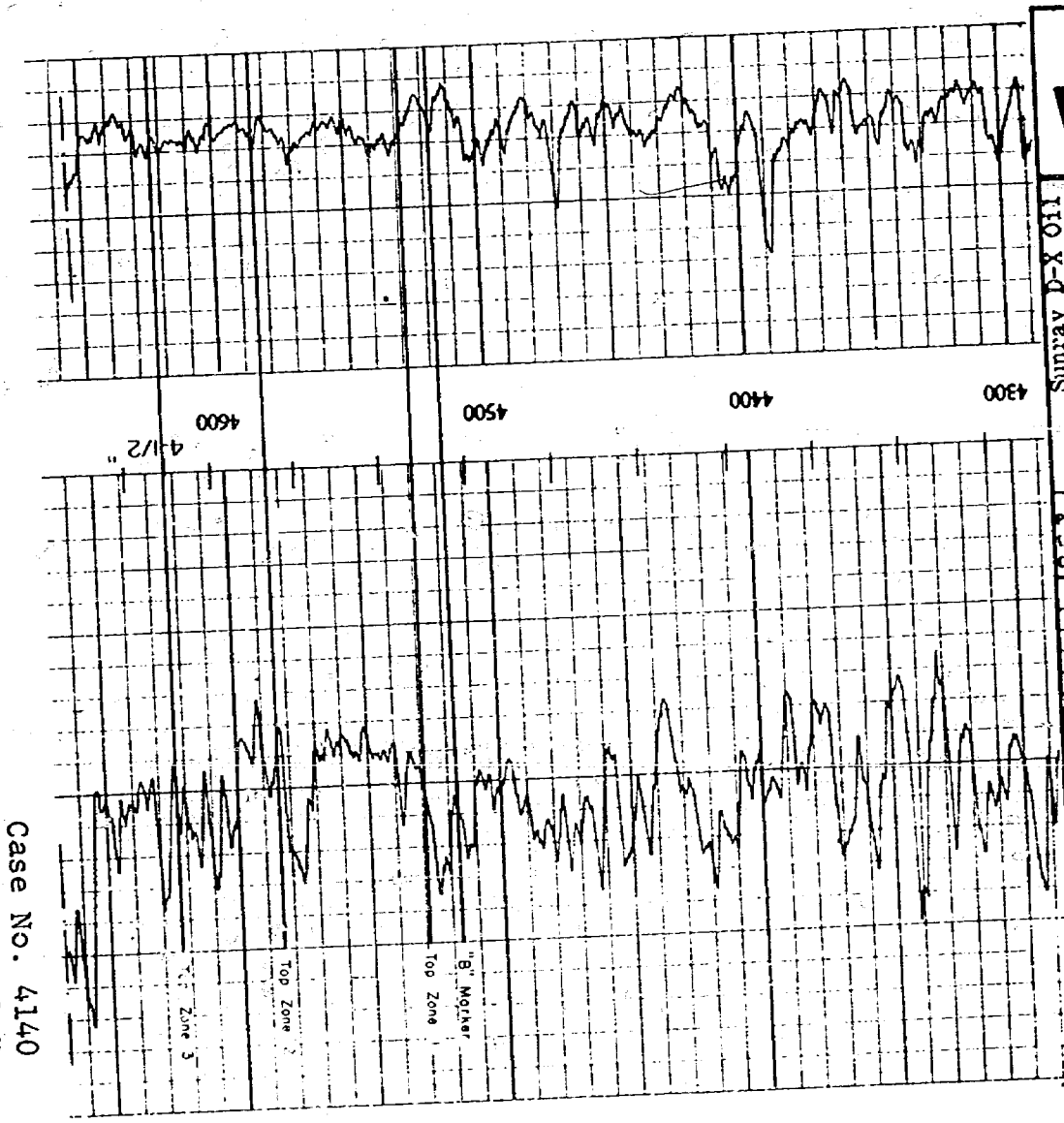
COMPANY SUNRAY DX OIL CO.
WELL N.M. FEDERAL "F" # 20
FIELD or LOCATION MILNESAND
COUNTY ROOSEVELT

Permanent Datum: GL, Elev. 4224.6
Log Measured From KB, 11 Ft. Above Perm. Datum
Drilling Measured From KB

Elev.: K.B. 4235.6
D.F. 4234.6
G.L. 4224.6

Date	11-29-64			
Run No.	ONE			
Depth—Driller	4900			
Depth—Logger	4903			
Btm. Log Interval	4896			
Top Log Interval	0			
Casing—Driller	8 5/8@ 365	@	@	@
Casing—Logger	-			
Bit Size	7 7/8"			
Type Fluid in Hole	SALT GEL, STARCH			
Dens. | Visc.	9.6 42			
pH | Fluid Loss	6 12.2 ml	mi	mi	mi
Source of Sample	PIT			
R_m @ Meas. Temp.	.050 @ 67 °F	@ °F	@ °F	@ °F
R_{mf} @ Meas. Temp.	.043 @ 67 °F	@ °F	@ °F	@ °F
R_{mc} @ Meas. Temp.	- @ - °F	@ °F	@ °F	@ °F
Source: R_{mf} R_{mc}	M -			
R_m @ BHT	.037 @ 92 °F	@ °F	@ °F	@ °F
Time Since Circ.	3 HOURS			
Max. Rec. Temp.	92 °F	°F	°F	°F
Equip. | Location	3722 | HOBBS			
Recorded By	BROWN-LEFLER			
Witnessed By	BURGER-SOTER			

Case No. 4140
Exhibit "B"



Case No. 4140
Exhibit "1B"

WELEX

RADIOACTIVITY LOG

COMPANY SUNRAY D-X OIL COMPANY

WELL BOWLEY # 2

FIELD MILNESAND

COUNTY ROOSEVELT STATE NEW MEXICO

Location 660'FSL 660'FEL

Other Services

Sec. 12 Twp. 8-S Rge. 34-E

Permanent Datum Ground Level Elev. 4241

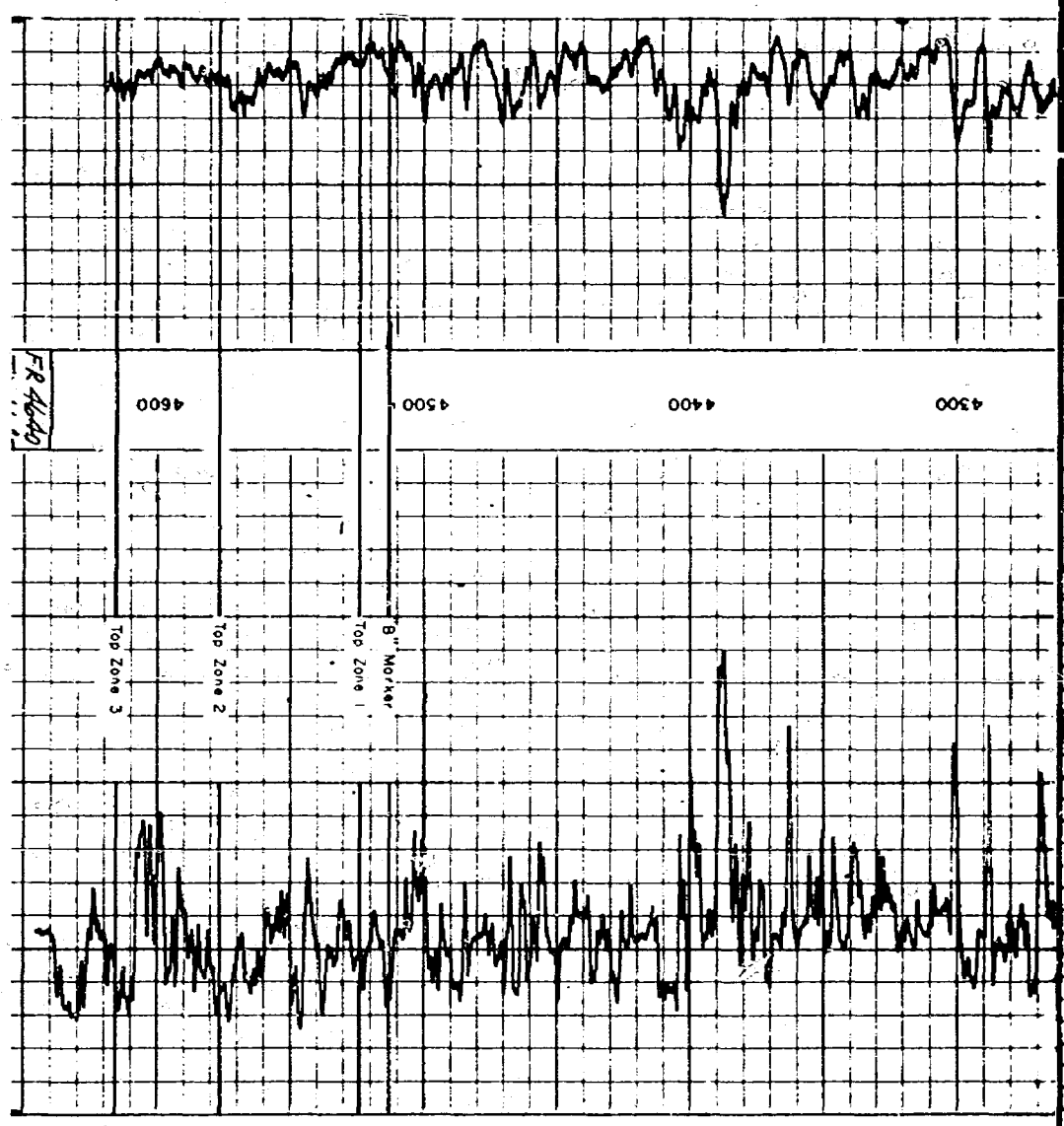
Log Measured from 10 Ft. Above Perm. Datum

Drilling Measured From Kelly Bushing

Elev.: K.B. 4252
D.F. 4251
G.L. 4241

Date	11-20-62	11-20-62
Run No.	- One -	- One -
Type Log	Gamma	Neutron
Depth-Driller	4700	4700
Depth-Welex	4669	4669
Bottom Logged Interval	4656	4668
Top Logged Interval	Surf.	Surf.
Type Fluid in Hole	Water	Water
Salinity, PPM Cl.		
Density	135	135
Level		
Max. rec. temp., deg. F.		
Operating Rig Time		
Recorded By	B. Aikins	
Witnessed by	Mr. Burger	

RUN No.	BORE-HOLE RECORD Bit	From	To	CASING RECORD Size	Wgt.	From	To
	12-1/4"	0	371	8-5/8"	24	0	371
	7-7/8"	371	4700	4-1/2"	9.5	0	4700



SCHLUMBERGER — SONIC LOG

COMPANY Maxwell Oil Company
WELL Fraser #2
FIELD Milnesand
LOCATION Sec. 6, T 8 S, R 35 E
COUNTY Roosevelt
STATE New Mexico

Other Surveys: L, MLL, MOP

Location of Well: 660' FSL, 660' FEL

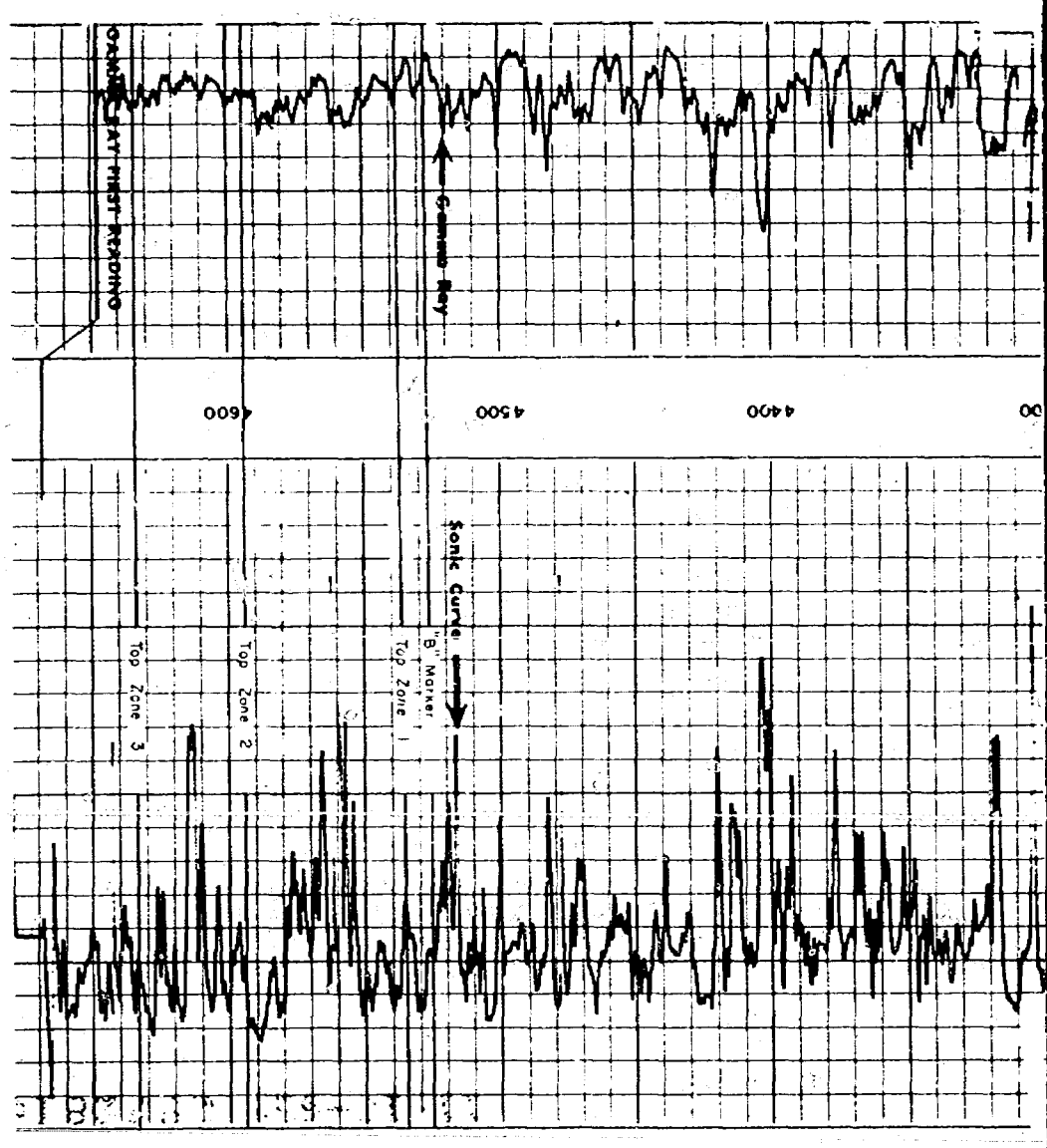
(2)

Elevation: K.B.: 42[illegible]
D.F.: 42[illegible]
or G.L.: 42[illegible]

Log Depths Measured From KB 12 Ft. above GL

RUN No.	1		
Date	7-17-63		
First Reading	4640		
Last Reading	0		
Feet Measured	4640		
Csg. Schlum.	—		
Csg. Driller	455		
Depth Reached	4647'		
Bottom Driller	4648'		
Mud Nat.	Salt Gel, Starch		
Dens. / Visc.	10.3 / 41		
Mud Resist.	0.046 @ 86 °F	@ °F	@ °F
" Res. BHT	0.043 @ 90 °F	@ °F	@ °F
" pH	6.5 @ °F	@ °F	@ °F
" Wtr. Loss	7 CC 30 min	CC 30 min	CC 30 min
" Rmf (M)	0.042 @ 84 °F	@ °F	@ °F
Bit Size	7 7/8" - 4598 - 7 13/16"		
Spacing:			
T 2 R. 1 R.	4200 To FR	To	To
T 2 R. 3 R.	4200 To, Surf	To	To
Opr. Rig Time	3 hours		
Truck No.	3701-Hobbs		
Recorded By	Schaefer		
Witness	Dorsey		

Case No. 4140
Exhibit "1B"



SCHLUMBERGER

SONIC LOG - GAMMA RAY

SCHLUMBERGER WELL SURVEYING CORPORATION

COMPANY TIDEWATER OIL COMPANY OK

(4)

WELL CLYDE C. COLEMAN "G.O." # 1

FIELD MILNESAND

COUNTY ROOSEVELT STATE NEW MEXICO

LOCATION 2310' FROM N/L
2310' FROM W/L

Sec. 12 Twp. 8S Rge. 34E

Other Services:
LL

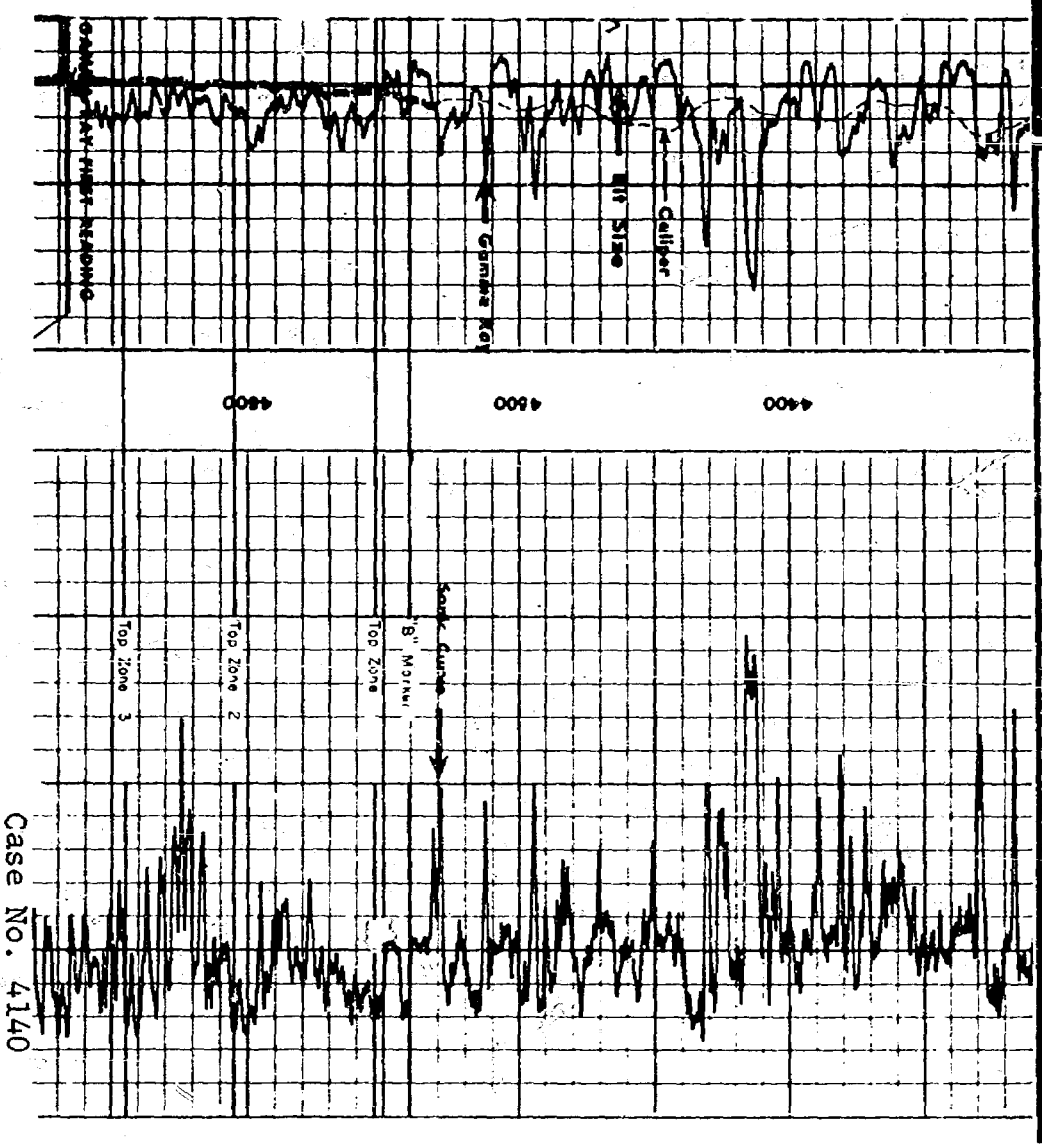
COUNTY ROOSEVELT
FIELD or LOCATION MILNESAND
WELL CLYDE C. COLEMAN "G.O." # 1
COMPANY TIDEWATER OIL CO.

Permanent Datum: GL , Elev. 4254
Log Measured From KB , 8 Ft. Above Perm. Datum
Drilling Measured From KB

Elev.: K.B. 4262
D.F. 4261
G.L. 4254

Date	11-10-63			
Run No.	ONE			
Depth—Driller	4671			
Depth—Logger	4671			
Btm. Log Interval	4668			
Top Log Interval	0			
Casing—Driller	8 5/8 @ 333	@	@	@
Casing—Logger	-			
Bit Size	7 7/8"			
Type Fluid in Hole	SALT GEL, STARCH			
Dens. / Visc.	10.8 / 37			
pH / Fluid Loss	6. / 15 ml	ml	ml	ml
Source of Sample				
R_m @ Meas. Temp.	.067 @ 66 °F	@ °F	@ °F	@ °F
R_{mf} @ Meas. Temp.	.048 @ 69 °F	@ °F	@ °F	@ °F
R_{mc} @ Meas. Temp.	- @ - °F	@ °F	@ °F	@ °F
Source: R_{mf} R_{mc}	M			
R_m @ BHT	.05 @ 91 °F	@ °F	@ °F	@ °F
Time Since Circ.	2 HOURS			
Max. Rec. Temp.	91 °F	°F	°F	°F
Equip. / Location	3701 / HOBBS			
Recorded By	SCHAEFFER-ADKISSON			
Witnessed By	SOUTHERLAND			

Case No. 4140
Exhibit "1B"



Case No. 4140
Exhibit "1B"

SCHLUMBERGER — SONIC LOG

COUNTY ROOSEVELT
FIELD or LOCATION MILNESAND
WELL COSBY # 2
COMPANY SUN OIL COMPANY

COMPANY SUN OIL COMPANY
WELL COSBY # 2 (4)
FIELD MILNESAND
LOCATION SEC. 12 8S-34E
COUNTY ROOSEVELT
STATE NEW MEXICO

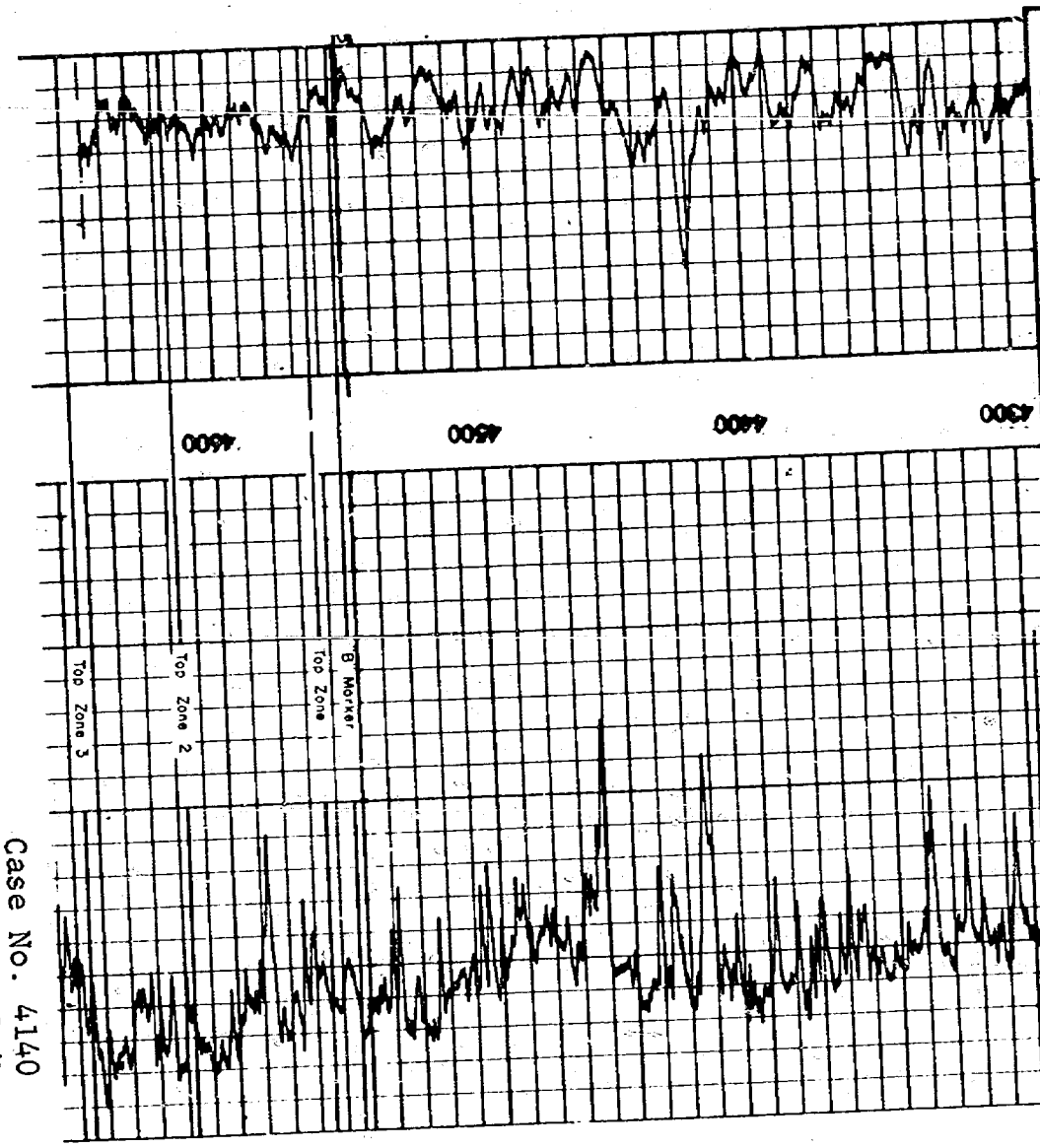
Other Surveys
L-GR

Location of Well
1980' FROM N/L
660' FROM E/L

Elevation: K.B.: 4268
D.F.: 4265
or G.L.: 4256

Log Depths Measured From KB 11.30 Ft. above GL

RUN No.	ONE			
Date	3-21-63			
First Reading	4687			
Last Reading	2400			
Feet Measured	2287			
Csg. Schlum.				
Csg. Driller	8 5/8 @ 350'			
Depth Reached	4694			
Bottom Driller	4695			
Mud Nat.	SALT GEL			
Dens. | Visc.	10.6 | 37			
Mud Resist.	.064 @ 75 °F	@ °F	@	
" Res. BHT	.05 @ 100 °F	@ °F	@	
" pH	@ °F	@ °F	@	
" Wtr. Loss	17.6 CC 30 min	CC 30 min	CC 30 min	
" Rmf	.052 @ 77 °F	@ °F	@	
Bit Size	7 7/8"			
Spacing:				
T3 R1 R2	2400 To TD	To	To	
T R1 R2	To	To	To	
Opr. Rig Time	3 HOURS			
Truck No.	2519 HOBBS			
Recorded By	DAVIS			
Witness	WINKLER			



WELEX

ACOUSTIC VELOCITY LOG

COMPANY BTA Oil Producers
WELL Taylor # 2
FIELD Milnesand
County Roosevelt State N. M.

COMPANY BTA OIL PRODUCERS

WELL TAYLOR # 2 (6)

FIELD MILNESAND

COUNTY ROOSEVELT STATE NEW MEXICO

Location 1980'FWL 660'FSL

Sec. 7 Twp. 18-S Rge. 35-E

Other Services:

Permanent Datum Ground Level Elev. 4240

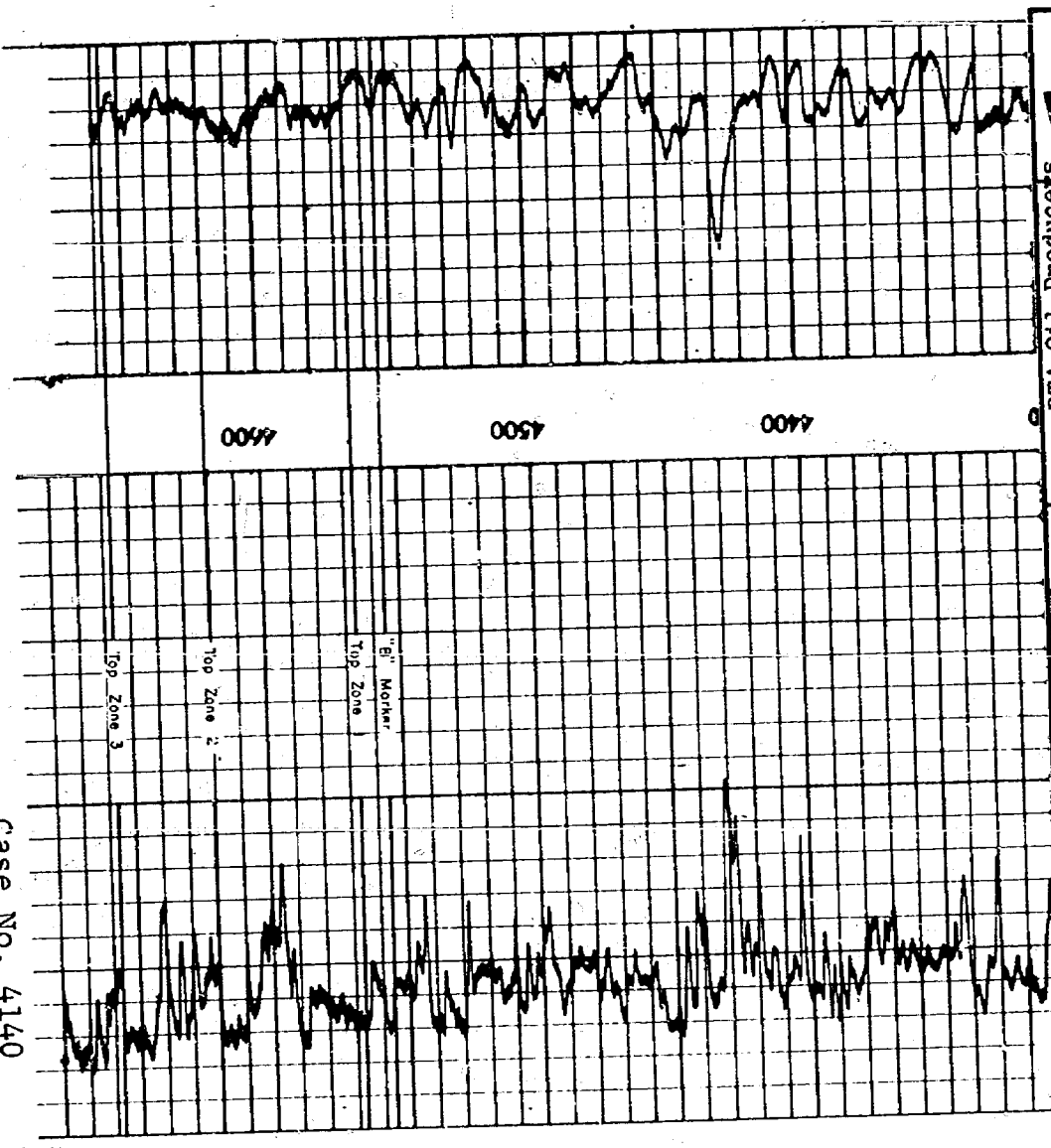
Log Measured From K. B. 9 Ft. Above Perm. Datum

Drilling Measured From Kelly Bushing

Elev.: K.B. 4249
D.F. 4248
G.L. 4240

Date	9-13-62			
Run No.	- One -			
Depth—Driller	4670			
Depth—Welex	4671			
Btm. Log Inter.	4667			
Top Log Inter.	330 (CVR-30")	@	@	@
Casing—Driller	8-5/8@368			
Casing—Welex	-			
Bit Size	7-7/8"			
Type Fluid in Hole	Mud			
Dens. | Visc.	9.5 | 46	| ml	| ml	| ml
pH | Fluid Loss	6 | 5 ml			
Source of Sample				
R_m @ Meas. Temp.	- @ °F	@ °F	@ °F	@ °F
R_{mf} @ Meas. Temp.	- @ °F	@ °F	@ °F	@ °F
R_{mc} @ Meas. Temp.	- @ °F	@ °F	@ °F	@ °F
Source R_{mf} R_{mc}	- | -	|	|	|
R_m @ BHT	- @ °F	@ °F	@ °F	@ °F
Time Since Circ.	-			
Max. Rec. Temp.	112 °F @ BH	°F @	°F @	°F @
Equip. | Location	(121) | Hobbs			
Recorded By	L. E. Pharr			
Witnessed By	Mr. Taylor			

Case No. 4140
Exhibit "15"



OR-

WELEX

ACOUSTIC VELOCITY LOG

COMPANY BTA OIL PRODUCERS

WELL TAYLOR # 7 (4)

FIELD MILNESAND

COUNTY ROOSEVELT STATE NEW MEXICO

Location 1974.7'FNL 1900'FWL

Sec. 7 Twp. 8-S Rge. 35-E

Other Services: GR-NN

Permanent Datum Ground Level Elev. 4251

Log Measured From K. B. 10 Ft. Above Perm. Datum

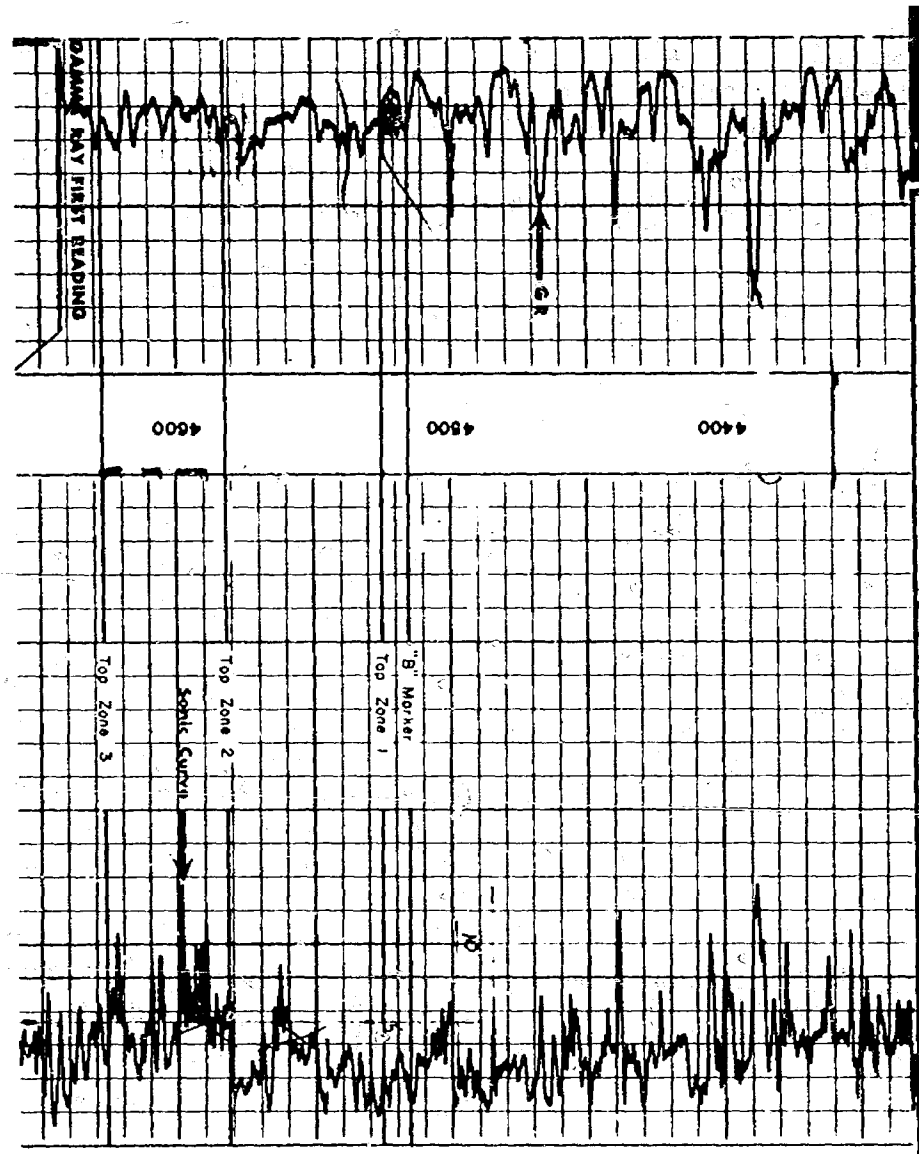
Drilling Measured From Kelly Bushing

Elev.: K.B. 4261 D.F. 4260 G.L. 4251

Date	3-22-63			
Run No.	- One -			
Depth—Driller	4685			
Depth—Welex	4686			
Btm. Log Inter.	4680			
Top Log Inter.	Surf.			
Casing—Driller	8-5/8 @ 278	@	@	@
Casing—Welex	-			
Bit Size	7-7/8"			
Type Fluid in Hole	Mud			
Fluid Level	325			
Dens. | Visc.	10.3 | 37			
pH | Fluid Loss	10.2 ml	ml	ml	ml
Source of Sample	Circulated			
R_m @ Meas. Temp.	.055 @ 60 °F	@ °F	@ °F	@ °F
R_{mf} @ Meas. Temp.	.045 @ 60 °F	@ °F	@ °F	@ °F
R_{mc} @ Meas. Temp.	.08 @ 60 °F	@ °F	@ °F	@ °F
Source R_{mf} R_{mc}	Measured			
R_m @ BHT	.05 @ 101 °F	@ °F	@ °F	@ °F
Time Since Circ.				
Max. Rec. Temp.	101 °F @ BH	°F @	°F @	°F @
Equip. | Location	7121 Hobbs			
Recorded By	Scott & Ayres			
Witnessed By	Mr. Taylor			

COMPANY BTA Oil Producers
WELL Taylor # 7
FIELD Milnesand
County Roosevelt State N. M.

Case No. 4140
Exhibit "1B"



SCHLUMBERGER

SONIC LOG

SCHLUMBERGER WELL SURVEYING CORPORATION

COUNTY ROOSEVELT
FIELD or LOCATION MILNESAND
WELL MILLER # 1
COMPANY ATLANTIC REFINING COMPANY

COMPANY ATLANTIC REFINING COMPANY
WELL MILLER # 1 (6)
FIELD MILNESAND
LOCATION SEC. 12-8S-34E
COUNTY ROOSEVELT
STATE NEW MEXICO

Other Surveys
LL MLL

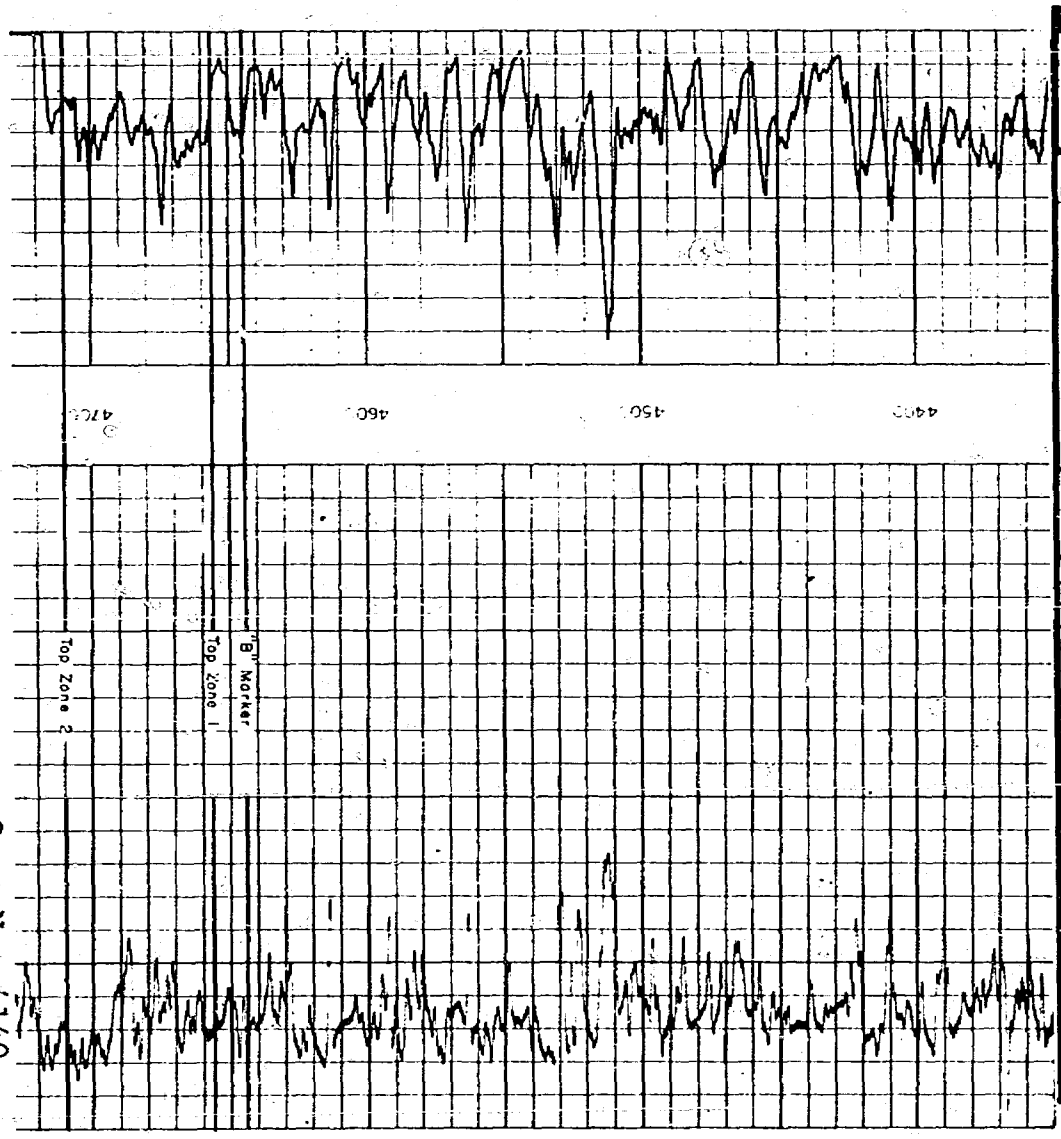
Location of Well
660' FROM S/L
1980' FROM W/L
LCH
fb

Elevation: K.B.: 4259
D.F.: 4258
or G.L.: 4249

Log Depths Measured From KB 10 Ft. above GL

RUN No.	ONE		
Date	5-21-62		
First Reading	4663		
Last Reading	0		
Feet Measured	4663		
Csg. Schlum.			
Csg. Driller	401		
Depth Reached	4670		
Bottom Driller	4660		
Mud Not.	SALT		
Dens. | Visc.	10.1 | 46	|	|
Mud Resist.	.062 @ 82 °F	@ °F	@ °F
" Res. BHT	.062 @ 82 °F	@ °F	@ °F
" pH	8 @ °F	@ °F	@ °F
" Wtr. Loss	8.4 CC 30 min	CC 30 min	CC 30 min
" Rmf	.015 @ 83 °F	@ °F	@ °F
Bit Size	7 7/8"		
Spacing:			
T 3 R. 1R:	2500 To TD	To	To
T 3 R. 3R:	CSG. To 2500	To	To
Opr. Rig Time	3 HOURS		
Truck No.	2526-HOBBS		
Recorded By	OWEN-BROWN		
Witness	SHEETS		

Case No. 4140
Exhibit "1B"



PAN GEO ATLAS CORP.

PGAC *Acoustic-Gamma Ray Log*

FILE NO.

(16

COMPANY TEXACO INCORPORATED well file

WELL W.L. ROGERS # 3

FIELD MILNESAND (SAN ANDRES)

COUNTY ROOSEVELT STATE NEW MEXICO

LOCATION: 1980 FNL & 660 FEL

SEC 25 TWP 8-S RGE 34-E

Other Services
LL3
SCOPE PICTU

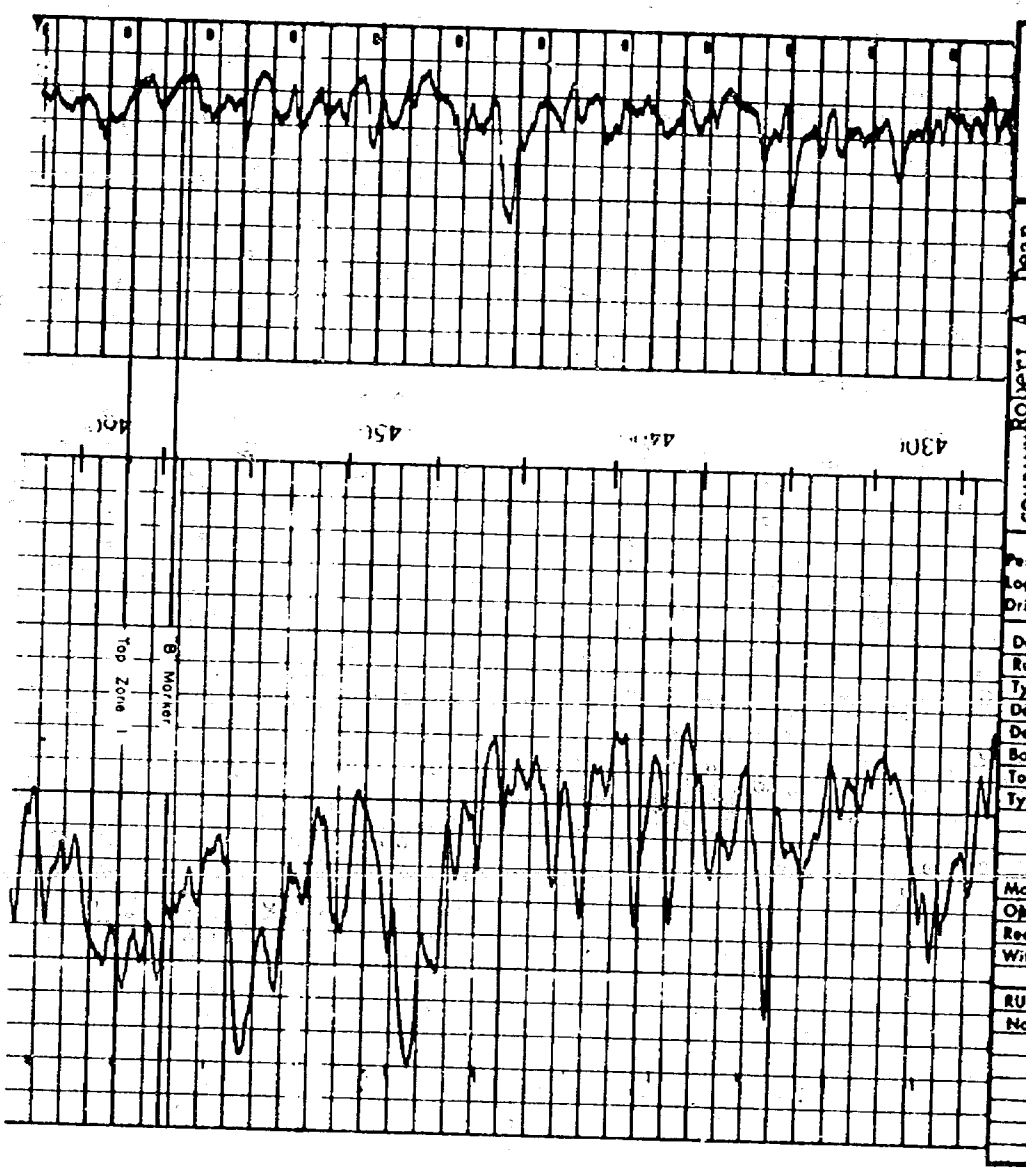
Permanent Datum G.L. Elev.
Log Measured from K.B. Ft. Above Permanent Datum
Drilling Measured from K.B.

Elevations:
KB 4232
DF 4231
GL

Date	2-9-64
Run No.	ONE
Total Depth Driller	4730
Total Depth PGAC	4732
Bottom Logged Interval	4726
Casing Driller	366
Casing PGAC	NOT LOGGED
Footage Logged	4626
Mud Type	SALT GEL
Density / Visc.	10.3 / 39
Max. Temp. (°F)	109°F
Rec. To Rec. Spacing	1'
Trans. To Rec. Spcg.	4'
Logging Instrument	TEL 820 T3 130 4052
Equip. No.	EL 25
Recorded By	CAREY
Witnessed By	MR. MORRISON

BORE HOLE RECORD			CASING RECORD			
Bit Size	From	To	Csg. Size	Csg. Wt.	From	To
11	SURF	366	7 5/8		SURF	366
6¾	366	4730				

Case No. 4140
Exhibit "18"



WELEX

RADIOACTIVITY LOG

COMPANY ROBERT A. DEA[illegible]

WELL LUMAN # 2

FIELD MILNESAND

COUNTY ROOSEVELT STATE NEW MEXICO

(12)

Location 660'FEL 1980'FNL

Sec. 23 Twp. 8-S Rge. 34-E

Other Services: Perf.

Permanent Datum Ground Level Elev.

Log Measured from K. B. 13 Ft. Above Perm. Datum

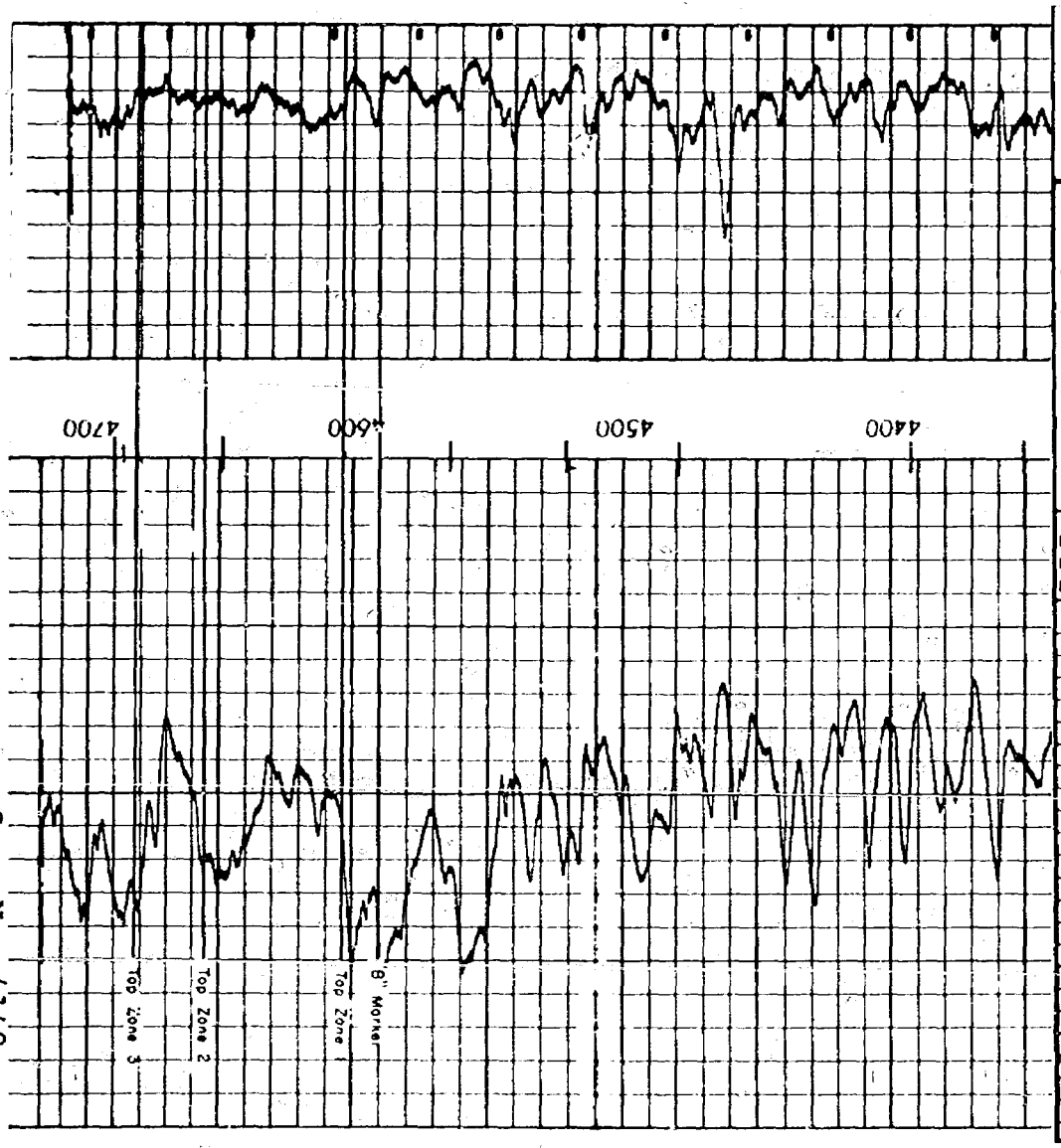
Drilling Measured From Kelly Bushing

Elev.: K.B. D.F. G.L.

Date	12-16-62	12-16-62
Run No.	- One -	- One -
Type Log	Gamma	Neutron
Depth—Driller	4650	4650
Depth—Welex	4633	4633
Bottom Logged interval	4623	4633
Top Logged interval	Surf.	Surf.
Type Fluid in Hole	Water	Water
Salinity, PPM Cl.		
Density		
Level	190	190
Max. rec. temp., deg. F.		
Operating Rig Time		
Recorded By	J.G. Greer	
Witnessed by	Mr. Dean	

RUN No.	BORE-HOLE RECORD Bit	From	To	CASING RECORD Size	Wgt.	From	To
	7-7/8"	-	4650	5-1/2"		0	4650

Case No. 4140
Exhibit "1B"



Case No. 4140
Exhibit "1B"

WELEX

RADIOACTIVITY LOG

COMPANY ROBERT A. DEAN

WELL C. W. WEATHERSBY # 3

FIELD MILNESAND

COUNTY ROOSEVELT STATE NEW MEXICO

Location 1980'FNL 1980'FWL

Sec. 24 Twp. 8-S Rge. 34-E

Other Services: Perf.

Permanent Datum Ground Level Elev. 4236

Log Measured from K. B. 12 Ft. Above Perm. Datum

Drilling Measured From Kelly Bushing

Elev.: K.B. 4248 D.F. 4247 G.L. 4236

Date	12-27-62	12-27-62
Run No.	- One -	- One -
Type Log	Gamma	Neutron
Depth—Driller	4745	4745
Depth—Welex	4719	4719
Bottom Logged Interval	4709	4719
Top Logged Interval	Surf.	Surf.
Type Fluid in Hole	Water	Water
Salinity, PPM Cl.		
Density		
Level	180°	180°
Max. rec. temp., deg. F.	102°	102°
Operating Rig Time		
Recorded By	J. G. Greer	
Witnessed by	Mr. Dean	

RUN No.	BORE-HOLE RECORD Bit	From	To	CASING RECORD Size	Wgt.	From	To
	7-7/8"	-	4770	5-1/2"		0	4770

OIL PRODUCTION DATA
MILNESAND (SAN ANDRES) UNIT
ROOSEVELT COUNTY, NEW MEXICO

DATE	OIL PRODUCTION BARRELS	CUMULATIVE BARRELS OIL
1958	5,035	5,035
1959	8,075	13,110
1960	5,634	18,744
1961	23,574	42,318
1962	274,132	316,450
1963	771,505	1,087,955
1964	963,138	2,051,093
1965	836,417	2,887,510
1966		
January	65,536	
February	59,458	
March	62,416	
April	57,509	
May	59,291	
June	56,612	
July	55,228	
August	50,750	
September	49,019	
October	51,243	
November	48,588	
December	49,550	
		3,552,710
1967		
January	50,495	
February	42,084	
March	45,640	
April	37,672	
May	37,825	
June	37,575	
July	36,894	
August	36,556	
September	34,719	
October	34,437	
November	32,863	
December	33,767	
		4,013,237

Exhibit 1E

OIL PRODUCTION DATA
MILNESAND (SAN ANDRES) UNIT
ROOSEVELT COUNTY, NEW MEXICO

DATE	OIL PRODUCTION BARRELS	CUMULATIVE BARRELS OIL
1968		
January	32,294	
February	31,324	
March	31,980	
April	30,713	
May	28,278	
June	25,348	
July	25,455	
August	27,997	
September	25,255	
October	25,691	
November	25,446	
December	23,986	
		4,347,04
1969		
January	24,353	
February	20,038	
		4,391,395

Exhibit 1E

DIAGRAMMATIC SKETCH

TYPICAL PROPOSED INJECTION WELL
PROPOSED MILNESAND UNIT
Roosevelt Co., New Mexico
BTA Oil Co. Taylor No.7
Sec. 7 - T-8-S - R-35-E

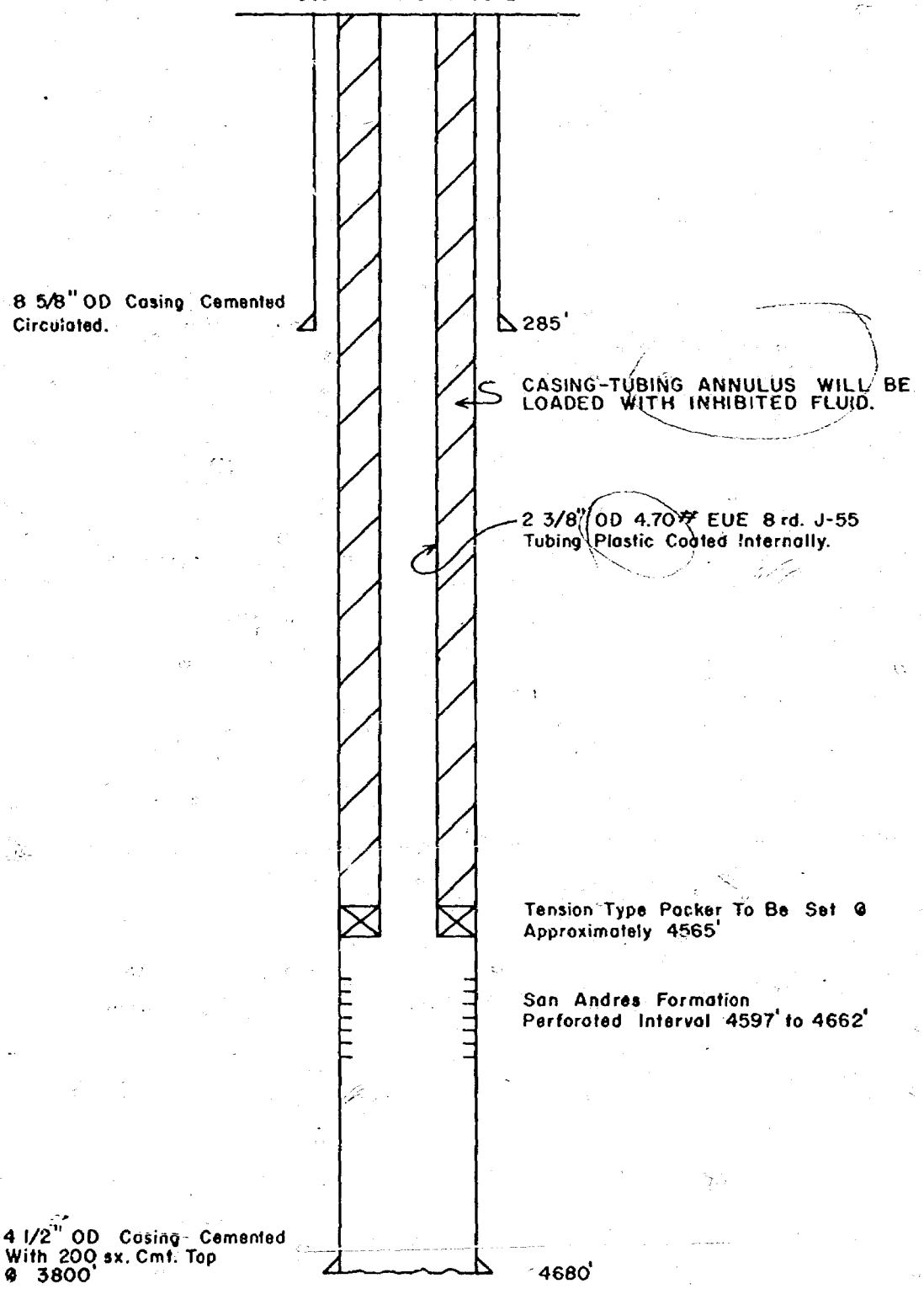


EXHIBIT "IF"

TABLE I

INJECTION WELL DETAIL
PROPOSED MILNESAND (SAN ANDRES) UNIT
ROOSEVELT COUNTY, NEW MEXICO

	Injection Well	SURFACE CASING Size	Depth	Cmt. Top	PRODUCTION CASING Size	Depth	Cement	Cmt.Top	INJ.INTERVALS Gross Perf And/Or OH Top	Btm.	#Tubing* & Packer Set @
Citgo	Govt-"J" No. 1	8-5/8"	394'	Circ.	4-1/2"	4744'	250 sx	3620'	4598'	4631'	4570'
	Pate "A" No. 6	8-5/8"	413'	Circ.	4-1/2"	4731'	350 sx	3160'	4630'	69'	4600'
Mobil	Jacobs-Fed. No. 6	8-5/8"	367'	Circ.	4-1/2"	4800'	1760 sx	Circ.	4658'	4738'	4630'
	Jacobs-Fed. No. 9	8-5/8"	370'	Circ.	4-1/2"	4800'	1575 sx	Circ.	4637'	4699'	4600'
Union Texas	Jacobs-Fed. No. 6	8-5/8"	437'	Circ.	4-1/2"	4751'	300 sx	3400'	4550'	4600'	4530'
	Jacobs-Fed. No. 10	8-5/8"	363'	Circ.	4-1/2"	4725'	200 sx	3825'	4618'	80'	4590'
	Jacobs-Fed. No. 16	8-5/8"	360'	Circ.	4-1/2"	4730'	200 sx	3830'	4646'	4714'	4515'
	Jacobs-Fed. No. 17	8-5/8"	356'	Circ.	4-1/2"	4717'	200 sx	3820'	4633'	4712'	4500'
	Hefflefinger No. 3	10-3/4"	450'	Circ.	7-5/8" PBTD 4730'	4770'	2500 sx	Unknown	4560'	4615'	4530'
	Hefflefinger No. 4	10-3/4"	446'	Circ.	7-5/8" PBTD 4770'	4961'	2025 sx	Circ.	4576'	4650'	4545'
	Haley No. 5	10-3/4"	444'	Circ.	7-5/8" 5½ liner 4575'-4751' PBTD	4780'	1850 sx	1225'	4535'	4614'	4500'
	Haley No. 6	10-3/4"	425'	Circ.	7-5/8" PBTD 4730'	4780'	2300 sx	Circ.	4545'	4612'	4515'
Lario	Fed. "A" No. 3	8-5/8"	375'	Circ.	4-1/2"	4772'	200 sx	3875'	4591'	4624'	4560'

Exhibit 1G

	Injection Well	SURFACE CASING Size	Depth	Cmt. Top	PRODUCTION CASING Size	Depth	Cement	Cmt.Top	INJ.INTERVALS Gross Perf And/Or OH Top	Btm.	#Tubing* & Packer Set @
Sun DX	N.M. Fed. F No. 4	8-5/8"	366'	Circ.	4-1/2"	4662'	200 sx	3760'	4452'	4630'	4520'
	N.M. Fed. F No. 6	8-5/8"	350'	Circ.	4-1/2"	4685'	200 sx	3790'	4546'	4621'	4515'
	N.M. Fed. F No. 13	8-5/8"	357'	Circ.	4-1/2"	4730'	250 sx	3600'	4622'	82'	4590'
	N.M. Fed. F No. 17	8-5/8"	370'	Circ.	4-1/2"	4790'	200 sx	3900'	4624'	76'	4590'
	N.M. Fed. F No. 20	8-5/8"	373'	Circ.	4-1/2"	4900'	200 sx	4000'	4666'	4735'	4635'
	Bowley No. 2	8-5/8"	371'	Circ.	4-1/2"	4702'	225 sx	3600'	4566'	4628'	4535'
Maxwell	Fraser No. 2	8-5/8"	350'	Circ.	4-1/2"	4700'	350 sx	3125'	4598'	4608'	4570'
Getty	Coleman No. 1	8-5/8"	333'	Circ.	4-1/2"	4668'	400 sx	2870'	4603'	28'	4570'
Sunoco	Cosby No. 2	8-5/8"	337'	Circ.	4-1/2"	4694'	200 sx	3800'	4607'	36'	4575'
BTA	Taylor No. 2	8-5/8"	356	Circ.	4-1/2"	4680'	200 sx	3600'	4655'	67'	4625'
	Taylor No. 7	8-5/8"	285	Circ.	4-1/2"	4685'	200 sx	3800'	4597'	4662'	4570'
Atlantic	Miller No. 1	8-5/8"	391'	Circ.	4-1/2"	4674'	480 sx	2515'	4589'	4662'	4560'
Texaco	Rogers No. 3	7-5/8"	353'	Circ.	4-1/2"	4730'	400 sx	2930'	4662'	88'	4630'
Texam	Luman No. 2	8-5/8"	427'	Circ.	5-1/2"	4650'	250 sx	3525'	4601'	23'	4570'
	Weathersby No. 3	8-5/8"	430'	Circ.	5-1/2"	4755'	250 sx	3630'	4605'	72'	4575'

* 2-3/8" OD Internally Plastic coated tubing and Tension Type Packer

Exhibit 1G

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
COMMISSION OF NEW MEXICO FOR
THE PURPOSE OF CONSIDERING:

CASE No. 4140
Order No. R-3770

APPLICATION OF ALLIED CHEMICAL CORPORATION
FOR A WATERFLOOD PROJECT, ROOSEVELT COUNTY,
NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on May 21, 1969, at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this 28th day of May, 1969, the Commission, a quorum being present, having considered the testimony, the record, and the recommendations of the Examiner, 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 the applicant, Allied Chemical Corporation, seeks permission to institute a waterflood project in the Milnesand (San Andres) Unit Area, Milnesand-San Andres Pool, by the injection of water into the San Andres formation through 28 injection wells in Township 8 South, Ranges 34 and 35 East, NMPM, Roosevelt County, New Mexico.

(3) That the applicant further seeks an administrative procedure whereby said project could be expanded to include additional lands and injection wells in the area of the said project as may be necessary in order to complete an efficient injection pattern; that said administrative procedure should provide for administrative approval for conversion to water injection in exception to the well response requirements of Rule 701 E-5 of the Commission Rules and Regulations.

(4) That the wells in the project area are in an advanced state of depletion and should properly be classified as "stripper" wells.

(5) That the proposed waterflood project should result in the recovery of otherwise unrecoverable oil, thereby preventing waste.

(6) That the subject application should be approved and the project should be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations, provided however, that the showing of well response as required by Rule 701 E-5 shall not be necessary before obtaining administrative approval for the conversion of additional wells to water injection.

IT IS THEREFORE ORDERED:

(1) That the applicant, Allied Chemical Corporation, is hereby authorized to institute a waterflood project in the Milnesand (San Andres) Unit Area, Milnesand-San Andres Pool, by the injection of water into the San Andres formation through the following-described 28 wells in Roosevelt County, New Mexico:

Well	No.	Unit	Section	Township	Range
Sun DX - Bowley	2	P	12	8 South	34 East
Getty - Coleman	1	F	12	8 South	34 East
Sunoco - Cosby	2	H	12	8 South	34 East
Atlantic - Miller	1	N	12	8 South	34 East
Union Texas - Haley	5	P	13	8 South	34 East
Union Texas - Haley	6	N	13	8 South	34 East
Sun DX - N.M. Federal "F"	4	H	13	8 South	34 East
Sun DX - N.M. Federal "F"	6	F	13	8 South	34 East
Lario - Federal "A"	3	P	14	8 South	34 East
Texam - Luman	2	H	23	8 South	34 East
Sun DX - N.M. Federal "F"	13	H	24	8 South	34 East
Sun DX - N.M. Federal "F"	17	P	24	8 South	34 East
Texam - Weathersby	3	F	24	8 South	34 East
Sun DX - N.M. Federal "F"	20	P	25	8 South	34 East
Texaco - Rogers	3	H	25	8 South	34 East
Citgo - Government "J"	1	N	5	8 South	35 East
Maxwell - Fraser	2	P	6	8 South	35 East
Citgo - Pate "A"	6	H	7	8 South	35 East

Well	No.	Unit	Section	Township	Range
BTA - Taylor	2	N	7	8 South	35 East
BTA - Taylor	7	F	7	8 South	35 East
Union Texas - Jacobs Federal	6	N	18	8 South	35 East
Union Texas - Hefflefinger	3	F	18	8 South	35 East
Union Texas - Hefflefinger	4	H	18	8 South	35 East
Mobil - Jacobs Federal	6	P	19	8 South	35 East
Union Texas - Jacobs Federal	10	F	19	8 South	35 East
Union Texas - Jacobs Federal	16	N	19	8 South	35 East
Union Texas - Jacobs Federal	17	H	19	8 South	35 East
Mobil - Jacobs Federal	9	N	20	8 South	35 East

(2) That the subject waterflood project is hereby designated the Allied Chemical Milnesand Waterflood Project and shall be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations;

PROVIDED HOWEVER, that the Secretary-Director of the Commission may approve expansion of the Allied Chemical Milnesand Waterflood Project to include such additional lands and injection wells in the area of said project as may be necessary to complete an efficient water injection pattern; that the showing of well response as required by Rule 701 E-5 shall not be necessary before obtaining administrative approval for the conversion of additional wells to water injection.

(3) That monthly progress reports of the waterflood project herein authorized shall be submitted to the Commission in accordance with Rules 704 and 1120 of the Commission Rules and Regulations.

(4) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

DAVID F. CARGO, Chairman

ALEX J. ARMIJO, Member

A. L. PORTER, Jr., Member & Secretary

esr/

Union Texas Petroleum Division
ALLIED CHEMICAL CORPORATION
1300 WILCO BUILDING • MIDLAND, TEXAS 79701 915, 682-0515

September 23, 1971

RECEIVED
SEP 27 1971
OIL CONSERVATION COMM.
SANTA FE

Case 4140
Rg. case file

Oil Conservation Commission
State of New Mexico
State Land Office Building
Santa Fe, New Mexico 87501

Attention: Mr. I. R. Trujillo

Re: Milnesand Waterflood Project
Case #4140, Order #R-3770

Gentlemen:

Water injection in the following wells in the subject unit, authorized for use as injection wells by Case #4140, Order #R-3770, began September 14, 1971: Wells Nos. 11, 26, 29, 36, 43, 54, 56, 92, 101, 112, 122, 127, 136, 151, 162, 183, 184, 195, 196, 203, 310, 316, 317, 513 and 517.

Quantity of water injection into these wells will be reported monthly on Form C-120.

Yours very truly,

UNION TEXAS PETROLEUM CORPORATION

G. M. Dougherty
Unit Coordinator

GMD:hb

cc: District #1, Hobbs, New Mexico

Allied Chemical Corporation

UNION TEXAS PETROLEUM DIVISION

1300 WILCO BUILDING • MIDLAND, TEXAS 79701 • AREA CODE, 915, 682-0515

May 23, 1969

Oil Conservation Commission
State Land Office Building
Santa Fe, New Mexico 87501

RE: Docket No. 15-69, Case 4139-4140, May 21, 1969. Application of Allied Chemical Corporation for a waterflood project, Roosevelt County, New Mexico.

Attention: Mr. Elvis A. Utz

Gentlemen:

Attached is a tabulation of the locations of wells to be converted to injection in the proposed Milnesand (San Andres) Unit waterflood. This information was requested to suppliment the injection well details tabulated on Table I (Exhibit 1-G) attached to Exhibit I, as presented in evidence for the subject case.

Should additional information be required, please advise.

Very truly yours,
Union Texas Petroleum, A Division
of Allied Chemical Corporation

Gilbert E. Miller
Petroleum Engineer

GEM:fr

SUPPLEMENT TO TABLE I (EXHIBIT I-G)
DOCKET NO. 15-69
CASE 4139-4140

COMPANY	INJECTION WELL	LOCATION UL	SEC.	TWP.	RGE.
Citgo	Gov't-"J" No. 1	N	5 16	8	35
	Pate "A" No. 6	H	7 18	8	35
Mobil	Jacobs-Fed. No. 6	P	19 24	8	35
	Jacobs-Fed. No. 9	N	20 28	8	35
Union Texas	Jacobs-Fed. No. 6	N	18 21	8	35
	Jacobs-Fed. No. 10	F	19 25	8	35
	Jacobs-Fed. No. 16	N	19 26	8	35
	Jacobs-Fed. No. 17	H	19 27	8	35
	Hefflefinger No. 3	F	18 22	8	35
	Hefflefinger No. 4	H	18 23	8	35
	Haley No. 5	P	13 5	8	34
	Haley No. 6	N	13 6	8	34
Lario	Fed. "A" No. 3	P	14 9	8	34
Sun DX	N.M. Fed. F No. 4	H	13 7	8	34
	N.M. Fed. F No. 6	F	13 8	8	34
	N.M. Fed. F No. 13	H	24 11	8	34
	N.M. Fed. F No. 17	P	24 12	8	34
	N.M. Fed. F No. 20	P	25 14	8	34
	Bowley No. 2	P	12 1	8	34
Maxwell	Fraser No. 2	P	6 17	8	35
Getty	Coleman No. 1	F	12 2	8	34
Sunoco	Cosby No. 2	H	12 3	8	34
BTA	Taylor No. 2	N	7 19	8	35
	Taylor No. 7	F	7 20	8	35
Atlantic	Miller No. 1	N	12 4	8	34
Texaco	Rogers No. 3	H	25 15	8	34
Texam	Luman No. 2	H	23 10	8	34
	Weathersby No. 3	F	24 13	8	34

~~HHP~~
RTS
GEM

WATER ANALYSIS

For: Union Texas Petroleum
1300 Wilco Bldg.
Midland, Texas

Attn: Mr. Gilbert Miller

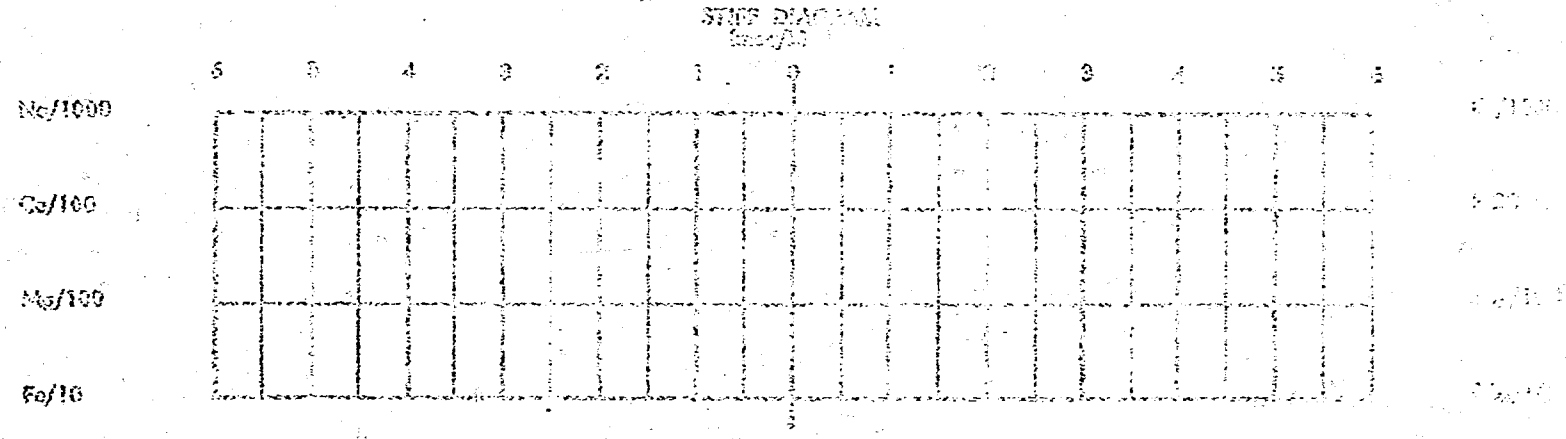
Date: 4-2-68

Laboratory Number: W.20941

Midland, Texas

Source: Reeves Treater			Field: W. Milnesand Formation: Nobil Jacobs Fed. #4	Depth: San Andres Date: 1,175	Sampled: 75
Constituents	mg/l	me/l	Constituents	mg/l	me/l
Sodium	86,500	3,760	Chloride	147,000	4,700
Calcium	12,800	641	Bicarbonate	329	5
Magnesium	3,890	320	Sulfate	720	15
Iron	0		Carbonate	0	0

STIFF DIAGRAM
(me/l)



Remarks: No precipitate was noted when this water was mixed with East Crossroads, Devonian water and allowed to stand for 72 hours.

George N. Greer, Jr.
Crenshaw - 2
Tulsa Lab

BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
EXHIBIT NO. 4
CASE NO. 4139 - 4140

ANALYSIS BASED ON API RECOMMENDED PROCEDURE

For: Union Texas Petroleum
1300 Wilco Bldg.
Midland, Texas

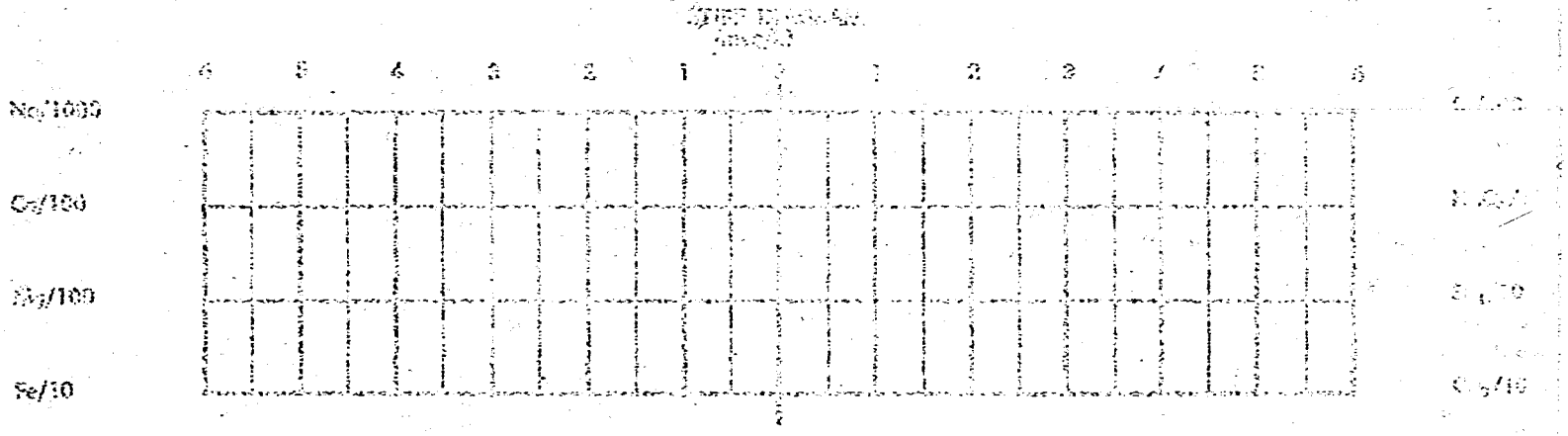
4-2-68

Midland, Texas

MK 2( )41

E. Cowden | Devonian

Heater Treater			6.4	1.041 @ 75	
	20,000	872		32,000	1,040
	2,800	340		427	7
	608	50		720	13
	Trace	nne		0	



George N. Greer, Jr.
Crenshaw - 2
Tulsa Lab

ANALYSIS BASED ON API RECOMMENDED PROCEDURE

BEFORE THE

NEW MEXICO OIL CONSERVATION COMMISSION

Santa Fe, New Mexico

May 21, 1969

EXAMINER HEARING

IN THE MATTER OF:

Application of Allied Chemical Corporation for a waterflood project, Roosevelt County, New Mexico. — Case 4140

Application of Allied Chemical Corporation for a unit agreement, Roosevelt County, New Mexico. — Case 4139

BEFORE: ELVIS A. UTZ, Examiner

TRANSCRIPT OF HEARING

MR. HINKLE: I'm going to move that these two Cases be consolidated, 4139 and 4140.

MR. UTZ: Case 4139.

MR. HATCH: Application of Allied Chemical Corporation for a unit agreement, Roosevelt County, New Mexico.

MR. UTZ: 4140.

MR. HATCH: Application of Allied Chemical Corporation for a waterflood project, Roosevelt County, New Mexico.

MR. HINKLE: I am Clarence Hinkle, appearing on behalf of Allied Chemical Corporation. I have one witness in this Case.

CLYDE D. FORD

called as a witness, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

MR. UTZ: We had better put in the record that we are combining Case 4139 and Case 4140 for personal testimony only.

MR. HINKLE: Yes, sir.

BY MR. HINKLE:

Q Would you state your name, residence and by whom are you employed?

A My name is Clyde D. Ford. I live in Houston, Texas. I am employed as Superintendent of Unitization, Secondary Recovery, for Allied Chemical Corporation Division, Union Texas Petroleum.

Q Are you a graduate of petroleum engineering?

A Yes, sir, I am.

Q Have you testified previously before this Commission?

A No, sir, I have not.

Q Will you state briefly your education qualifications and your experience as Petroleum Engineer?

A I graduated with a B.S. in petroleum engineering from Louisiana State University in 1953. It was then, Stanlon Oil and Gas Company, now Pan American Petroleum Corporation; and I worked for them until 1960, doing engineering work, both reservoirs and production type engineering work. I went to work in 1960 with an independent oil company which properties were located mostly in west Texas and southeast New Mexico. And in 1964, I went to work for Union Texas Petroleum Division, Allied Chemical Corporation, and have been Superintendent of Unitization

Secondary Recovery, following projects in the entire United States, since 1966.

Q Are you familiar with the applications of Allied Chemical in these two cases?

A Yes, sir, I am.

Q What is Allied Chemical seeking to accomplish with these two applications?

A In Case 4130, we are applying for the agreement approval and --

Q That is Case 4139.

A Excuse me, that is 4139. We are applying for unit agreement approval, an approval of the unit area. In Case 4140, we are requesting a waterflood program, covering the identical unit area approved.

Q Have you made a study of the Milnesand (San Andres) area?

A Yes, sir, I have.

Q And of the various wells that have been drilled in the area? In the proposed area?

A Yes, sir.

Q Have you prepared, or have there been prepared under your direction, exhibits to be introduced in this Case?

A Yes, sir.

Q Refer to what has been marked as No. 1, which consists of a number of attachments which are referred to as Exhibit 1-A, B, and so forth; and refer to, first, Exhibit No. 1, and explain what this shows.

A Exhibit No. 1, shows the general area in which the unit is requested to be approved. The unit area, itself, is outlined in red. It also shows the wells which are drilled within the unit area; and all wells which have been drilled within two miles outside of the unit area.

Q Does this also show the character of the lands involved, whether they are Federal, State, or --

A Yes, sir, it does. The Federal lands are indicated on the bottom of each of the major tracts.

Q Are all the lands within the proposed unit area Federal lands or --

A No, sir. Approximately 48.17 percent of the lands within the unit area are Federal lands. The remaining 51.83 percent are fee lands.

Q Does Allied Chemical own a substantial part of the leases within the proposed unit area?

A Yes, sir, we own all of the interests in Section 18, the north half and southwest quarter of Section 19

in Township 8, Range 35, and we own the south half of Section 13 of Township 8, Range 34.

Q Does this proposed unit include all of the wells within the Milnesand space (San Andres) producing area?

A The wells to the south are operated by Pan American Petroleum Corporation, under the Horton Federal Lease; at the election of Pan American, will not be included in the unit area. They have indicated they will cooperate with us on a flood, and in fact, there is a pressure maintenance project which has been approved, and they are using -- injecting water into wells in this area, now.

Q This is immediately to the south in Section 29 and 30?

A Yes, and 31.

Q What are some of the reservoir characteristics of the Milnesand (San Andres) Pool?

A Well, it is a San Andres dolomite, approximately 4500 or 4600 feet, and it consists of three porosity zones, which lie 750 feet below the top of the formation. The average net pay is 46 feet. It's fine to medium, crystal and brown with pinpoint to vuggy porosity. The average

porosity is 6.13 percent and the permeability. --

Q Refer to Exhibit 1-A, and explain what it shows.

A Exhibit 1-A is a map of the unit area which shows all wells that have been drilled in the unit area, and wells that have been drilled within two miles of the unit area. But it shows in addition, by indicated circles, colored in red, those wells which will be used as injection wells, and, in addition, it shows the tracts numbers which have been designated and defined in the unit agreement.

Q How many proposed injection wells are there?

A There are 28 currently proposed injection wells.

Q Now, in the notice of advertising, in Case 4140, it indicates there would be 33 injections wells?

A There are some wells that are edge wells that were located around a well, which we only recently learned was permanently abandoned. It's required that we make some minor modifications to the injection program that we had planned originally, so that this current plans consist of 28 rather than 33 injection wells.

Q Now, refer to Exhibit 1-B, which consist of a series of exhibits together, and explain what these are.

A Exhibit 1-B is logs covering the intervals of the 28. The Jacob's Federal No. 10, the log was not available on this well. I don't know whether there was an original log run. We purchased these properties from El Chorro, but we could not find a copy of the log on No. 10. The other --

Q These have not been included?

A That's right. Each one of the logs had been marked to show the three zones of the porosity that I mentioned earlier. They are called top zones, Zone 2 and Zone 3. It is apparent from each one of the logs that the zones are continuous throughout the reservoir.

Q I refer to Exhibit 1-C, and will you explain this exhibit?

A Exhibit 1-C is a plat showing the structure on the top of San Andres reservoir, which indicates that it is gently dipping anticline, which dip to the southeast.

Q Does this tend to show that continuity of the entire reservoir San Andres formation, that is the unit area?

A Yes, sir.

Q Now, refer to Exhibit 1-D, and explain to the Commission.

A Exhibit 1-D is the production curve showing the average monthly production of oils from wells within the unit area, plotted against time.

Q First production was the early of 1959?

A Actually, the first production, was July, 1958.

Q Now, refer to Exhibit -- do you have any further comments with respect to that exhibit?

A No, not with respect to that exhibit.

Q With reference to Exhibit 1-E, will you explain this?

A Exhibit 1-E is just a chart, showing the production which went into the draft on the previous page. It also shows the cumulative oil productive, which through February of 1969, amounted to 4,391,395 barrels of oil.

Q Now, refer to Exhibit 1-F, and explain this to the Commission.

A Exhibit 1-F is a diagrammatic sketch of a typical injection well to be in the proposed plan of waterflood.

Q That's the conversion of existing producing wells to injection wells, that you referred to?

A Yes, sir. All wells in the unit area are

completed singly. All of them will be wells that have casing entirely through. There is no variation as far as the type of wells, so we used a single diagrammatic sketch with a chart of Table 1, which is Exhibit 1-G, to show the various information corresponding to that shown on the diagrammatic sketch for the other wells which will be used as injection wells.

Q So, between these two exhibits, 1-H and 1-G, it does show all the information, with respect to the completion of the injection wells?

A Yes, sir.

Q It also shows how the casing has been cemented?

A Yes, sir.

Q How it was used, and so forth?

A Yes, sir.

Q Quantities of cement used?

A Yes, sir.

It also shows that we do plan to use plastic lined tubing for all of our injection wells, and we do plan to use inhibited fluid behind the tubing in the annulus.

Q Now, what is the character of the water which you intend to inject?

A In these wells, the water which we propose to

inject is salt water. It is produced water which comes from the Cross Roads Devonian Field, which is approximately 14 miles from the area that we are referring to here. This is salt water, and we have had it analyzed under, I think, Exhibit No. 4. The analysis is for both the San Andres produced water, which has a chloride content of one hundred and sixty-seven thousandth parts per million, and the second page of that exhibit is an analysis of the East Cross Roads water which has a chloride content of thirty-seven thousandth parts per million. You will also note, this analysis which was run by Dowell, on page 1, indicates there was no precipitant was noted when this water was mixed with East Cross Roads Devonian water, and allowed to stand for 72 hours; so we feel that we do have a compatible water system that we will be injecting here.

Q Has this area been designated by the United States Geological Survey in an area suitable and proper for utilization?

A Yes, sir, it has.

Q Refer to Exhibit 2, and explain what this is?

A Exhibit No. 2 is a letter from a United States

Department of Interior, Geological Survey; signed by the Acting Director which approved as an area for unitization, the 5,370 acres which we are requesting to be approved here today.

Q Does that letter also approve the proposed form of the unit agreement?

A Yes, sir, we submitted a form of unit agreement, which the letter approved, subject to certain modifications which have been made in the exhibits which we are presenting here today.

Q Is this form substantially the same form as heretofore been approved by the Director of the USGS and by the Commission where Federal and Fee lands are involved?

A Yes.

Q Refer to Exhibit 3, being the unit agreement. Is this the form of unit agreement which you filed with the USGS for approval?

A Yes, sir, including the modifications which they referred to in Exhibit 2.

Q Now, who is designated as Unit Operator under the terms of the unit?

A The Texas Petroleum and Division of Allied Chemical Corporation.

Q Does the unit plan to provide for participation

of formula?

A Yes, sir, it does.

Under Section 13 of the unit agreement, there is an established formula on which the unit will be based. It is a two-phase formula, with the primary phasing being 25 percent of production from January 1, 1966 to September 1, 1966, and 75 percent on remaining primary, subsequent to September 1, 1966. This portion of the formula will continue until 2,284,845 barrels have been produced subsequent to September 1. 1966; after which the secondary phase will come into effect. And this is based 75 percent on the ultimate primary production, 5 percent on the porosity acre fee, and 20 percent on cumulative production to September 1, 1966.

Q Has this formula been agreed to by all the working interest owners?

A This formula has been agreed to by -- yes, sir, the formula has been agreed to by all the working interest owners by earlier meetings.

Q What is the present status of the execution of the unit agreement by the working interest owners, and by the owners of overriding royalty, and --

A As of last Friday, the working interest signed up Phase One, was 87.204 percent and on Phase Two, by 83.6510

percent. The unit agreement provides, to be effective, that we have to have 75 percent sign-up, so we are well in excess of the required amount under the terms of the agreement.

Q What do you anticipate you will end up with, as far as working interest owners, being --

A In excess of 95 percent. We have some tracts in here where the title is under dispute. We don't know whether we will ever get it signed-up.

Q Is that edge acreage?

A Yes, it is edge acreage, and will not substantially affect the unit, even if we cannot get it signed-up.

Q Do you have any dead-line under the terms for approval?

A Yes, sir. This unit provides that we have to have it effective by July 1, 1969, or it will terminate as of that date, so we are short-fuse.

Q Are you requesting a project allowable in connection with the waterflood project?

A Yes, sir, we are.

Q In accordance with Rule 701 of the Commission?

A In accordance with Rule 701, yes sir.

You asked also about sign-up of royalty interest,

which I did not indicate at that time. We have signed 76.94 percent of Phase One, and 86.0825 percent of Phase Two, royalty interest. Subsequent to last Friday, we have received some additional ratifications, but I don't have the amounts here with me today; but they are still coming in, the reason we are here with this Hearing at this time is because of the short-fuse we have on getting the unit effective.

In addition, the unit provides that only 65 percent of the royalty owners need approve it, for the unit to be effective. And as I mentioned, we have over 75 percent of Phase One and 85 of Phase Two.

Q So you have no problem with respect to required numbers?

A No, sir.

Q Now, are you reques ng administrative approval for addition injection wells, in the event you see a need for them in the future?

A Yes, sir, this is a San Andres type reservoir, which has historically been known to have fractures in it, which may or may not give you a problem when you start waterflooding. To combat this, the plan is to start with an inverted nine spots. Once the fracturing pattern becomes

apparent, if it is apparent, we will be able to work with it and, we propose possibly to modify this to a higher injection rate program; and we would like to have approval to change the pattern if it becomes necessary.

Q Does the unit agreement provides for a plan of development to be filed at the time the unit is filed for final approval?

A Yes, sir.

Q Have you formulated a plan of development at the present time?

A Yes, sir, we have.

Q Can you state briefly what it is?

A Briefly, the plan of development will be to start out with the 28 injection wells without going into the pilot program, under the inverted nine spots program. Injecting approximately 700 barrels per day into each of those 28 wells, or a total of about 20,000 barrels per day of injected salt water. We propose to follow this for approximately one year, and look at the performance, and at that time, reevaluate our position.

Q In your opinion, in the event of the approval of this unit agreement, will it be in the interest of conservation and prevention of waste?

A Yes, sir.

Q Will it protect correlative rights?

A Yes, sir.

Q Will it also promote the greatest ultimate recovery of unitized substances?

A Yes, sir.

MR. HINKLE: We would like to introduce Exhibits 1 through 4, inclusive.

MR. UTZ: Exhibits 1 through 4, and including all parts, will be entered into the record of this Case.

(Thereupon, Applicant's Exhibits 1 through 4 were admitted in evidence.)

MR. HINKLE: I believe that is all of the direct.

CROSS EXAMINATION

BY MR. UTZ:

Q Mr. Ford, does Table 1 and Exhibit 1 lift all the proposed 28 injection wells?

A Table 1 and Exhibit 1 -- 1-G?

Q Well, mine is just marked Table 1 --

A Oh, yes, yes, sir. That is Exhibit 1-G, and that is all of the 28.

Q Is that the only listing you have in your exhibits of injection wells?

A Yes, sir, other than as shown on the map.

MR. HINKLE: That's 1-A -- it shows the injection wells, too.

Q (By Mr. Utz) I mean, on the map?

A Yes, sir, on the map. But this is the only listing.

Q We need the exhibit location, or by units.

A Well, it will be on the map and also on the logs -- the heading of the logs. It shows the location.

Q You are missing one log?

A We are missing one log --

MR. HINKLE: Can you give them the location?

A I can give the location of that one. It's located -- well, let's see -- that would be 1,980 feet from the west line and 1,980 feet from the north line, Section 19.

Q And what was that well?

A That's Union Texas Jacob's Federal No. 1.

Q Does the map have the well numbers on them, in accordance with Exhibit 1-G?

A Yes, sir.

Q So, there will be no problem in correlating the map with the --

A We made no authoration of well names to units

names at this time.

Q Okay, because we will have to put the wells in the order by their unit number -- unit letter numbers -- so we have got to locate them. You recall, there were no exceptions to your completion practices on all your wells. All of them will be plastic coated tubing?

A Yes, sir.

Q Under a packer?

A Under a packer with inhibited fluid.

Q Any other questions?

MR. HINKLE: That's all I have.

MR. UTZ: You may be excused. Statements?

The Case will be taken under advisement.

I N D E X

STATE OF NEW MEXICO)
) SS.
COUNTY OF BERNALILLO)

I, KURLEEN McCUTCHEN, Court Reporter in and for the County of Bernalillo, State of New Mexico, do hereby certify that the foregoing and attached Transcript of Hearing before the New Mexico Oil Conservation Commission was reported by me, and that the same is a true and correct record of the said proceedings, to the best of my knowledge, skill and ability.

Kurleen McCutchen

Notary Public

MY COMMISSION EXPIRES: May 22, 1973

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 4160 039 heard by me on May 7, 1969.

Examiner
New Mexico Oil Conservation Commission

Allied Chemical Corporation

UNION TEXAS PETROLEUM DIVISION

1300 WILCO BUILDING • MIDLAND, TEXAS 79701 • AREA CODE, 915, 682-0515

August 14, 1969

Mr. I. R. Trujillo
Oil Conservation Commission
State Land Office Building
Sante Fe, New Mexico 87501

Re: Milnesand Waterflood Project
Case No. 4140
Order No. R-3770

Dear Mr. Trujillo:

The subject order provides that Allied Chemical Corporation may institute a waterflood unit in the Milnesand (San Andres) Field, Roosevelt County, New Mexico. This project will be operated under the name of Union Texas Petroleum as set out in the Unit Agreement (Case No. 4139; Order R-3766).

This letter confirms our telephone conversation of July 13, 1969.

Respectfully,

UNION TEXAS PETROLEUM

G. M. Dougherty

G. M. Dougherty
Administration Unit Coordinator

GMD/gv

CLARENCE E. HINKLE
W. E. BONDURANT, JR.
S. B. CHRISTY IV
LEWIS C. COX, JR.
PAUL W. EATON, JR.
CONRAD E. COFFIELD
HAROLD L. HENSLEY, JR.
STUART D. SHANOR

C. D. MARTIN
PAUL J. KELLY, JR.

LAW OFFICES
HINKLE, BONDURANT & CHRISTY
600 HINKLE BUILDING
ROSWELL, NEW MEXICO 88201

May 5, 1969

MIDLAND, TEXAS OFFICE
521 MIDLAND TOWER
(915) MU 3-4691

TELEPHONE (505) 622-6510
POST OFFICE BOX 10

Case 4140

New Mexico Oil Conservation Commission
P. O. Box 2088
Santa Fe, New Mexico 87501

Attention: Mr. A. L. Porter
Secretary - Director

Re: Application of Allied Chemical Corporation for Approval of Secondary Recovery Program Covering the Milnesand (San Andres) Unit Area in Roosevelt County, N.M.

Dear Mr. Porter:

On May 1, 1969, we made application in connection with the above, and in Paragraph 4 of the application we made the statement that all of the wells in the unitized area had reached advance stage of depletion and are regarded as what is commonly referred to as "stripper" wells.

Allied Chemical Corporation has called us this date and advised that we were incorrect in this assumption and that some of the wells are in an advanced stage of depletion but others are not. We, therefore, wish to immediately call your attention to this error in our understanding when preparing the application.

It appears to us that we will now have a combination pressure maintenance and waterflood project for the unitized area, but of course, both are covered by your Rule 701 to which the application is directed. The matter, of course, will be further clarified at the hearing on the application.

Respectfully,

HINKLE, BONDURANT & CHRISTY

By S. B. Christy IV

SBC:pv
cc: Allied Chemical Corporation

Docket No. 15-69

DOCKET: EXAMINER HEARING - WEDNESDAY - MAY 21, 1969

9 A.M. - OIL CONSERVATION COMMISSION CONFERENCE ROOM,
STATE LAND OFFICE BUILDING - SANTA FE, NEW MEXICO

The following cases will be heard before Elvis A. Utz, Examiner, or Daniel S. Nutter, Alternate Examiner:

CASE 3405: (Reopened) (Continued from the May 7, 1969 Examiner Hearing)

In the matter of Case No. 3405 being reopened pursuant to the provisions of Order No. R-3081, which order established 640-acre spacing for the North Indian Hills-Morrow Gas Pool, Eddy County, New Mexico, for a period of one year after first pipeline connection in the pool. All interested parties may appear and show cause why said pool should or should not be developed on 320-acre spacing units.

CASE 4131: Application of Gulf Oil Corporation for downhole commingling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to commingle production from the Jalmat and South Eunice oil pools, Lea County, New Mexico, in the wellbores of six wells located as follows:

TOWNSHIP 21 SOUTH, RANGE 36 EAST

Arnott Ramsay (NCT-D) Well No. 6 - Unit K - Section 33
Arnott Ramsay (NCT-D) Well No. 7 - Unit M - Section 33
Arnott Ramsay (NCT-D) Well No. 8 - Unit N - Section 33
Arnott Ramsay (NCT-D) Well No. 9 - Unit L - Section 33
J. F. Janda (NCT-B) Well No. 4 - Unit O - Section 32

TOWNSHIP 22 SOUTH, RANGE 36 EAST

J. F. Janda (NCT-F) Well No. 8 - Unit C - Section 4

CASE 4132: Application of Pan American Petroleum Corporation for an exception to Order No. R-3221, as amended, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an exception to Order No. R-3221, as amended, which order prohibits the disposal of water produced in conjunction with the production of oil on the surface of the ground in Lea, Eddy, Chaves, and Roosevelt Counties, New Mexico, after January 1, 1969. Said exception would be for three wells located in Unit D, E, and P of Section 27, Township 18 South, Range 31 East, Shugart Field, Eddy County, New Mexico. Applicant seeks authority to continue to dispose of salt water produced in two unlined surface pits located in the E/2 of said Section 27.

CASE 4133: Application of Skelly Oil Company for a unit agreement, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of the West Dollarhide Drinkard Unit Area comprising 3,533.52 acres, more or less, of Fee, Federal, and State lands in Townships 24 and 25 South, Range 38 East, Lea County, New Mexico.

CASE 4134: Application of Skelly Oil Company for a waterflood project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project in its West Dollarhide Drinkard Unit Area by the injection of water into the Tubb-Drinkard formation through 43 wells located in Townships 24 and 25 South, Range 38 East, Dollarhide Tubb-Drinkard Pool, Lea County, New Mexico. Applicant further seeks a procedure whereby said project may be expanded administratively without a showing of well response.

CASE 4135: Application of Roy E. Kinsey, Jr. for an exception to Order No. R-3221, as amended, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an exception to Order No. R-3221, as amended, which order prohibits the disposal of water produced in conjunction with the production of oil or gas or both, on the surface of the ground in Lea, Eddy, Chaves, and Roosevelt Counties, New Mexico, after January 1, 1969. Said exception would be for the P. R. Bass-Federal Well No. 1 located in Unit F of Section 3, Township 16 South, Range 30 East, West Henshaw Pool, Eddy County, New Mexico. Applicant seeks authority to continue to dispose of produced salt water in an unlined surface pit located near said well.

CASE 4136: Application of Mallard Petroleum, Inc. for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Yates formation in the interval from 3606 feet to 3627 feet in its Milner Federal Well No. 4 located in Unit C of Section 35, Township 20 South, Range 34 East, Lynch Pool, Lea County, New Mexico.

CASE 4137: Application of Atlantic Richfield Company for a unit agreement, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval of the East Shugart Unit Area comprising 1359.40 acres, more or less, of Federal and State lands in Townships 18 and 19 South, Range 31 East, Eddy County, New Mexico.

CASE 4138: Application of Atlantic Richfield Company for a waterflood project and unorthodox injection well location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project by the injection of water into the Yates-Seven Rivers-Queen formations through 11 wells in Townships 18 and 19 South, Range 31 East, Shugart Pool, Eddy County, New Mexico. Applicant further seeks an exception to permit the drilling of one of said wells at an unorthodox location 100 feet from the South line and 990 feet from the West line of Section 35, Township 18 South, Range 31 East.

CASE 4139: Application of Allied Chemical Corporation for a unit agreement, Roosevelt County, New Mexico. Applicant, in the above-styled cause, seeks approval of the Milnesand (San Andres) Unit Area comprising 5370.18 acres, more or less, of Federal and Fee lands in Township 8 South, Ranges 34 and 35 East, Roosevelt County, New Mexico.

CASE 4140: Application of Allied Chemical Corporation for a waterflood project, Roosevelt County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project in its Milnesand (San Andres) Unit Area by the injection of water into the San Andres formation through 33 wells located in Township 8 South, Ranges 34 and 35 East, Milnesand-San Andres Pool, Roosevelt County, New Mexico. Applicant further seeks a procedure whereby said project may be expanded administratively without a showing of well response.

CASE 4141: Application of McCasland Disposal System for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Seven Rivers formation in the intervals from approximately 3756 feet to 3851 feet and from approximately 3918 feet to 3939 feet, respectively, in the Getty Oil Company J. H. Day Wells Nos. 1 and 2, both located in the NW/4 of Section 8, Township 22 South, Range 36 East, Jalmat Pool, Lea County, New Mexico.

CASE 4142: Application of Tamarack Petroleum Corporation, Inc., for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water by injection into the Queen formation in the interval from 4946 feet to 5040 feet in its Cabot 15 State Well No. 2 located in Unit P of Section 15, Township 19 South, Range 35 East, Pearl-Queen Pool, Lea County, New Mexico.

CASE 4143: Application of Amerada Petroleum Corporation for downhole commingling and special gas-oil ratio limitation, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to commingle production from the Eumont Gas Pool and the Skaggs-Grayburg Pool in the wellbore of its Fred Turner, Jr., "A" Well No. 2, the Eumont completion of which is presently classified as a gas completion, located in Unit K of Section 18, Township 20 South, Range 38 East, Lea County, New Mexico. Applicant, further seeks the establishment of a special gas-oil ratio limitation for the subject well.

(Continued from the May 7, 1969 Examiner Hearing)

CASE 4121: Application of Roger C. Hanks for special pool rules, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the promulgation of special pool rules for the Bar U-Pennsylvanian Pool, Lea County, New Mexico, including a provision for 160-acre spacing and proration units and the assignment of 80-acre allowables.

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WASHINGTON, D.C. 20242

JAN 7 - 1969

Union Texas Petroleum Division
of Allied Chemical Corporation
P. O. Box 2120
Houston, Texas 77001

Gentlemen:

Your application of November 1 filed with the Regional Oil and Gas Supervisor, Roswell, New Mexico, requests the designation of the Milnesand (San Andres) unit area embracing 5,354.30 acres, Roosevelt County, New Mexico, as logically subject to operation under the unitization provisions of the Mineral Leasing Act as amended. Our review of the unit area indicates the total acreage to be 5,370.18 acres. Please recheck and correct your acreage figures if appropriate. Based on such acreage figure, the unit area embraces 2,586.94 acres (48.17 percent) of Federal land and 2,783.24 acres (51.83 percent) of fee land.

Unitization is for the purpose of conducting secondary recovery operations by waterflooding and will be limited to that portion of the San Andres defined by Section 2(h) of the unit agreement. The proposed unit area has been developed by 123 wells completed in the formation to be unitized. Participation will be based on a two-phase formula as follows:

> Primary Phase - 25 percent of the production from January 1, 1966, to September 1, 1966, and 75 percent of the remaining primary oil after September 1, 1966.
>
> Secondary Phase - 75 percent ultimate primary, 5 percent porosity acre feet, and 20 percent cumulative production to September 1, 1966.

The secondary phase is to begin the first day of the month next following the date when oil production subsequent to September 1, 1966, from the interval to be unitized within the unit area equals 2,284,845 barrels. You estimate that secondary recovery operations will result in the recovery of 4,224,568 barrels of additional oil.

The land outlined on your plat marked "Exhibit A, Milnesand (San Andres) Unit, Roosevelt County, New Mexico," is acceptable as a logical unit area for secondary recovery operations. Your proposed form of unit agreement will be acceptable if further modified in accordance with the marked form returned herewith. The remaining copies of the proposed form of unit agreement are being retained for distribution to the appropriate offices of the Geological Survey.

Please include the latest status of all acreage when the executed agreement is submitted for final approval. The format of the sample exhibits attached to the Form of Agreement for Unproved Areas (1968 Reprint) should be followed closely in preparation of Exhibits A and B.

Sincerely yours,

William T. Baker

Acting Director

Enclosure

OIL CONSERVATION COMMISSION
P. O. BOX 2088
SANTA FE NEW MEXICO 87501

May 6, 1975

Markay Oil and Gas Company
P. O. Box 1585
Midland, Texas 79701

Attention: Mr. D. M. Norman

Gentlemen:

It is our understanding that pursuant to a contract executed by yourself and Union Texas Petroleum, Union Texas will sell pressurized water to Norman who will inject it into his Weathersby Well No. 3, located in Unit F, Section 24, Township 8 South, Range 34 East, NMPM, Milnesand-San Andres Pool, Roosevelt County, New Mexico.

Inasmuch as said Weathersby Well No. 3 was approved for water injection by Commission Order No. R-3770, dated May 28, 1969, no further approval will be necessary, and you are authorized to proceed with your proposed water injection project.

Very truly yours,

DANIEL S. NUTTER
Chief Engineer

DSN/dr

cc: Oil Conservation Commission - Hobbs

Case file 4140

MARKAY OIL & GAS COMPANY
227 OIL & GAS BUILDING
MIDLAND, TEXAS 7970
P. O. Box 1585

915/682-0396

March 19, 1975

Mr. D. S. Nutter
Chief Engineer
Oil Conservation Commission
P. O. Box 2088
Santa Fe, New Mexico 87501

Re: Milnesand San Andres Unit

Dear Sir:

Enclosed you will find for your files a xerox copy of a contract between D. M. Norman and Union Oil of Texas, whereby Union agrees to sell pressured water to Norman which is to be injected in the No. 3 Weathersby well in the Milnesand San Andres Field. This well is located 1980 from NL and 1980 from WL of Section 24, T-8-S, R-34-E.

This contract has been in the making for several months and at the start of this procedure, I visited with you on the phone and you advised that it would not be necessary to have a new hearing on this matter in as much as the well had been approved for an injection well at the time the other wells in this unit were approved.

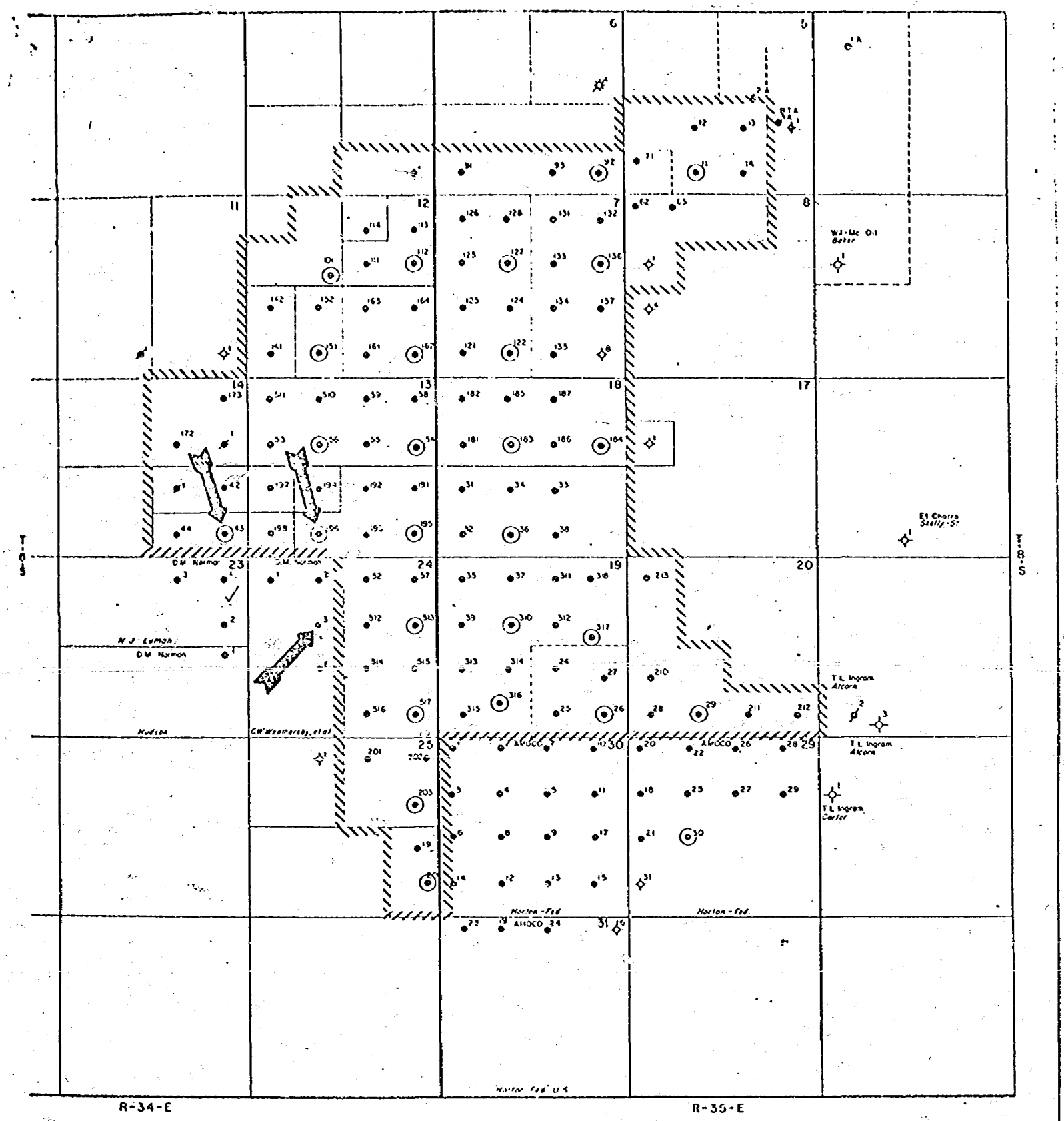
It is our intention to commence water on or about the first of April.

Sincerely yours,

D. M. Norman

DMN:am

Encl.


T-0-S
T-8-S
R-34-E
R-35-E
D M Nance
N J Lemon
D M Nance
Hudson
Chi'Weamersby, et al
Horton-Fed
Horton-Fed
Horton-Fed U S
AMOCO
AMOCO
AMOCO
W J-Mc Ott
Getter
El Chorro
Skelly-St
T L Ingram
Alcorn
T L Ingram
Alcorn
T L Ingram
Carter
RTA
LEGEND
INJECTION WELL
PRODUCING WELL
TEMPORARILY ABANDONED
PERMANENTLY ABANDONED
DRY HOLE
UNIT BOUNDRY
N
UNION TEXAS PETROLEUM
MILNESAND (SAN ANDRES) UNIT
ROOSEVELT COUNTY, NEW MEXICO

STATE OF NEW MEXICO)

COUNTY OF ROOSEVELT)

COOPERATIVE WATER SUPPLY AND INJECTION AGREEMENT

THIS AGREEMENT, entered into and effective as of March 10, 1975, between Union Texas Petroleum, a Division of Allied Chemical Corporation, as Unit Operator of the Milnesand (San Andres) Unit hereinafter sometimes referred to as "Union Texas"; and D. M. Norman et al, hereinafter sometimes referred to as "Norman".

W I T N E S S E T H:

Whereas, Union Texas is the Operator of the Milnesand (San Andres) Unit which covers among other lands, the east half of Section 14, the east half of Section 24, and all of Section 13, Township 8 South, Range 34 East, Roosevelt County, New Mexico; and,

Whereas, Norman is the Operator of the C. W. Weathersby et al Lease which covers the west half of Section 24 and of the N. J. Luman Lease which covers the north half of Section 23, Township 8 South, Range 34 East, Roosevelt County, New Mexico; and,

Whereas, Union Texas and Norman, each in their indicated capacity as Operator, wish to operate their respective properties above described but desire to cooperate with one another in a waterflood operation to the extent and in the manner hereinafter provided, it being the opinion of the parties hereto that by so doing each of said properties will be benefited by an increase in the production of crude oil from the Milnesand (San Andres) Field underlying said properties, and the correlative rights of all of the owners of said properties will be protected:

NOW THEREFORE, in consideration of the premises and the mutual benefits to be derived therefrom, it is agreed as follows:

1. Union Texas agrees to convert, equip, and thereafter maintain and operate two (2) wells for water injection in the San Andres formation in the manner hereinafter provided, such well to be located as follows:

Milnesand (San Andres) Unit Well No. 43 located in the southeast quarter of the southeast quarter (SE/4 SE/4) of Section 14, Township 8 South, Range 34 East, Roosevelt County, New Mexico; and,

Milnesand (San Andres) Unit Well No. 196 located in the southeast quarter of the southwest quarter (SE/4 SW/4) of Section 13, Township 8 South, Range 34 East, Roosevelt County, New Mexico.

Norman agrees to convert, equip, and thereafter maintain and operate one (1) well for water injection in the San Andres formation in the manner hereinafter provided, such well to be located as follows:

C. W. Weathersby et al Lease - Well No. 3 located in the southeast quarter of the northwest quarter (SE/4 NW/4) of Section 24, Township 8 South, Range 34 East, Roosevelt County, New Mexico.

2. Each party hereto agrees at its sole risk and expense, to convert, equip, maintain and operate its water input well(s) so that water may be injected into the San Andres formation in the manner hereinafter provided, each of said water input wells to be equipped to take injection within one hundred twenty (120) days after the effective date of this agreement, or as soon thereafter as it is agreed it is practical, and thereafter to inject water through its water input wells into the San Andres formation; it being agreed that the parties hereto will endeavor to control their respective operations in such manner that water will be injected into each water input well at a uniform rate so that the volume injected into each well in any month will be equal to that injected into each other well covered hereby as nearly as it is possible to do so; provided, however, in no event shall either party inject water into its respective water input wells at wellhead pressures in excess of two thousand (2000) pounds per square inch gauge or insofar as it is within their reasonable control as Operator at rates or volumes which will prevent either of the properties covered hereby from receiving its fair share of waterflood benefits. The parties hereto shall have access to the premises subject to this agreement at all reasonable hours and the right to inspect pertinent records in connection therewith at all such times.

Each party hereto shall promptly perform any workover or remedial work necessary on its water input wells, in order that said wells will take water at the rate and volume and under the pressure limitation herein provided, so as to effectively carry out the waterflood operations to be performed under this agreement.

It is further agreed that each party hereto shall carry on waterflood operations in the manner herein provided until the property it operates no longer derives any reasonable benefit from same. It is the intention of the parties hereto that nothing herein contained shall be construed to require either party

hereto to continue to operate any water input well if such operation is no longer economically profitable to it.

3. If at any time either of the parties hereto shall determine that water injection into any of its water input wells is no longer economically profitable to it, then said party shall have the right to cease injection into said well or wells upon giving thirty (30) days' written notice to the other party of such intention. The other party hereto may then, at its sole risk and expense, take over and operate said well or wells. In such event, the party taking over said well or wells is hereby granted, without warranty expressed or implied, the right of ingress and egress and all right-of-ways and easements necessary for continued operation of said well or wells, and the party electing not to continue such operation shall execute any assignments or conveyances necessary for the continuance of such operation insofar as it is possible for such party to execute such assignments or conveyances. The party taking over said well or wells shall pay for the equipment taken over on the basis of its current salvage value in place, less abandonment and plugging cost. The party taking over said well agrees to plug and abandon the well in accordance with all applicable laws, state, federal, and otherwise at its sole risk and expense, and salvage all equipment in and on said well or wells for its sole account. The party taking over said well or wells hereby agrees to indemnify and hold the other party hereto harmless from all damages and any liability to any third party, caused as a result of its subsequent operations.

4. The cooperative injection as described above shall commence as of the date the water input wells are equipped to take injection and extend for one hundred fifty (150) days from said date and as long thereafter as the properties covered hereby derive any reasonable benefit from the waterflood operations provided for herein.

5. Union Texas agrees to make available sufficient nonpotable pressured water to meet Norman's currently indicated maximum waterflood injection requirements from the Milnesand (San Andres) Unit distribution system, and agrees that it will commence delivery of water hereunder upon Norman's request so to do at any time after sixty (60) days from the execution of this agreement. In addition, Union Texas agrees to furnish additional water for injection purposes for Norman's No. 2 Luman, located in the SE/4 of the NE/4 of Section 23, T-8-S, R-24-E, Roosevelt County, New Mexico at such time as Norman shall convert said well to injection for waterflooding purposes. The water delivery shall be for a period of one (1) year from and after the date of first delivery and thereafter from year to year until cancelled by either party by giving the other party thirty (30) days' written notice of cancellation. Union Texas reserves

the right to interrupt service, at any time and from time to time, to make necessary repairs of or improvements in the Milnesand (San Andres) Unit System; however, Union Texas agrees to use its best efforts to see that Norman shall secure a continuous non-interrupted supply of water from said System.

6. The price of water sold and purchased hereunder shall be five (5) cents per barrel of forty two (42) United States gallons. Union Texas shall invoice Norman monthly for the volume of water sold and delivered during the next preceeding month, and Norman shall pay Union Texas therefor within twenty (20) days of receipt of invoice. Union Texas reserves the right to adjust this cost to reflect increases in cost to provide this service. Norman shall not be required to purchase a minimum daily quantity of water; however, Norman agrees that during the term of this agreement it will buy water from no other source of supply.

7. Union Texas shall not be required to deliver a minimum daily quantity of water and if Union Texas' source of water shall fail in part, or be so diminished that the total volume of water available for distribution through the Milnesand (San Andres) Unit System shall be less than the aggregate daily requirements, then such water as is available shall be ratably apportioned based on respective water usage during the six months' period immediately preceeding the time that the shortage of water may develop.

8. Union Texas does not warrant or guarantee the purity, quality, condition, or suitability of delivered water for any use or purpose.

9. The delivery point for water delivered shall be at a point along the lease line which represents a common boundary to both the parties for their properties described in this agreement: Union Texas shall install a conventional water meter at this point. Title to said water shall pass to Norman on the downstream side of said meter. All debts, obligations and liabilities for which Union Texas may be or shall become liable in connection with the ownership of said water prior to the passing of title thereto to Norman shall be borne and paid by Union Texas, and Union Texas hereby indemnifies Norman against any such liabilities. All debts, obligations and liabilities for which Norman may be or shall become liable in connection with the ownership of said water at and after title to said water has passed to Norman shall be borne and paid by Norman, and Norman hereby indemnifies Union Texas against any such liabilities.

meter at any reasonable time and from time to time in the presence of Union Texas' representative. If the accuracy of the meter is questioned, Union Texas shall cause the meter to be tested and calibrated upon request of Norman. If the meter is found to be reading accurate within plus or minus 5%, such meter readings as have been made since the last such test shall be considered accurate for billing purposes, and the cost and expense of testing and calibrating the meter shall be borne by Norman. If the meter is found to be in error in excess of 5% in favor of Union Texas, an adjustment shall be made in the next following monthly billing for one-half (1/2) the elapsed time since the last previous meter calibration; but in no event shall the correction be applied for a period in excess of three (3) months. Norman shall bear the cost and expense of testing and calibrating the meter in the event the meter is found to be reading accurately within plus or minus 5%.

11. Norman agrees that all water purchased hereunder is for use in waterflooding the leases previously described and that water will not be resold by it to a third party without prior written consent of Union Texas having been first had and obtained.

12. Union Texas agrees to accept produced water from San Andres formation from the Norman properties included in this agreement at a point along the lease line which represents a common boundary to both parties for the properties described in this agreement. This produced water will be connected and delivered to the Milnesand (San Andres) Unit Gathering System at no cost to either party.

Norman will be responsible for maintaining sufficient pressure on the system to assure entry of produced water into the Milnesand (San Andres) Unit Disposal System. Union Texas reserves the right to limit the amount of produced water accepted if, in the opinion of Union Texas, the amount becomes excessive for the gathering or disposal facilities.

13. Under no circumstances shall this agreement be construed as creating a partnership, agency, or any other type of association between the parties hereto. The liability of the parties hereto shall be several and not joint or collective.

Each party hereto agrees that this agreement shall not constitute a partnership, as defined in the Internal Revenue Code, and each of the parties hereto specifically elects to be excluded from the application of all of Subchapter K of the Internal Revenue Code of 195 pursuant to Section 761 thereof.

14. Any sale, assignment, unitization or transfer of any interest of any party hereto in the leases and lands covered hereby shall be made expressly subject to this agreement, and any party acquiring any such interest shall assume the obligations hereof and be entitled to the benefits accruing hereunder. In the event any party not a signatory party to this contract thereafter shall acquire any interest subject to this contract by assignment, operation of law, or otherwise, such party shall forthwith furnish to all other parties having an interest subject to this contract evidence of the acquisition of such interest. Failure to comply herewith shall constitute a waiver by such party as to any notice required or permitted hereunder, and said party shall be deemed to have received any such notice where such notice was given to such party's predecessor in title and any action taken or any notice received by such party's predecessor in title shall be binding upon any such party.

15. All terms and provisions herein shall be subject to all valid orders, rules and regulations of the New Mexico Oil Conservation Commission and all other applicable State and Federal laws, rules and regulations.

16. If any party to this agreement is rendered unable, in whole or in part, by force majeure to carry out its obligations under this agreement, then such obligations, so far as they are affected by the force majeure, shall be suspended during, but no longer than, the continuance of the force majeure; provided, however, all reasonable efforts shall be made to remove the force majeure as quickly as possible. The term "force majeure", as employed herein, shall mean an act of God, strike, lockout, or other industrial disturbance, act of the public enemy, war, blockade, public riot, lightning, earthquake, storm, flood, explosions, governmental restraint, unavailability of equipment, failure of water supply, and any other cause, whether or not of the character above enumerated, which is not reasonably within the control of the party claiming suspension. It is understood that the settlement of strikes or lockouts shall be entirely within the discretion of the party concerned, and the requirement that all reasonable efforts shall be made to remedy the force majeure promptly, shall not require the settlement of strikes or lockouts contrary to its wishes.

17. This agreement and all terms, covenants, and conditions hereof shall extend to and be binding upon the parties hereto, their successors and assigns, respectively, and shall constitute covenants running with the lands and

UNION TEXAS PETROLEUM, [illegible]
ALLIED CHEMICAL CORPORATION, as
Operator of the Milnesand (San Andres)
Unit

By C. D. Gaines
C. D. Gaines, Vice President
Domestic Production

D. M. Norman et al, as Operator of
the C. W. Weathersby Lease and the
N. J. Luman Lease

D. M. Norman

THE STATE OF TEXAS)

COUNTY OF HARRIS)

BEFORE ME, the undersigned authority, on this day personally appeared C. D. Gaines, known to me to be the person whose name is subscribed to the foregoing instrument, as Vice President for ALLIED CHEMICAL CORPORATION, a corporation, and acknowledged to me that he executed the same for the purposes and consideration therein expressed, in the capacity stated, and as the act and deed of said corporation.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this, the 10th day of March, 1975.

Notary Public in and for Harris, County, Texas

THE STATE OF TEXAS)

COUNTY OF MIDLAND)

BEFORE ME, the undersigned authority, on this day personally appeared D. M. Norman, known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that he executed the same for the purposes and consideration therein expressed.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this, the 19 day of December, 1974.

Notary Public in and for Midland County, Texas

4140
Recd 5-21-69
Rec. 5-23-69

Grant Allied Chem permission
to convert 28 wells to
H2O Injection.
(See Docket I (Et 19) as
list of Injection wells,
& Unorthodox locations
Dry / Shaft)

All wells are to be completed
w/ plastic coated tubing w/
packer set just above
S.A. & inject thru perfs
into S.A. Annulus filled w/
inhibited fluid.

S.W. from Crossroads
Veronica & is salty?
for injection
Oper also under Rule 701.

Ss. Milnesand - S.A. reinj
H2O flood.

OIL CONSERVATION COMMISSION
P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

May 28, 1969

Mr. Clarence Hinkle
Hinkle, Bondurant & Christy
Attorneys at Law
Post Office Box 10
Roswell, New Mexico 88201

Dear Sir:

Enclosed herewith is Commission Order No. R-3770, entered in Case No. 4140, approving the Allied Chemical Milnesand Waterflood Project.

Injection is to be through the 28 authorized water injection wells, each of which shall be equipped with plastic-lined tubing set in a packer at approximately 4565 feet. The casing-tubing annulus of each injection well shall be loaded with corrosion inhibited fluid and equipped with a pressure gauge at the surface to facilitate detection of leakage in the casing, tubing, or packer.

As to allowable, our calculations indicate that when all of the authorized injection wells have been placed on active injection, the maximum allowable which this project will be eligible to receive under the provisions of Rule 701-E-3 is 4596 barrels per day when the Southeast New Mexico normal unit allowable is 42 barrels per day or less.

Please report any error in this calculated maximum allowable immediately, both to the Santa Fe office of the Commission and the appropriate district proration office.

In order that the allowable assigned to the project may be kept current, and in order that the operator may fully benefit from the allowable provisions of Rule 701, it behooves him to promptly notify both of the aforementioned Commission offices by letter of any change in the status of wells in the project area, i.e., when active injection commences, when additional injection or producing wells are drilled, when additional wells are acquired through purchase or unitization, when wells have received a response to water injection, etc.

OIL CONSERVATION COMMISSION
P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

Mr. Clarence Hinkle
Hinkle, Bondurant & Christy
Attorneys at Law
Roswell, New Mexico

May 28, 1969

Your cooperation in keeping the Commission so informed as to the status of the project and the wells therein will be appreciated.

Very truly yours,

A. L. PORTER, Jr.
Secretary-Director

ALP/DSN/ir

cc: Oil Conservation Commission
Hobbs, New Mexico

U. S. Geological Survey
Post Office Box 1838
Hobbs, New Mexico 88240

Mr. D. E. Gray
State Engineer Office
Santa Fe, New Mexico

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WASHINGTON, D.C. 20242

BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
EXHIBIT NO. 2
CASE NO. 4139-4140

JAN 7 - 1969

Union Texas Petroleum Division
of Allied Chemical Corporation
P. O. Box 2120
Houston, Texas 77001

Gentlemen:

Your application of November 1 filed with the Regional Oil and Gas Supervisor, Roswell, New Mexico, requests the designation of the Milnesand (San Andres) unit area embracing 5,354.30 acres, Roosevelt County, New Mexico, as logically subject to operation under the unitization provisions of the Mineral Leasing Act as amended. Our review of the unit area indicates the total acreage to be 5,370.18 acres. Please recheck and correct your acreage figures if appropriate. Based on such acreage figure, the unit area embraces 2,586.94 acres (48.17 percent) of Federal land and 2,783.24 acres (51.83 percent) of fee land.

Unitization is for the purpose of conducting secondary recovery operations by waterflooding and will be limited to that portion of the San Andres defined by Section 2(h) of the unit agreement. The proposed unit area has been developed by 123 wells completed in the formation to be unitized. Participation will be based on a two-phase formula as follows:

> Primary Phase - 25 percent of the production from January 1, 1966, to September 1, 1966, and 75 percent of the remaining primary oil after September 1, 1966.
>
> Secondary Phase - 75 percent ultimate primary, 5 percent porosity acre feet, and 20 percent cumulative production to September 1, 1966.

The secondary phase is to begin the first day of the month next following the date when oil production subsequent to September 1, 1966, from the interval to be unitized within the unit area equals 2,284,845 barrels. You estimate that secondary recovery operations will result in the recovery of 4,224,568 barrels of additional oil.

The land outlined on your plat marked "Exhibit A, Milnesand (San Andres) Unit, Roosevelt County, New Mexico," is acceptable as a logical unit area for secondary recovery operations. Your proposed form of unit agreement will be acceptable if further modified in accordance with the marked form returned herewith. The remaining copies of the proposed form of unit agreement are being retained for distribution to the appropriate offices of the Geological Survey.

Please include the latest status of all acreage when the executed agreement is submitted for final approval. The format of the sample exhibits attached to the Form of Agreement for Unproved Areas (1968 Reprint) should be followed closely in preparation of Exhibits A and B.

Sincerely yours,

William A. Beher

Acting Director

Enclosure

CLARENCE E. HINKLE
W. E. BONDURANT, JR.
S. B. CHRISTY IV
LEWIS C. COX, JR.
PAUL W. EATON, JR.
CONRAD E. COFFIELD
HAROLD L. HENSLEY, JR.
STUART D. SHANOR

C. D. MARTIN
PAUL J. KELLY, JR.

LAW OFFICES
HINKLE, BONDURANT & CHRISTY
600 HINKLE BUILDING
ROSWELL, NEW MEXICO 88201

MIDLAND, TEXAS OFFICE
521 MIDLAND TOWER
(915) MU 3-4691

TELEPHONE (505) 622-6510
POST OFFICE BOX 10

May 1, 1969

New Mexico Oil Conservation Commission
P. O. Box 2088
Santa Fe, New Mexico 87501

Case 4140

Attention: Mr. A. L. Porter, Jr.
Secretary - Director

Gentlemen:

In compliance with the Commission's Rule 701, we enclose herewith in triplicate Application for Approval of Secondary Recovery relating to the Milnesand (San Andres) Pool in Roosevelt County, New Mexico.

It is our understanding that the matter has been set for Examiner hearing on May 21, 1969 in Santa Fe, New Mexico.

Respectfully,

HINKLE, BONDURANT & CHRISTY

By S. B. Christy IV

SBC:pv
Encls.
cc: Allied Chemical Corporation

MAY 2 AM 8 28

BEFORE THE OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION COMMISSION OF NEW MEXICO FOR THE PURPOSE OF CONSIDERING:

The Application of Allied Chemical Corporation for Approval of a Secondary Recovery Program Covering the Milnesand (San Andres) Unit Area in Roosevelt County, New Mexico.

Case No. 4140

New Mexico Oil Conservation Commission
Santa Fe
New Mexico

COMES NOW the undersigned, Allied Chemical Corporation, and pursuant to the Commission's Rule 701 respectfully requests approval to a secondary recovery program covering the Milnesand (San Andres) unit area in Roosevelt County, New Mexico, embracing 5,370.18 acres, more or less, more particularly described as follows:

Township 8 South, Range 34 East, N.M.P.M.
Section 12: NE¼NW¼, N½NE¼, S½N½, S½
Section 13: All
Section 14: E½
Section 23: NE¼, NE¼SE¼
Section 24: N½, N½S½, SE¼SW¼, S½SE¼
Section 25: NE¼, E½SE¼

Township 8 South, Range 35 East, N.M.P.M.
Section 5: SW¼, W½SE¼
Section 6: S½S½
Section 7: All
Section 8: N½NW¼, SW¼NW¼, NW¼NE¼
Section 18: All
Section 19: All
Section 20: W½W½, E½SW¼, S½SE¼

and states:

1. Applicant is the Unit Operator of the Milnesand (San Andres) Unit and as such has the authority to make this application in

behalf of all operators owning unitized substances underlying the above lands.

2. That applicant proposes to institute a secondary recovery waterflood project on said unit area by the injection of water into the San Andres Formation underlying unitized wells through some 33 wells, as more particularly reflected in an attached plat showing the location of the proposed injection wells, and other wells within the unitized area.

3. At the hearing on this application, applicant will furnish to the Commission the following:

(a) A plat showing the location of the proposed injection wells and the location of all other wells within a radius of two miles from said proposed injection wells and the formations from which said wells are producing or have produced. The plat will also indicate the lessees, if any there be, within said two mile radius.

(b) The log of the proposed injection wells if the same is available.

(c) A diagrammatic sketch of the proposed injection wells, showing all casing strings, including diameters and setting depths, quantities used and tops of cement, perforated or open hole intervals, tubing strings, including diameters and setting depths, and type and location of packers, if any.

(d) Other pertinent information including the name and depth of the zone or formation into which injection will be made, the kind of fluid to be injected, the anticipated volumes to be injected, and the source of said injection fluid.

4. Applicant believes and upon such information and belief states that all wells within the unitized area have now reached an advanced stage of depletion and are regarded as what is commonly referred to as "stripper" wells.

5. The proposed area of the waterflood project, aforementioned, will comprise the proration units upon which injection wells are located plus all proration units which directly or diagonally offset the injection tracts and have producing wells completed on them in the same formation; provided, however, that additional proration units not directly or diagonally offsetting an injection tract may be included in the waterflood project area if it is established that such additional units have wells completed thereon which have experienced a substantial response to water injection.

6. Applicant understands and agrees that the maximum allowable assigned to the waterflood project area shall be determined by multiplying the number of proration units in the project area times the basic Area Allowable Factor times the appropriate proportional (depth) factor for the Milnesand (San Andres) pool, and that the allowable assigned to such waterflood project area in which there are proration units containing more than one well shall be increased by an amount of oil equal to 0.333 times the basic Area Allowable Factor times the proportional (depth) factor for said pool for each such additional well on the proration unit; provided, however, that the additional allowable for any such proration unit shall not exceed the basic Area Allowable Factor times the proportional (depth) factor for the pool. Applicant understands and agrees that the project area allowable may be produced from any well

or wells in the project area in any proportion, and that production from the waterflood project area will be identified as such on the monthly Commission Form C-115. Applicant also agrees to the other terms and provisions of the Commission's Rule 701 relating to secondary recovery projects.

7. Although it is presently believed that the conversion of the 33 wells, aforesaid, to be converted for the purpose of water injection into unitized formations under the terms of said Unit Agreement will be sufficient for the secondary recovery project, applicant nevertheless requests that the Commission's Order provide for administrative approval for conversion to water injection of other wells within the unit area as permitted by the Commission's Rule 701(E)(5).

WHEREFORE, applicant respectfully requests that a public hearing be held on the matter for approval of the above secondary recovery program, including the establishment of an administrative procedure whereby said project may be expanded, and for such other relief as applicant may be entitled.

DATED this first day of May, 1969.

Respectfully submitted,

ALLIED CHEMICAL CORPORATION

By _____
S. B. Christy IV, as a Member of the Firm of Hinkle, Bondurant & Christy
P. O. Box 10
Roswell, New Mexico 88201
Attorneys for Applicant

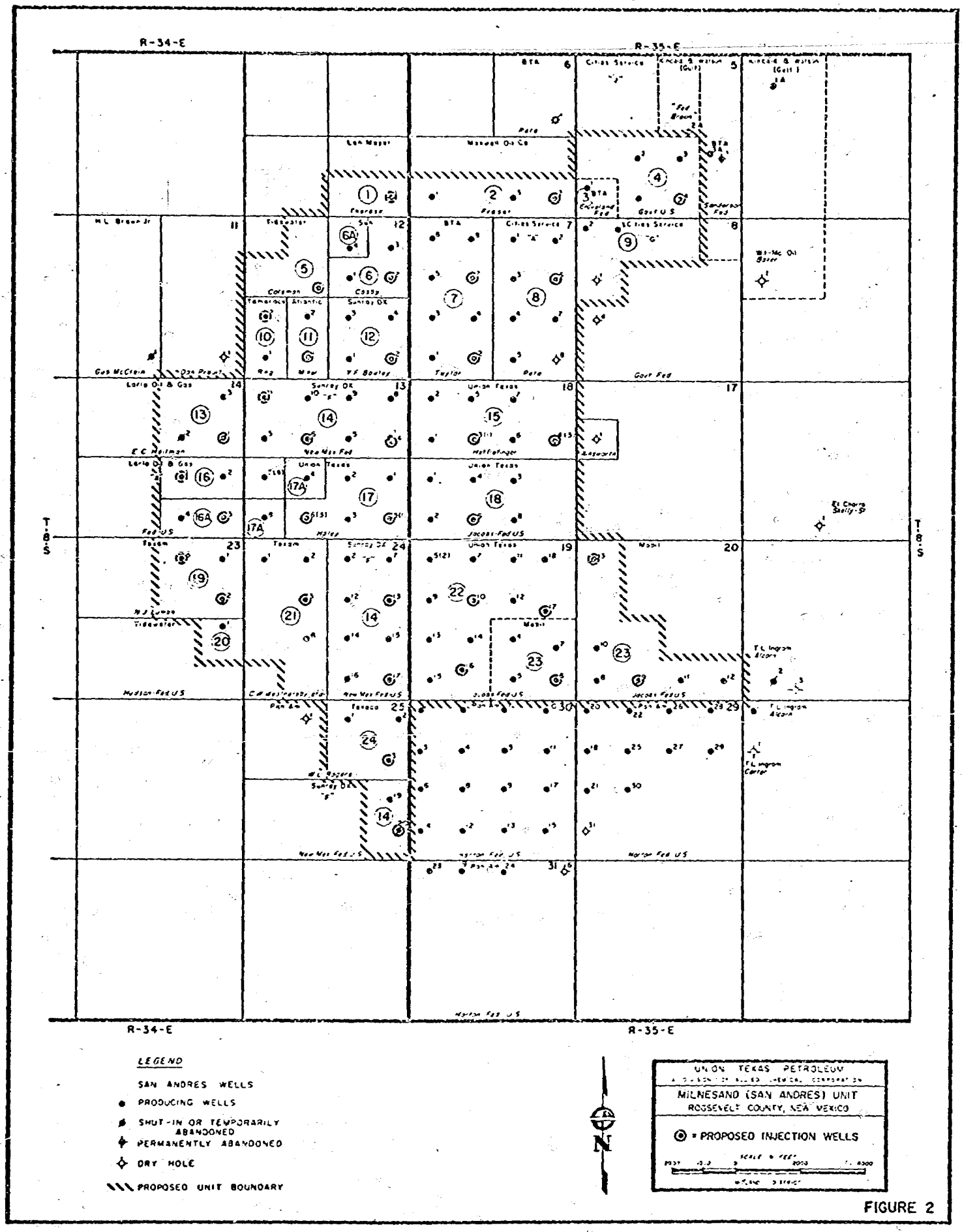


FIGURE 2

Case 4140

DRAFT

GMH/esr

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
COMMISSION OF NEW MEXICO FOR
THE PURPOSE OF CONSIDERING:

CASE No. 4140

Order No. R- 3770

APPLICATION OF ALLIED CHEMICAL CORPORATION FOR A WATERFLOOD PROJECT, ROOSEVELT COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on May 21, 1969, at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this _____ day of May, 1969, the Commission, a quorum being present, having considered the testimony, the record, and the recommendations of the Examiner, 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 the applicant, Allied Chemical Corporation, seeks permission to institute a waterflood project in the Milnesand (San Andres) Unit Area, Milnesand-San Andres Pool, by the injection of water into the San Andres formation through 28 injection wells in Section~~s~~ ~~xxxxxxxxxxxxxxxxxxxxx~~ Township 8 ~~North~~, Ranges 34 and 35 ~~West~~, East, NMPM, Roosevelt County, New Mexico.

(3) That the applicant further seeks an administrative procedure whereby said project could be expanded to include additional lands and injection wells in the area of the said project as may be necessary in order to complete an efficient injection pattern; that said administrative procedure should provide for administrative approval for conversion to water injection in exception to the well response requirements of Rule 701 E-5 of the Commission Rules and Regulations. (SEE UNDER)

waste.

(6) That the subject application should be approved and the project should be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations; provided however, that the showing of well response as required by Rule 701 E-5 shall not be necessary before obtaining administrative approval for the conversion of additional wells to water injection.

(SEE UNDER)

---

is hereby authorized to institute a waterflood project in the Milnesand (San Andres) Unit Area, Milnesand-San Andres Pool, by the injection of water into the San Andres formation through the following-described wells in Township 8 S, Range 34 E, Roosevelt County, New Mexico:

	Well		Unit	Section	Township	Range
1	Sun DX - Bawley	- 2	P	12	8	34
2	Getty - Coleman	- 1	F	12	8	34
3	Sunoco - Cooley	- 2	H	12	8	34
4	Atlantic - Miller	- 1	N	12	8	34
5	Union Texas - Haley	- 5	P	13	8	34
6	Union Texas - Haley	- 6	N	13	8	34
7	Sun DX - N.M. Federal "F"	- 4	H	13	8	34
8	Sun DX - N.M. Federal "F"	- 6	F	13	8	34
9	Lario - Federal "A"	- 3	P	14	8	34
10	Texas - Luman	- 2	H	23	8	34
11	Sun DX - N.M. Federal "F"	- 13	H	24	8	34
12	Sun DX - N.M. Federal "F"	- 17	P	24	8	34
13	Texas - Weatherby	- 3	F	24	8	34
14	Sun DX - N.M. Federal "F"	- 20	P	25	8	34
15	Texaco - Rogers	- 3	H	25	8	34
16	Citgo - Government "J"	- 1	N	5	8	35
17	Maxwell - Fraser	- 2	P	6	8	35
18	Citgo - Pate "A"	- 6	H	7	8	35
19	BTA - Taylor	- 2	N	7	8	35
20	BTA - Taylor	- 7	F	7	8	35
21	Union Texas Jacobs Federal	- 6	N	18	8	35
22	Union Texas - Hefflefinger	- 3	F	18	8	35
23	Union Texas - Hefflefinger	- 4	(Number)	18	8	35

ROUGH DRAFT FOR WATERFLOOD LETTERS

Mr. Clarence Hinkle
Hinkle, Bondurant & Christy
Attorneys at Law
Post Office Box 10
Roswell, New Mexico 88201

Dear Sir:

Enclosed herewith is Commission Order No. R-3770, entered in Case No. 4140, approving the Allied Chemical Milnesand Waterflood Project.

Injection is to be through the 28 authorized water injection wells, each of which shall be equipped with plastic-lined tubing set in a packer at approximately 4565 feet. The casing-tubing annulus of each injection well shall be loaded with corrosion inhibited fluid and equipped with a pressure gauge at the surface to facilitate detection of leakage in the casing, tubing, or packer.

As to allowable, our calculations indicate that when all of the authorized injection wells have been placed on active injection, the maximum allowable which this project will be eligible to receive under the provisions of Rule 701-E-3 is 4596 barrels per day when the Southeast New Mexico normal unit allowable is 42 barrels per day or less.

Please report any error in this calculated maximum allowable immediately, both to the Santa Fe office of the Commission and the appropriate district proration office.

In order that the allowable assigned to the project may be kept current, and in order that the operator may fully benefit from the allowable provisions of Rule 701, it behooves him to promptly notify both of the aforementioned Commission offices by letter of any change in the status of wells in the project area, i.e., when active injection commences, when additional injection or producing wells are drilled, when additional wells are acquired through purchase or unitization, when wells have received a response to water injection, etc.

Your cooperation in keeping the Commission so informed as to the status of the project and the wells therein will be appreciated.

Very truly yours,

A. L. PORTER, Jr.
Secretary-Director

cc: OCC: Hobbs X
Artesia
Aztec
USGS Hobbs
~~Mr. Frank Irby,~~ State Engineer Office, Santa Fe, New Mexico
Mr. D. E. Gray,